
# Book of Abstracts

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Abstracts are listed in programme number order and in the following order of presentations:



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|---|---|
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## Prize presentation from AAAPC 2020 (Australia)

# Optimising primary care for refugees. Findings from an Australian cluster randomised trial

Presenter: Grant Russell

Co-authors: Grant Russell, Virginia Lewis, Katrina M Long, Joanne Enticott, Nilakshi Gunatillaka, I-Hao Cheng, Geraldine Marsh, Shiva Vasi, Jenny Advocat, Shoko Saito, Sue Casey, Mark Harris

Institutions: Monash University, Melbourne, Australia

**Abstract**

The problem

The global community is experiencing unprecedented levels of human displacement - with 26.4 million refugee or asylum seekers in 2018. Australia has resettled over 180,000 refugees in the last decade. The health and wellbeing of people of refugee background is linked with their ability to access high quality, coordinated primary care. National guidelines recommend a health assessment be offered to all new arrivals from refugee-like backgrounds soon after arriving in Australia. We asked whether an outreach facilitation intervention could increase the conduct of comprehensive health assessments for General Practice (GP) patients from refugee backgrounds (primary outcome). While secondary outcomes assessed refugee status identification, interpreter use and knowledge of refugee specific referral pathways, this paper focusses on the primary outcome.

Approach

The approach OPTIMISE was a mixed methods, practice facilitation intervention co-designed with regional consortia to improve access, integration and quality of primary care received by resettled refugees across 3 urban regions of high refugee resettlement in Australia. We used a pragmatic, cluster randomised controlled trial design with practices allocated using a stepped wedge approach (2 steps) to early or late intervention groups. Intervention facilitators were employed by regional health services, who made three face-to-face visits and three telephone calls over 6 months to intervention practices. They used structured action plans to help practice staff improve routines of refugee care. Routine practice data was extracted (using the PENCS CAT4™ tool) to identify patient records where demographic fields and free text indicated refugee status and whether individuals had received refugee health assessments (RHAs) in the previous 6 months. Data were complemented by information on practice use of the national interpreter service and three surveys assessing practice structure, practitioner characteristics, and practice approaches to refugee care. Analysis of the primary outcome used multilevel mixed effects models to account for clustering, intervention status, timepoint, practice size, early or late group and region.

Findings

31/36 practices completed the intervention. Analysis focussed on the 14,633 patients from refugee backgrounds who had first visited the practice within the previous 12 months. The mixed effects model found the proportion of these patients with a RHA in the previous 6 months increased from 19% [95%CI 19%-20%] to 27% [95%CI 27-28%] (OR 1.81 [95%CI 1.37-2.39] following the intervention. Refugee health assessment rates were also higher in practices that were larger (≥5 full-time-equivalent GPs), had received refugee health training in the last 12 months, and had a higher baseline use of RHAs.

Implications

Our pragmatic intervention is the first to show that a structured, low intensity outreach facilitation program can improve key

components of primary care for refugees. That facilitators were existing staff in health care services has clear implications for future efforts to improve the quality of primary care delivered to this vulnerable population.

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## Prize presentation from NAPCRG 2020 (USA)

## Incidence and predictors for hip fracture in people with intellectual disability

Presenter: Tim Holt

Co-authors: Tim Holt, Valeria Frighi, Gary Collins, Margaret Smith, Jan Blair, Timothy Andrews

Institutions: University of Oxford

**Abstract**

Context

In current guidelines, patients with intellectual disabilities (ID), including Down's Syndrome (DS) are not recognised as at high risk of osteoporosis, despite some evidence of increased fracture rates and decreased bone mineral density.

Objective

To investigate the incidence and predictors of hip fractures in patients with ID.

Study design

Retrospective analysis including a cohort study.

Dataset: The Clinical Practice Research Datalink (CPRD), a large UK primary care database, with linkage to Hospital Episode Statistics (HES).

Population studied: 39,037 people aged 30-79 with intellectual disability (ID), of whom 3,915 with DS, and age and sex matched controls.

Outcome measures: Incidence of major osteoporotic and hip fracture; hazard ratios for potential risk factors for hip fracture.

Results: 39,073 patients were identified, of whom 3,915 with DS. Median (10th-90th centile) age at entry was 39.2 (30-61.8) years. 56.7% were men, 20.6% had epilepsy (vs 1.2% in the controls). In patients with ID and controls respectively, incidence rate (95% CI) of major osteoporotic fracture (vertebra, wrist, shoulder, hip) was 45.7 (43.0-48.5) vs 24.2 (22.3-26.3) /10,000 person-years and of hip fracture 15.6 (14.0-17.3) vs 4.6 (3.8-5.5)/10,000 person-years. Hip fracture represented 35.8% of all major osteoporotic fractures in the ID vs 22.4% in the control group. Independent predictors of hip fracture (HR [95% CI]) within the ID group included age (2.31 [2.06 -2.60] in females, 2.08 [1.86-2.33] in males for each ten-years increase); previous osteoporotic fracture (1.89 [1.37-2.61]); previous other fracture (1.44 [1.08-1.91]); history of falls (1.75 [1.26-2.43]); epilepsy (1.89 [1.49-2.40]); diabetes (1.55 [1.08-2.23]); Down's syndrome (1.93 [1.30-2.87]). Higher BMI predicted a lower risk (0.79 [0.70-0.89] for each 5 points increase).

Conclusion

Patients with intellectual disabilities are at high risk for major osteoporotic fractures, particularly hip fractures. This finding, from the largest cohort of ID and DS patients ever studied, requires that current guidelines be revised, and measures introduced to address bone health and reduce fracture risk in this population.

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## 1A.1 Establishing primary care network placements in a new medical school.

Presenter: Catherine Neden

Co-authors: Dr Adetutu Popoola, Dr Jonty West

Institutions: Kent and Medway Medical School

**Abstract**

Problem

Kent and Medway Medical School is one of five new medical schools established to support the expansion of the workforce. The programme features early clinical placements in the community, starting in year one and .structured as immersion weeks in Primary Care Networks. The KMMS school opened in September 2020 in the midst of the COVID-19 pandemic with all of its attendant challenges.We report on the challenges of establishing primary care placements for a new medical school in the newly established primary care networks (PCN). These offer a unique opportunity for medical students to learn about the provision of proactive personalised and co-ordinated multidisciplinary care at an early and formative stage in their careers.

Approach

Initial challenges included agreeing selection criteria for the PCNs before attending to the legal complexities of negotiating a service level agreement with the networks, addressing the needs of all stakeholders. With the advent of the COVID 19 pandemic, faculty development was conducted remotely. Challenges of the immersion weeks included compromises associated with lockdown restrictions, limited movement across organisations, social distancing and “shielding” students.

Findings

We will present a logic model evaluation of this first year of placements. This summarises the resources required, activities (aspects of implementation) as well as the outcomes. These are considered from the perspective of the school, the GP faculty and students.

Consequences

With a move to place based learning across networks, learning about contracting and quality assurance models may be transferable to other settings.COVID-19 constraints compounded the challenges but offered a unique opportunity to observe multidisciplinary, cross organisation work at first hand in the delivery of the COVD vaccination programme. This balanced the change to a blended learning format

**Funding acknowledgement**

This is an unfunded service evaluation

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## 1A.2 Progress with ScotGEM, the first rural generalist focused UG programme in the UK

Presenter: Jon Dowell

Co-authors: On behalf of the ScotGEM partnership

Institutions: University of Dundee

**Abstract**

Problem

There is a workforce crisis in general practice which is particularly acute in remote and rural areas. In response the Scottish Government commissions ScotGEM in 2016. This is the first mission based rural generalist MBChB programme in the UK and will produce its first 55 graduates in 2022. Creating such a programme, at speed and in the context of COVID-19 has provided a challenge, but fortunately the considerable experience

available from Canada and Australia have offered us some tried and tested approaches.

Approach

In 2018 we admitted our first entrants to this novel programme which involves a number of innovations. These include a bespoke selection approach, a backbone of GP educators and an immersive GP based longitudinal integrated clerkship (LIC) in the third year. Overall, across all 4 years more than 50% of clinical teaching will be provided by GPs. Securing additional clinical teaching capacity is, of course, a recognised challenge and one that has been exacerbated by COVID-19. A reflective synopsis will be provided focusing on entrant characteristics, the formation of a programme based educational community of practice and the introduction of the first full scale GP LIC in the UK.

Findings

ScotGEM applicants are atypical, with over 70% reporting an intention of a GP career. Despite challenges, the programme has secured the necessary teaching capacity without directly displacing existing teaching. This has been largely provided by GPs acting in a new role as Generalist Clinical Mentors, which will be briefly described. A very broad distribution of placements has been sourced, in particular for the 3rd year LICs, drawing extensively on a collaborative partnership with our (so-called) 'non-teaching' board partners.

Consequences

ScotGEM has introduced a number of innovations and some disruptive approaches which may or may not prove themselves over time but have successfully established a novel programme which students and staff are relishing, not least due to high levels continuity. Some of the resulting challenges and opportunities will be considered as will the implications for the workforce and increasing GP led education.

**Funding acknowledgement**

The ScotGEM MBChB programme is funded by the Scottish Government.

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## 1A.3 Supervisory clinics in undergraduate GP placements: embodied learning through active participation

Presenter: Sophie Park

Co-authors: Ashika Dhondee, Katie Munro, Hugh Alberti, David Tan

Institutions: UCL, Newcastle University

**Abstract**

Problem

Supervisory clinics or 'parallel surgeries' are a widely-used teaching tool in primary care medical education for both undergraduate and speciality training. In undergraduate placements students independently consult then debrief with the GP; usually before the patient leaves. Though this teaching format is a mainstay of clinical supervision in the UK there is no literature that studies its use in medical education. The aim of this study is to explore what aspects of the clinical debrief interaction cause students to embody the structural characteristics of GP communities of practice, and to explore how GP facilitation shapes these interactions.

Approach

We used a mixed methods qualitative approach, drawing upon Lave and Wenger's situated learning theory, and making learning visible using the theory of body pedagogics and embodiment. Sampling was purposive, and interviews of 5 students, 4 GPs and 14 patients were recorded and transcribed. Videos of their debrief interactions across multiple clinical consultations in four different GP surgeries were obtained. NHS ethics approval was granted. We considered Lave's

proposal that the unit of analysis must be a textured landscape of participation. Our units of analysis therefore were the subjective experiences of the participants and our qualitative interpretation of the embodied knowledge shown by the video subjects. The analysis process was iterative with video and interview data analysis running in parallel. Interviews were categorised and interpreted using framework analysis. We used preliminary themes from the interviews to guide a 'whole to part' inductive approach to video analysis. This involved multiple viewings by multiple researchers and agreement on major events and themes. Interview and video findings were synthesised to generate final themes.

Findings

Active participation emerged as the key agent for learning, and when students acted in the role of the doctor during the encounter they showed embodied knowledge of the role of a GP in their community of practice. Within these clinics the four features that had the greatest impact on active participation by the learner were: session structure and timing, legitimacy and building trust, facilitation during the consultation and safety and challenge.

Consequences

This study begins to explore the relationship between legitimate peripheral participation and embodiment of knowledge, and the video footage helped us to explore the practical aspects of situated learning. A deeper understanding of the complex interactions that take place during workplace supervisory encounters can inform GP teachers' decision-making, improve preparation and delivery of workplace-based teaching, and maximise opportunities for patient-based learning in this setting. Many of the informal edges of the interaction that were valuable in face to face teaching can also be important to contextualise the supervisory relationship and structure of teaching when dealing with telephone consultations.

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## 1A.4 Virtual Primary Care learning: Sticking plaster or permanent suture for remote learning following COVID-19?

Presenter: Jonathan Mills

Co-authors: Mohammed Ahmed, Christine Johnson, Richard Knox, Bakula Patel, Runa Saha, Jaspal Taggar

Institutions: Lincolnshire Training Hub, University of Nottingham Primary Care Education Unit

**Abstract**

Problem

COVID-19 proved significantly disruptive to undergraduate training for students in primary care. With GPs having to isolate, GP surgeries restricting access and reduced physical 'face-to-face' consultations, opportunities to learn were reduced. This coupled with students also requiring periods of absence to self-isolate created untold pressures on how undergraduate primary care training opportunities could be delivered safely.

Approach

Prior to Covid-19, Virtual Primary Care (VPC) consultations had limited use as an educational resource, but were employed as a rapid solution to continue delivering education in primary care. Students watched playlists of previously recorded real-life consultations that showcased the diversity of general practice and communication skills from minor illness, long-term conditions and multi-morbid complexity. Students watched the videos as part of self-directed learning, followed by a 90 minute debriefing session to discuss the content and issues arising.

Students in their final and penultimate years on a Primary Care rotation were asked to provide feedback on a survey using a Likert scale (1= strongly disagree, 5= strongly agree) and free-text responses to provide both qualitative and quantitative feedback.

Findings

Quantitative feedback from students was ascertained (mean averages in brackets) that VPC alone was useful to their learning (3.8), debriefing after watching VPC was useful (4.2), debriefing sessions were well timed (4.4), students felt involved in discussions during debriefing (5), they felt they were relevant to their stage of training (4.6), helped them learn during the clinical placement (4.6) and were satisfied with teaching using VPC (4.6). Qualitative feedback included “going through some of the larger [primary care] topics [was] really helpful- I had some interesting discussions", "Using patient videos helps to put discussion topics into context.”

Consequences

The requirement to rapidly implement remote learning in primary care was a challenge. Whilst students felt watching real recorded consultations was useful even remotely, feedback suggested that interaction was valued more strongly and the opportunity to discuss the content with an educator rather than just watching the recordings in isolation. Students found VPC relevant and beneficial to their learning when unable to attend GP placements in person. Preliminary feedback would suggest that using VPC coupled with debriefing is a possible viable alternative educational activity when conventional placement experiences cannot be delivered and could be employed post COVID-19. Further work would need to examine if VPC has an impact on summative assessment and if it could be employed to other stages of undergraduate training.

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## 1A.5 Clinical reasoning teaching and learning in the undergraduate primary care medical education

Presenter: Nur Faraheen Binti Abdul Rahman

Co-authors: Nathan Davies, Julia Suhaimi, Faridah Idris, Sharifah Najwa Syed Mohammed, Sophie Park

Institutions: University College London & Universiti Sains Islam Malaysia, University College London, Universiti Malaya, Universiti Putra Malaysia, Universiti Sains Islam Malaysia, University College London

**Abstract**

Problem

Clinical reasoning (CR) in medical education is taught and learned in various settings, including primary care. CR is known to be context and case-specifics. Still, little studies have described teaching and learning CR in the primary care setting. Using the lens of transformative learning (TL) theory, this systematic review aimed at answering the question, “what educational activities were described in the international literature on clinical reasoning in undergraduate primary care medical education?” It also sought to explore the underlying theoretical underpinnings of CR educational activities during clinical clerkship, stakeholders’ involvement in the process and challenges surrounded CR educational activities, including strategies to overcome these challenges.

Approach

With the assistance of an information specialist and correspondence with two experts in the field of CR, we searched five databases and other sources using a combination of keywords - "clinical reasoning" and its related terminologies, "primary health care", and "undergraduate medical education". We screened articles based on empirical studies published in the English

language between January 2010 to August 2020. We used single-blinded review management software Rayyan to make independent decisions about study selections. We conducted meta-synthesis (Thomas & Harden, 2008) to all the included articles and assessed each study's quality using a Critical Appraisals Skills Program (CASP) UK checklists.

Findings

From 4515 records of records identified, we included 29 for final synthesis. We organised the themes based on the review questions. Themes for educational activities involved the sequence of a) task first or b) patient contact. Theoretical underpinnings were related to a) systems of care and b) learning theories. Barriers to CR learning were in the forms of a) context, b) consignment and c) community. The roles of clinician teachers and patients were critical. Clinician teachers' roles were a) fortifier, b) mediator, c) connoisseur and d) monitor. Patients roles emerged through a matrix of a) self- society and b) Passive - active. Outcomes were organised around ten steps of TL. This analysis segment highlighted that reflective assignment, teaching point, mid-point review, and CR teaching tool/method were useful in transforming teaching and learning. However, sub-optimal task fidelity, inadequate supervision, contradictory feedback, insufficient role-modelling and temporality of effects were all setbacks to transformational learning of CR in this context.

Consequences

This review has made apparent essential knowledge about clinical reasoning in undergraduate primary care medical education in the form of meanings made about CR nature and its practice within the reviewed studies. However, there are still too few studies to comprehend this topic thoroughly. This review may serve as an impetus to practitioners and educators for further research in this area.

**Funding acknowledgement**

Ministry of Education, Malaysia & Universiti Sains Islam Malaysia

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## 1A.6 How is technology used to support patient and public involvement in undergraduate medical education? A rapid systematic review

Presenter: Eitan Lovat

Co-authors: Sadie Lawes-Wickwar, Adedoyin Alao, Julia Hamer-Hunt, Nesrin Yurtoglu, Cherise Jensen, Nicola Clarke, Eitan Lovat, Nia Roberts, Sophie Park

Institutions: University College London, Newcastle University, Oxford University

**Abstract**

Problem

Patient and public involvement (PPI) in medical education centralises the patient's voice and enables students to develop their professional and person centred skills. Levels of involvement in healthcare education has varied widely. In the past, patients have had relatively passive roles in medical education, but examples of good practice have increased over recent years. Barriers to involvement have arisen from the Covid-19 pandemic. Remote involvement offers a solution and mirrors an increasing shift towards remote clinical practice. As far as we are aware, there is no published systematic review of technology-supported PPI in undergraduate medical education that describes the variety of technology used to support PPI activities, or that has identified or addressed specific barriers to technology-enhanced involvement among public contributors.

Approach

A rapid systematic review was conducted review to identify evidence for the use of technology to support PPI in undergraduate medical teaching. Ovid MEDLINE, EMBASE, and medRxiv were searched in October 2020 and reference lists of key articles hand searched. Eligible studies reported any type or level of involvement in undergraduate medical education from patients, carers or the public. Any study design, type of remote technology, and educational setting were eligible. Double screening will be performed for 10% of articles. The Mixed Methods Appraisal Tool (MMAT) will be used to assess the quality of included studies.

Findings

Searches identified 676 articles. After screening titles and abstracts, 214 articles were moved to full text screening. Screening and data extraction is currently underway.

Consequences

Identifying and reviewing the current evidence will enable us to begin to understand the uses of technology in the contexts of medical training and healthcare practice more broadly. This review will also support medical educators and researchers to understand the potential barriers for PPI representatives in contributing to medical education during this time and as the NHS increases the use of remote healthcare delivery.

**Funding acknowledgement**

This project was funded by a National Institute for Health Research (NIHR) School for Primary Care Research (SPCR) Seedcorn Grant.

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## 1A.7 E-tivities: A way of increasing clinical exposure to undergraduate students in primary care.

Presenter: Bakula Patel

Co-authors: Dr Daniel Crawfoot

Institutions: Division of Primary Care, University of Nottingham

**Abstract**

Problem The Covid-19 pandemic challenged the delivery of primary care placements of senior medical students despite them being given key worker status by the Medical Schools Council. Exposure to clinical encounters was drastically changed with increased remote consulting, unforeseen changes in workforce and workspace and increased student Covid-19 related absences. This affected the delivery of placements and time in a clinical setting.

Approach

As with all medical schools, there was rapid need to modify delivery of medical education both in placement and to support reduced clinical time with increased alternative clinical activities. At the University of Nottingham, one such intervention to address this was the introduction of asynchronous online peer and remote tutor facilitated cases called E-tivities. E-tivities is a concept developed by Professor Gilly Salmon (2002) where the tutor provides a small piece of information, stimulus or challenge – called a “spark”. Students then respond to this spark and facilitate the response of others. A tutor is then used as an e-moderator. In Nottingham, we created 20 case studies relating to GP clinical administrative activities for students to undertake during the primary care placement with 5 cases each on a series of themes – abnormal blood test, prescribing queries, other abnormal test results (throat swab, chest x-ray) and queries from others (patient, other professionals). The cases had a brief

patient story, the themed information (i.e. abnormal test result) and a stem with one to three questions for the student to respond to. The aim of the activity was to increase clinical exposure, consolidate knowledge and apply clinical reasoning skills to the case. The cases were released weekly or fortnightly in the primary care attachment for students to work in their designated small groups with e-moderation being undertaken by an educational GP tutor.

Findings

This is a new pilot educational tool for students and tutors to become familiar with but preliminary feedback on its use has been positive by students (scoring 4.1/5 on a Likert satisfaction scale) and tutors alike. There is on ongoing process of collecting feedback data as the academic year progresses.

Consequences

The concept of E-tivities is a useful adjunct to time in clinical placement and offers additional peer supported and asynchronous tutor supported clinical activity. Our early pilot findings show it has been valued by students and tutors alike. It would certainly warrant further development and more formal evaluation.

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## 1B.1 Mental Health Prevention and Promotion for those who have had Covid-19.

Presenter: Charlotte Harding and Ameera Iqbal

Co-authors: Ameera Iqbal, Miranda Budd

Institutions: Lancashire and South Cumbria NHS Foundation Trust

**Abstract**

Problem Mental health prevention and promotion work matters. It is becoming clearer that the Covid-19 pandemic is going to have a significant psychological impact upon many. Numerous countries have reported an increase in rates of mental health problems during the pandemic (Wang et al, 2020; Xiong et al, 2020). It is predicted that almost 20% of the population will require new or additional mental health support as a direct consequence of the virus and the factors associated with it (Centre for Mental Health, 2020). This service aimed to promote emotional wellbeing and prevent deterioration of mental health difficulties in individuals who have had covid-19 registered across two GPs in the North of England.

Approach

A mixed methodology approach was employed. 573 individuals registered across two GP practices were initially screened following an exclusion criteria and then 409 were contacted. Clinicians conducted a 15 minute screening call to assess emotional wellbeing after having covid-19 and offer psychological support if appropriate. 9.1% of individuals took up the offer, but only 3.2% went ahead with the sessions. Psychometrics were used within the first and last session but also at a 6-week follow up to measure wellbeing, resiliency, low mood and anxiety. Experience of service questionnaires were also taken during the last session. Clinicians offered up to four sessions with a range of intervention including CBT, solution focused therapy and mindfulness in the modality of face to face, video or telephone dependant on client preference.

Findings

Scores for wellbeing and resiliency increased at a statistically significant level. Scores for anxiety and low mood decreased at a statistically significant level. At follow-up anxiety and low mood scores decreased, resiliency and wellbeing scores increased. Qualitative feedback was positive from clients. This service supports previous research finding mental health prevention and promotion interventions are effective in

reducing rates of severity of different mental health problems. Furthermore, it contributes to the evolving research base on the effect of covid-19 on individual's mental health. However, the uptake for the service was low this may be due to individual's not perceiving any problems and offering support too early.

Consequences

The service continues to offer this proactive covid-19 wellbeing service through the two GP practices but due to the low uptake screening calls are being conducted 8-12 weeks post diagnosis. The service has also now expanded to include individuals with no positive covid result as many have still been effected by the pandemic. These findings show that mental health prevention and promotion works at decreasing deterioration of mental health and a service such as this works within a general practice. A 'Covid-19' Wellbeing service should be a consideration within other GP practices across England due to the increase in mental health difficulties following the pandemic.

**Funding acknowledgement**

This service evaluation has been funded by Health Education England.

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## 1B.2 What is the impact of COVID-19 on cancer symptom experience and help-seeking behaviour in the United Kingdom? A cross-sectional population survey

Presenter: Harriet Quinn-Scoggins and Rebecca Cannings-John

Co-authors: Harriet Quinn-Scoggins, Rebecca Cannings-John, Yvonne Moriarty, Victoria Whitelock, Katriina L Whitaker, Detelina Grozeva, Jacqueline Hughes, Julia Townson, Kirstie Osborne, Mark Goddard, Grace McCutchan, Jo Waller, Michael Robling, Julie Hepburn, Graham

Institutions: Cardiff University, Cancer Research UK, University of Surrey, Kings College London, Health and Care Research Wales, Public Health Wales

**Abstract**

Problem

Cancer is the leading cause of mortality in the UK, with most diagnosed symptomatically through primary care. During the first UK lockdown from March 2020, the UK government message to "stay home, protect the NHS, save lives" was intended to control the spread of COVID-19, but also sent a strong signal to the public that cancer can wait. The impact of COVID-19 on timely symptomatic diagnosis of cancer is likely to be considerable. We examined symptom help-seeking behaviour in the UK population during the pandemic.

Approach

Two cross-sectional online surveys were conducted in parallel, the COVID-19 Health and Help-Seeking Behaviour Study and the Cancer Research UK (CRUK) COVID-19 Cancer Awareness Measure (COVID-CAM). COVID-CAM was based on CRUK's Cancer Awareness Measure 2019. Key measures were aligned across the two surveys and data pooled where appropriate. A population-based sample of 7,543 UK adults aged 18+ was recruited online between August and September 2020. Measures included experiences and perceptions of 15 potential cancer symptoms, help-seeking barriers and behaviour. Multivariable logistic regression was used to model correlates of help-seeking behaviour in participants who experienced at least one potential cancer symptom during the previous six months. Qualitative interviews were conducted with a purposive sample of 30 survey participants and analysed thematically.

Findings

Frequently endorsed help-seeking barriers included worries about wasting the doctor's

time (15·4%), putting strain on healthcare services (12·6%) and not wanting to be seen making a fuss (12·0%). Of 3,025 (40·1%) participants who experienced a potential cancer symptom, 44·8% (1,355/3,025) had not contacted their General Practitioner (GP). Odds of seeking help were higher among participants with disability (95% CI 1·11-1·71, aOR=1·38) and who experienced more potential cancer symptoms (95% CI 1·56-1·82, aOR=1·68) and lower among those who perceived COVID-19 as the cause of symptom(s) experienced (95% CI 0·25-0·52, aOR=0·36). Qualitative data revealed a reluctance to contact the GP due to concerns about catching or transmitting COVID-19. Participants were fearful of seeking help in hospitals and described putting their health concerns on hold to avoid burdening healthcare services. However, those who did attend face-to-face in primary and/or secondary care described feeling 'safe' and 'secure' when attending. When experienced, remote GP consultations were well received, and participants suggested that they were happy for remote consultations to remain providing face-to-face was still available based on clinical need.

Consequences

Many people stayed away from healthcare services during the first six months of the UK pandemic, despite experiencing potential cancer symptoms. Evidence from this study highlights the need for continued investment in evidence-led, nationally funded and coordinated cancer awareness campaigns to legitimise seeking help for unusual or persistent symptoms. As the COVID-19 pandemic continues, research must continue to monitor the influences on help-seeking for potential cancer symptoms.

**Funding acknowledgement** The Economic and Social Research Council funded this study as part of UK Research and Innovation's Rapid Response to COVID-19 (ES/V00591X/1).

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## 1B.3 RECAP (remote COVID-19 Assessment in Primary Care): A risk score to predict hospital admission.

Presenter: Brendan Delaney

Co-authors: Brendan Delaney, Trish Greenhalgh, Simon de Lusignan, Erik Mayer, Francesca Fiorentino, Ana Luisa Neves, Ana Espinosa-Gonzales, Denys Prociuk, Ella Mi, Emma Mi.

Institutions: Imperial College London Institute of Global Health Innovation, University of Oxford Nuffield Dept of Primary Care

**Abstract**

Problem During the COVID-19 pandemic approximately 10% of patients will become sufficiently ill to require hospital admission. Early in the first wave it became clear that existing 'early warning scores' such as NEWS2 were unsuitable, being neither sensitive nor specific. Oxygen saturation alone is no more predictive than NEWS2, and that other clinical features need to be taken into account. QCOVID gives a prediction of patient risk based on existing conditions, age, BMI ethnicity etc, but does not contain any data about presenting symptoms and signs. We aimed to develop and validate a model for risk of hospital admission, based on acute features, to guide triage and management of patients with acute COVID-19 in the community.

Approach

A Delphi panel of 50 clinicians was used to suggest a minimum set of clinical data items, including potential severity levels as outcome sets for stem questions. Templates were prepared for use in SystmOne and EMIS using appropriate and available SNOMED clinical terms. Practices recruited to the study were required to complete the template on contact with a patient aged 18 and over with a clinical diagnosis of COVID-19. Verbal consent supported by a web-based information sheet

was recorded by using the SNOMED term for 'consent for research study obtained' and the study Central Portfolio Management System (CPMS) number. We used two existing networks (North West London Whole Systems Integrated Care and The Royal College of General Practitioner's Research and Surveillance Centre at Oxford University) where data from records with the consent code and CPMS number were extracted from EHR systems and linked with relevant outcome data, hospital admissions (the primary outcome), ICU admission and death (the secondary outcomes), all within 28 days. A sample size of 1317 was required to derive a model of 24 predictors for an admission rate of 10%. An additional 1400 subjects were required to validate the model with a desired performance of 85% specificity and a precision of 0.05. Allowing for 6 loss to follow up the sample size was 2880. The study was supported by NIHR CRN as an Urgent Public Health Study for the pandemic.

Findings

Data collection commenced in October 2020. The study closed to recruitment on Feb 18th 2021, in NW London 1976 subjects were recruited by 87 practices and in the RSC, 1180 subjects from 61 practices, (total 3,156). Data are currently being extracted and linked for analysis. A model will be developed and validated against the remaining 1440 subjects. Suitable cut-points on risk will be defined to enable patients to be divided into green, amber, red groups for monitoring or admission.

Consequences

The next step is to deploy the model algorithm as an automatic calculation when the RECAP template is completed. As COVID-19 is an ongoing health problem the RECAP score should prove invaluable in supporting safe clinical management of COVID-19 in the community.

**Funding acknowledgement**

The study was supported by funding independently obtained by the two CI's Greenhalgh and Delaney but conducted jointly by Oxford and Imperial with Imperial as Sponsor. Funders: Community Jameel Imperial College COVID-19 Excellence Fund (Delaney) Economic

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## 1B.4 Impact of COVID-19 on Migrants' Access to Primary Care and Implications for COVID-19 Vaccine Roll-out: A National Qualitative Study

Presenter: Felicity Knights

Co-authors: Jessica Carter, Anna Deal, Alison Crawshaw, Sally Hayward, Lucinda Jones, Sally Hargreaves

Institutions: The Migrant Health Research Group, 1Institute for Infection and Immunity, St George's, University of London, London, UK, Faculty of Public Health and Policy, London School of Hygiene & Tropical Medicine, London, UK

**Abstract**

Problem The COVID-19 pandemic has led to considerable changes in the delivery of primary care in the UK, including rapid digitalisation, yet the extent to which these have impacted on marginalised migrant groups – already facing existing barriers to NHS care – is unknown. Understanding the perspectives and experiences of health professionals and migrants will support initiatives to deliver more effective health services, including delivery of the COVID-19 vaccine, to marginalised groups. Aim: To understand the impact of the COVID-19 pandemic on migrants and their access to primary healthcare, and implications for COVID-19 vaccine roll out.

Approach

Primary care professionals, administrative staff, and migrants (foreign born; >18 years; <10 years in UK), were recruited in three phases using purposive, convenience and snowball sampling from urban, suburban and rural settings. In-depth semi-structured interviews were conducted by telephone. Data were analysed iteratively, informed by thematic analysis.

Findings

64 clinicians were recruited in Phase 1 (25 GPs, 15 nurses, 7 HCAs, 1 Pharmacists); Phase 2 comprised administrative staff (11 PMs and 5 receptionists); and in Phase 3 we recruited 17 migrants (88% asylum seekers; 65% female; mean time in UK 4 years). We found that digitalisation and virtual consultations (telephone, video, and online form-based) have amplified existing inequalities in access to healthcare for many migrants due to lack of digital literacy and access to technology, compounded by language barriers. Use of virtual consultations has resulted in concerns around building trust and the risk of missing safeguarding cues. Participants highlighted challenges around registering and accessing healthcare due to the physical closure of surgeries. Participants reported indirect discrimination, language and communication barriers, and lack of access to targeted and tailored COVID-19 information or interventions. In addition, migrants reported a range of specific beliefs around COVID-19 and on potential COVID-19 vaccines, from acceptance to mistrust, often influenced by misinformation. PCPs raised concerns that migrants may have increased risk factors for poor general health and to severe illness from COVID-19, in part due to their social and economic situation. Innovative opportunities were suggested to engage migrant groups through translated health advice using text templates and YouTube which merit further exploration.

Consequences

Pandemic-related changes in primary care delivery may be here to stay, and some migrant groups are at risk of digital exclusion and may need targeted additional support to access services. Migrants may be at increased risk of misinformation about COVID-19. Improved outreach to local migrant community organisations and places of worship, alongside co-designing with migrants more inclusive delivery approaches and creative integration of migrant ambassadors into information-sharing campaigns are needed. Primary care can maximise the opportunities of digitalisation for migrants through flexible engagement by multiple modalities to provide targeted, translated advice, virtual group consultations for patients with a specific condition, and working with local leaders and NGOs to access and disseminate information through informal communication channels.

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## 1B.5 Are there differences between the rates of new diagnoses reported pre and during the COVID-19 pandemic?

Presenter: Jennifer Cole

Co-authors: Shivan Thakrar, Helen M Parretti, Nick Steel

Institutions: University of East Anglia

**Abstract**

Problem

Office for National Statistics reports have shown that the COVID-19 pandemic has caused an increase in non-COVID-19 causes of death. One mechanism may be changes in the provision of healthcare. The English Longitudinal Study on Aging (ELSA) is a large scale study collecting data from adults over the age of 50 years. Recently two additional waves of ELSA data were collected in view of

the COVID-19 pandemic. Here, ELSA data have been used to investigate differences between the rates of new diagnoses reported pre and during the COVID-19 pandemic, and if there were differences in rates of diagnosis between different health conditions.

Approach

Data in the ELSA wave pre-COVID-19 (wave 9 (W9), June 2018 – June 2019) and in the two waves collected during the pandemic (COVID-19 waves 1 (CW1), June-July 2020 and waves 2 (CW2), November-December 2020) were compared. Results were adjusted for total number of participants per wave and time between waves. Only diseases included in all three waves of questionnaires were included. Logistic regression was conducted to investigate potential confounders.

Findings

W9, CW1 and CW2 included 7289, 5825 and 5092 individuals, respectively. There was minimal difference in the overall rate of new diagnosis reported pre (163/1000 individuals/year) and during the COVID-19 pandemic (159/1000 individuals/year). However, there were variations in diagnosis rates for different conditions. Between W9, CW1 and CW2 there was a decrease in the rates of diagnosis of dementia (10.6 to 4.3 to 1.6/1000/year), cancer (17.1 to 13.2 to 12.6/1000/year), stroke (7.3 to 6.1 to 3.9/1000/year) and angina and myocardial infarction (15.2 to 9.4 to 8.6/1000/year). In contrast there was an increase in the rate of some new diagnoses e.g. arthritis from 30.3 to 41.7 to 44.4/1000 individuals/year.Analysis of W9 data indicated that decreased age, decreased income and increased household size increased the rate of new diagnosis ($p=0.2$, $p<0.01$ and $p<0.01$ respectively). Analysis of CW1 and CW2 both showed a statistically significant effect for age and wealth only, in the direction as described above ($p<0.05$ for all).

Consequences

Decreased rates in the diagnosis of cancer, cardiovascular disease and dementia could be contributing to the increase in non-COVID-19 deaths. The reasons for these changes in diagnosis rates now requires further investigation to understand the factors from a patient and healthcare perspective that contribute to the lower rates of diagnosis for these important conditions.

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## 1B.6 How were patients assessed and triaged at a COVID-19 Referral Centre in primary care?

Presenter: Jennifer Cooper and Astha Anand

Co-authors: Sam Finnikin, Shamil Haroon, Jennifer Cooper, Astha Anand, Abijan Pakiyaraja, Ben Duncome, Daniel Lasserson

Institutions: University of Birmingham

**Abstract**

Problem Our profession had to rapidly adapt to the new threat of COVID-19 which brought unprecedented diagnostic and management challenges, along with new ways of delivering care. COVID-19 referral centres (also known as hot sites or red sites) were urgently set up to manage essential face-to-face consultations, whilst reducing risk of transmission between patients and staff. New protocols and policies were developed with little or no time for testing or validation. Our study sought to determine how referring GPs made use of the service, and whether the guidelines for hot site GPs on how to manage patients with COVID-19 symptoms were consistent with real-world practice. We also asked whether patients would be willing to travel to an unfamiliar service for assessment. This is the first study to describe the characteristics of patients referred to a COVID-19 primary care referral centre and how guidance for escalation of care was

applied in a rapidly adapting primary care system.

Approach

This was an observational study using routinely collected data from the Birmingham Out-of-Hours Research Database, covering all patients assessed in Birmingham and Solihull COVID Referral Centre (CRC) between 21st April and 24th July 2020. All CRC consultations were examined to extract patient demographics, free text consultations, prescriptions, observation and onward referrals. The NEWS2 score was calculated and the clinical diagnosis of COVID-19 was established. The population was described and univariate logistic regression was used to identify characteristics associated with clinical diagnosis of COVID-19 and referral decisions.

Findings

681 patients were seen at the CRC and 56.3% were identified to have a clinical diagnosis of COVID-19. Patients were willing to travel several miles for face-to-face assessment and geographical distance from the CRC did not appear to be a restrictive factor. 14.0% of all patients were referred to secondary care, but 59% of patients in the most severe category were not referred. Referral was associated with increasing age, shortness of breath, tachycardia, tachypnoea and hypoxia. However, patients with a clinical COVID-19 diagnosis were less likely to be referred to secondary care than those with other diagnoses (OR 0.54, 95% CI 0.30 to 0.97). COVID-19 patients were significantly more likely to receive antibiotics and oral corticosteroids than those who received alternative diagnoses.

Consequences

Just over half of patients seen in the COVID-19 referral centre were clinically diagnosed with COVID-19. Only a minority of patients were referred to secondary care and even when patients had more severe disease, most patients were managed in the community. Guidelines developed in the absence of service delivery data for the management of COVID-19 were inconsistent with community urgent care delivery in the first wave of the COVID-19 pandemic.

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## 1B.7 Seroprevalence study of SARS-CoV-2 infection in General Practice in Ireland

Presenter: Peter Hayes on behalf of Michael E O'Callaghan

Co-authors: Ryan EJ, Walsh C, Hayes P, Casey M, O'Dwyer P, Culhane A, Duncan J, Harrold P, Healy J, Kerin E, Kelly E, Hanrahan C, Lane G, Lynch B, Meaney P, O'Connell B, Galvin J, Kennedy N, Burke P, O Connell N, Dunne CP, Glynn LG

Institutions: University of Limerick

**Abstract**

Problem

There is much to learn about SARS-CoV-2 immunity, and serological testing may have a role in tracking viral spread and assessment of our public health efforts. General practice provides an established and accessible means to assess seroprevalence in communities and in at-risk groups.

Approach

This seroprevalence study utilised 2 manufacturers' point-of-care (POCT) SARS-CoV-2 IgM-IgG combined antibody tests, offered to patients and healthcare workers in general practice. In addition to providing a serum or capillary blood sample, participants were asked whether they had experienced symptoms suggestive of COVID-19 since February 2020, and whether they had a previous polymerase chain reaction (PCR) test for SARS-CoV-2.

Findings

From June 15th to July 10th 2020, 971 participants from 15 general practices were tested. Seroprevalence was estimated at 12.9% in patients attending general practice, and 12.9% in staff working in general practice, with administrative staff having the lowest seroprevalence (6.5%) and nursing staff having the highest (16.3%). These rates are much higher than estimates for the national average (1.7%). Seroprevalence was similar in males and females; was lowest in those 65 years or older; and was elevated in those who had previous symptoms suggestive of SARS-CoV-2 or who had undergone a polymerase chain reaction (PCR) test for SARS-CoV-2 via nasal and throat swab. Sensitivity was 78% and 79% for each test kit type, giving a combined sensitivity of 82%. About a third (32%) of those patients with previous symptoms suggestive of SARS-CoV-2 had undergone a PCR test for SARS-CoV-2 and 17% of those who were seropositive reported no symptoms during the months preceding testing. Average length of time between participants testing positive for SARS-CoV-2 on laboratory PCR testing and testing positive for IgG antibodies was 83 days. Six patients with confirmed COVID-19 infection on PCR testing did not demonstrate presence of IgG antibodies.

Consequences

While not proof of immunity and requiring further study, SARS-CoV-2 POC testing can establish serological prevalence in general practice settings, with a sensitivity of approximately 80%. Persistence of antibodies for an average of 12 weeks in four-fifths of participants with previous COVID-19 infection is encouraging as we learn more about the SARS-CoV-2 immune response.

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## 1C.1 Does the higher or lower reading arm best reflect systolic blood pressure? An individual participant data meta-analysis from the INTERPRESS-IPD Collaboration

Presenter: Christopher Clark

Co-authors: Fiona C Warren, Kate Boddy, Sinead TJ McDonagh , Sarah F Moore, Lyne Cloutier, Rod S Taylor, Angela C Shore, Richard J McManus, Victor Aboyans, John L Campbell

Institutions: University of Exeter Medical School, Université du Québec à Trois-Rivières, University of Glasgow, University of Oxford, Dupuytren University Hospital Limoges

**Abstract**

Problem

Hypertension guidelines recommend measuring blood pressure (BP) in both arms, adopting the higher arm readings for diagnosis and management. To our knowledge, no publications justify these recommendations – they are currently based on expert consensus advice. We have previously found that this guidance is not always adhered to, and that a minority of practitioners adopt the lower reading arm for diagnosis and management . We therefore aimed to evaluate the impact of using higher or lower arms systolic BPs on prognosis and treatment decisions.

Approach

Individual participant data meta-analyses: Using data in the Inter-arm Blood Pressure Difference Collaboration (INTERPRESS-IPD) pooled from 23 cohorts we examined associations between higher and lower reading arm BPs and event outcomes using multivariable Cox regression models stratified by study. Models using higher and lower arm BPs were compared and prediction of events based on Framingham, Atherosclerotic Cardiovascular Disease (ASCVD) and

Systematic COronary Risk Evaluation (SCORE) risk scores was calculated from either higher or lower arm BPs. Proportions of participants reclassified across guideline recommended BP and cardiovascular risk treatment thresholds were explored.

Findings

Bilateral BP measurements existed for 53,172 participants: mean age 60 years; 48% female. Higher arm BP better predicted all-cause mortality, cardiovascular mortality, and cardiovascular events compared to lower arm BP (P<0.001 all outcomes). For participants without cardiovascular disease, higher arm BP better predicted cardiovascular events using Framingham (N=23,278) or ASCVD (N=18,557) risk scores compared to lower arm BP (P<0.001 for both). No difference was observed for models based on SCORE (N=18,017), however, switching from lower arm to higher arm BP reclassified 4.6% , 3.5% and 7.7% of participants to a higher guideline-recommended risk category using the Framingham, ASCVD and SCORE models respectively. For guideline recommended BP treatment thresholds 12% were reclassified from below to above both 130 mmHg and 140 mmHg systolic thresholds (P<0.001 for all).

Consequences

In this study more than one in ten people were recategorized to require additional treatment by using the BP from the higher reading arm in comparison to the lower arm; this significantly improved prognostic ability. Both arms should be measured during assessment and the higher arm BP adopted for diagnosis and management of hypertension. These findings provide the first empirical evidence in support of these guideline recommendation.

**Funding acknowledgement**

Establishment of the INTERPRESS-IPD Collaboration was funded by the National institute for Health Research (NIHR) Research for Patient Benefit Programme (PB-PG-0215-36009). RMcM receives support from the NIHR Oxford CLAHRC. ACS receives support from the N

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## 1C.2 Does the occurrence of cardiovascular complications after acute respiratory infection vary by underlying cardiovascular risk? A cohort study using linked primary and secondary care records from over 4.2 million individuals in England, 2008-2018

Presenter: Jennifer Davidson

Co-authors: Jennifer Davidson, Amitava Banerjee, Liam Smeeth, Harriet Forbes, Daniel Grint, Emily Herrett, Helen McDonald, Richard Pebody, Charlotte Warren-Gash

Institutions: London School of Hygiene and Tropical Medicine, University College London, University of Bristol, Public Health England

**Abstract**

Problem

The effect of underlying cardiovascular risk profile on complications following acute respiratory infections (ARIs) in individuals without established cardiovascular disease (CVD) is unknown. Whether to consider individuals at raised cardiovascular risk, but without CVD, a priority group for vaccination against ARIs, such as influenza, therefore remains unclear. Our study aimed to investigate how cardiovascular risk modified the occurrence of ARI and major adverse cardiovascular events (MACE) after an ARI.

Approach

We conducted a cohort study in individuals aged 40-64 years without established CVD or a chronic health condition eligible for influenza vaccination, using primary care

Clinical Practice Research Datalink data from 01/09/2008-31/08/2018 linked to Hospital Episode Statistics Admitted Patient Care and Office for National Statistics mortality data from England. We classified underlying cardiovascular risk based on diagnosed hypertension and overall predicted cardiovascular risk estimated using QRISK2 score. Using multivariable Poisson regression models with time-varying age and cardiovascular risk level, we obtained incidence rate ratios (IRR) for ARI. Among individuals who had an ARI, we then used multivariable Cox regression models to obtain hazard ratios (HR) for the risk of major adverse cardiovascular events (MACE) within one year of infection.

Findings

4,212,930 individuals were included; 526,480 (12.5%) had hypertension and 607,087 (14.4%) had a QRISK2 score ≥10%. There were 586,147 ARI episodes among 442,408 individuals, of which 107,639 episodes were influenza/ILI and 31,068 pneumonia. After adjusting for confounders, patients with raised cardiovascular risk had a higher incidence of ARI, whether by hypertension (IRR 1.04, 95% CI 1.03-1.05) or QRISK2 score ≥10% (IRR 1.39, 1.37-1.40). Of the 442,408 individuals with an ARI, 4,196 had a MACE within one year of infection. A large proportion (38.5%) of MACE after ARI were in those with pneumonia. After adjustment, having raised cardiovascular risk was associated with substantial increased risk of a MACE after infection (hypertension: HR 1.98, 1.83-2.15 and QRISK2: HR 3.65, 3.42-3.89).

Consequences

People with no diagnosed CVD but who have raised underlying cardiovascular risk, measured by hypertension diagnosis and, in particular, overall predicted cardiovascular risk, have increased incidence of both ARI and cardiovascular complications following an ARI. The findings show the importance of managing and reducing cardiovascular risk to lessen ARIs and the cardiovascular consequences of infection. Individuals with raised cardiovascular risk are not typically targeted for seasonal influenza or pneumococcal vaccines. QRISK2 score provides a better marker of risk, compared with hypertension alone, to identify individuals at risk of first cardiovascular event following ARI.

**Funding acknowledgement**

British Heart Foundation Non-Clinical PhD Studentship FS/18/71/33938 and Wellcome Trust Intermediate Clinical Fellowship 201440/Z/16/Z.

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## 1C.3 Arm Based on LEg blood pressures (ABLE-BP): Can leg blood pressure measurements predict brachial blood pressure? An individual participant data meta-analysis from the INTERPRESS-IPD Collaboration

Presenter: Sinead McDonagh

Co-authors: Sinead TJ McDonagh1, James Sheppard2, Fiona C Warren1, Kate Boddy1, Leon Farmer3, Helen Shore3, Phil Williams3, Philip S Lewis4, Rachel Baumber5, A Jayne Fordham6, Una Martin7, Victor Aboyans8, Christopher E Clark1

Institutions: 1. University of Exeter Medical School, 2. University of Oxford, 3. Volunteer patient and public advisor, 4. Stockport NHS Foundation Trust, 5.Royal National Orthopaedic Hospital NHS Trust, 6. Mid Devon Medical Practice, 7. University of Birmingham, 8. Du

**Abstract**

Problem

Hypertension, a key modifiable risk factor for the prevention of stroke, is diagnosed and

managed using blood pressures (BP) measured on the upper arm. Amputations, altered muscle tone after stroke or limb deformities can prevent accurate measurement of brachial BP, making decisions about appropriate treatment difficult. Leg BP measurement is advised as a practical alternative to brachial measurement, but limited data exist to guide clinicians' interpretation of leg BP values in terms of hypertension diagnosis and treatment.

Findings

Findings from our previous study-level systematic review and meta-analysis suggest that, on average, systolic BP is 17mmHg higher in the leg than the arm. However, substantial heterogeneity between contributing studies was found, limiting certainty about the applicability of this finding to individuals.Using BP data from the international Inter-arm BP difference individual participant data (INTERPRESS-IPD) Collaboration, we aimed to:1) Examine the relationship between arm and leg BP.2) Develop and validate a multivariable model predicting arm BP from leg BP.3) Investigate the prognostic role of leg BP in cardiovascular event and mortality risk prediction.

Approach

IPD meta-analyses using systolic arm and leg BP data available from 14 studies within the INTERPRESS-IPD Collaboration were undertaken. We explored cross-sectional relationships between arm and leg systolic BP using hierarchical linear regression with participants nested by study, in multivariable models. We predicted systolic arm BP using leg BP quantified using area under receiver operating characteristic (AUROC) curves. Prognostic models were also derived for all-cause and cardiovascular mortality, and cardiovascular events. Final models were validated using internal-external cross-validation analysis.

Findings

Arm and leg BP data were available for 33,710 individuals (mean age: 58.4 years, mean arm systolic/diastolic BP at baseline: 137.7/79.7mmHg, 44.7% female); 6,785 (20.1%) were current smokers, 20,191 (59.9%) had hypertension, 4,917 (14.6%) had diabetes and 5,797 (17.2%) had cardiovascular disease. Mean leg systolic BP was 12.0 mmHg (95% confidence interval, 8.8 to 15.2) higher than arm systolic BP. Descriptive modelling revealed systolic BP, female sex, smoking, total cholesterol, diabetes and ischaemic heart disease were associated with reduced arm-leg systolic BP differences ($p<0.05$). Age, body mass index and hypertension were associated with increased arm-leg systolic BP differences ($p<0.05$). Derivation cohort AUROC curves for predicted arm BP from leg BP reduced from 0.93 to 0.89 with each 5 mmHg reduction in BP from 160 to 130 mmHg. Further analyses are underway and will be presented at the conference.

Consequences

This is the first IPD meta-analysis to describe the relationship between arm and leg systolic BP using an international cohort. Our findings will support clinicians and patients to use leg BP measurements in detecting and managing hypertension and cardiovascular risk more effectively.

**Funding acknowledgement**

The INTERPRESS-IPD Collaboration was established with a grant from the NIHR Research for Patient Benefit programme (award/grant number: PB-PG-0215-36009). The ABLE-BP project is supported by the Stroke Association (award/grant number: SA PG 19/100043)

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## 1C.4 Digital health RCT interventions for cardiovascular disease risk reduction: a systematic review and meta-analysis

Presenter: Rohan Devani

Co-authors: Rohan Devani1, Arushan Kirubarakan1, Mariam Molokhia1

Institutions: King's College London

**Abstract**

Problem

Cardiovascular disease (CVD) continues to be a significant cause of mortality in the UK. Evaluation of modern digital health technologies and their efficacy in reducing risk factors is a priority for health systems worldwide. This systematic review and meta-analysis examined whether RCTs for digital health interventions (DHIs) can reduce CVD risk, and prevent rehospitalisation of individuals with CVD.

Approach

We undertook a systematic review and meta-analysis, based on Cochrane guidelines, using a PICO framework and PRISMA guidelines for digital health RCT interventions in reducing CVD risk. PubMed, Medline, Web of Science, the Cochrane systematic review and Cochrane trials database were systematically searched, and 450 abstracts of relevant articles screened, prior to selection of full text articles for review. CVD risk reduction was the primary outcome, and secondary outcomes considered included factors such as rehospitalisation of individuals with CVD, blood pressure reduction, lipid optimisation, weight loss/BMI reduction, smoking cessation, and CVD risk scores such as QRISK3. Evidence from 01/01/2010 onwards was considered – due to the technological advances of DHI since this time period. Risk of bias was assessed by the Cochrane Risk of Bias 2 Tool (RoB-2), and STATA 16 used for meta-analysis.

Findings

Preliminary results indicate DHIs are effective in reducing CVD risk, compared with usual care. Trials evaluated to date suggest that DHIs are effective in reducing weight and BMI, and increasing smoking cessation rates.

Consequences

DHIs offer opportunities to reduce CVD risk as the technology and resultant uptake increases over the next decade. However barriers to effective DHI implementation include lack of access to technology and inequalities in digital literacy.

**Funding acknowledgement**

This work was supported by the National Institute for Health Research Biomedical Research Center at Guy's and St Thomas' National Health Service Foundation Trust and King's College London.

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## 1C.5 Should we screen for heart failure? A qualitative study to explore the acceptability of a potential new diagnostic pathway

Presenter: Clare R Goyder

Co-authors: Clare R Goyder, FD Richard Hobbs, Clare J Taylor, Lisa Hinton

Institutions: University of Oxford, University of Cambridge

**Abstract**

Problem

Heart failure (HF) is a global health burden impacting 40 million people worldwide and mortality rates are similar to many cancers. Early treatment improves outcomes so new strategies to achieve timely diagnosis are a research priority. Screening is one potential strategy but no research to date has considered patient's attitudes to a potential

HF screening programme. The aim of this qualitative study is to explore patient's experiences of HF diagnosis, their understanding of the condition and their attitude towards screening for HF.

Approach

Qualitative study using semi-structured interviews with people with a diagnosis of HF. Participants were recruited through HF specialist nurses and GP practices in the Thames Valley region. We aimed to recruit a maximum variation sample of men and women and will continue interviewing until we are confident our interview sample has sufficient information power. Interviews were conducted over the telephone or online, according to preference, and audio recorded for analysis. Interviews were transcribed and analysed thematically.

Findings

Data collection is ongoing. To date, 14 interviews have been conducted with 4 women and 10 men. For many HF patients the diagnostic journey was complicated. Patients described symptoms that developed insidiously and were initially mild so they did not go to their GP for some months. Other patients described delays in diagnosis even though they did seek help for their symptoms. When the diagnosis came many patients describe a combination of relief and despair. Although having an explanation for their symptoms was helpful, many patients were shocked by the term "heart failure" and this had strong associations with death and treatment futility. Whilst some patients had their diagnosis carefully explained, other patients were told indirectly, perhaps via a letter after a clinic appointment and this contributed to the shock. Potential HF screening was viewed as a positive intervention and many advocated for earlier diagnosis and treatment but the terminology used to describe HF screening was raised as an important area for consideration.

Consequences

This study provides insights into the challenges faced by patients in their journey to HF diagnosis and explores the acceptability of HF screening. Although most patients supported early diagnosis and a potential screening programme, the term HF requires very careful consideration in a screening context.

**Funding acknowledgement**

CG is a Wellcome Trust Doctoral Fellow [grant number 203921]

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## 1C.6 Statin treatment and LDL-cholesterol treatment goal attainment among individuals with familial hypercholesterolaemia in UK Primary Care

Presenter: Barbara Iyen

Co-authors: Nadeem Qureshi, Joe Kai

Institutions: Division of Primary Care, University of Nottingham, United Kingdom, NG7 2RD

**Abstract**

Problem

The National Institute for Health and Care Excellence guidelines in England recommend that statin treatment for individuals with Familial Hypercholesterolaemia (FH) should aim for at least a 50% reduction in low density lipoprotein cholesterol (LDL-C) from the baseline measurement. Here, we assessed statin prescribing rates as well as the LDL-cholesterol treatment goal attainment among individuals with FH in primary care.

Approach

Using electronic health records from the UK Clinical Practice Research Datalink (CPRD), we identified adults with a diagnosis of FH coded

in their primary care records, records of statin treatment, measures of LDL-cholesterol prior to the onset of statin treatment (baseline) and repeat measures at 12 months. The percentage change in LDL-cholesterol during the 12-month period of follow-up was determined, and then baseline and treatment characteristics were assessed by LDL-cholesterol treatment goal attainment.

Findings

Of the 3,064 adults (mean age 50.8 years) with primary care diagnosis of FH, the treatment goal of 50% reduction in LDL-cholesterol was attained in only 895 individuals (29.2%). Compared to individuals who failed to attain the 50% LDL-cholesterol reduction from baseline, those who attained the LDL-cholesterol goal reduction were of older age at time of FH diagnosis (53.4 years vs 49.7 years) and at time of first statin treatment (53.2 years vs 49.2 years), they had significantly higher pre-treatment total cholesterol (8.20 (SD 1.38)mmol/l vs 7.57 (SD 1.39)mmol/l) and pre-treatment LDL-cholesterol (5.83 (SD 1.36) mmol vs 5.25 (SD 1.40) mmol/l) at baseline, and a higher proportion of these individuals who attained the treatment goal were prescribed high and medium potency statins (24.3% and 71.7% versus 20.2% and 69.3% respectively).

Consequences

Only a third of individuals on statin treatment for FH in primary care achieve the NICE-recommended treatment goal of 50% reduction in LDL-cholesterol from baseline. This highlights the need for optimisation of statin treatment for individuals with FH in primary care.

**Funding acknowledgement**

NIHR School of Primary Care Research grant (FR19)

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## 1C.7 Comparing the rate of serious adverse events in hypertension trials with rates of similar events in routine clinical practice: are older people in trials representative of the target population?

Presenter: Peter Hanlon

Co-authors: Peter Hanlon, Neave Corcoran, Guy Rughani, Anoop Shah, Frances Mair, Bruce Guthrie, Joanne Renton, David McAllister

Institutions: University of Glasgow, University of Edinburgh

**Abstract**

Problem

The optimal treatment of hypertension in older people in uncertain. Part of this uncertainty stems from concerns that randomised controlled trials, on which treatment guidelines are based, are not representative of older people. Representativeness of 'standard' antihypertensive trials is often questioned, with limited recruitment of older-people. Some trials specifically recruit older participants to address this. If such older-people's trials are representative, we would expect rates of hospitalisation and death in each trial to be similar to community rates, and higher than rates in standard trials.

Approach

We identified trials of Renin-Angiotensin-Aldosterone system (RAAS) drugs for hypertension using the clinicaltrials.gov registry, and divided these into standard trials (recruiting a general adult population) and those focusing on older people (minimum age 60 or higher). Serious Adverse Events (SAEs) are routinely included in trial reports and are predominantly accounted for by all-cause hospitalisations and death. We extracted SAE rates in older-people's and standard trials,

adjusting for trial characteristics (phase/drug/comparison/outcome). Using primary care data from SAIL databank, we identified a community cohort of adults with hypertension commencing similar drugs to obtain an expected rate of hospitalisations/deaths, and compared this to observed SAE rates in each trial.

Findings

We included 110 trials: 11 older-people's trials exclusively recruited people over 60 years; 99 standard trials also included younger people. Older-people's trials had higher SAEs rate than standard trials (IRR 1.74, 95% CI 1.03-2.92). However, when comparing the SAE rate in the trials to the rate of hospitalisations or deaths in people with hypertension starting RAAS drugs in the community, the hospitalisation and death rate in the community was much greater than the rate of SAEs reported in standard trials (ratio 4.17 (95% CI 3.45-5.26)) and older-people's trials (4.76 (95% CI 2.86-8.33)), adjusting for age and sex.

Consequences

Our findings demonstrate that people in hypertension trials experience substantially lower rates of adverse health outcomes than people with hypertension treated with similar drugs in the community. This adds weight to the body of evidence showing that hypertension trials are under-representative of their target populations. However, our findings also add nuance to this statement, as trials focussing on older people do have a significantly higher rate of SAEs than standard trials. Therefore, trials focussing on older people do, at least in part, reflect the increased risk of adverse outcomes seen in older populations. Our findings also indicate that SAE rates should be considered as a novel metric with which to assess the representativeness of trial populations, through comparison with the incidence of similar events in routine clinical care. Such an approach could facilitate more direct quantification of the consequences of trial under-representativeness.

**Funding acknowledgement**

Medical Research Council, Wellcome Trust

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## 1D.1 Acceptability to general practitioners of e-cigarettes as a smoking cessation aid: systematic review

Presenter: Melis Selamoğlu

Co-authors: Bircan Erbas, Chris Barton

Institutions: Monash University, La Trobe University, Monash University

**Abstract**

Problem

General Practitioners (GPs) play an important role in providing patients who smoke with health information, support and treatment to encourage them to quit smoking. Despite conflicting evidence on the effectiveness of e-cigarettes as a smoking cessation aid, many smokers and GPs are exploring e-cigarettes as an alternative to smoking tobacco, believing that e-cigarettes can reduce the harm associated with cigarettes and promote smoking cessation. This systematic review aims to synthesise evidence from qualitative, quantitative and mixed-methods studies of the perceptions of GPs towards e-cigarettes and their intentions to prescribe e-cigarettes as a smoking cessation aid.

Approach

Studies from four databases MEDLINE, CINAHL, SCOPUS and EMBASE were searched. Two independent reviewers screened abstracts and full-text studies that met the inclusion criteria. Papers were appraised for quality using the MMAT checklist. A data extraction form was used to extract relevant data from included papers. A PRISMA flow

diagram was used to record the flow of papers through the review and the reasons for exclusion at each stage.

Findings

A total of 3939 abstracts were identified and their titles and abstracts were screened for relevance. Fifteen articles met the inclusion criteria and were included. Synthesis of findings is ongoing however, preliminary findings indicate GPs had mixed views on recommending e-cigarettes as a smoking cessation aid. Some GPs were positive about a role for e-cigarettes and had recommended e-cigarettes to their patients as part of a smoking cessation plan. Others were reluctant and disagreed that e-cigarettes are an effective method to quit smoking. Most GPs lacked knowledge and confidence in having discussions with patients around e-cigarette safety and efficacy as a smoking cessation aid.

Consequences

Clear guidance on the role of e-cigarettes is needed to inform and educate GPs about e-cigarettes as a smoking cessation aid. This information from this review will be useful to guide policy on e-cigarettes and contribute to guideline development that informs the potential role and place of e-cigarettes as a smoking cessation alternative.

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## 1D.2 Flexidelity – assessing fidelity of delivery of a complex intervention to help people live well with persistent symptoms.

Presenter: Kate Fryer

Co-authors: Chris Burton

Institutions: University of Sheffield

**Abstract**

Problem

Multiple Symptoms Study 3 is a randomised controlled trial of a complex intervention to help people live well with persistent physical symptoms. The intervention is delivered by an extended role GP across one 45 minute followed by three 15 minute consultations. The intervention centres around 4 main components: Recognition, Explanation, Action and Learning (REAL). The GPs received training at the start of the study and regular supervision thereafter. The intervention is highly complex: it comprises many interacting components and behaviours and a high degree of flexibility, allowing GPs to tailor the intervention to individual patients and their own personal consultation style. How can fidelity in delivery of the intervention be assessed in this case?

Approach

We assessed fidelity as part of a process evaluation nested within the trial. To do this, we specified a set of key elements of the intervention which were expected over the course of the 4 consultations. This fidelity framework was applied by a researcher to transcripts of a sample of sets of consultations per GP. For each element the researcher noted if it was present, provided an example and, where appropriate an informative comment. We used a traffic light system to code elements as ‘present’, ‘questionable’, ‘problematic’ or ‘missing’. Any other than ‘present’ were highlighted, and the Principle

Investigator (PI) was alerted. The PI would then look at the element in context, and the issue would be addressed in the GP's supervision meeting.

Findings

So far, 40 sets of transcripts have been fidelity assessed. Of these, 11 consultation sets contained one or more 'questionable' or 'missing' element'. Some consultations sets had both 'missing' and 'questionable' elements. 29 out of 40 consultation sets had 100% 'present' elements. These numbers indicate that teaching has been successful. The traffic light system has allowed early identification of potential problem areas, which were addressed in supervision. Assessing fidelity in this way has increased the replicability of the study. The presentation will provide examples of how key elements were identified from the consultations. Despite variation in GP's style of delivery, and high heterogeneity of patients, it has been possible to reliably track fidelity using this method. The GPs had very different styles, yet fidelity to key components was strong. This indicates the effectiveness of the training, which included items such as deep listening, which GPs are already familiar with, as well as more unfamiliar elements such as advanced explanation and symptom control techniques.

Consequences

Assessing fidelity to flexible complex interventions is challenging. We propose the portmanteau term 'flexidelity' to describe one approach to this. Certain components are integral to the intervention, and identifying the presence of these within complex data. This increases the reliability of the findings, and makes it easier for the intervention to be replicated.

**Funding acknowledgement**

This study is funded by the National Institute for Health Research (NIHR) Health Services and Delivery Research (NIHR HS&DR) Programme (project number 15/136/07).The views expressed are those of the author(s) and not necessarily those of the funders.

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## 1D.3 How do general practitioners provide physical activity advice during consultations with patients?

Presenter: Adam Grice

Co-authors: Dr Adam Grice, Dr Nada Khan, Professor Suzanne Richards, Professor Robbie Foy

Institutions: University of Leeds

**Abstract**

Problem

Physical inactivity contributes significantly to the burden of non-communicable disease. The Royal College of General Practitioners Clinical Priority Programme highlights the key role of general practitioners (GPs) in promoting physical activity (PA) through frequent patient contact. Surveys indicate GPs lack confidence and training in PA advice. Any opportunistic PA intervention must be brief, feasible and acceptable within the competing demands of short consultations. An understanding of how PA advice is currently delivered in consultations, including missed opportunities, is important for any future intervention development. Given the limitations of routinely recorded data from medical records, video-recorded consultations offer one approach to research doctor-patient interactions. This study aims to explore and describe physical activity advice and missed opportunities, within video-recorded GP-patient consultations.

Approach

The 'One in a Million' prospective observational study provides a unique data archive of 300 video recorded consultations at 12 different surgeries and 22 GPs. These video

transcripts were therefore screened to identify videoed consultations where PA advice was delivered to patients or where there were missed opportunities for physical activity advice. Missed opportunities were deemed to be consultations where there was an opportunity for a proactive lifestyle intervention or where PA was a recognised evidence-based recommendation for a particular presenting complaint or long-term condition. A second author screened a stratified random sample of 46 consultations which informed a quality assurance protocol. The PA content delivered in the consultations was assessed using 'Moving Medicine' a resource developed by the Faculty of Sports and Exercise Medicine and key stakeholders, and relevant national PA and clinical guidelines. The quality of the consultations was assessed using the Global Consultation Rating Scale; used in studies assessing video recorded consultations.

Findings

Preliminary results show that any PA advice given tends to be covered superficially and largely without specific tailored guidance or planned review. Missed opportunities were identified for both lifestyle health promotion opportunities and chronic health disease management.

Consequences

Well-delivered PA advice can be a cornerstone in strategies to improve population health through general practice. Whilst this cross-sectional study design does not account for PA discussions which may have taken place in previous consultations, it demonstrates opportunities for improvement in PA advice given to patients in GP consultations and the need for a continual proactive opportunistic PA dialogue with patients for lifestyle intervention and as part of long-term disease management. Future work should develop and evaluate very brief physical activity interventions that can readily be adopted by GPs and trainees, in parallel with strategies to develop the skills and confidence to enable a cultural shift in PA advice.

**Funding acknowledgement**

National Institute for Health Research In-Practice Fellowship

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## 1D.4 CREATIVE PIECE: From the root up

Presenter and author: Hira Mayet

Institutions: St George's University London

**Abstract**

Social Prescribing is defined as "enabling healthcare professionals to refer patients to a link worker, to co-design a non-clinical social prescription to improve their health and wellbeing." (Polley et al., 2017). Already in this brief definition can we see the interplay between a whole eco-system of people involved in co-producing a path to wellbeing for an individual patient. From the referring professional, who could be a GP, a nurse practitioner, or an allied health professional – to the adjuvant possibility of self-referral – to the link worker who meets with the patient to develop collaborative solutions, right through to the groups involved whom they may be referred to. The silver trail leading onto the higher branches of the tree represents the variable yet individual pathway patients may take to be referred onto social prescribing services. One may immediately think of the VCSE sector, who play a valued role in social prescribing services, yet we can also think in broader, ambitious terms. This might mean a referral to a support group for loneliness, but equally it might suggest a referral to socio-legal welfare services. This is why I have chosen to paint a tree representing the Primary Care Network that might be involved in co-ordinating social prescribing services, but also the community it serves; a community which gives back through creating groups such as exercise and cooking classes,

Zoom book clubs and creative art journaling in a symbiotic relationship. The branches highlight the inherently joined-up aspiration of this work, but the use of textured paste emphasises the individual destinations that unique social prescriptions can lead patients to. These destinations can lead a range of positive outcomes, including combatting loneliness, rehabilitation in all forms and help keeping fit. Social prescribing taps into the pre-existing network of connections that exist in every community; the role of link worker is about harnessing that power for the benefit and demedicalisation of our patients' wellbeing. The use of gold as a warm colour bordering this tree and its blossoms symbolises these positive outcomes, such as 33% fewer GP patient appointments and 77% of patients with better wellbeing (Healthy Dialogues Ltd, 2018) in Merton where a Social Prescribing Pilot was trialled. When patients are given full encouragement to engage with communities and services around them – from the root upwards, as visualised through the tree – they can become more active in creating their own personalised care plan, and this can create positive feedback into the communities they live in and lead to better outcomes. Polley, M.J., Fleming, J., Anfilogoff, T. and Carpenter, A. 2017. Making Sense of Social Prescribing. London University of Westminster. Healthy Dialogues Ltd. 2018. Evaluation of the Merton Social Prescribing Pilot. London. NHS Merton Clinical Commissioning Group.

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## 1D.5 What is the evidence for the influence of socioeconomic status on the association between a combination of unhealthy lifestyle factors and adverse health?

Presenter: Hamish Foster

Co-authors: Mr. Peter Polz, Prof. Jason M.R. Gill, Dr. Carlos Celis-Morales, Prof. Frances S. Mair, and Prof. Catherine A. O'Donnell

Institutions: General Practice and Primary Care, University of Glasgow

**Abstract**

Problem

Combinations of unhealthy lifestyle factors (LFs) (e.g. smoking with high alcohol intake and poor diet) are associated with cardiovascular disease (CVD), cancer, and mortality. Low socioeconomic status (SES) is independently associated with the same outcomes. Low SES populations may be more vulnerable to the adverse effects of combinations of unhealthy LFs but interactions between combinations of LFs and SES remain poorly understood. This systematic review synthesised evidence for whether SES moderates associations between combinations of unhealthy LFs and adverse health outcomes.

Approach

Three databases (PubMed, EMBASE, CINAHL) were searched from inception– 03/03/2020. Inclusion criteria: 1) prospective cohorts; 2) investigation of combinations of ≥3LFs and SES; 3) data on SES influence on associations between LF combinations and outcomes; 4) outcomes included ≥1 of CVD, cancer, or mortality. Exclusion criteria: 1) ineligible study design; 2) not full-text publication; 3) not in English language. Results were synthesised without meta-analysis and compared across similar health outcomes. Analyses stratified by SES were used to examine hazard ratios

(HRs) for those with the unhealthiest combination of LFs, comparing participants in the highest versus lowest SES strata. Results for tests for interactions between combinations of LFs and SES and results of additional analyses were collected.

Findings

Four studies of prospective cohorts were included (n=42,467–328,594; mean age 51.0–56.8 years; 54.6–59.3% women). Each study examined all-cause mortality and two studies also assessed CVD and cancer outcomes (average follow-up 4.3–19.3 years). LF variables, SES measures, and methods varied substantially between studies and precluded meta-analysis. For all-cause mortality, two studies identified multiplicative interactions between combinations of LFs and SES, but in opposing directions. In the remaining two studies, additional, combined non-SES-stratified analyses indicated an additive interaction. In the combined analyses, with the healthiest LF and highest SES group as reference, all-cause mortality HRs (95%CIs) for unhealthiest LF and lowest SES groups ranged from 1.43 (1.11-1.84) to 3.34 (2.79-3.99). In five of six combined analyses, the unhealthiest LF-lowest SES groups had the highest all-cause mortality risk. Results for other health outcomes were similar.

Consequences

The number of available studies is limited and their methodology heterogenous. However, their synthesis suggests that the combined associations of low SES and combinations of unhealthy LFs are likely to be additive for adverse health. Additional prospective analyses that use different datasets, comprehensive sets of LF variables, SES measures, and health outcomes would improve understanding of whether SES moderates the association between combinations of unhealthy LFs and adverse health. Improving the understanding of the relationships between lifestyle, SES, and adverse health would inform intervention and policy development.

**Funding acknowledgement**

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## 1D.6 How do objectively measured physical activity behaviours relate to morbidity in older adults? A latent class analysis

Presenter: Andrew O'Regan

Co-authors: Ailish Hannigan(1), Liam Glynn(1), Alan Donnelly(2), Enrique Garcia Bengoechea(2), Grainne Hayes(2), Catherine Woods(2)

Institutions: (1)Health Research Institute and School of Medicine, University of Limerick; (2) Health Research Institute and Dept. of Physical Education and Sport Sciences, University of Limerick

**Abstract**

Problem

Physical activity contributes to the prevention of chronic illness as well as promotion of physical and mental health, but most adults remain inactive. Chronic illness affects mainly middle aged and older adults, and very little objectively measured data on physical activity behaviours and associated health outcomes of this population is published. The aims of this study are to: 1. Objectively measure physical behaviour outcomes of adults participating in the Move for Life study; 2. Develop distinct activity profiles based on six behaviour variables; 3. Investigate whether health outcomes differ across the activity profiles.

Approach

Participants were Irish adults aged 50 years and older. They had been recruited as part of the Move for Life feasibility cluster randomised control trial. This is a cross-sectional study, applying a latent class analysis to baseline data of the Move for Life trial. Using the activPAL, objectively measured data were collected on average daily: light physical activity (hours); moderate to vigorous physical activity (minutes); step count; time in bed (hours); standing time (hours); and waking sedentary time (hours). Data were obtained on chronic illness and health service utilisation. Validated questionnaires were used to collect data on wellbeing, loneliness and social isolation. Hierarchical cluster analysis using squared Euclidian distance was used to cluster behaviours based on similarity, using SPSS version 26. Regression models explored associations between health outcomes and activity profiles, adjusted for age and sex.

Findings

Data from 485 participants were analysed, and four activity profiles were identified: sedentary (n=50, 10.3% of total), low active (n= 295 ,60.8%), moderate active (111, 22.9%) and higher active (n=29, 6%). We will present the differences across the activity profiles for chronic illnesses, multi-morbidity, health service utilisation and validated health tools, comparing to data from the Irish Longitudinal Study on Ageing (TILDA) and the English Longitudinal Study on Ageing (ELSA).

Consequences

The use of physical activity behaviour clusters may identify people with multi-morbidity and higher utilisation of health services. These findings could be factored into the development of future targeted physical activity interventions.

**Funding acknowledgement**

The Move for Life research project is funded under the Health and Positive Aging Initiative (HaPAI), led by the Department of Health and is a joint national programme with the Health Service Executive and Atlantic Philanthropies.

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## 1D.7 Two sides of the same coin? An ethnographic exploration of primary care staff and link worker perspectives on social prescribing

Presenter: Bethan Griffith

Co-authors: Dr Bethan Griffith, Professor Suzanne Moffatt, Professor Tessa Pollard

Institutions: Institute of Population Health science Newcastle University, Department of Anthropology Durham University

**Abstract**

Problem

Link worker social prescribing is increasingly accessed and delivered through UK NHS primary care, with plans to refer 900,000 patients to link workers by 2023. The evidence base for social prescribing has recently grown but clarity is still needed regarding what benefits can be delivered and to whom. Ongoing learning is also needed to ensure that the right approaches are adopted and embedded. This work draws on two ethnographic studies exploring delivery of a social prescribing intervention in North-East England. Link worker social prescribing was delivered to 17 GP surgeries from April 2015 by one of two provider organisations, themselves contracted by a company established to manage the intervention, which was part-funded by a social impact bond. The respective aims were to explore how the intervention was becoming embedded in primary care and to understand the lived experience of link workers.

Approach

The first ethnography took place between November 2018 and June 2019 at two primary care sites accessing the intervention. It involved extensive observation of routine general practice consultations alongside 13 interviews with staff, patients and stakeholders. The second ethnography took place between August 2019 and June 2020 at multiple sites including provider offices, GP surgeries and patients' homes. It involved extensive observation of link workers' daily routines and five interviews and three focus groups with link workers and link worker managers. Ethnography is an iterative process that allowed engagement with context and complexity. Data generated included ethnographic field notes and interview and focus group transcripts. All data was managed using NVivo and coded using thematic analysis.

Findings

There was considerable variability in understandings of social prescribing within primary care, including perceptions of scope and potential benefits. Several staff expressed frustration at having narrow referral criteria and the overall picture was of differentiated referral activity and variation in uptake from patients. For practice staff the visibility of link workers was also important. For link workers, however, becoming visible and building relationships with primary care was a challenge, and often shaped their work routines. This was both exacerbated by and contributed to high link worker turnover. The performative pressure on link workers to complete Patient Recorded Outcome Measures (PROMs) also created tensions and could be seen to shape the nature of patient contacts.

Consequences

Ensuring a shared understanding of social prescribing and the rationale for referral criteria could be important for securing primary care engagement and patient uptake. Building strong relationships with link workers is likely to be important in ensuring referrals are made and link worker continuity is maintained. Recognising that routes to capturing outcomes and demonstrating the impact of social prescribing interventions could in fact shape those interventions is also important as attempts to embed social prescribing in primary care accelerate.

**Funding acknowledgement**

ESRC NINE DTP funded my PhD to undertake the ethnography in primary care. NIHR funded the ethnography of link workers as part of a larger study of the intervention.

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## 1E.1 Challenges and Solutions to Infectious Disease Screening and Catch-Up Vaccination of Migrants in Primary Care: an In-depth Qualitative Study

Presenter: Felicity Knights

Co-authors: Jessica Carter 1, Felicity Knights 1, Anna Deal 1, 2, Sally E Hayward 1, 2, Alison Crawshaw 1, Sally Hargreaves 1

Institutions: 1) Institute for Infection and Immunity, St George's, University of London, UK - London (United Kingdom), 2Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine, UK - London (United Kingdom)

**Abstract**

Problem

Migrants in Europe face a disproportionate burden of infections such as tuberculosis, HIV, hepatitis B/C and chronic parasitic infection which go undiagnosed, and may be under-immunised. The ECDC has called for innovative strategies to deliver integrated multi-disease screening/catch-up vaccination to migrants within the primary-

care/community context. We did an in-depth qualitative UK study to understand current practice, and seek views on a digitalised novel integrated screening Health Catch-Up tool (designed to identify screening requirements of migrants based on age and country-of-origin https://emishealth.vids.io/videos/a49ad1bb1a18e4c72c/health-catch-up-with-requested-edits-mp4 to support primary healthcare professionals (PCPs) in better meeting needs of migrant patients.

Approach

We completed an in-depth qualitative study of primary healthcare professionals (PCPs). Participants were recruited from urban, suburban and rural settings (REC: 20/HRA/1674). Phase 1 consisted of interviews with clinical PCPs (general practitioners, nurses, health-care-assistants) and informed data collection and analysis for phase 2 (administrative PCPs). In-depth semi-structured telephone-interviews were conducted. Data were analysed iteratively, informed by thematic analysis

Findings

64 clinicians were recruited in Phase 1 (25 GPs, 15 nurses, 7 HCAs, 1 pharmacist); Phase 2 comprised administrative staff (11 Practice-Managers, 5 receptionists). There was lack of consistency in delivery of screening for key infectious diseases and catch-up vaccination. The majority of practices either had their own or no system in place. HIV and hepatitis B/C were most likely to be screened for, with limited screening for parasitic infection. Barriers to screening were: perceived lack of knowledge/training and limited financial resources. Facilitators included having an infectious disease/migrant-health champion, incentivisation, and clear protocols. The majority of PCPs reported challenges to implementation of current screening programmes (e.g. latent TB) with complex pathways and workload as key reasons for poor rollout. Participants responded positively to the integrated Health Catch-Up tool, confirming that it would increase screening and vaccination, reduce missed opportunities for preventative healthcare, and raise awareness of migrant health.

Consequences

Infectious disease screening and catch-up vaccination is not currently delivered well in UK primary-care, with concerns raised in other high-migrant receiving European countries. Innovative digital tools like Health Catch-Up are considered valuable in increasing disease detection and facilitating improved health-outcomes for migrants, and need to be robustly tested

**Funding acknowledgement**

Dr Jessica Carter and Dr Sally Hargreaves are funded by the NIHR, Dr Sally Hargreaves is also funded by Academy of Medical Sciences.

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## 1E.2 Understanding the management of common infections in out-of-hours primary care

Presenter: Rebecca K. Barnes and Geraldine M. Leydon

Co-authors: 1Rebecca K. Barnes and 2Geraldine M. Leydon, 4Matthew Booker, 5Ross Brand, 4Jennie Hayes, 1Gail Hayward, 4Lydia Holt, 2Edward J.B. Holmes, 2Sue Latter, 2Paul Little, 2Michael Moore, 6Clare-Louise Nicholls, 3Fiona Stevenson, 4Joseph Webb, 2Catherine J. Woo

Institutions: 1University of Oxford, 2University of Southampton, 3University College London, 4University of Bristol, 5Partnering Health Limited, 6BrisDoc Healthcare Services

**Abstract**

Problem

Regardless of a slow downward trend in general practice antibiotic consumption, from

2015-2019 usage out-of-hours has increased. Despite specific interactional challenges faced by primary healthcare professionals working out-of-hours, compared to the general practice in-hours setting, out-of-hours has received little research attention. Currently there are no antimicrobial prescribing guidelines specific to out-of-hours, and out-of-hours clinicians receive less stewardship training interventions relative to other groups. The aims of this study were: a) to understand how the social interactional context might influence antibiotic prescribing outcomes in out-of-hours patient consultations; and b) to develop antimicrobial stewardship training for the management of common infections based on our findings.

Approach

This was an observational study. Two out-of-hours providers serving populations across the South and West of England were recruited as study partners and 66 clinicians self-selected to participate. Audio and video-recordings of patient consultations for common infections (68 advice calls, 86 primary care centre appointments and 66 home visits), case records and survey data were collected between March 2019-March 2020. We aimed for a maximum variation sample to include all patient groups, all primary care centres (busy and less busy centres, and those serving neighbourhoods with different levels of deprivation); all seasons; weekday evenings, weekends and bank holidays. Anonymised case records for all patient contacts were also collected over the same 12-month period. All recordings were transcribed, and an evidence-informed coding framework was developed and applied to track three main prescribing outcomes: no antibiotic; delayed antibiotic; or immediate antibiotic.

Findings

For the 220 recorded consultations, 60% of patients were female with a mean age of 41.6 years (32.3 sd). The three main categories of common infections presented were respiratory (45.0%), urinary (21.4%) and skin (14.1%). Overall, antibiotics were prescribed 50.9% of the time (85.1% urinary; 53.4% skin; 50.6% respiratory). Only 4.6% were delayed or back-up prescriptions. Four communication-related themes from our content coding (managing patient expectations, recommending self-care, delayed prescribing and safety-netting) were developed as e-learning modules. To ensure their acceptability and maximise their potential for changing behaviour, module development was supplemented by 21 semi-structured interviews with out-of-hours clinicians and refined by remote group 'Think Aloud' sessions with eight out-of-hours clinicians and feedback from wider stakeholder groups including patients.

Consequences

Common interactional dilemmas were faced by out-of-hours clinicians, with high rates of prescribing for common infections compared to general practice. Drawing on current guidelines, prior research and our own systematic observations with stakeholder input, we have produced four credible evidence-based training modules for clinicians. These modules are the basis for a new e-Learning for Healthcare (eLfH) programme, 'Antimicrobial Stewardship Out of Hours', hosted by Health Education England. The platform has over one million registered users so the potential to inform clinical education, practice and future stewardship interventions is significant.

**Funding acknowledgement**

This project is funded by the National Institute for Health Research (NIHR) School for Primary Care Research (project reference 414). The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

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## 1E.3 Has lockdown helped the UK achieve its antimicrobial stewardship targets? A retrospective cohort study using electronic health records

Presenter: Rupert Payne

Co-authors: Rachel Denholm, Jessica James, Alastair D Hay

Institutions: Centre for Academic Primary Care, Population Health Sciences, University of Bristol

**Abstract**

Problem

Recent national primary care antimicrobial stewardship objectives have included reducing overall and broad-spectrum antibiotic prescribing. COVID-19 pandemic mitigation strategies have included two national lockdowns during which primary care has implemented remote consulting. The aim of this study was to investigate the impact of the first lockdown on the frequency of common infection diagnoses and antibiotic prescribing in the age-groups most affected: children and older adults.

Approach

A retrospective cohort analysis of patients aged 0–10 years and ≥65 years diagnosed with lower respiratory tract infection (LRTI), upper respiratory tract infection (URTI), pyelonephritis, other urinary tract infections (UTI), gastroenteritis or skin infection in primary care comparing weeks 11 to 22 in 2015 to 2019 with the same (lockdown weeks) in 2020 using data from the Clinical Practice Research Datalink. Mixed-effect regression models were used to explore changes in practice rates of infection diagnosis and proportion of infection episodes prescribed an antibiotic within three days of a diagnosis, before and during lockdown, with differences by patient and practice characteristics examined. Changes in antibiotic classes were investigated.

Findings

Practice rates of common infections decreased during lockdown across all subgroups in both age groups, by between 90% (IRR=0.10, 95% CI 0.09-0.11 for URTI in 0-10 year olds) and 42% (IRR=0.58, 0.55-0.62 for UTI in ≥65 year olds). Antibacterial prescriptions for LRTIs decreased in lockdown, compared to pre-lockdown for both 0-10s (OR=0.35; 95% CI 0.23-0.54) and ≥65s (OR=0.21; 0.18-0.24). Among the ≥65s, decreases in antibacterial prescribing were greatest among men, never smokers, and those with fewest comorbidities. Prescribing increased for URTI (OR=1.26; 1.12-1.40) among 0-10s, and among ≥65s for UTIs (OR=1.14; 1.02-1.26) and skin infections (OR=1.15; 1.02-1.30). Differences in prescribing were observed across ethnic groups for URTIs in ≥65s, with greatest reductions observed in non-white patients, but not for other infections. Increases in prescribing were observed for UTI and skin infections in those with no prior antibiotic prescribing in the last 12 months. In contrast, there were no clear subgroup effects within children for any infection. During lockdown a greater use of narrow spectrum and first-line recommended antibiotics was observed, for example reflected in reductions in the use of ciprofloxacin for UTIs.

Consequences

This study, the first to investigate changes in antibacterial prescribing by infection during the first national lockdown, indicates a sudden and substantial improvement in the overall quantity and quality of primary care antibiotic prescribing, potentially bringing forward the date by which national antimicrobial stewardship targets may be achieved. Whether these changes are a consequence of a reduction in face-to-face primary care consultations, community infection transmission and/or patient health

seeking behaviour, requires further investigation.

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## 1E.4 Beyond Protocol Working – a review of clinical decision making for older patients presenting with suspected pneumonia

Presenter: Sara McKelvie

Co-authors: Dr Emily Lyness, Professor Hazel Everitt, Professor Joanne Reeve

Institutions: Oxford Health NHS Foundation Trust, University of Southampton, Hull and York Medical School

**Abstract**

Problem

Community Acquired Pneumonia (CAP) is a common presentation in acute healthcare settings. Established guidelines describe management; however, for many older multi-morbid patients, single-disease-focused guidelines may not be applicable. Clinicians need to use alternative strategies in these 'beyond-protocol' situations. This review has determined the factors influencing decision making whilst working outside guideline-defined care.

Approach

Systematic database search (Cinahl, Embase, Ovid Medline and PsycINFO) identified 367 published articles about older (>60), co-morbid patients, with a diagnosis of CAP, Lower Respiratory Tract Infection or Aspiration Pneumonia. Abstract screening identified 64 papers for full text review and 44 articles were included in this scoping review. Narrative review, involving thematic analysis, using a priori themes applied to the first ten papers, developed a coding framework. Two coding concepts were identified: the type of clinical decision and key factors influencing it. This framework was used to extract data from all included studies, and the EPPI assessment tool was applied to assess rigor.

Findings

Three broad types of decision-making for older patients with pneumonia were noted; whether to treat, the location of treatment and clinicians' adherence to guidelines. The key factors influencing these decisions were; the patient, the disease, the clinician, the health system, and the interaction between clinician and patient, relative or carer. Five main analytic themes were identified; Assessment of Pneumonia Severity, Vulnerability to Pneumonia, Patient and Family wishes for treatment, Clinical Reasoning and Judgement and Use of Guidelines. Guidelines were often studied to measure the effect of changing the doctor's behaviour on patient outcome. The most common reasons to override clinical guidelines for pneumonia in older people was the presence of co-morbidities, severity of disease, including hypoxia, and social factors. These factors were felt to increase patient's vulnerability to disease and often lead to hospitalisation. Few studies discussed patient preferences, but when investigated preferences could change depending on the information provided. There was a lack of discussion of the clinician factors that affect decision making including communication between the patient and clinician.

Consequences

The current literature focused on the application of guidelines, but often concluded that clinician judgement should be used to make individualised clinical decisions. We demonstrate a gap in the knowledge about how clinician factors affect decision-making, including best practice when communicating between the patient and clinician in the acute treatment of respiratory infection. Further research is needed to develop a taxonomy of "clinically appropriate overrides" (Halm 2000) to help clinicians have a language to justify

their reasoning and to promote an individually tailored approach to patient care.

**Funding acknowledgement**

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## 1E.5 Facilitators and barriers to covid-19 vaccine uptake in BAME groups in primary care: a qualitative study

Presenter: Mohammad Sharif Razai

Co-authors: Roaa Al-bedaery (1), Felicity Knights (1), Douglas GJ Mckechnie (2), Lucia Magee (1)

Institutions: (1)Population Health Research Institute, St George's, University of London, London, UK; (2) Department of Primary Care & Population Health, University College London, London, UK

**Abstract**

Problem

Covid-19 vaccination is an effective strategy to reduce the spread of infection and achieve herd immunity. However, evidence suggests that both vaccine uptake and intention to vaccinate differ amongst population groups. Vaccine hesitancy is highest amongst specific ethnic minority groups. There is currently no qualitative study of the barriers and facilitators to covid-19 vaccine uptake in BAME groups in the UK primary care.

Approach

We aim to conduct in-depth telephone interviews using semi-structured, open-ended questions about covid-19 vaccination in patients from South Asian (Bangladeshi/Pakistani) and Black African/African-Caribbean ethnicities in primary care in March 2021. Patients will be recruited using purposive sampling in 5 socially and ethnically diverse general practices in London. Interviews will be transcribed verbatim and subjected to thematic analysis. Data on age, sex, occupation, co-morbidities, previous vaccination status, geographical location, country of birth, education level will be also be obtained. Patients will be selected through EMIS search. All adults over 18 who are eligible for covid-19 vaccination regardless of priority status and can consent will be included in the study. Questions will relate to desire to take the vaccine, barriers and potential factors that would change their view and decision-making.

Findings

We hypothesise that covid-19 vaccine hesitancy will be associated with deprivation, lower educational attainment, residential segregation, previous negative healthcare experiences, and poor trust of healthcare services. Other barriers and potential solutions will be explored in depth during the interview.

Consequences

Covid-19 has had a disproportionate impact on ethnic minority groups with much higher mortality, and cases and hospitalisation rates compared to the White populations. Vaccination is an effective strategy in mitigating the risk. We need to understand the factors that cause vaccine reluctance, hesitancy and refusal, and how to facilitate engagement with vaccination programmes. This primary-care based study could help plan targeted public health campaigns to increase covid-19 vaccine uptake.

**Funding acknowledgement**

Sean Hilton Fund, Population Health Research Institute, St George's University of London

## 1E.6 Are at-home, parent-collected, Royal Mail-transported upper respiratory tract dry specimens equivalent to nurse-collected, same-day, on-ice, viral-medium transported specimens for the detection of respiratory microbes in young children?

Presenter: Claire A Woodall

Co-authors: Claire A. Woodall1, Hannah V. Thornton1, Emma C. Anderson2, Suzanne M. Ingle3, Peter Muir4, Barry Vipond4, Denise Longhurst4, John P Leeming5, Charles R. Beck3 6, Adam Finn7 and Alastair D. Hay1

Institutions: 1Centre for Academic Primary Care, Population Health Sciences, Bristol Medical School, University of Bristol, Canynge Hall, 39 Whatley Road, Bristol BS8 2PS, UK. 2Centre for Academic Child Health, Population Health Sciences, Bristol Medical School, Univer

**Abstract**

Problem

Individuals are increasingly self-collecting upper respiratory swabs for the detection of Covid-19. Community self-collected swabs could reduce costs and infection risk, but there is a paucity of evidence comparing parent-collected (PC) and nurse-collected (NC) upper respiratory specimens. We aimed to assess PC vs. NC saliva and nasal sample quality and performance.

Approach

Children were recruited into a community inception respiratory infection cohort study between 26 February and 1 July in 2016. PC nasal and saliva swabs were completed at-home and posted to a single research laboratory. NC nasal and saliva swabs independently, and then transported them same-day in viral transport medium on ice. Reverse transcriptase (RT)-PCR was used to detect the human gene, 18S rRNA, to measure swab quality; and a 42-pathogen TaqMan array card to detect respiratory microbes, with a cycle threshold ≤38 reported as positive. Agreement (Cohen's kappa, κ), sensitivity and specificity were calculated for the detection of human control genes and pathogens with PC and NC microbe results considered the 'test' and 'reference standard' respectively.

Findings

Pairs of PC and NC nasal and saliva samples were available in 91 and 92 children respectively, median age 4 years (IQR 2 – 8). Swabs were taken at a mean of 6.4 days (95% CI, 5.8 – 6.9) after symptom onset. PC swabs arrived at the laboratory a mean of 2.7 days (95% CI, 2.33 – 3.06) post-collection whereas NC swabs arrived at a mean of 0.05 days (95% CI, 0 – 0.1). 18S rRNA detection was 100% sensitive and specific (κ = 1). Combining all viruses, nasal swabs had a sensitivity, specificity and kappa of 91.6%, 98.8% κ = 0.84 respectively. For all bacteria, the same parameters were 91.5%, 96.2%, κ = 0.84. Saliva specificity was similar to nasal swabs for virus and bacteria. However, for viruses and bacteria respectively, sensitivities were lower at 69.4% and 78.1%, and was in agreement, κ = 0.64 and κ = 0.73.

Consequences

Our results suggest that PC nasal swabs at home, posted dry could be used instead of healthcare professional swabbing with same-day transport, on ice, in transport medium. Our results also suggest PC saliva samples should not replace NC saliva samples. PC home taken nasal samples could be used in clinical and research settings.

**Funding acknowledgement**

This work was supported by in part by the Medical Research Council and Wellcome Trust Institutional Strategic Support Fund (WT ISSF),

awarded to CAW on a Daphne Jackson Trust Development Fellow in collaboration with the Elizabeth Blackwell Institute.

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## 1F.1 WORKSHOP: See and Be Seen - how to develop your academic impact

Presenter: Amanda Howe, Carolyn Chew-Graham, Joanne Reeve

Co-authors:

Institutions: UEA, Keele, HYMS

**Abstract**

**Aim and intended outcome / educational objectives**

Shrinking resource, and growing criticism of research waste (Glasziou) makes optimising the impact of our work a priority for all academics. But developing the vital skills of communication and advocacy are not consistently supported. We need to make effective use of other partners who are well placed to disseminate our work and extend its scope. This workshop will use the partnership between Royal College of GPs and SAPC to examine both how advocacy/impact can be achieved and how participants may use these skills/experiences in working with other settings.

This workshop will be co-led by the SAPC Chair, Chair of Heads of Department group and the President of the RCGP to:

- introduce participants to the role of professional bodies in advocacy
- analyse how academics can use professional bodies to disseminate key messages from their work, and stimulate the use of findings on the frontline
- analyse effective and ineffective approaches to working together
- summarise the broader constructs and skills of advocacy and change management

The overall aim is to help academics think 'up and out', and ensure they are familiar with opportunities at national level that can help disseminate their work.

Preconference work - potential attendees will be invited to reflect beforehand on projects they are working on that need/deserve impact. If we know in advance who has chosen this workshop, we can supply a template to structure this step and to be ready to share.

Workshop: summary of SAPC-RCGP case studies and one worked example of a 'research to routine practice' pathway. Participants will be then be facilitated to identify principles used to achieve successful outcomes (e.g. via Mentimeter wordcloud, or just hold up paper !!)

Participants will then move into virtual groups to consider their own impact projects, using principles identified to work on specific questions, such as – how can I get my work out into the NHS or other system? Where can I showcase it? Where else do I need to get involved to do this? Who can I use to help with this? How can I track it?

The facilitators will have prepared summaries of options, as well as taking feedback and questions.

**Content**

Introduction to workshop and participants
Carl May NPT Model of change management
Core skills of effective advocates – how to get heard positively
Examples of effective national working – after group has generated ideas (e.g. RCGP, WISE-GP, NICE, AoMRC, curriculum change …)
Summary of key findings and take home messages

## 1G.1 WORKSHOP: Living Well at the Deep End

Presenter: Claire Norman, Josephine M Wildman

Co-authors:

Institutions: Population Health Sciences Institute Newcastle University

**Abstract**

Aim and intended course outcomes

Deep End GPs practice in areas of blanket deprivation with significant health and social care challenges and excellent insights into the problems that their communities face. This workshop aims to get participants thinking of practical ways that general practice can serve deprived populations well. We intend for participants to go away with new ideas for interventions that fit with the priorities of Deep End GPs, but also an understanding of why special consideration must be taken not to create intervention generated inequalities.

We ask participants to consider the following questions:

1. What are the barriers to living well that patients and staff face in the Deep End?
2. Are you aware of any existing interventions or projects in your area to help people live well?
3. How can we ensure that interventions don't exacerbate existing inequalities?

**Format & Content**

Short slideshow introduction by facilitator. We will introduce the Deep End and the findings of our co-design research interviews – these show that clinical priorities for Deep End staff are:

- mental health
- substance misuse (including prescription drugs)
- child health
- chronic diseases.

[20 MINUTES] Participants will split into four breakout rooms (one for each of the priority areas mentioned). They may briefly introduce themselves and how deprivation influences their practice. The main focus of this breakout session would be to consider the three questions above and to create their own idea for an intervention that might help people to live well in the Deep End. Facilitators CN and JW will go between rooms to provide assistance or prompts if required. Prompts will also be sent to all breakout rooms to suggest they move on to the next question.

Depending on the exact format of the virtual conference, we may ask groups to record their ideas on an interactive mood board like Padlet (https://en-gb.padlet.com/).

Each group takes 5 minutes to report back. They will be asked to nominate a spokesperson to do this.

The final ten minutes will be to summarise the group's findings and to highlight key considerations for new interventions.

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## 2A.1 Exploring the views and experiences of under-represented groups in using digital health to self-manage Parkinson's and the impact of COVID-19 on access to care

Presenter: Danielle Nimmons

Co-authors: Kate Walters, Jennifer Pigott, Anette Schrag, Joy Read, Megan Armstrong, Wesley Dowridge, Della Ogunleye, Nathan Davies

Institutions: University College London

**Abstract**

Problem

Digital health is thought to enable people to better manage chronic conditions. However, little is known about how people from under-represented groups with complex chronic conditions use digital health to self-manage their condition. Parkinson's is a chronic progressive condition, where individuals can experience a range of hard to manage symptoms. Using Parkinson's as an exemplar complex long-term condition, our aims were to explore in under-represented groups:1. Experiences of people with Parkinson's and family carers in using digital health to self-manage Parkinson's2. Expectations from digital healthcare support, and potential adaptations for optimal use3. The impact of the COVID-19 pandemic on access to care.

Approach

Semi-structured interviews (n=32) were conducted remotely with 24 people with Parkinson's and 12 family carers in 2020-2021. Participants were purposively sampled from under-represented groups: ethnic minority, non-English first language, or significant physical, sensory or cognitive impairment. Interviews were audio-recorded, transcribed and analysed using thematic analysis. Team members with lived experience of a chronic condition, including Parkinson's, and from an under-represented group contributed throughout, including at conception, study design and interpretation of results.

Findings

Initial findings from our ongoing analysis show people with Parkinson's and family carers most valued healthy living support, e.g. exercise classes, to improve self-management. Some people used digital health resources, most commonly NHS/Parkinson's UK websites. Digital literacy appeared to be the biggest barrier to using digital health, regardless of background, often relating to previous occupation and confidence. However, with support, most participants were willing to try a digital support tool. No ethnic minority participant thought race or culture alters self-management and all believed there was no need for digital health interventions to be tailored to an individual's race or culture, since Parkinson's can affect anyone and therefore advice should be universal. Most participants had experienced remote consultations due to the pandemic, more often by telephone than video. Telephone and video calls were acceptable during the pandemic as it reduced travel and infection risk. Overall, those who had experience using digital health were more comfortable and prepared to use video to access care during the pandemic. Those with hearing impairment had difficulty accessing telephone consultations. Those with significant physical, sensory and cognitive impairments were heavily reliant on caregiver support for these consultations.

Consequences

Findings will inform the development of digital health interventions for people with complex health conditions, who may have difficulties engaging with technology. Further, we identified important considerations for optimising remote healthcare consultations to be accessible for all. Healthcare Services must ensure technology does not create barriers in these groups.

**Funding acknowledgement**

NIHR SPCR

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## 2A.2 How do electronic risk assessment tools affect the communication and understanding of risk and diagnostic uncertainty in the primary care consultation? A systematic review and qualitative synthesis.

Presenter: Alex Burns

Co-authors: Brian Donnelly, Joshua Feyi-Waboso

Institutions: University of Exeter

**Abstract**

Problem

Diagnosis in primary care is complex and challenging. The primary care consultation is fraught with uncertainty: the inputs are variable, imperfect and subjective, and the disease prevalence is low. Good GPs are able to process and communicate risk and accept uncertainty in diagnosis. Communication of these concepts in a way which allows a shared understanding of medicine with a patient, is one of the seminal challenges of primary care. Diagnostic risk assessment tools are computer based algorithms designed to help GPs to avoid missing a diagnoses, to pick up possible symptoms early and help facilitate shared decision making. However to achieved adequate sensitivity they have a low positive predictive value and some are designed to 'pop-up' during a consultation. The impact of these new tools on the consultation dynamic, how it affects clinicians and patients communication of and response to risk requires assessing. This review seeks to understand the extent (or otherwise) of what is known about the impact of electronic risk assessment tools on these aspects of the primary care consultation.

Approach

Searches of MEDLINE, EMBASE, CINAHL and Web of Science were performed. Full search strategy is available at PROSPERO, ID 219446. Three reviewers working independently screened titles and abstracts, and then full text for relevance. Disputes were resolved on discussion between reviewers. Data extraction was via line by line coding to identify direct quotations and researcher comments pertinent to the research question. A thematic synthesis approach is now being used. Descriptive themes have been developed, and analytical themes are in progress.

Findings

5971 unique studies were identified of which 441 underwent full text review. 28 studies were included for data extraction. Electronic risk assessment tools include differential diagnosis suggestion tools, tools which produce a future risk of disease development or recurrence, or refine a risk of current undiagnosed disease. Thematic synthesis is in progress, and will be complete by June 2021.

Consequences

The findings of our review will address important questions regarding the impact of electronic risk tools. This review examines the current qualitative evidence as to how these tools influence the diagnostic process and the discussions or risk and uncertainty which inevitably follow. Such tools are increasing in use, despite limited evidence of benefit. Any potential benefits will need to overcome barriers to implementation and uptake. This review may assist with this challenge.

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## 2A.3 A community pharmacy text messaging intervention to support medication taking. Who does it work for, and in what circumstances?

Presenter: Gemma Donovan

Co-authors: Jonathan Ling, Felicity Smith, Scott Wilkes

Institutions: University of Sunderland, University College London

**Abstract**

Problem

Up to half of people with long-term conditions (LTCs) do not take their medicines as prescribed. Digital technology is often suggested for supporting medicines taking. However, the results of previous research are mixed. We have developed a new intervention using a combination of a community pharmacist consultation and automated text messaging to support medicines taking. This has been developed using peer-reviewed literature and focus groups with patients and healthcare professionals (GPs, pharmacists, nurses). The intervention is tailored to the individual using a questionnaire and delivers content for up to eight LTCs. In this study, we sought to develop a realist programme theory which would describe how our intervention may work, for whom and in what circumstances.

Approach

A prototype of the new intervention was delivered to patients, including a consultation with a pharmacist and two weeks of text messaging. The text messaging intervention makes use of a 'persona' called Alice. Diary-interviews were used to gather feedback from eight patients, recruited through a public, patient and carer involvement group. Patients kept a diary during the period of text messaging and follow-up semi-structured interviews were conducted. Interviews were audio recorded and transcribed verbatim for analysis. Transcripts were coded to identify the potential contexts, mechanisms and outcomes which may explain how our intervention may work using realist evaluation principles.

Findings

Participants recruited into the study allowed us to test the intervention for patients with asthma, chronic pain, depression, ischaemic heart disease, hypertension, and type 2 diabetes mellitus. The intervention seems to improve medication taking by 'checking in' with patients. Checking in is achieved using one-way messages which remind patients to take their medication and why their medicines are important. The intervention also checks that patients are OK using two-way text message monitoring of health (using home monitoring devices or symptom assessment) and medication taking. Contexts which were important to the text messaging mechanism included participants 'accepting' Alice as a vehicle to provide support and mobile phone use. The consultation with the pharmacist worked to ensure that patients knew what their medicines were for, how to take their medication, and lay a foundation for the communication with Alice. The intervention seemed particularly helpful for patients with high treatment burden.

Consequences

This study allowed us to build an initial realist programme theory for how our new intervention may work and some of our findings may be transferable to other text messaging interventions for health. There are few digital interventions which have accounted for multimorbidity, but our programme theory suggests that this may be a population which particularly benefits. Our findings will be used to plan future evaluations and ultimately recommendations for when to use this intervention to support medication taking.

**Funding acknowledgement**

This work presents independent research funded by the National Institute for Health Research (NIHR) through an NIHR Doctoral Research Fellowship (DRF-2016-09-163). The views expressed are those of the author(s) and not necessarily those of the NHS, the NI

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## 2A.4 Service user experience, clinical outcomes and service use associated with urgent care services that utilise telephone based digital triage: A systematic review

Presenter: Vanashree Sexton

Co-authors: Prof. Jeremy Dale, Dr Carol Bryce, Dr Helen Atherton

Institutions: University of Warwick

**Abstract**

Problem

Telephone based digital triage is widely used by services that provide urgent care. This involves a call handler or clinician using a digital triage tool to automatically generate care advice, based on a patient's symptoms. Despite wide adoption, there is limited evaluation of its impact on service user experience, service use and clinical outcomes. No previous systematic reviews have focussed on these outcomes in the urgent out of hours care setting.

Approach

Studies were identified through searches conducted in Medline, Embase, CINAHL, Web of Science and Scopus. All original study types were included. Quality assessment of studies was conducted using the Mixed Methods Appraisal Tool (MMAT); narrative synthesis was used to analyse findings.

Findings

Thirty one studies were included, most evaluated clinician led triage (n =26) and were of quantitative design (n=25). Studies evaluated change service use (including primary care, emergency department use, ambulance use, and emergency hospital admissions) following digital triage implementation; typically they reported a reduction or no change in service use. Studies that evaluated patient level service use showed mixed findings relating to patients' subsequent service use and adherence with triage advice. Aside from hospitalisation rates of digitally triaged patients, no studies reported on clinical outcomes. Three studies highlighted potential triage inconsistencies relating to under-triage. Digital triage service users reported good satisfaction overall; two key themes related to callers' need for assertiveness in order to receive care that they felt was appropriate and improved experience where services worked together.

Consequences

Interpreting success of digital triage is complex, with varying service level factors and varying health care systems internationally. There was no evidence of differences in safety or user experience between clinician and non-clinician led digital triage, meaning that this could be an effective model for countries to adopt. However, only four of the included studies investigated non-clinician led digital triage, and therefore further research into non-clinician led triage is important.Digital triage is central to telephone based care delivery, which is vital during pandemic situations. Further research into the following areas will help to improve digital triage tools and service delivery: 1) patient level service use and clinical outcomes related to digital triage, in order to better understand safety and potential triage inconsistencies 2) the effectiveness of non-clinician led digital triage and 3) more qualitative and mixed methods approaches to better understand patients'

adherence with triage advice and care needs in depth, which can feed into how service delivery can be improved.

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## 2A.5 Inequalities in developing multimorbidity over time: a population-based cohort study using Multistate Markov Chain Models

Presenter: Alessandra Bisquera

Co-authors: Mark Ashworth, Yanzhong Wang

Institutions: King's College London, NIHR Biomedical Research Centre

**Abstract**

Problem

Social inequalities accelerate the development of multimorbidity, yet the mechanisms which drive multimorbidity trajectories remain unclear. Previous studies assume that disease trajectories are in a progressive state, and do not account for disease recovery. We aimed to examine whether social inequalities affect the evolution of multimorbidity, taking the sequence of diseases into consideration.

Approach

We used a retrospective cohort of adults aged 18 years and over, registered at any point between April 2005 to May 2020 in general practices in one inner London borough (n=826,936). The development and resolution of 32 long term conditions (LTCs) were examined through the application of Markov chains.

Findings

Participants were followed up for a mean of 5.7 years (sd = 4.8); 77% entered the study with no LTCs, 14% with 1 LTC, 5% with 2 LTCs, and 4% with 3 or more LTCs. At the end of follow-up, 24% gained 1 or more LTCs, while 12% had resolved LTCs and 3% died. In multistate models, deprivation (hazard ratio [HR] 1.37 – 1.71), female sex (HR 1.09 – 1.14), and Black ethnicity (HR [vs White] 1.22 – 1.30) were associated with an increased risk of transition from healthy state to multimorbidity or death, and less time spent in a healthy state. The results of first order Markov chains show patterns such as musculoskeletal diseases followed by psychological diseases; alcohol and substance dependency followed by HIV, viral hepatitis, and liver disease; and morbid obesity followed by diabetes, hypertension, osteoarthritis and chronic pain.

Consequences

We examined the relations among 32 conditions, taking the order of disease occurrence into consideration. Distinctive patterns for the development and accumulation of multimorbidity have emerged, with increased risk of transitioning from a healthy state to multimorbidity related to ethnicity, deprivation and gender.

**Funding acknowledgement**

The study was supported by a grant from Impact on Urban Health, part of Guy's and St Thomas' Foundation (Charity No: 1160316).

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## 2A.6 Safetxt: A randomised controlled trial of an intervention delivered by mobile phone messaging to reduce sexually transmitted infections (STI) by increasing sexual health precaution behaviours in young people.

Presenter: Cari Free

Co-authors: Melissa J Palmer, Kimberley Potter, Ona L McCarthy, Lauren Jerome, Sima Berendes, Anasztazia Gubijev, Megan Knight, Zahra Jamal, Farandeep Dhaliwal, James R Carpenter, Tim P Morris, Phil Edwards, Rebecca French, Paula Baraitser, Ford Hickson, Kaye Welling

Institutions: LSHTM, UCL KCL

**Abstract**

Problem

Younger people aged 16 to 24 bear the heaviest burden of sexually transmitted infections (STIs) such as chlamydia and gonorrhoea, and their long-term adverse health effects including ectopic pregnancy and subfertility. Our systematic review shows the effect of safer sex support delivered by text message on partner notification, long term condom use and STI is not reliably known. With users, we developed the theory based safetxt intervention delivered by text message to reduce sexually transmitted infection (STI).

Approach

Objectives: To establish the effect of the safetxt intervention on the cumulative incidence of chlamydia and gonorrhoea infection at 1 year. Design: A parallel-group randomised trial with care providers and outcome assessors blind to allocation. Setting: Recruitment from 92 UK sexual health clinics, the intervention is delivered by mobile phone. Participants: Inclusion criteria: received a positive chlamydia or gonorrhoea test result, were diagnosed with non-specific urethritis (NSU) or had started treatment for chlamydia, gonorrhoea or NSU in the last two weeks; own a personal mobile phone; aged 16 to 24 Allocation: Remote computer-based randomisation with an automated link to the messaging system to deliver intervention or control group messages. Intervention: The safetxt intervention delivered by text message was designed to reduce STI by increasing partner notification, condom use and STI testing before sex with new partners. Comparator: a monthly message regarding trial participation. Main outcomes: Primary outcome: cumulative incidence of chlamydia and gonorrhoea infection at 1 year assessed by nucleic acid amplification tests. Secondary outcomes include: partner notification, condom use and STI testing prior to sex with new partner(s).

Findings

The reuslts will be reported at the conference.

**Funding acknowledgement**

NIHR PHR

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## 2A.7 Multimorbidity and adverse outcomes in UK Biobank: are findings biased by lack of representativeness?

Presenter: Peter Hanlon

Co-authors: Peter Hanlon, Bhautesh D Jani, Barbara Nicholl, Jim Lewsey, David A McAllister, Frances S Mair

Institutions: University of Glasgow

**Abstract**

Problem

UK Biobank is increasingly used to study the causes, associations, and implications of multimorbidity. However, UK Biobank is criticised for its lack of representativeness and

'healthy volunteer bias'. Selection bias such as this can lead to spurious or biased estimates of associations between exposures and outcomes. Therefore, we aimed to compare the association between multimorbidity and adverse health outcomes in UK Biobank and an unselected, representative sample identified from SAIL databank.

Approach

Analysis of cohorts identified from linked routine healthcare data from the UK Biobank cohort and from the Secure Anonymised Information Linkage (SAIL) databank. Long-term conditions were identified at baseline using primary care data (Read codes for diagnoses and prescriptions) with linkage to hospital and mortality data. We included UK Biobank participants (n=211,597, aged 40-70) with linked primary care data and a similar aged sample from a nationally representative routine data source (SAIL) (n=852,055, age 40-70). Multimorbidity (n=40 LTCslong-term conditions [LTCs]) was quantified using a simple count and a weighted score. Individual LTCs and LTC combinations were also assessed. Associations with all-cause mortality, unscheduled hospitalisation, and major adverse cardiovascular events (MACE) were assessed using Weibull or Poisson models and adjusted for age, sex, and socioeconomic status.

Findings

Multimorbidity was less common in UK Biobank than in SAIL. The difference was attenuated, but persisted, after standardising by age, sex and socioeconomic status. The relative effect of increasing multimorbidity on all-cause mortality, unscheduled hospitalisation, and MACE was similar between UK Biobank and SAIL at smaller LTC counts (between 0 and 3 LTCs), however above this level UK Biobank underestimated the risk associated with multimorbidity. Absolute risk of mortality, hospitalisation and MACE, at all levels of multimorbidity, was lower in UK Biobank than in SAIL (adjusting for age, sex, and socioeconomic status). UK Biobank and SAIL produced similar hazard ratios for mortality for some LTCs (e.g. hypertension and coronary heart disease) but underestimated the risk for others (e.g. alcohol problems, mental health conditions, or pain). The hazard ratios for clusters of LTC including pain or mental health conditions were also lower in UK Biobank than SAIL.

Consequences

UK Biobank accurately represents the increased risks associated with moderate multimorbidity and therefore can be a useful resource for multimorbidity research. However, its lack of representativeness limits inferences about the minority of people with the highest degree of multimorbidity. The rich lifestyle, environmental, phenotypic and genetic data available in UK Biobank offers unique opportunities to understand factors associated with development of multimorbidity as well as relationships between multimorbidity and various associated phenomena. Nonetheless, where long-term conditions are the exposure, UK Biobank results are likely to be more conservative than in a general population cohort. UK Biobank is likely to underestimate the impact of the highest levels of multimorbidity.

**Funding acknowledgement**

Medical Research Council

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## 2B.1 How can we improve GP recruitment and retention in areas of socio-economic deprivation? Qualitative evaluation of the Deep End GP Pioneer Scheme

Presenter: David Nicholas Blane

Co-authors: Safiya Dhanani

Institutions: University of Glasgow

**Abstract**

Problem

There is a General practitioner (GP) workforce crisis across the UK, but there are particular challenges with GP recruitment and retention in areas of deprivation. General Practitioners at the Deep End work in the 100 general practices serving the most socioeconomically deprived populations in Scotland. The Deep End GP Pioneer Scheme, established in 2016 with funding from the Scottish Government, aimed to develop a sustainable model for primary health care delivery in deprived areas. It involved recruitment of early career GPs (5 GP fellows in the first cohort, 7 in the second), retention of experienced GPs and joint working on service and professional development (with protected time for both). The aim of this qualitative study was to explore the views and experiences of GP fellows and lead GPs from the Pioneer Scheme to help evaluate the extent to which the scheme met its intended aims.

Approach

GPs involved in the Pioneer Scheme (n=29; 12 GP fellows and 17 lead GPs) were invited to participate by email. Semi-structured interviews were conducted with 18 participants (10 GP fellows and 8 lead GPs), using a topic guide which included questions about motivation for applying to the Pioneer Scheme, strengths and limitations of the Scheme, factors influencing job satisfaction, and future plans. Interviews were audio-recorded and transcribed verbatim, then coded using NVIVO software. A sample of coding was checked with a second researcher. Reflexive thematic analysis was employed as a methodology for analysis.

Findings

GP fellows were attracted to the Pioneer Scheme because of protected time for learning, peer support, and mentoring from lead GPs. Lead GPs were attracted by the increased clinical capacity, enthusiasm of GP fellows, and protected time for service development work. Participants reported an increase in intrinsic aspects of job motivation/satisfaction including purpose, relatedness, mastery and autonomy as well as an increased readiness to work in deprived areas. Positive yet unanticipated outcomes included an improvement in GP wellbeing and increased creativity. Participants were critical of the short-term nature of the scheme and many were therefore skeptical of its ability to impact health inequalities due to lack of sustainability. All GP fellows expressed a future desire to work in Deep End practices as well as feeling more equipped to do so after completing the Pioneer Scheme.

Consequences

The Pioneer Scheme is a promising model for increasing recruitment and retention of GPs in areas of socio-economic deprivation, which has the potential to be scaled up as a new way of working in primary care, with protected time for service and professional development. Indeed, the Pioneer Scheme has already inspired a similar programme of health equity-oriented GP Fellowships (Fairhealth Trailblazer Scheme), which is being rolled out across England.

**Funding acknowledgement**

The Deep End GP Pioneer Scheme was funded by the Scottish Government's GP Recruitment and Retention Fund.

## 2B.2 Involving patients and carers in primary care patient safety: a qualitative study examining the role of a patient safety guide

Presenter: Rebecca Lauren Morris

Co-authors: Sally Giles and Stephen Campbell

Institutions: NIHR Greater Manchester Patient Safety Translational Research Centre, University of Manchester

**Abstract**

Problem

Increasingly there is a recognition in health and social care that patients and carers should be active partners in patient safety with healthcare professionals and be empowered to use personalised approaches to identify safety concerns and work together to prevent them. This moves beyond asking patients to identify safety concerns and errors to work in partnership to prevent them. Co-design approaches have been used to develop, implement and evaluate participatory approaches in quality improvement initiatives in a variety of settings by working in collaboration with the end-users of the intended initiatives. In this project used a co-design approach to develop a primary care patient safety guide and aimed to identify processes that may influence its use and implementation into routine primary care, especially general practice and pharmacies.

Approach

A prototype of the primary care patient safety guide was developed using a co-design approach. After an initial brief scoping exercise of patient safety issues was conducted, a series of co-design events took place with a mix of GPs, pharmacists, patients and carers. During the events participants mapped the phases of care in relation to patient safety in priority areas, planned ways of improving patient safety at key points of care, and then worked together to refine the prototype of the guide. Following the co-design events, semi-structured interviews with 19 patients and carers were conducted to examine patients and carers existing strategies for patient safety and to evaluate the patient safety guide for patients and carers.

Findings

Participants identified both explicit and implicit issues of primary care patient safety that will influence involving patients and carers. The identification of shared priority areas and key patient safety questions, such as developing a shared understanding of patient safety, understanding each other's role in safety, and to support collaborative improvement was important in creating a context in which patients could be involved in patient safety. To actively involve patients and carers in patient safety it was considered essential to consider the importance of communication, understanding roles and responsibilities, and developing partnerships between patients and healthcare providers. Factors affecting whether participants would make use of the guide related to engagement within and across services as well as uncertainties around how to embed it in clinical encounters such as consultations.

Consequences

The patient safety guide will support patients and carers to partner with healthcare professionals to improve patient safety to address international and national priorities to improve patient safety. The co-design approach and in-depth qualitative study identified important areas where patient safety in routine primary care can be improved using patient and clinician experiences providing a more nuanced understanding of how patients and carers want to be involved in patient safety.

**Funding acknowledgement**

This study is funded by the National Institute for Health Research (NIHR) Greater Manchester Patient Safety Translational Research Centre. The views expressed are those of the author(s) and not necessarily those of the funders.

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## 2B.3 Growing the GP team – how does GP work change with expansion of the practitioner team?

Presenter: Sharon Spooner

Co-authors: Imelda McDermott, Kath Checkland, Mhorag Goff, Damian Hodgson, Anne McBride, Jon Gibson, Mark Hann, Matt Sutton

Institutions: University of Manchester

**Abstract**

Problem

In recent years, increasing health care demand, that is in part attributable to population health demographics and transfer of care to community settings, has led to increasing workloads for general practice across the UK. Recruitment and retention of GPs has not kept pace with workload increases which further damages the attractiveness, longevity and sustainability of a GP career. To reduce pressure on GPs, health policy documents have proposed that GP practices and networks should employ a wider range of allied health professionals, such as clinical pharmacists, physiotherapists, physician associates and paramedics. Changes in workforce composition mean that practices need to consider how best to deploy the skills and experience of newer types of practitioner, reducing pressure on GPs but maintaining high quality health care for patients. As part of a comprehensive study of the scale, scope and impact of changes in the practitioner composition of the primary care workforce, we investigated how current, and previously un-tested, diversification of the primary care workforce composition (or skill mix) has affected the working lives of GPs.

Approach

We conducted an in-depth case study at 5 purposively selected GP practices, using interviews and observations to gather information about how clinical and administrative staff were implementing skill mix. A survey and focus groups allowed patients to indicate how accessing health care has changed. Using a broadly interpretivist approach to analysis of how work was organised and how services were delivered and experienced we coded, discussed and refined our understanding of these data. Findings were triangulated with an analysis of large scale datasets that looked at associations between workforce composition and outcomes in terms of quality markers, practitioner and patient satisfaction, and utilisation of hospital services and costs.

Findings

This paper focuses on findings from the case study component that are particularly pertinent for GPs engaged in implementing skill mix in their own practices. Firstly, we examine issues surrounding the (non-)standardisation of practitioners in these roles by discussing how practices addressed the individually-variable range of skills, experience and capabilities of practitioner employed in nominally similar roles. Secondly, we look specifically at how supervision and performance management of practitioners with differing capabilities presents challenges for GPs, and at strategies adopted by practices to accommodate this additional work. We also discuss how GPs reflect on the changing nature of their caseloads, including increasing complexity and reduced opportunities to maintain established relationship-based care.

Consequences

Finally we consider wider implications of these changes across a number of areas: potential adaptations for GP training programmes and early careers, resources needed to support GPs and managers to optimise management of skill mix, impact on job satisfaction for GPs and overall impact on patient experience.

**Funding acknowledgement**

NIHE HS&DR programme funded this research

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## 2B.4 How can we promote Academic GP careers? Exploring the experiences of academic GPs.

Presenter: Zoe McElhinney

Co-authors: Catherine Kennedy, Lisi Gordon, Anita Laidlaw, Robert Scully, Calum McHale

Institutions: University of Dundee, University of St Andrews

**Abstract**

Problem

Academic general practice is vital to the development of the profession, in creating evidence, translating research into useable guidance for clinicians and policy makers, and educating the next generation of doctors. It does, however, remain largely invisible to many outside academic practice, and is not considered by many GPs until later in their careers, if at all. The need for clear academic career pathways for the next generation has been highlighted for many years. Although the Walport Report (2005) and the subsequent MMC career pathways led to the creation of academic career posts for GPs, concerns remain that career pathways are unclear, in particular for those GPs who wish to enter academic careers after completion of specialty training. This sets out to answer the following questions: • How do GPs experience the transition to academic careers? • What are the enablers and barriers to developing an academic career? • How does becoming an academic GP alter their professional status? • What do academic GPs view as career success?

Approach

This study is a secondary analysis of data collected for two separate research projects investigating aspects of academic general practice carried out in 2019. The study takes a constructivist approach, analysing written narratives and semi-structured interviews with nine academic GPs involved in undergraduate education, and focus groups and individual interviews with 14 GPST s, 14 academic GPs involved in clinical and educational research, and five non-academic practising GPs. In line with the constructivist approach, this use of multiple data sources allows for the examination of the phenomenon from multiple viewpoints, enabling a more in-depth understanding. Analysis of the data employs a framework based on Feldman and Ng's (2007) perspectives influencing career mobility embeddedness, and success. NVivo software was used to code the data before a thematic analysis was conducted by the research team.

Findings

The analysis explores the enablers and barriers to becoming an academic GP and experiences of developing academic GP careers. The analysis explores this at multiple levels, including structural and occupational labour market factors; organisational and work group factors; alongside personal life and individual personality issues. Issues of professional identity and status in relation to the impact of dual careers are prominent. This work is in progress, and the completed analysis will be available for presentation at the conference in June.

Consequences

Our research enhances understanding of what matters to GPs in developing academic careers, the enablers and barriers to developing academic careers, and challenges which might threaten sustainability of academic GP careers including perceptions of career success. It provides an important evidence base that can inform a review of academic GP career pathways currently being undertaken in Scotland with a view to developing a national pathway

**Funding acknowledgement**

No external funding received

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## 2B.5 Experiences of OOH task-shifting from GPs: Systematic review of qualitative studies.

Presenter: Merlin Willcox

Co-authors: Jennifer Parker, Merlin Willcox, Hajira Dambha-Miller, Emily Lyness

Institutions: University of Southampton

**Abstract**

Problem

It is increasingly recognised that the GP workforce is insufficient to meet the rising demands of patient care in the out-of-hours (OOH) primary care setting. In response, current Government policy promotes a greater skill-mix of non-medical practitioners (NMPs) to fill roles traditionally occupied by GPs, referred to as task-shifting. To date, there is limited evidence collating experiences of task-shifting to inform optimal OOH care delivery. In this study, we aimed to synthesise qualitative evidence on NMP and GP experiences of task-shifting in the OOH primary care setting.

Approach

A scoping review with electronic searches across CINAHL, PsychInfo, Cochrane, Medline and Embase, and OpenGrey from database inception to October 2020 for articles including urgent or OOH primary care services, utilising task-shifting or role delegation from GPs to NMPs. Included studies used qualitative methods or mixed designs with qualitative elements. After abstract and full-text screening, articles were selected and their quality appraised. Thematic synthesis was used to collate results following the methods outlined by Thomas & Harden.

Findings

Out of 2490 studies screened, four met the inclusion criteria. These were mixed-methods studies conducted in the UK between 2011 and 2019. Two reported on advanced nurse practitioner experiences of task-shifting through OOH home visits; one study reported on physician assistant experiences of integrating within OOH services, and the final article describes an evaluation on suitability of paramedic training to work in OOH services. Key findings highlight the importance of: 1) organisational level recognition of NMP backgrounds engendering trust and respect, 2) NMP confidence and satisfaction is facilitated by appropriate training, support, and mentoring, and 3) a culture of collaboration between GPs and NMPs can promote clinical autonomy.

Consequences

NMPs have the potential to make a substantial contribution to the OOH setting, which is essential to meet growing patient demand. More evidence is needed on experiences of task-shifting in OOH primary care. NMP and GP experiences highlight the need for further training specific to OOH services. Mentorship and support to manage more varied and complex clinical cases could permit more effective OOH services and better patient care.

**Funding acknowledgement**

No specific funding was received for this project.

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## 2B.6 Understanding the impact of professional motivation on the workforce crisis in medicine

Presenter: Efioanwan Andah

Co-authors: Blessing Essang, Charlotte Friend, Sarah Greenley, Kathryn Harvey, Joanne Reeve, Maria Spears

Institutions: Academy of Primary Care, Hull York Medical School

**Abstract**

Problem

The NHS is facing a workforce crisis. Responses to date have focused on improving recruitment of staff, but with less attention paid to retention. We conducted a rapid review using Moss Kanter's 3M's model of workforce motivation as a sensitising framework to examine the current medical workforce crisis. Our work considers how insights from research in other professions offers new thinking for understanding what motivates doctors to continue working.

Approach

A systematic search strategy was developed with the aid of an Information Specialist. (Search terms: medical professionals, retention, NHS; exclusions: commentaries, non-medical professionals, non-English language etc; limited to post-1990). This was applied to three electronic databases, MEDLINE, EMBASE and HMIC. This produced a dataset describing study design/quality; and factors related to motivation for leaving the medical profession. Comparative thematic analysis distilled core themes explaining the reasons for leaving and their relation to the 3M's model.

Findings

Of 3389 abstracts identified, screening and assessment produced 82 papers included in the final analysis. Thematic analysis identified 4 key themes: low morale, disconnect, unmanageable change and lack of personal and professional support. The themes of mastery, membership and meaning were substantially present within the dataset.

Consequences

The 3M's model of motivation can be applied to the medical workforce to understand retention issues. This work supports the development of targeted solutions to tackle the worsening workforce crisis.

**Funding acknowledgement**

Carried out as part of Academic Foundation Programme (AFP) four-month research placement

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## 2B.7 Associations between Research Activity and Patient Health Outcomes (ARAPAHO)

Presenter: Jon Gibson

Co-authors: Peter Bower

Institutions: University of Manchester

**Abstract**

Problem

There is increasing evidence that participation in research drives better performance in health care settings. However, the evidence mostly comes from secondary care, while the bulk of patient contacts are through general practice. If research participation improves outcomes, achieving those benefits through general practice could improve health for a wider population of patients. England is in a unique position to explore this issue, as it has excellent data on both general practice and research activity (through the NIHR Clinical

Research Network infrastructure). This provides the potential for a comprehensive analysis of the relationship between research activity and outcomes at a national scale.

Approach

The ARAPAHO project (funded by the Policy Research Programme) is a mixed methods study to answer the following research questions:1. Are there associations between research activity in general practice and outcomes? 2. What mechanisms may explain associations between research activity and outcomes?3. What are the characteristics of effective 'research active' practices from the perspective of staff, practitioners and patients?4. What are the impacts on patients and staff of research activity in general practice? We have created a preliminary logic model based on existing literature and patient and expert stakeholder input, which will inform our methods. We will use a variety of statistical methods (including causal modelling) with routine data to answer research questions 1 and 2. We will use qualitative methods with professionals and patients to explore research questions 3 and 4. For this, we will use outputs from our quantitative analyses and work closely with patients and other stakeholders to sample different types of general practices for in-depth study across England.The results from ARAPAHO will be synthesised with input from PPI and other stakeholders to consider the broader implications for future research activity in this setting.

Findings

ARAPAHO is ongoing, and at the conference we will present our initial logic model, and the results of initial quantitative analyses exploring the association between research activity and outcomes. We will use a variety of measures of research activity (volume, type, and duration) and multiple outcomes, including Quality and Outcomes Framework scores, and patient experience from the General Practice Patient Survey. These analyses will allow us to demonstrate whether the relationships demonstrated in secondary care settings generalise to general practice. We will also consider their implications for sampling in the subsequent qualitative work.

Consequences

General practice remains fundamental to the delivery of high quality care in England. However, there are significant pressures in this setting due to changing population demographics, rising patient expectations and issues of recruitment and retention in the workforce. Understanding the role that research activity can play in improving practice performance and patient outcomes could make an important contribution to maintaining the vitality of general practice in the future.

**Funding acknowledgement**

NIHR (NIHR201428)

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## 2C.1 What role do GP factors have on decisions to investigate symptoms of possible cancer? A mixed-methods systematic review

Presenter: Victoria Hardy

Co-authors: Victoria Hardy, Adelaide Yue, Stephanie Archer, Samuel Merriel, Matthew Thompson, Jon Emery, Fiona Walter

Institutions: University of Cambridge, University of Exeter, University of Washington, University of Melbourne

**Abstract**

Problem

Clinical guidelines of symptoms most predictive of cancer are used in many countries to improve the timely diagnosis of this heterogeneous disease by standardizing use of diagnostic tests and referral pathways. Variation in appropriate use of referral

pathways has prompted concerns about suboptimal use of investigations contributing to diagnostic delay for many cancers. This has been interpreted as due to inconsistent GP adherence to guidelines. As clinical decision-making involves complex cognitive processes, factors related to the GP may play an important role in decisions to investigate possible cancer, but this has not been examined. We therefore evaluated the influence and perceptions of GP factors on decisions to investigate symptoms that might indicate an underlying cancer in primary care.

Approach

We searched MEDLINE, Embase, Scopus, CINAHL and PsycINFO between January 1990 and December 2019 for studies in developed countries that reported the influence of GP factors on testing and referral decisions for any cancer type. GP factors were defined as 'attributes of the GP that they bring to the practice setting which have been the object of interest regarding performance and competence assessment'. Quality assessment and data extraction were undertaken independently by two authors. We used a convergent segregated approach to analyze quantitative and qualitative findings before combining them in a narrative summary.

Findings

Twenty-four studies (15 quantitative and 9 qualitative), predominantly in European countries, met review eligibility criteria. We identified a total of twelve GP factors. The most substantive body of evidence was found for suspicion of cancer, years of experience, gut feeling, and age. Other GP factors included gender, continuing medical education involvement, fear of malpractice, tolerance for uncertainty, assessment of cancer risk, first impressions, and attitudes to risk and gatekeeper role. Odds of non-urgent investigation was higher when GPs' suspected cancer; urgent referral was less likely in the absence of 'alarm' symptoms, when GPs felt unsupported by referral criteria to act on a suspicion of cancer. GPs were more likely to investigate colorectal and ovarian cancer and became willing to act outside of clinical recommendations as years of experience increased. Gut feeling at referral predicted a subsequent cancer diagnosis and was a valued diagnostic tool for guiding management of non-specific symptoms. The influence of age on decisions to investigate different cancer sites was mixed.

Consequences

GP factors influenced and were perceived to have an important and intersecting role in testing and referral decisions for symptoms suggestive of an underlying cancer, with suspicion of cancer, gut feeling, and years of experience most implicated. The utility of these factors for managing non-specific symptoms warrants focused attention. This has particular implications for developing strategies to optimize rapid diagnostic cancer testing pathways that promote more timely diagnosis of harder-to-detect cancers.

**Funding acknowledgement**

This work arises from the CanTest Collaborative, funded by Cancer Research UK [C8640/A23385]

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## 2C.2 Managing uncertainty for lung cancer symptoms: how is safety netting experienced and understood in practice?

Presenter: Sandra van Os

Co-authors: Katriina Whitaker, Willie Hamilton, Fiona Walter, Christina Renzi, Colin Anderson, Georgia Black.

Institutions: S van Os and G Black: Department of Applied Health Research - UCL, K Whitaker: School of Health Sciences - University of Surrey, W Hamilton: University of Exeter Medical School, F Walter: Department of Public Health and Primary Care - University of Cambri

**Abstract**

Problem

Although guidelines about safety netting in primary care exist, there is little evidence about how these strategies work in practice. Little is known about patient preferences and how GP advice affects patient behaviour after the consultation. We aimed to capture patient experiences and perspectives of safety netting, and explore possible unintended consequences of safety netting practices. Understanding how effective current strategies are and how they can be optimized in primary care will help to improve timely diagnosis and survival of lung cancer patients.

Approach

We conducted interviews with 20 participants: 15 via remote methods, and 5 face-to-face that were linked to an interview with their mostly recently visited GP (n=3). All participants had recently visited primary care for a low risk lung cancer symptom. Thanks to this dyadic design, we collected information about real examples of safety netting and uncertainty management. Participants were recruited through GP practices in deprived areas because we know that lower socioeconomic status is associated with a higher risk of late diagnosis and lower survival chances. An inductive analysis was carried out, with particular focus on the five patient-GP dyads.

Findings

GPs and patients have differing views and experiences of safety netting in the management of uncertainty around low risk lung cancer symptoms. Patients feel that uncertainty is well-managed when a GP is thorough and attentive, for example, paying attention to medical history. Most GPs perceived an effective safety net to be based on the consideration and management of cancer risk. Although many also took other steps to reassure patients. Patients strongly preferred it when the GP took active steps to encourage them to reconsult.Some unintended consequences of safety netting were uncovered: patients were sometimes unaware that GPs used certain timeframes or prescriptions to rule out alternative diagnoses. When GPs did not actively encourage patients to come back (passive safety netting) patients felt dismissed, or should not have gone to see the GP. Some patients were put off from re-seeking help due to their negative interpretation of passive safety netting.

Consequences

Our findings suggest that GPs should reorient their safety netting towards ensuring that patients understand their strategy, and give active encouragement to reconsult appropriately.We argue that a health literacy Universal Precautions Approach, treating all patients as if they are at risk of not understanding advice, is imperative. This would improve patient understanding of safety netting advice, resulting in more robust mitigation of the riskier parts of the diagnostic pathway. It would also recognise that even individuals with good health literacy may not attribute the same meaning to safety netting as healthcare professionals, that health

literacy can be situational, and that all patients would benefit from clear and actionable safety netting.

**Funding acknowledgement**

This project was funded by a Roy Castle Lung Cancer Foundation research grant.

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## 2C.3 Trends in urgent referrals for suspected cancer over the last decade

Presenter: Lesley Smith

Co-authors: Nigel Sansom, Scott Hemphill, Stephen Bradley, Bethany Shinkins, Pete Wheatstone, Willie Hamilton, Richard Neal

Institutions: Leeds Institute of Health Sciences University of Leeds, Leeds Centre for Personalised Medicine and Health University of Leeds , PinPoint Data Science Ltd, Patient representative  Leeds, University of Exeter

**Abstract**

Problem

Over the last decade the number of urgent referrals for suspected cancer via the two week wait (TWW) pathway has more than doubled with over 2.3 million referrals in 2019/20. This rapid increase in referrals has led to increased costs to the NHS and capacity pressures. However, most patients referred do not have cancer. Obtaining the right balance between high detection rate and low conversion rate is difficult. It is important to understand the trends and pathway use to support planning, resource allocation and evaluation of diagnostic pathways. In this study we describe and quantify changes in TWW referral, conversion and detection rates for England over the last decade across different cancer pathways.

Approach

This study used data on referral trends for England available from April 2009 to March 2020 obtained from Public Health England. Annual data were available for all cancers and site-specific data for 12 broad cancer types (breast, lower GI, lung, skin, upper GI, gynaecological, urological, head and neck, brain and CNS, haematological, sarcoma and children's cancers). Metrics for analysis included: TWW referral rate: number of TWW referrals per 100,000 population; conversion rate: percentage of TWW referrals which resulted in a cancer diagnosis; detection rate: percentage of cases recorded as having first treatment for cancer which resulted from a TWW referral. Annual trends were analysed using Joinpoint regression to quantify changes using the average annual percentage change and detecting significant changes in trend over time.

Findings

For all cancers combined the total number of referrals increased from 902,943 in 2009/10 to 2,374,718 in 2019/20. Referrals rates increased by 9.4% per year. The annual rate of increase ranged from 5.4% for lung to 13% for sarcoma, with referral rates for lung and upper GI stabilising from 2014/15 onwards. The conversion rate decreased by 4.7% per year for all cancers combined. Decreases in conversion rates were observed for all cancer types ranging from 2% for skin cancer to 7% for breast, lower GI and brain cancers. Stable trends were observed in more recent periods (since 2014-2016) for lung, upper GI and urological cancers. For all cancers combined the detection rate increased from 42.3% in 2009/10 to 53.5% in 2019/20. Generally, the detection rate increased across cancer types ranging from 2% for upper GI to 5% for sarcomas and haematological malignancies. However, for breast and lung cancer the detection rate decreased by 0.8% and 1.6% per year, respectively.

Consequences

These findings are important for future planning of diagnostic and cancer services, particularly given the increased pressures on referral pathways following the coronavirus pandemic. Understanding variation in trends by cancer type may help identify key factors influencing and driving these changes which has implications for future referral policies.

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## 2C.4 Scoping Review of Point-of-Care tests used to detect Cancer

Presenter: Anam Ayaz-Shah

Co-authors: Paola Cocco, Michael Messenger, Matthew Thompson, Samuel Smith, Richard Neal.

Institutions: University of Leeds, University of Washington.

**Abstract**

Problem

Diagnostic testing and timely triaging of patients are crucial steps in cancer care pathways. Access to diagnostic tests and effective triaging of patients with possible cancer can be improved by incorporating the use of point of care tests (POCTs) at primary care level. Despite the availability of several POCTs for cancer, adoption in clinical practice is negligible. Paucity of published literature and information regarding the availability and potential of POCTs may contribute to the lack of uptake by clinicians. The aim of this scoping review was to systematically identify POCTs available to detect cancer.

Approach

Comprehensive literature searches were performed in OVID MEDLINE, OVID EMBASE, Cochrane CENTRAL, INHATA, and Clinicaltrials.gov between March 2009 - March 2019. The search strategy combined several MeSH and free-text terms for "cancer" and "point of care test". Studies were screened by title and abstract independently by two reviewers and discrepancies were adjudicated by a third reviewer. Primary studies were eligible if they included an in-vitro POCT used to detect cancer in clinical populations during or very close to the time of consultation with results available within the same practice visit. Literature on POCTs used solely for monitoring, point of care ultrasonography and imaging, and pre-clinical assay refinement studies were excluded. POCTs primarily intended for diseases that were precursors to cancer were also excluded. Extracted data included diagnostic metrics of POCT, cancer type, and time to results.

Findings

Literature searches retrieved 6815 studies of which 248 were screened for full text. From the included studies, 17 unique POCTs were identified. Most POCTs were intended for colorectal (n=6) and bladder cancer (n=4) followed by breast (n=3), prostate (n=2), lung (n=1) and multiple myeloma (n=1). Time to test results for the POCTs varied from 3 minutes to 60 minutes with a median time of 10 minutes. POCTs intended for colorectal cancer required faeces as a test sample and urine was required for bladder cancer POCTs. For prostate and multiple myeloma finger-prick blood samples were required. Breath samples were required for both breast and lung cancer POCTs.

Consequences

Current POCTs literature for cancer is largely observational and research to support uptake in clinical practice is lacking. Despite the abundance of research investigating POCTs for cancer, very few POCTs progress to product development. This review aimed to capture literature through scientific databases and registries, however it is possible that POCTs not published on scientific platforms were not identified in this review. For this reason, additional hand searches of web pages were conducted in December 2020 to

identify POCTs not published on scientific databases (for example on test developer websites). These findings will be incorporated with updated searches of databases that were orignally searched to allow inclusion of few additional available POCTs for cancer.

**Funding acknowledgement**

This study was supported through a PhD award by Cancer Research UK.

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## 2C.5 How can a feasibility trial to test an early diagnosis complex intervention, be delivered during a global pandemic? The rapid adaptation of ThinkCancer!

Presenter: Alun Surgey

Co-authors: Alun Surgey, Stefanie Disbeschl, Jessica Roberts, Annie Hendry, Julia Hiscock, Ruth Lewis, Nia Goulden, Nefyn Williams, Richard Neal, Clare Wilkinson

Institutions: Bangor University (AS, SD, JR, AH, JH, RL, NG, CW), University of Liverpool (NW), University of Leeds (RN)

**Abstract**

Problem

Early diagnosis of cancer usually leads to better survival and therefore it is important for primary care to act quickly when potential cancer symptoms are presented. ThinkCancer! is an educational and quality improvement workshop-based intervention, originally designed to be delivered in-person at GP surgeries. Due to the outbreak of the COVID-19 pandemic and the subsequent fall in urgent cancer referrals the problem has increased in urgency and the intervention and trial were adapted for remote delivery.

Approach

A randomised controlled feasibility trial to assess usual feasibility criteria (recruitment, retention, fidelity, data collection and outcome measures), alongside a health economic and mixed methods process evaluation was designed for delivery to a sample of primary care teams across Wales. Iterative adaptation of the intervention was expected. Recruitment began in Autumn 2019 by email invitation to all practices in Wales, with no exclusion criteria in place, aiming to recruit 23-30 practices at 2:1 intervention to control ratio. The intervention was developed from a multimethod research programme, and includes educational sessions for both clinical and non-clinical staff, appointment of a practice safety netting champion and the bespoke design and implementation of a practice safety netting plan. The delivery methods of the workshops changed dramatically to allow for MS Teams or Zoom platform use, though the content initially required little adaptation.

Findings

To date we have received 45 expressions of interest (12% of all GP practices in Wales), randomising 30 practices with 21 to intervention, surpassing progression criteria. Practices report a keen desire to take part in recognition of the importance of the subject. Intervention delivery is challenging due to time constraints and pressure on primary care. Loss of protected educational time and increased workload due to staff shortages and additional demands on time due to Covid-19 are barriers to delivering workshops. Delivering the workshop in 3 smaller units of time has improved uptake, with 8 practices completed so far. Post workshop feedback has already led to adaptations to presentation materials and positive comments around learning and confidence. Remote delivery of the workshop is proving challenging at times where Information Technology issues occur or groups are less engaged. The reach of the intervention has been improved by allowing recordings of the sessions to circulated to team members not able to join live sessions.

Consequences

Meeting progression criteria, observed intervention acceptability and participant feedback is already driving the design of a future definitive phase 3 trial. Forced Covid-19 adaptations have led to an intervention that can be more easily delivered at scale and at less cost. A successful main trial could lead to the nationwide adoption of ThinkCancer!, improving cancer outcomes through accurate early referral and reducing diagnostic delay with effective consultation and GP practice system level safety netting.

**Funding acknowledgement**

The Wales Interventions and Cancer Knowledge about Early Diagnosis 'WICKED' programme is fully funded by Cancer Research Wales.

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## 2C.6 Do changes in full blood count indices predate symptom reporting in people with undiagnosed bowel cancer? Retrospective analysis using cohort and case control designs.

Presenter: Tim Holt

Co-authors: Jacqueline Birks, Clare Bankhead, Brian Nicholson, Alice Fuller, Julietta Patnick.

Institutions: Oxford University

**Abstract**

Problem

Early detection of bowel cancer confers substantial prognostic benefit. Symptoms are non-specific and appear relatively late in the disease process. The ColonFlag is a machine learning algorithm derived by the company Medial EarlySign that calculates a risk score for undiagnosed bowel cancer (adjusted for age and sex) using changes in full blood count (FBC) indices. Such changes also become more evident as the disease progresses. It is not known whether changes in the ColonFlag score predate the reporting of symptoms. We aimed to compare the timescales over which the ColonFlag can predict bowel cancer with the timescales over which relevant symptoms are reported to general practice.

Approach

We conducted cohort and case control studies using routine primary care data from the Clinical Practice Research Datalink (CPRD) linked to the National Cancer Registry. Each FBC had an associated ColonFlag score derived during a previous project. We examined the literature for symptoms positively associated with bowel cancer, and identified their codes in CPRD. Main outcomes were: period prevalence of bowel cancer symptoms at six monthly time intervals prior to the index date (date of diagnosis for cases or randomly selected date for controls); odds ratios and Harrell's c-index for discrimination using logistic regression on the outcome of bowel cancer diagnosis at a range of time intervals (primary outcome 18-24 months), for the ColonFlag and for symptoms.

Findings

Our initial dataset included 1,893,641 patients, 10,875,556 full blood counts and 8,918,037 ColonFlag scores. Trajectories of the ColonFlag begin to diverge in cases compared with controls at around 3-4 years before diagnosis. In the cohort study the AUROC for a diagnosis 18-24 months into the future for the ColonFlag = 0.736 (95% CI 0.715, 0.759), but this falls to 0.536 when the influence of the age variable is removed through the case control design. At this timescale, symptoms do not add significantly to our ability to predict bowel cancer. The odds ratios for individual symptoms become non-significant prior to 12 months before index date, with the exception of abdominal pain (OR 1.29 at 12-18 months) and rectal bleeding (OR for females 2.09 at 18-24 months, males 2.50), $p<0.0001$.

Consequences

Symptom reporting to general practice increases rapidly in the 12 months prior to a bowel cancer diagnosis, but prior to 18 months is barely different from background reporting. This limits the usefulness of symptoms alone for early stage detection. The ColonFlag can discriminate usefully at timescales of 18-24 months, although at this stage much of its discriminatory ability comes from the age variable. Its performance increases as the diagnosis approaches, suggesting a place for this algorithm in the primary care setting, supporting other approaches to early detection.

**Funding acknowledgement**

This study was funded by the National Institute for Health Research through the Research for Patient Benefit Program, grant PB-PG-0817-20025.

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## 2C.7 Sources of support and perceptions of the role of the GP for patients following major pancreatic surgery for cancer: A qualitative study

Presenter: Anna Taylor

Co-authors: Miss Ambareen Kausar, Mr David Chang, Mrs Alison Phelan, Prof Carolyn Chew-Graham

Institutions: University of Leeds, East Lancashire Hospitals NHS Trust, Keele University

**Abstract**

Problem

Pancreatic cancer is the 10th most common cancer in the UK. Most are diagnosed at a late stage; around 10-15% patients undergo pancreaticoduodenectomy. Few studies have explored patients' experiences of surgery, with little consideration of the role of the GP as a source of support. However, GPs are key in enabling effective care-coordination for people living with life-shortening conditions, and in identifying unmet support needs which can negatively impact patients' quality of life. Our study explored patients' sources of support and what role they perceived their GP to play in their support network and care-coordination, in order to identify opportunities for improved support interventions across primary and specialist care.

Approach

Ethical approval was obtained. Semi-structured interviews were conducted with patients who had undergone pancreaticoduodenectomy for pancreatic or distal biliary duct cancer at a specialist hepato-pancreatic-biliary centre in Northwest England. Interviews explored life after surgery, sources of support, and participants' perspectives of the role of their GP. Data were analysed thematically using the principles of constant comparison.

Findings

Analysis of 20 interviews is reported. Participants described several sources of support including family, friends and faith communities. However, they expressed emotional conflict between accepting support from family or community networks and the desire to protect them from their fears. They were aware of support groups but were reluctant to engage with these. Participants expressed a wish for support from their GP post-operatively but found that asking for help was difficult, particularly if they experienced a lack of continuity of care. They were uncertain of the role of the GP in their ongoing care, recognising that GPs may have little experience with this condition, but expressed frustrations that they felt the burden was on them to offer information and education to their GP. However, participants felt that their GPs could play a vital role in

their ongoing care, hoping for greater recognition of physical and psychological sequelae of major pancreatic surgery, as well as the impact of their illness on their families.

Consequences

Patients may be reluctant to ask for psychological support. Therefore, an awareness of the patient experience is crucial in order for GPs to proactively offer psychological support following diagnosis and treatment. This may also enable more effective liaison with specialist care. Understanding cancer's impact on people's quality of life is vital for the development of improved support interventions.

**Funding acknowledgement**

This study was supported by the East Lancashire Hospitals NHS Trust MAGIC (MAstering GI Cancers) Fund.

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## 2D.1 How can alcohol brief interventions be embedded into routine primary care? A qualitative study of clinicians and patients perspectives

Presenter: Liz Sturgiss

Co-authors: Nilakshi Gunatillaka1, Grant Russell1, Suzanne Nielsen2, Tina Lam2, Renée O'Donnell3, Helen Skouteris3,4, Lauren Ball5, Chris Barton1, David Jacka6, Michael Tam7, Danielle Mazza1, Catriona Rowe1, Nathanael Wells1 and Liz Sturgiss1

Institutions: 1Department of General Practice, Monash University, Australia, 2Monash Addiction Research Centre, Monash University, Australia, 3Health and Social Care Unit, HiPP CRE, Monash University, Australia, 4Warwick Business School, Warwick University, UK, 5Health

**Abstract**

Problem

Alcohol is a major source of harm, contributing to 3 million deaths and 132.6 million Disability Adjusted Life Years (DALYs) annually in Australia. The burden of harm from alcohol use falls disproportionately on low-income communities. Alcohol Brief Interventions (ABIs) involve assessing a person's alcohol use and offering individualised advice to reduce health risks. Despite their demonstrated effectiveness, ABIs are infrequently implemented in primary care.Our team explored factors that influence the uptake of ABIs from the perspective of primary care clinicians and patients in Australian general practice.

Approach

Our qualitative study used semi-structured interviews and focus groups of primary care clinicians working in the greater Melbourne metropolitan region and patients from across Australia. Interview guides were based on published literature. General practices were recruited via a mail-out, newsletters and social media platforms including Twitter and GP-specific Facebook groups. Patients from low-income groups were engaged via social media conversations, and advertisements on social media and peer-to-peer alcohol support groups. Transcripts of audio recordings and field notes were used to identify themes using a matrix based on the question structure.

Findings

Participants (17 patients, 42 clinicians) reported multiple barriers and facilitators to the uptake of ABIs in primary care. We were able to use system levels to organise these into an ecological model from the wider community through to the individual patient and clinician. At the community level, we found barriers to adoption of ABIs through: existing community norms of excessive alcohol use, limited awareness of the alcohol-

related harms, and limited recognition that GPs could provide support for alcohol use. Within the healthcare system, limited referral options into tertiary care for alcohol dependence discouraged clinicians from conducting ABIs. Clinicians reported that ABIs could be supported by practice culture, including practice systems and teamwork to collect alcohol histories. However, clinicians continued to experience tension between asking about alcohol use routinely or as a direct response to another clinical issue . Within consultation barriers included time constraints, limitations in clinical software, and lack of appropriate resources to support conversations.Patients experiencing stigma surrounding alcohol use and those with limited knowledge about alcohol harms were less likely to engage with ABIs. Clinician' knowledge gaps in standard drink sizes, medications for alcohol dependence, motivational interviewing skills and perceived stigma as barriers to conducting ABIs.

Consequences

We have outlined factors at multiple levels of the healthcare system and broader community that influence the implementation of ABIs in Australian general practice. The multiple factors imply that a successful implementation strategy will have several targets, and likely benefit from a cohesive public health and primary care approach. Findings have been used to inform an intervention to increase clinician uptake of ABIs in general practice.

**Funding acknowledgement**

This project is funded by the Victorian Health Promotion Foundation (VicHealth)

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## 2D.2 Can we PREDICT Relapse of depression in primary care? (Protocol for the PREDICTR Study)

Presenter: Andrew Moriarty

Co-authors: Lewis Paton, Nick Meader, Kym IE Snell, Richard D Riley, Carolyn A Chew-Graham, Simon Gilbody, Dean McMillan

Institutions: Department of Health Sciences and Hull York Medical School, University of York; Centre for Reviews and Dissemination, University of York; Centre for Prognosis Research, Keele University; School of Medicine, Keele University

**Abstract**

Problem

The majority of people with depression in the UK are managed in primary care by General Practitioners (GPs). Relapse is common in people who have been treated for depression, and leads to considerable morbidity and decreased quality of life. Research suggests that at least 50% of patients will relapse after a first episode of depression, and that the majority of these will do so within the first 6 months. There is limited guidance and no validated tools available to help GPs identify and offer appropriate support to individuals who are at higher risk of relapse. The goal of this programme of work is to develop a primary care-based prognostic model to enable GPs to identify people with remitted depression who are at increased risk of relapse.

Approach

During the first part of this study, we carried out a systematic review and critical appraisal of existing prognostic models developed to predict relapse or recurrence of depression. We identified nine existing models; these were either developed in studies judged to be at high risk of bias or had poor predictive performance. Subsequently, we have created a dataset, drawn from seven primary care-

based Randomised Controlled Trials of primary care-based interventions for depression and one longitudinal cohort study. We will use penalised logistic regression to develop a statistical model to predict risk of relapse within 6-8 months after reaching remission. We will include the following established relapse predictors as variables in the model: residual depressive symptoms; previous depressive episodes; co-morbid anxiety; and severity of the index episode. If sample size and availability of predictor information allows, we will also include the following less well-established predictors in an exploratory analysis: age: relationship status; multi-morbidity; employment status; gender; and ethnicity. The predictive performance and clinical utility of the model will be assessed.

Findings

This study is on-going and we plan to begin data analysis shortly.

Consequences

The longer-term goal of this study is to develop a clinical tool to support clinicians to identify patients who are at increased risk of relapse, so that the appropriate interventions and support can be targeted at this group. The aim is to improve clinical outcomes and quality of life for patients, and to allow more efficient use of NHS resources. Further work on validation and implementation will take place beyond this study and will be guided by qualitative work with patients and primary care clinicians. The study has been supported from inception by on-going public and patient involvement (PPI). The PPI group, made up of people with lived experience of depression, will continue to guide the development of this tool and further research.

**Funding acknowledgement**

This report is independent research supported by the National Institute for Health Research (NIHR Doctoral Research Fellowship, Dr Andrew Moriarty, DRF-2018-11-ST2-044). The views expressed in this publication are those of the authors and not necessarily the funders.

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## 2D.3 Trends in prescribing for anxiety in UK primary care

Presenter: Charlotte Archer

Co-authors: David Kessler, Katrina Turner, Nicola Wiles

Institutions: University of Bristol

**Abstract**

Problem

Prescribing of antidepressants - for any indication and for depression - has increased substantially over the past two decades. However, little is known about trends in the prescribing of these and other drugs (such as benzodiazepines, beta-blockers, anticonvulsants and antipsychotics) for the treatment of anxiety in UK primary care. Several changes may have affected prescribing for anxiety: the introduction of IAPT in 2007/8; the 2008 economic recession; and the 2011 NICE anxiety guidelines recommendation that antipsychotics should not be prescribed for anxiety. Therefore, this study examined trends in prescribing for anxiety in UK primary care between 2003 and 2018.

Approach

We used data from adults (n=2,569,153) registered with UK general practices that contributed to the Clinical Practice Research Datalink (CPRD) between 2003-2018. Annual prevalence rates and incidence rates with 95% confidence intervals (CIs) were calculated for anxiolytic prescriptions for patients with anxiety. Analyses were conducted for any anxiolytic prescription, and separately for each drug class. Duration of treatment for

those starting medication in each drug class was also examined.

Findings

Prevalence of prescribing of any anxiolytic increased from 24.8/1000 person-years at risk (PYAR) in 2003 to 43.6/1000PYAR in 2018. This was driven by increases in those starting treatment, rather than an increase in long-term use. Between 2003 and 2008, the incidence of any anxiolytic prescription decreased from 12.8/1000PYAR to 9.3/1000PYAR; after which incidence remained fairly constant before rising to 13.1/1000PYAR in 2018. A similar trend was seen for the incidence of antidepressant prescriptions. The incidence of beta-blocker prescriptions increased over the 16-year period, from 2.3/1000PYAR in 2003 to 4.1/1000PYAR in 2018. Whereas the incidence of benzodiazepine prescriptions decreased from 6.4/1000PYAR in 2003 to 4.6/1000PYAR in 2018. Antipsychotics and anticonvulsants were prescribed infrequently, although incidence gradually increased between 2003 and 2018. Whilst long-term prescribing of benzodiazepines declined over the study period, just under half the prescriptions in 2017 were longer than the recommended maximum of 4 weeks. When stratified by age, the incidence of prescriptions of each drug class, including benzodiazepines, rose notably in young adults in recent years.

Consequences

The increase in incident prescribing for anxiety in recent years, which was most notable in young adults, may reflect better detection of anxiety and increasing acceptability of pharmacological treatment. However, some of this prescribing is not based on robust evidence of effectiveness, such as the use of beta-blockers, and there is limited evidence on the effect of taking antidepressants long-term and, as such, there may be unintended harm. Importantly, some of this prescribing may contradict guidelines, such as the prescribing of antipsychotics, and the long-term use of benzodiazepines.

**Funding acknowledgement**

This study was funded by the National Institute for Health Research (NIHR) School for Primary Care Research (project reference CA2017). The views expressed are those of the author(s) and not necessarily those of the funders.

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## 2D.4 Alcohol and cocaine use prior to suspected suicide – Insights from toxicology

Presenter: James Bailey

Co-authors: James Bailey, Nicola J Kalk, Rebecca Andrews, Sarah Bass, Limon Nahar, Michael Kelleher, and Susan Paterson

Institutions: King's College London, South London and Maudsley NHS Foundation Trust, Imperial College London

**Abstract**

Problem

Alcohol and illicit drug use are major modifiable risk factors for suicide, the leading cause of death for men under the age of 49 and women under the age of 34 in the United Kingdom. Data currently available in the UK on substance use in suicide is limited to patients in contact with secondary psychiatric services, which accounts for only 28% of suicide decedents. This leaves a majority who never approach services, or are excluded due to substance misuse – and suggests a gap in our understanding of substance misuse in suicide. Post-mortem toxicology identifies all decedents regardless of contact with psychiatric services and becomes vital to understand substance use prior to methods such as hanging, which is common, highly lethal, and difficult to study in living populations.

Approach

In England and Wales, all violent or unnatural deaths (including suicides) are referred to the Coroner. As part of the pathologist's investigation into the cause of death, toxicological analysis may be requested. The Toxicology Unit, Imperial College London, performs toxicological analysis on post-mortem samples submitted by pathologists on behalf of Coroners. All cases in the Toxicology Unit's database between 2012 and 2016 were retrospectively assessed for inclusion criteria. We considered all decedents who died from self-injury when the act appeared deliberate and self-inflicted. Femoral blood alcohol concentration (BAC) and presence of cocaine or benzoylecognine (a metabolite of cocaine) in blood and/or urine were tabulated and odds ratios calculated.

Findings

1722 decedents met inclusion criteria. BAC was ≥50 mg/dl in 29% of decedents. Cocaine was detected in 8.4% of all cases and 16.6% of those who also tested positive for alcohol. The likelihood of testing positive for cocaine increased with BAC and was most frequent between 100 and 199 mg/dl, consistent with moderate to severe intoxication (OR 5.88, 95% CI 3.80, 9.09; P ≤0.001) compared to those with BAC <10 mg/dl. Comparing these findings to other studies, cocaine use in our population is far higher than other areas with comparable reported cocaine use such as Australia and Colorado.

Consequences

Here we have demonstrated that alcohol use is a part of many suicides by self-injury and that cocaine use is more common among suicide decedents in comparison to the level of use reported in the general population (0.3% report being frequent users). The work of this study highlights the need to reconsider the lack of emphasis given to substance use in many national suicide prevention strategies as well as the need for increased public education about, and public health interventions to address alcohol and cocaine use in suicidal acts. Clinically, we hope it will energise engagement with depressed or suicidal patients about their alcohol use, and lead to enquiries about both infrequent and habitual cocaine use.

**Funding acknowledgement**

Thanks to the National Institute for Health Research and Health Education England for funding my Academic Clinical Fellowship

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## 2D.5 Multiple adverse health outcomes among individuals diagnosed with an eating disorder: findings from a large primary care cohort with linked secondary care and mortality records

Presenter: Catharine Morgan

Co-authors: Catharine Morgan, Matthew J Carr, Carolyn A. Chew-Graham, Terence O'Neill, Rachel Elvins, Roger T. Webb, Darren M. Ashcroft

Institutions: The University of Manchester, Keele University

**Abstract**

Problem

Eating disorders are characterised by persistent abnormal and harmful eating behaviours. In a recent Public Health England report (2019), a worrying increase in hospital admissions due to an eating disorder was reported, with half the admissions in 10-19 year olds. Eating disorders impact on both mental and physical health, however, evidence of fatal and non-fatal health risks among individuals diagnosed with eating disorders is limited. Our aims, therefore, were to examine the risk of adverse mental and physical health outcomes and report all cause

and cause-specific mortality risk including natural, unnatural deaths, suicide and fatal poisonings in a large population based matched cohort of incident eating disorder cases.

Approach

Using the Clinical Practice Research Datalink, we examined interlinked data from primary healthcare records, secondary care (Hospital Episode Statistics), and mortality records (Office of National Statistics). Incident eating disorder cases were identified between 1/1/1998-30/11/2018 aged 10-44 years (n=24,709). Cases were matched by age, gender and practice with 20 comparator individuals without a history of eating disorder (n=493,001). First event of adverse mental health outcome, including depression, anxiety disorder, personality disorder, obsessive compulsive disorder, self-harm and adverse physical health, including osteoporosis, fracture, liver disease, renal and heart failure, diabetes were identified from the linked data. Hazard ratios and cumulative incidence for each adverse outcome, including mortality risk at 1,5,10 years following diagnosis were calculated.

Findings

Risks were elevated among eating disorder cases for all physical and mental health outcomes examined. Individuals with an eating disorder diagnosis were 6 times more likely to develop renal failure or liver disease within a year of diagnosis and over 3 times in subsequent years; 9 times more likely to have a self-harm episode in the first year, with the risk remaining high compared to comparators longer term (12% vs 3% risk at 10 years); within 12 months of an eating disorder diagnosis individuals were 5 times more likely to die from an unnatural cause, 14 times more likely to die by suicide or from fatal poisoning; with risk remaining high at 6 times more likely to die by fatal poisoning at 5 or more years following an eating disorder diagnosis.

Consequences

We have shown a high burden of morbidity and mortality risk in people with an eating disorder diagnosis, compared to those without a history of eating disorder, both in short and long-term risk. This risk has highlighted the importance of proactive care by primary care clinicians in the earlier recognition, diagnosis and monitoring of physical and mental health problems and associated risk in people with eating disorders. There is the need for parity and timely access to co-ordinated care through physical and mental health services.

**Funding acknowledgement**

NIHR Patient Safety Translational Research Centre

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## 2D.6 Understanding how “non-traditional” providers can support early detection of mental health problems among older adults: a realist synthesis

Presenter: Tom Kingstone

Co-authors: Nadia Corp, Carolyn A. Chew-Graham

Institutions: School of Medicine, Faculty of Medicine and Health Sciences, Keele University, Staffordshire (UK), Midlands Partnership NHS Foundation Trust, St George’s Hospital, Stafford, UK

**Abstract**

Problem

Help-seeking for mental health problems among older adults can be delayed due to a lack of awareness, stigma, and limited access to acceptable services. Mental health problems within this population can affect quality of life, the management of physical comorbidities and relationships with others –

often detection of mental health problems occurs at a late stage or crisis point. NHS recommendations suggest that wider public services should support the delivery of healthcare interventions to support prevention, early intervention and to reduce the burden of crisis care. Evidence for interventions delivered by Fire & Rescue Services – in the context of falls prevention, smoking cessation and flu vaccination – and Police Forces – in the context of mental health crisis and dementia – suggest such interventions are effective and acceptable. Utilising existing points of contact between public service workforce and potentially vulnerable older adults could therefore support early identification of mental health problems and engagement with support services. However, we need to better understand how, when and in what contexts interventions delivered by non-traditional for older adults, work.

Approach

A realist synthesis to identify interventions that support detection of, and sign-posting for, mental health problems in older adults. We focus on interventions delivered by services that would not traditionally be involved in healthcare, such as fire and rescue, police, and library services. A PPIE group supported our initial evidence search strategy and definition of key terms. The review is registered with PROSPERO.

Findings

Systematic evidence searches were conducted; these revealed a dearth of relevant and rigorous evidence reporting mental health interventions delivered by non-traditional providers. These searches informed an adjustment of the scope of our review. The review has been narrowed at a provider-level (fire and rescue services, police only) and broadened at a condition-level to include evidence for falls prevention and dementia interventions; findings will be transposed to mental health contexts. We are currently coding evidence to establish context-mechanism-outcome configurations to inform programme theories and make sense of interventions from multiple levels. The synthesis is due to be completed prior to the conference.

Consequences

By synthesising existing evidence from a realist perspective, new knowledge will be generated to better understand key mechanisms in mental health interventions delivered by non-traditional providers to older adults. Findings will provide the theoretical basis for a future study to support early identification and management of mental health problems among older adults.Abstract dedicated to Katie Tempest.

**Funding acknowledgement**

NIHR School of Primary Care Research (Ref: 472; RIDDLE Study).

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## 2D.7 Mortality in patients prescribed mirtazapine compared to other antidepressants: an active-comparator new user cohort study

Presenter: Rebecca Joseph

Co-authors: Ruth H Jack, Richard Morriss, Roger David Knaggs, Debbie Butler, Chris Hollis, Julia Hippisley-Cox, Carol Coupland

Institutions: School of Medicine University of Nottingham, National Institute of Health Research Nottingham Biomedical Research Centre Nottingham University Hospitals NHS Trust, School of Pharmacy University of Nottingham, Nuffield Department of Primary Care Health Sci

**Abstract**

Problem

There is some evidence for an increased mortality rate in patients prescribed

mirtazapine compared to other antidepressants. This study aimed to compare all-cause and cause-specific mortality between patients prescribed mirtazapine and patients prescribed a selective serotonin reuptake inhibitor (SSRI), amitriptyline, or venlafaxine as a second line antidepressant following an initial course of treatment with an SSRI.

Approach

The study used English electronic health records provided by the Clinical Practice Research Datalink. Primary care data were linked with mortality and hospital data. The study included patients aged 18-100 years diagnosed with depression who were initially prescribed an SSRI and subsequently prescribed mirtazapine, a different SSRI, amitriptyline, or venlafaxine. The study window was 01 January 2005 – 30 November 2018. The outcomes were all-cause mortality and mortality due to cardiovascular disease, cancer, or respiratory disease (a combined outcome of self-harm and deaths due to suicide is being studied separately). Age-sex standardised mortality rates were calculated. Survival analyses were performed using Cox regression for all-cause mortality and Fine-Gray (competing risks) regression for cause-specific mortality. To meet the proportional hazards assumption, an interaction between treatment group and follow-up time was included in all-cause and cancer mortality models. Differences in baseline characteristics were accounted for using propensity score methods (inverse probability of treatment weighting).

Findings

The study included 25,598 patients: 5081 in the mirtazapine group, 15,032 in the SSRI group, 3905 in the amitriptyline group, and 1580 in the venlafaxine group. Median follow-up was 8 months (interquartile range 6.2-18.6) and there were 599 deaths. The crude mortality rate was 16.1 deaths/1000 person-years [95% confidence interval (CI): 14.9-17.4]. The mirtazapine group had the highest standardised mortality rate (21.6 deaths/1000 person-years [95% CI: 18.5-25.0]) and the SSRI group the lowest (13.8 deaths/1000 person-years [95% CI: 12.1-15.6]). In the first two years of follow-up the mirtazapine group had a higher risk of all-cause mortality than the SSRI group (hazard ratio 1.62 [95% CI: 1.28-2.06]), but a similar risk to the amitriptyline (hazard ratio 1.18 [95% CI: 0.85-1.63]) and venlafaxine (hazard ratio 1.11 [95% CI: 0.60-2.05]) groups. A similar pattern was found for deaths due to cancer and respiratory disease. After two years of follow-up , the mirtazapine group had a higher risk of all-cause mortality compared to all three other groups. However, only 20% of patients had over two years of follow-up, and there were few outcomes in this time.

Consequences

There was an increased risk of mortality in patients prescribed mirtazapine compared to those prescribed an SSRI as second line antidepressant treatments. However, this does not appear strongly driven by a particular cause of death and could reflect residual differences in patient characteristics. Patients prescribed mirtazapine, or other non-SSRI antidepressants, may need support to identify additional health risks and improve their outcomes.

**Funding acknowledgement**

This work has been funded by the National Institute for Health Research (NIHR). The research reported in this paper was conducted by the NIHR Nottingham Biomedical Research Centre.

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## 2E.1 Co-designing a Deep End network for the North East and North Cumbria (NENC)

Presenter: Claire Norman

Co-authors: Josephine M Wildman, Sarah Sowden

Institutions: Population Health Sciences Institute, Newcastle University

**Abstract**

Problem

From their Scottish origins in 2009, Deep End GP networks are being established all over the UK and further afield in Ireland and Australia. Their common goal it to mitigate health inequalities and champion the cause of primary care in these communities. As the North East is the most deprived region in England, we wanted to establish a network that was sustainable and reflected the priorities of primary care staff who worked in it. The network currently consists of the 34 most deprived practices in the region. Deep End NENC is affiliated with the Newcastle University Applied Research Collaboration's 'Inequalities and marginalised communities' strand.

Approach

We used co-design methodology to gather information from stakeholders in the region that could be used to guide the initial steps of the growing Deep End NENC network. Interviews also served to improve engagement and disseminate information about the network. Participants were recruited using purposive and snowball sampling, as well as a blanket communication to all Deep End practices. A geography-based recruitment framework was used to ensure coverage from across the region – all but one Clinical Commissioning Group was represented. Thirteen semi-structured interviews were carried out with health professionals (11 GPs, 1 nurse practitioner and 1 district nurse) from Deep End practices in the NENC between October-December 2020. Due to Covid-19 these were carried out over Zoom before transcription and thematic analysis.

Findings

Themes identified were the specific clinical and social challenges that were common in the Deep End; barriers to patient care and supporting equitable access; training and recruitment; and the need to connect with others who worked in these communities. Caring for patients with mental health problems was the most frequently cited area of need for enhanced support. The Covid-19 pandemic also brought challenges that were felt more acutely by Deep End patients and those who cared for them.

Consequences

These interviews were successful at identifying areas to prioritise and form the basis of the work that Deep End NENC will focus on over the coming years. They also add to the literature around challenges facing staff who work in deprived communities and could be used as research priorities by other networks with similar population demographics.

**Funding acknowledgement**

This research is supported by the National Institute for Health Research (NIHR) Applied Research Collaboration (ARC) for the North East and North Cumbria (NENC).

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## 2E.2 Primary care micro-teams: A systematic review to describe and examine the opportunities, challenges and implications of implementation for patients and health care professionals.

Presenter: Charles Coombs

Co-authors: Tanya Cohen, Claire Duddy, Kamal R. Mahtani, Nia Roberts, Aman Saini, Alexander Staddon Foster, Sophie Park

Institutions: University College London, University of Oxford

**Abstract**

Problem

There has been a recent trend towards creating larger primary care practices with the assumption that interdisciplinary teams can deliver improved and more cost-effective services to patients with better accessibility. Micro-teams have been proposed as a way to mitigate some of the potential challenges with practice expansion, including continuity of care. We aimed to review the available literature to examine: how micro-teams are described; and the opportunities and challenges which implementation of primary care micro-teams can produce for practice staff and patients.

Approach

We have worked closely with PPI collaborators from the inception of this review, alongside stakeholder discussions with practice staff involved in micro-team implementation or delivery. CINAHL, Cochrane Library, Embase, MEDLINE and Scopus were searched for studies in English. Grey literature was also sourced from Google Scholar, Government Websites, CCG websites, General Practice directives and strategies with the advice of stakeholders. Studies were included if they gave evidence regarding the implementation of micro-teams. Data from studies were synthesised using Framework analysis, using both deductive and inductive approaches. We used iterative stakeholder participation to embed the perspectives of those whom micro-teams could impact. Included studies were quality assessed using the Critical Appraisal Skills Programme tools for varying study designs. The quality assessment was not used to exclude any evidence but rather to develop a narrative discussion evaluating included literature.

Findings

The presentation will discuss emergent findings about how primary care micro teams development and implementation have been described and potential implications for future practice. Results include: the characteristics of included literature; a description of the range of ways in which micro-teams have been characterised and implemented; and reported outcomes and experiences of patients and staff.

Consequences

How primary care is organised has the potential to impact upon the nature and quality of patient care. This review contributes to the current debates surrounding the organisation of care and how this can impact the experiences and outcomes of patients. It brings together a range of literature and examines how, in what manner and why micro-teams have been considered and used in the primary care setting. The analysis identifies key opportunities and challenges from the literature which will help inform recommendations for future practice.

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## 2E.3 Creating and maintaining participatory space to share organisational decision making with patients in general practice

Presenter: Jessica Drinkwater

Co-authors: Anne MacFarlane (2), Maureen Twiddy (3), David Meads (1), Ruth H Chadwick (4), Ailsa Donnelly (4), Phil Gleeson (4), Nick Hayward (4), Michael Kelly (4), Robina Mir (4), Graham Prestwich (4), Martin Rathfelder (4), Robbie Foy (1).

Institutions: (1) University of Leeds, (2) University of Limerick, (3) University of Hull, (4) Patient Participation in Improving General practice (PPIG) co-research group (University of Leeds)

**Abstract**

Problem

Patient and public involvement in health care design and delivery is recognised as important internationally. Health policy cites the moral rationale for involving patients, but also claims involvement will result in more patient centred services, despite little evidence of the mechanism to achieve this. In England, this policy is enacted through contractual requirements for every general practice to involve patients in service improvement through Patient Participation Groups (PPGs). However, there are problems with making this routine and meaningful for all stakeholders. To address this policy-practice gap we co-designed an intervention to strengthen patient involvement in general practice.

Approach

A participatory action research study to evaluate a co-designed intervention. Involving a co-research group comprised of ten patients (seven core members), six general practitioners (one core member), one receptionist, and a PhD researcher. The intervention consists of four facilitated meetings, using participatory methods to address power; a bespoke survey to address demographic legitimacy; PPG training focused on representational legitimacy; and a further facilitated meeting to develop a credible action plan. The intervention was evaluated by the co-research group in two general practices. The dataset includes observational notes (PhD and patient co-researcher) of six intervention meetings and one-to-three follow up meetings; meeting documents; and semi-structured interviews with eight patients and six staff members involved in the intervention. Data co-analysis used both an inductive and deductive approach drawing on normalisation process theory.

Findings

The intervention revealed the work of creating and maintaining an inclusive, equitable, and safe participatory space in which shared decision making happened. This work involved all actors continuously investing in understanding the space; committing to the space; working in partnership within the space; and appraising the space. The intervention changed the space, providing meaning, a credible and legitimate task to structure the space, and facilitation skills and participatory methods to promote tacit relationship building. However, in both practices the space partially reverted back to the pre-intervention space after the intervention. This was due to the lack of communal appraisal which failed to make the work of creating and maintaining the space visible and valuable. External interconnected spaces, the practice space and wider society, influenced actors' agency to create and maintain the participatory space. However, the participatory space also affected the practice space, opening up possibilities for future patient influence.

Consequences

Inclusive, equitable, and safe participatory space is a prerequisite for authentic patient involvement in organisational decision

making. Creating and maintaining this space is a skilled practice requiring ongoing work by all those involved. The skills and resources to support this work are not routinely found in general practice organisations. This needs urgent attention to increase transparency and avoid eroding public trust in general practice.

**Funding acknowledgement**

Jess Drinkwater is funded by a National Institute for Health Research (NIHR), Doctoral Research Fellowship for this research project. This abstract presents independent research funded by the National Institute for Health Research (NIHR), UK. Views expressed are not necessarily those of the funders.

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## 2E.4 Improving communication to GPs at hospital discharge: a systems approach

Presenter: Nicholas Boddy

Co-authors: Stephen Barclay, Tom Bashford, P John Clarkson

Institutions: University of Cambridge Engineering Design Centre (Boddy, Bashford, Clarkson), University of Cambridge Unit of Primary Care Unit (Boddy, Barclay)

**Abstract**

Problem

Good communication at hospital discharge is critical for patient safety and continuity of care. Recipient GPs rely almost exclusively on discharge summaries that are usually written by the most junior doctors; these are error prone and may lack insight into community care. Previous quality improvement efforts have largely focused on adherence of discharge summaries to standardised templates, which may be less suited to meet the needs of GPs, especially for more complex patients. Communication-related patient harm continues to occur and the limited progress of improvement has led to recognition of the need for a wider and deeper understanding of this complex issue, as the population becomes increasingly aged and multiply-comorbid. These issues have become even more prominent during the COVID-19 pandemic with patients discharged while still recovering from acute infection or with long-COVID.

Approach

Our study adopts a qualitative methodology situated in the ‘systems approach’ recently defined for healthcare by the Royal Academy of Engineering, Royal College of Physicians and Academy of Medical Sciences in their 2017 publication Engineering Better Care. Its set of 13 'driving questions' provided a framework to address the research question of "How can communication to GPs at hospital discharge be improved?". One focus group and twenty semi structured interviews were conducted with key clinical and administrative stakeholders across the primary-secondary care interface of a large tertiary hospital in England, and thematically analysed.

Findings

Data analysis suggests that the system of discharge communication becomes more complex, and incurs greater risks, as a patient’s clinical needs increases. This complexity was identified as a key barrier to communication quality, alongside others across the primary-secondary care interface, including time pressures and a lack of insight on the part of discharge summary authors into the nuances of recipient GP needs. Participants reported that system performance was highly variable, with significant negative consequences for both patients and staff attributed specifically to communication quality. Current standardised forms of communication were reported to hinder system performance for many patients. Solutions were identified that would enable GPs to 'close the open loop' of the

largely one-way system of communication from hospital to general practice, to support patient safety and continuity of care.

Consequences

We suggest that a far more collaborative design of this system may improve the quality of care at hospital discharge. More open lines of communication, shared medical records and GP-led teaching sessions for junior doctors are needed to improve stakeholders' insights into the needs of other system users, facilitate a more operant improvement process and reinforce the shared responsibility of all parties in this critical and vulnerable phase of transition of care. Further research is required to verify and validate any changes before widespread implementation into clinical practice.

**Funding acknowledgement**

This was an unfunded study

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## 2E.5 Awareness and use of online services in general practice: analysis of GP Patient Survey data

Presenter: Gary Abel

Co-authors: Mayam Gomez-Cano, John Campbell, Rachel Winder, Jeff Lambert, Gary Abel

Institutions: University of Exeter Medical School

**Abstract**

Problem

General practices are required to provide online booking of appointments, repeat prescriptions, and access to medical records for patients in line with policy to digitise access. Uptake of online GP services by patients is currently low. In a previous study we examined awareness and use of online appointment booking. Here we expand on that work to examine other forms of digital access.

Approach

As part of the Di-Facto study, we performed a secondary analysis of GP Patient Survey data (2018, 2019) making use of two questions, one concerning awareness of online booking of appointments, repeat prescriptions and medical record access, and another concerning use of these services. Mixed effects logistic regression was used to examine associations between both awareness and use of online-services, and age, gender, ethnicity, deprivation, the presence of a long-term condition, long-term sickness and hearing impairment; to compare the reported ease of use of the practice website with the reported use of online services; and to consider whether easy-to-use websites were associated with increased uptake of online services.

Findings

There were 1,327,693 GPPS responders who reported attempting to make an appointment in the previous 12 months. Awareness of online appointment booking, repeat prescriptions and medical record access was 45%, 42% and 15% respectively. In contrast, 16%, 17% and 4% respectively, reported using these services.There was evidence of variation by most patient factors considered. In particular, strong deprivation gradients in both awareness and use were evident for all three services (e.g. most vs. least deprived quintile OR for use of online repeat prescription =0.57 95%CI 0.56-0.59). A strong drop-off was seen in both awareness and use of all three services in patients over 75 (e.g. 85+ vs. 65-74 years OR for awareness of online medical record access=0.29 95%CI 0.26-0.31). Patients with long-term conditions were more likely to be aware of/use online services and there were large differences by ethnicity.For all services considered, the practice that a patient was registered with was the strongest predictor of both

awareness and use. Furthermore, we found that easier to use practice websites were associated with higher likelihoods of awareness/use of online services.

Consequences

Awareness and use of online GP services varies by patient group. Some of this variability is reassuring, for example that patients with long-term conditions are using the services, whilst other variability is more concerning, for example the strong deprivation and ethnicity gradients and the drop off in old age. With the constant push for online services within the NHS, practices need to be aware that easy-to-use websites are associated with increased uptake of their online services, and that not all patient groups will use their online services. Other routes of access need to be maintained to avoid widening health inequalities.

**Funding acknowledgement**

This study/project is funded by the National Institute for Health Research (NIHR) Health Services and Delivery Research (NIHR128268). The views expressed are those of the author(s) and not necessarily those of the funders.

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## 2E.6 Avoidance, distrust and inequality: A systematic scoping review of the UK resident Central and Eastern European community member perceptions and engagement with General Practice

Presenter: Aaron Poppleton

Co-authors: Kelly Howells, Isabel Adeyemi, Carolyn A. Chew-Graham, Lisa Dikomitis, Caroline Sanders

Institutions: Keele University, University of Manchester

**Abstract**

Problem

Around 2 million people have migrated from Central and Eastern Europe to the UK since European Union expansion in 2004. The UK Central and Eastern European communities (UK-CEE) are disproportionately exposed to the social determinants of poor physical and mental health. Despite this high level of need, inequality in accessing and engaging with services has been reported in the literature. The health and healthcare beliefs of the UK-CEE community remain under-researched, particularly with regards to community cultural perceptions of primary care. The current systematic scoping review explored published academic and grey literature to identify and map what is known about UK-CEE individuals' use and perceptions of general practice within the UK.

Approach

A systematic search of nine bibliographic databases was undertaken. Inclusion criteria were: English language; date range - 01/05/04-15/07/20; information on adult Central and Eastern European individuals' usage of engagement with UK healthcare. 2094 identified publications met search criteria. 201 remained after deduplication and screening by title and abstract. Full text screening identified 65 publications demonstrating: at least one of the following terms: "general practice", "GP", "family medicine", "family practice", "primary care", "doctor" (community healthcare context); a clear focus on UK-CEE migrants from A8/A2 nations; and perceptions and/or engagement with healthcare. In keeping with scoping review methodology, study design and quality did not influence inclusion or weighting. Critical appraisal was undertaken using method specific validated tools (CASP, JBI, MMAT, CEBM) to aid interpretation of findings and direct future research. Data were extracted and coded, with initial cross-checking. We used thematic analysis

employing constant comparison to generate higher order thematic constructs. Community stakeholder appraisal and validation of themes was undertaken to ensure reliability and relevance.

Findings

UK-CEE representation was achieved by A8/A2 nationality, gender and UK location. Comparatively low levels of GP registration were recorded, persisting over time. Community member ability, desire and actual or perceived need to engage with GP services was shaped by an intersectionality of individual community member cultural and sociodemographic characteristics. Difficulties overcoming structural and in-consultation barriers were common, with health expectations frequently unmet. Distrust and dissatisfaction with general practice became embedded over time, promoting alternative health seeking approaches including transnational healthcare. Marginalised UK-CEE community subgroups had particularly poor levels of GP engagement and outcomes, including Roma, trafficked and homeless individuals.

Consequences

Our findings highlight the need for policy and clinical approaches to remove barriers to general practice access and care for UK-CEE individuals. In keeping with community member candidacy and recursivity, greater exploration of how the commonalities and differences in health seeking and care expectations within and between UK-CEE subgroups (and other marginalised groups) is required to identify what works for whom and why.

**Funding acknowledgement**

Aaron Poppleton is undertaking a Primary Care Doctoral Fellowship funded by the Wellcome Trust

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## 2E.7 Electronic medical test results services in general practices across England: what works, for whom, in what circumstances and why?

Presenter: Gemma Lasseter

Co-authors: Gemma Lasseter, Christie Cabral, Hannah Christensen, Ludivine Garside, Alastair D Hay, Richard Huxtable, Louis Macgregor, Emma Johnson, Cecily Palmer.

Institutions: University of Bristol

**Abstract**

Problem

GP Online Services allow patients to access their medical records; book appointments; request prescriptions; and view medical test results. Patients are increasingly offered medical test results electronically, yet there remains a paucity of evidence on the benefits of these services. This study used a realist evaluation approach to explore electronic test result services (ETRSs) being offered by general practices in England to understand what worked, for whom, and in what circumstances.

Approach

Between February-September 2019, we surveyed GP practices across England to explore ETRSs provision. From survey responders, six representative case study practices were selected to participate in: i) retrospective data analysis of registered patients and ii) general practice-based interviews.

Findings

In total 562 GP practices were invited and 457 (81.3%) responded to the online survey, of which 339 (74.2%) were providing ETRSs. Of those providing ETRSs, 93.5% (n=317/339) allowed patients to access results online; 41.9% (n=142/339) offered ETRSs to receive results (e.g., text messaging, emails); and

35.7% (n=121/339) provided both. A quarter (25.7%) of practices providing ETRSs allowed patients to retrieve all types of results electronically. Most of these practices (74.0%) asked patients to register for ETRSs when joining the practice. Yet in some practices certain types of patients were less likely to be offered ETRSs (i.e., children, carers of patients, non-English speaking patients, or patients in a perceived coercive relationship). The retrospective analysis of 11,676 registered patient from three SystmOne practices providing ETRSs showed that patients aged 30-39 years were most, and patients aged ≥70 least likely, to sign up to ETRSs. Patients with face-to-face GP consultations during the 12-month study period were more likely to be signed up to ETRSs than other adult patients with a test result during the study period. Interviews were conducted with 29 individuals (8 patients and 21 staff). Most patients were keen to use ETRSs, however some were unaware that their practices offered this service. For the few that had used ETRSs, they reported easier access to results by reducing telephone waiting times or visits to their practice. General practice staff talked about the extra work needed to introduce and maintain ETRSs, but once set up, they believed it simplified and reduced workload.

Consequences

Considerable variation was found in the implementation, integration, and delivery of ETRSs across general practices in England. Overall, potential benefits of ETRSs remain largely unrealised and unquantified, as these services simply have not been implemented well enough to generate sufficient measurable impact. The next challenge is to encourage reluctant adopters to embrace ETRSs and to provide additional resources and guidance to help support the contractually required provision these services, while ensuring any potential benefits are fully realised.

**Funding acknowledgement**

The Access study was funded by the National Institute for Health Research (NIHR) Policy Research Programme (PR-R17-0916-24001). AH is supported by an NIHR Senior Investigator Award (NIHR200151) and HC is supported by an NIHR Career Development Fellowship

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## 2F.1 WORKSHOP: BSc degrees in Primary Care: establishing, maintaining, innovating

Presenter: Niki Jakeways, Surinder Singh, Karen Fairhurst,

Co-authors:

Institutions: King's College London, University College London, University of Edinburgh, King's College London

**Abstract**

Aims:

An intercalated BSc in Primary Care presents an opportunity to showcase the richness and diversity of general practice, highlight its intellectual and philosophical foundations and allow greater exposure to the specialty. Raising the profile of academic primary care is highly relevant at a time of growing concern surrounding recruitment and retention of the GP workforce [1]; when more investment in primary care research as part of the Covid-19 response is needed [2]; and in addressing objectives to improve vocation to GP as highlighted by the Wass report [3].

There is an increasingly diverse iBSc portfolio for students across the educational marketplace with 376 courses available for 2020/21 [4] versus 230 in 2012 [5 ] and hence more competition for student interest. Student choice as to whether to intercalate, and in what, is complex [5]. Some primary care courses face pressure due to a lack of sufficient applications.

Providers of BScs in Primary Care need to work together to promote this as an excellent choice for medical students and help foster clinical and academic talent towards a career in primary care.

For this workshop the group sought to collaborate with all Primary Care BSc providers across the UK in order to:

- share and distil knowledge with those involved in curriculum design or implementation
- discuss facilitators and barriers to establishing, maintaining and innovating BSc degrees in Primary Care, including during the Covid-19 pandemic
- support colleagues interested in establishing similar programmes.

Format and Content:

This interactive session will involve case studies from leaders of established, new and recently innovated programmes across the UK, and group discussion with the aim of sharing and generating ideas.

Introductions & Icebreaker

- Experiences and aspirations
- Challenges

Case Study 1: Establishing an iBSc

- Small group discussion: learning from challenges and what went well

Case study 2: Maintaining an iBSc

- Linked discussion

Case study 3: Innovating

- Discussion in small groups
- Challenges faced in revising and maintaining relevance and how to overcome them

Close: Summarise, plans for the future.

1. Marchand, C. and S. Peckham, Addressing the crisis of GP recruitment and retention: a systematic review. British Journal of General Practice,2017. 67(657):p.e227-e237.

2. Park, Sophie, et al. Strengthening the UK primary care response to covid-19 BMJ 2020; 370 :m3691

3. Wass, V., et al, By Choice not By Chance: Supporting medical students towards future careers in General Practice.2016,Health Education England.

4. https://www.intercalate.co.uk/institutions/ [cited 2019 December]

5. Jones, M., et al., Impact of an intercalated BSc on medical student performance and careers: a BEME systematic review: Med Teach, 2013.35(10):p.e1493-510.

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## 2G.1 WORKSHOP: Science communication

Facilitators: Julia Bailey, Lucy Lloyd

Institutions: University College London, University of Cambridge

**Abstract**

Communicating research findings effectively is an essential step on a pathway to impact. Social media offers an amazing opportunity for people to learn about health and to find support, but the voice of the scientific community is often missing.

Aim

This workshop will explore how to plan clear, engaging social media communications

Educational objectives and content

• To be inspired by examples of others' multi-media scientific communications (e.g. videos, podcasts, infographics, blogs)

• To practise conveying a health message clearly and concisely

• To have a framework for planning your own clear, engaging science communication

Format

This workshop will be interactive. The facilitators will offer a short overview of key principles of clear and engaging science communication (using PowerPoint), and demonstrate multi-media examples. There will be short communication exercises to practise skills. Participants will come away with ideas for how to increase the reach and impact of their work using social media.

## 3A.1 Remote teaching, remote consulting: what and how have students learnt?

Presenter: Laila Abdullah

Co-authors:

Institutions: King's Undergraduate Medical Education in the Community, School of Population Sciences and Health Services Research, King's College London

**Abstract**

Problem

The COVID pandemic has resulted in unprecedented adaptations to the way in which undergraduate medical education has been delivered to 427 King's College London year 2 medical students, on an immersive GP longitudinal placement. Students usually attend a GP practice in groups of 8, over 21 days of the year for GP tutor (GPT)-led workshops, teaching clinics and patient home visits. In addition, students attend 7 'campus days', whereby they develop consultation skills in small GPT facilitated groups with simulated patients (SPs). Much of the programme has been delivered remotely. Campus day scenarios were adapted to reflect current practice in primary care, with a focus on developing skills in remote telephone and video consulting. Additionally, a student policy was developed to facilitate students consulting with patients from their own homes with the support of their GPTs, thus overcoming many of the current barriers to clinical contact. This was introduced at the start of the second lockdown (January 2021) when face-to-face teaching was suspended. The aim of this study is to evaluate the processes implemented facilitating the development of remote consulting skills in both simulation and practice.

Approach

This is a mixed methods evaluation, collecting both quantitative data (through use of Likert rating scales) and qualitative data (open-ended questions for comments), based on surveys sent following the clinical campus days to both students and tutors. Further data is still currently being collected. Thematic analysis of the qualitative data will be carried out.

Findings

Early findings suggest that students were able to practise remote consulting (98% agreed or strongly agreed, with 50% response rate) and highly valued the opportunity to develop these skills on their campus days. Students valued being able to experience the advantages and disadvantages of remote consulting, with an appreciation that it reflects current practice and will form some part of future clinical practice. Some students felt more comfortable speaking to SPs in the remote setting, compared to face-face sessions. Themes around the perceived disadvantages of remote teaching paralleled with those of remote consulting- students appreciated the technological difficulties encountered; described difficulties in gauging

non-verbal communication and developing rapport with SPs; and felt they were missing out on opportunities to perform physical examination. Further research data will be available by the end of the academic year.

Consequences

There is much uncertainty surrounding the pandemic in the forthcoming year, but we anticipate the continued need for remote teaching. There is also a consensus in the GP community that remote consulting is here to stay, to some extent and therefore there is a need for the future workforce to develop the requisite skills. Therefore, it is essential to evaluate the processes involved in facilitating remote consulting skills development, to inform future curriculum development.

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## 3A.2 A realist evaluation of undergraduate medical teaching with remote (telephone and video) consultations in primary care

Presenter: Roaa Al-bedaery

Co-authors: Judith Ibison

Institutions: St George's University, London

**Abstract**

Problem

The Covid-19 pandemic has resulted in a rapid and significant increase in the number of medical consultations being conducted remotely (over telephone or video conferencing). Coupled with ongoing national restrictions and social distancing rules, this has had a profound effect on undergraduate medical education. Medical students on their general practice placements now experience consultations predominantly remotely – either observing a remote GP-patient consultation or conducting a consultation online with a patient, whilst being observed by their GP supervisor. Current evidence demonstrates effectiveness of remote consultations for clinicians and patients but highlights a paucity of guidance to facilitate this teaching modality. As we transition to remote models of care, creating optimum student learning experiences is imperative for maintaining clinical competencies. This study aims to evaluate the use of remote consultations to teach medical students in this setting.

Approach

The study uses a realist evaluation, an approach used to evaluate real-world interventions which are not yet well understood. It is used to explore features of this new teaching intervention, in order to consider what elements lead to success or failure. Participants will include medical students and GP tutors who have experienced teaching or learning through remote consultations in primary care. Participants' views will be gathered using a questionnaire and semi-structured interviews. The questionnaire will examine participants' experiences, attitudes and preferences about teaching using remote consultations in primary care. This will include: the types of teaching/learning activities, the advantages and disadvantages of teaching with remote consultations, and how teaching with remote consultations affects the interaction between students, patients, and GP tutors. The data from the questionnaires will be used to identify topics to be covered in the semi-structured interviews. The interviews will explore participants' thoughts and experiences in more depth.The study will consider features of the learning environment ('contexts'), how the students and GP tutors responded to these ('mechanisms') and what the consequences were, in terms of the success of the learning activity ('outcomes').

Findings

Initial programme theory identified multiple contexts and mechanisms for optimum teaching and learning outcomes. These are broadly categorised into five themes; engagement, motivation, perception, preparation and experience. These theories will be explored and tested in the second phase of data collection within a realist evaluation, which is currently under way.

Consequences

With a shortfall in students choosing a career in general practice, fostering a positive learning experience is important, particularly in the current climate where learning has been significantly disrupted. It is known that medical students' exposure to learning opportunities in general practice impacts their future career choices. It is intended that managing the identified facilitators and barriers to learning with remote consultations will help to ultimately improve learning and teaching experiences for medical students and GP tutors.

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## 3A.3 Evaluating international graduates' experiences of reflection in general practice training

Presenter: Laura Emery

Co-authors: Dr Caroline Mitchell, Dr Ben Jackson

Institutions: Academic Unit of Primary Medical Care University of Sheffield

**Abstract**

Problem

Compared to their UK trained colleagues, international medical graduates (IMGs) have worse outcomes both during GP training(1), and when it comes to the RCGP membership exam(2). This differential attainment may in part be related to a lack of experience of reflection, which has been identified as key to the progression of IMGs in GP training(3,4). Reflection is a requirement for self-regulated and lifelong learning, and key in the development of therapeutic relationships and professional expertise(5). Many UK medical schools include elements of reflection in their undergraduate curricula, and UK graduates experience reflection during the UK Foundation Programme. By contrast, IMGs often have limited exposure to reflection because of the didactic methods favoured by many international medical schools(6,7).GP trainees have been shown to benefit from reflecting on difficult or challenging situations encountered in practice(8). For IMGs potential areas of difficulty in adapting to UK based practice include changing to a patient centred model of care(9) and engaging with ethical dilemmas in a different socio-cultural context(10). Awareness of socio-cultural differences encountered by IMGs through use of reflection may be key to understanding and therefore narrowing the gap in attainment.This research aims to explore IMG experiences of reflection within UK general practice training.

Approach

A stakeholder group of 3 IMG GP trainees and 3 GPs with experience of working and/or training abroad has been recruited and will be consulted through all stages of the research process. Workstream 1 is currently in progress; an online questionnaire has been developed and is currently being piloted in a small group of South Yorkshire based IMG trainees. In the week commencing the 8th March, this questionnaire will be circulated to all IMGs currently employed by UK GP training programmes through local postgraduate deaneries. Data collected will include previous experience of reflection, support available for development of reflection and benefits perceived from engaging with reflection. In Workstream 2, 15 IMG trainees will be invited to participate in a telephone interview to explore emerging themes. Participants will be purposively sampled from the pool of survey

respondents and 'snowballing', to achieve a maximum variety sample. The questionnaire results, literature review and stakeholder feedback will be used to develop an interview topic guide.

Findings

Results from Workstream 1 are expected by April 2021.

Consequences

This research will provide a greater understanding of IMGs' experiences of reflection including what support and training, if any, they have found most useful for developing this important skill for professional development. The key to addressing differential attainment must first be to appreciate the experience of IMGs so that we can develop training which suits their needs.

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## 3A.4 Making a GP longitudinal integrated clerkship in the UK at scale and sustainable - a Realist analysis.

Presenter: Melvyn Jones

Co-authors: Sophie Park

Institutions: UCL Research Dept of Primary Care & Population Health

**Abstract**

Problem

Longitudinal integrated clerkships (LICs) have had only limited uptake in UK primary care settings and have often been for partial or select cohorts and have often not been sustained. The LIC model of teaching medical students in primary care settings could have important benefits for students' skills, attitudes and may have a beneficial impact on general practice as their career choice. The UCL "Medicine in the Community" programme in general practice has placed the full cohort 350-390 students in a year-long interwoven GP attachment in the context of a traditional block style curriculum during students' first full clinical year (Year4), attached to the same GP and sustained over 9 years. The research question is what has made this GP LIC style course work at scale and be sustainable over nearly a decade?

Approach

Using a Realist analysis we developed an initial programme theory and tested it using data from stakeholder interviews (students (n=8), patients (n=13), GP tutors & faculty (n=9)), student evaluations and correspondence to explore "what works, for whom, in what circumstances, and how?" and developed Context–mechanism outcome (CMO) configurations to unpick how a UK GP based LIC at scale can be sustained.

Findings

We developed CMOs which were organised by stakeholder groups with the outcome of a "sustained GP LIC". For students, mechanisms included continuity with tutors, and receiving high quality patient based teaching, responsive to their learning needs. A negative CMO was the pull of hospital teaching, travelling time & cost to attend general practices away from the central campus. For GP tutors CMOs were receiving organisational support, faculty continuity, and adequate remuneration. Patients were not aware of a longitudinal presence of students but identified their role to "help out" with teaching. Patients wanted to know who students were, and students to interact with them. For faculty, CMOs included multiple schemes (collaborating with HEE, CCGs, training practices and PG Deans) to recruit and retain sufficient GP tutors to sustain the 50 GP tutors needed, needing a presence "at the table" of medical school committees, input to assessment and supportive leadership. The overwhelming negative CMO was the ongoing impact of timetabling clashes. GP Tutors that had come "through

the system" as students perceived the course as helping in determining their GP career choice.

Consequences

Realist analysis enabled us to examine this programme as "social systems and structures that are 'real' (& have real effects)". Sustainable "at scale" LIC programmes require high level institutional support, strong faculty/ GP tutor relationships, adequate resourcing and student engagement.

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## 3A.5 GP registrars' experiences of participating in a GP surgery 'community of practice' during COVID-19 – a narrative study of their learning through identity formation

Presenter: Sarah Pocknell

Co-authors:

Institutions: University College London, Queen Mary University of London

**Abstract**

Problem

The RCGP curriculum states that GP trainees should learn how to work within organisations and systems. However, there is a lack of understanding of how learning experiences and environments facilitate the development of this capability. Furthermore, the Covid-19 pandemic has been a catalyst for radical change in primary care, such as the adoption of remote consulting. To deliver such rapid change, primary care has demonstrated its ability to function as a 'learning organisation', collectively learning to adapt to the pandemic. The learning organisation shares many features with the communities of practice sociocultural theory of learning. As learners move from the periphery and become 'legitimate participants' of the community, their participation and socialisation contribute to their identity development as a new member of this community. The aim of this study is to improve understanding of how GP trainees' learning occurs within the GP community of practice. This study will explore GP trainees' experiences of participating in a GP community of practice during the Covid-19 pandemic to elucidate how this has informed their learning and identity development as they transition from trainees to independent practitioners. This will provide insight into how to support learning for capability within rapidly evolving organisations and systems. This is important in ensuring postgraduate education delivers flexible, adaptable learning experiences, equipping trainees to navigate the shifting landscape of healthcare systems throughout their careers.

Approach

Narrative interviews will be conducted with 8 – 10 GP registrars in primary care, purposively sampled. Participating registrars will have spent a minimum of 7 months in general practice, facilitating an in-depth study of professional identity development within this context. This work is grounded in a social constructionist epistemology, exploring how identities are shaped through social interaction and discourse. Narrative methodology has been used extensively in the medical education literature to investigate professional identity development, particularly as narrative approaches allow one to explore the social, temporal and organisational context of individuals' experiences.

Findings

This work is in progress. By privileging participants' stories of their experiences, I will explore how they use their stories to 'position' themselves in their experiences and what this social performance of story-telling tells us about their learning through identity formation within the context of the GP community of practice.

Consequences

This in-depth, narrative study will provide detailed insight into GP trainees' experiences of participating and learning in general practice during the pandemic. This will enable educationalists to adapt and transform postgraduate education in primary care, facilitate GP trainees' development of capability within evolving healthcare organisations and meet their learning needs as they join the primary care community of practice.

**Funding acknowledgement**

This work represents my dissertation for an MSc in Healthcare Professions Education at UCL; I am currently an Academic Clinical Fellow at QMUL (NIHR funded)

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## 3A.6 Candidates' perceptions and experiences of the UK Recorded Consultation Assessment implemented during COVID-19: cross-sectional data linkage study

Presenter: Aloysius Niroshan Siriwardena

Co-authors: Vanessa Botan, Despina Laparidou, Viet-Hai Phung, Peter Cheung, Adrian Freeman, Richard Wakeford, Meiling Denney, Graham R Law

Institutions: University of Lincoln, Royal College of General Practitioners, University of Exeter, University of Cambridge

**Abstract**

Problem

High stakes licensing exams have had to modify objective structured clinical examinations (OSCEs) to address the risks of the COVID-19 pandemic. The Recorded Consultation Assessment (RCA) pilot was rapidly introduced to replace the Clinical Skills Assessment (CSA) OSCE for UK general practice licensing during the pandemic. We aimed to evaluate candidate experiences and perceptions of the RCA and their relationship to exam performance.

Approach

We used a cross sectional online survey employing experience and demographic items, together with a free text response option. Statistical analysis with Stata 15.1 was used to undertake factor analysis of survey responses and to explore the association of candidate characteristics including gender, ethnicity, language, and place of primary medical qualification with factors (subscales) identified from the survey and with exam success. Qualitative thematic analysis supported by NVivo 12 was used to analyse free text responses. Binomial regression was conducted to estimate the association between RCA pass and candidate characteristics, number of attempts, questionnaire factors, consultation type, and trainer review as predictors.

Findings

Overall, 645 of 1551 (41.6%) candidates completed a questionnaire and 364 (23.5%) permitted linkage with RCA score and background data. Responders and non-responders were similar in exam performance, gender and declared disability but were significantly more likely to be UK graduates (UKG) or white compared with international medical (IMG) or ethnic minority graduates. Responders were very positive about the digital platform and support resources. A small overall majority regarded the RCA as a fair assessment of clinical skills. A larger majority reported difficulty collecting, selecting, and presenting cases or felt rushed during recording. Logistic regression showed that ethnicity (white vs minority ethnic: odds ratio [OR] 2.99,95% confidence interval [CI] 1.23, 7.30, p=0.016) , training (UK vs IMG: OR 6.88, 95% CI 2.79, 16.95, p<0.001), and English as first language (OR 5.11, 0% CI 2.08, 12.56, p<0.001) were associated with exam

success but questionnaire subscales, type of consultation submitted, or extent of trainer review were not.

Consequences

This study shows the importance of evaluating novel assessments introduced during COVID-19. The Recorded Consultation Assessment was a feasible and broadly acceptable alternative to the Clinical Skills Assessment but had shortcomings perceived by candidates and showed areas for potential improvement.

**Funding acknowledgement**

Royal College of General Practitioners

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## 3A.7 What influenced medical students to undertake paid work during the COVID-19 pandemic?

Presenter: Sarah Chitson

Co-authors: Temitope Fisayo, Riley Botelle, Amber Champion, Max French, Shuangyu Li

Institutions: GKT School of Medical Education, King's College London

**Abstract**

Problem

Universities were forced to close as part of the national lockdown in March 2020 to prevent the spread of COVID-19, which led to disruption of teaching and clinical placements for medical students. Many medical students undertook paid clinical roles during this period, but there is limited research available to understand why. As students are already being recruited to deliver COVID-19 vaccinations in hospitals and GP practices, it is important to understand the motivating factors which drive them to consider paid work during the pandemic.

Approach

Students were recruited through personal contact, snowball recruitment and social media. In-depth semi-structured interviews were conducted with students (n=20) who had undertaken paid work during the pandemic, and transcribed verbatim. Thematic analysis was conducted with a combination of inductive and deductive approaches and 7/20 transcripts were double coded to enable triangulation of results and increase consistency. Codes and themes were agreed between all investigators.

Findings

Three main themes were found to have influenced students' decisions to work: duty to help, balancing their use of time, and personal gain.Participants had a strong sense of moral duty, particularly linked to the skillset they might be able to provide and to their sense of altruism which some linked to their reasons for studying medicine in the first place.The majority of participants found that they had more free time since formal teaching and exams at medical school were cancelled, which caused them to consider working as a better use of their time than staying at home. However, some felt conflict in balancing their time with ongoing exam preparation and felt that they would be disadvantaged by not spending as much time studying as their peers.Personal gain included educational opportunities and financial gain. Some students' usual work had ceased due to the pandemic and they were looking for other ways to stay financially afloat. However, for other participants, educational opportunities to make up for missed placement time or the social aspect of work in a national lockdown were more potent motivators. Participants also had to balance personal gain with their sense of moral duty.

Consequences

With the roll-out of COVID-19 vaccinations, GP practices may want to recruit medical students to paid roles, some for the first time. It is important for them to consider the

factors which drive students to take up these roles so that they can effectively recruit students, and meet students' expectations and enhance their experience, for example by providing educational opportunities and being flexible around their course workload as they prepare for exams and attend placements.Further research could seek to understand the views of those students who did not choose to work in the pandemic or compare paid workers with volunteers.

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## 3B.1 Public attitudes towards COVID-19 vaccination in the UK: a qualitative interview study

Presenter: Fiona Wood

Co-authors: Denitza Williams, Anna Torrens-Burton, Paul Sellars, Bethan Pell, Rhiannon Phillips, and the COPE Cymru team.

Institutions: Cardiff University, Cardiff Metropolitan University

**Abstract**

Problem

Primary care staff have a critical role in the successful roll-out of the COVID-19 vaccine. Although a safe and effective COVID-19 vaccine has been approved for use in the UK, there have been some public concerns expressed particularly relating to the speed of the vaccine approval. Primary care staff are likely to be engaged with conversations with patients about vaccine concerns and will need to address questions and allay fears. National surveys assessing likely uptake to a COVID-19 vaccine have been undertaken in a number of countries. In the UK, estimates for vaccine uptake are around 76% (Royal Society of Public Health) and in our own survey research we have found likely uptake around 80%. As anti-vaccine attitudes are an important predictor of vaccination behaviour, we set out to understand in more depth public attitudes and beliefs towards the COVID-19 vaccination in the UK in order to provide advice on how the vaccine roll-out could be supported.

Approach

We conducted remote (skype, zoom and telephone) semi-structured interviews with 27 adult members of the public in the UK. Participants were purposefully sampled from our larger longitudinal online survey of public experiences of COVID-19 promoted using social media (n=2,386). Data for this presentation were collected in May 2020 (prior to any regulatory approval of any COVID-19 vaccine or data about its effectiveness); repeat interviews will be conducted in March 2021. Data were audio-recorded, transcribed, and thematically analysed supported by the NVIVO12 software using the theoretical framework provided by the Health Beliefs model.

Findings

Many respondents felt generally positive about vaccines and hoped that a COVID-19 vaccine would eventually be developed and approved. They felt susceptible to COVID-19 and were concerned to protect themselves. Barriers to the vaccine focused on safety concerns: short- and long-term side-effects, rushed vaccine development and regulatory approval, vaccinating the elderly and vulnerable first. Some participants had concerns about the likely effectiveness of the vaccine drawing parallels with the influenza vaccine, and with annual influenza deaths. Some participants cited political and financial motives for the rapid development of the vaccine, although others felt reassured by government and scientific advice. Generally, participants felt that the roll-out should prioritise those most exposed (front line workers), rather than those most at risk of complications (older adults, clinically vulnerable) and therefore were at odds with the UK government's vaccine priority list.

Consequences

Understanding attitudes that underlie vaccine refusal or hesitancy is important for predicting vaccination behaviour and consequently for developing effective interventions or public health campaigns. Primary care staff involved in vaccinations should be aware of potential concerns of their patients and ensuring staff are properly prepared and supported for this role will be essential to the vaccination programme.

**Funding acknowledgement**

The authors would like to acknowledge the support of Ser Cymru (Welsh Government) for this research.

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## 3B.2 What are the associations between lifestyle, socioeconomic status, and COVID-19 mortality in UK Biobank?

Presenter: Hamish Foster

Co-authors: Dr Fred Ho, Prof Jason Gill, Dr Carlos Celis-Morales, Prof Frances Mair, and Prof Catherine O'Donnell

Institutions: Institute of Health and Wellbeing, University of Glasgow

**Abstract**

Problem

Lifestyle factors (e.g., smoking, low physical activity, obesity) and low socioeconomic status (SES) are each associated with COVID-19 mortality. However, it is unknown whether and how SES influences the association between combinations of unhealthy lifestyle factors and COVID-19 outcomes. Improving our understanding of this will inform population risk stratification and help protect groups more vulnerable to COVID-19. We examined how SES moderates the association between a lifestyle score (LS) and COVID-19 outcomes in a large prospective UK cohort.

Approach

We used data from UK Biobank - 502,505 participants recruited in 2006-2010. Variables were collected by baseline self-report; outcomes ascertained via routine registry linkage. We examined an unweighted LS comprising smoking, alcohol, physical activity, television time, sleep time, intake of fruit/vegetables, oily fish, and red/processed meat. We assigned 1 point for each unhealthy (guideline-based) lifestyle factor and categorised individuals as healthy (LS 0-2), moderate (3-5) and unhealthy (6-9). SES was measured by Townsend deprivation index (main analysis) and by income and education level (sensitivity analyses). Outcome measures were severe COVID-19 (infection diagnosed in hospital) and COVID-19 mortality (COVID-19 given as main cause of death). COVID-19 test data were available from 16 March to 17 June 2020. Mortality analyses were censored from 30 April 2020 or date of death if earlier. Using Poisson regression models, we examined associations between LS and COVID-19 outcomes and between SES and the same outcomes. Then, we examined associations between LS and SES combined. Outcomes were examined using a single reference group of healthy LS and high SES. Models adjusted for 1) sex, age, ethnicity; 2) +SES/LS; 3) +multimorbidity.

Findings

450,962 participants were included; 892 developed severe COVID-19 and 286 died. Both unhealthy LS and high deprivation had, independently, significant linear associations (fully adjusted) with COVID-19 outcomes. Each LS point was associated with risk ratio (RR) of 1.08 (95%CI 1.03-1.13) for severe COVID-19 and 1.12 (1.03-1.21) for COVID-19 mortality. Each deprivation point (1 SD) was associated with RR 1.10 (1.07-1.12) for severe COVID-19 and 1.13 (1.09-1.17) for COVID-19 mortality. Similar associations were seen using income or education for SES. Combined associations of LS and SES showed highest risks for COVID-19 outcomes in those with an unhealthy LS and low SES. There was a

significant LS-income interaction, where associations between LS and COVID-19 outcomes were stronger in those with low income.

Consequences

The combination of unhealthy lifestyle and low SES is associated with a greater risk of poor COVID-19 outcomes. Strategies to reduce the impact from COVID-19 should consider the interaction between lifestyle and SES. Public health policy targeting lifestyle factors in poorer communities could incorporate COVID-19 related risk.

**Funding acknowledgement**

HF is funded by a Medical Research Council (MRC) Clinical Research Training Fellowship (grant reference number MR/T001585/1). The MRC played no role in any part of this study.

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## 3B.3 Digital exclusion during the COVID-19 pandemic in the English Longitudinal Study for Ageing population

Presenter: Shivan Thakrar

Co-authors: Jennifer Cole, Helen M Parretti, Nicholas Steel

Institutions: University of East Anglia

**Abstract**

Problem

Older adults still form a large proportion of the digitally excluded population in the UK. The coronavirus pandemic accelerated the use of digital technology within the NHS, especially within general practice. As the NHS long-term plan commits to provide most people a digital first primary care by 2023/24, many of these technological changes are likely to persist in the future. This transition could exacerbate existing inequalities in access to healthcare if the digitally excluded population are overlooked. This study aims to clarify whether digital inclusion changed in adults over 50 years of age during the coronavirus pandemic using data from core members within the English Longitudinal Study for Ageing.

Approach

Descriptive analysis of three consecutive weighted cohorts was performed from Wave 9 (June 2018- June 2019) and COVID-Wave 1 (June- July 2020) from the cohort study, the English Longitudinal Study for Ageing. Digital inclusion and internet use for health was measured by analysing self-reported responses about participants frequency and pattern of internet use. Samples were stratified by age, gender, and net financial wealth.

Findings

A significant proportion of core members in Wave 9 (17.9%, n=7289) and COVID-Wave 1 (15.4%, n=5825) never use the internet and are thus ‘digitally excluded’, consistent with previous research on digital exclusion in the United Kingdom. Women, increasing age and poorer financial wealth were all associated with higher rates of digital exclusion. Similarly, these three groups also used the internet less frequently to access health information. 48.3% of frequent internet users and 13% of occasional internet users increased their internet use since the start of the pandemic. This suggests a widening of levels of digital inclusion in this population. Furthermore, older respondents were least likely to increase their internet use since the start of the pandemic, with 46.4% of respondents aged between 50 and 54 and 14.24% of over 85s increasing their internet use. Smaller disparities were also found between the poorest (34.7%) and wealthiest (44.3%) quintiles reporting increasing internet use during the pandemic. However encouragingly, a greater proportion of women (40.4%) than men (33.2%) reported increasing

their internet use since the start of the pandemic.

Consequences

Overall, this study suggests that while digital inclusion has improved in this population compared to previous cohorts; a large proportion of the older population, especially at the highest age stratifications remain digitally excluded. Existing disparities in access to healthcare could widen especially as we realise the NHS long-term plan's ambitions to provide a digital-first primary care. This suggests targeted efforts to provide non-digital alternatives or support the acquisition of digital skills and infrastructure could be considered to prevent exacerbating existing health inequalities and creating a technological "inverse care law".

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## 3B.4 CREATIVE PIECE: A love poem

Presenter: Astha Tanwar

Co-authors:

Institutions: Queen Mary University London

**Abstract**

Blog including poem and its inspiration https://sapc.ac.uk/blog/2021/love-poem-presented-sapc-asm-2021-astha-tanwar

This poem explores the resilience of the human spirit and the central theme of hope as we navigate a pandemic that has changed medicine, perhaps forever. Using push-and-pull imagery often seen in nature whether in waves or seasons as they shift, it considers the intricate relationship of resilience and hope. The poem is based not just on my own experiences but rather as testament to the strength of every healthcare professional and family altered irreversibly by the impact of Covid-19. For many medical students, the Covid-19 pandemic taught us lessons that lectures could not – about the pressure of working in a healthcare system close to breaking point, facing a new poorly understood disease and knowing that not every patient will make it. Having volunteered with a communication team connecting ITU patients and their families, I found the meaning of an empty bed quickly changing, becoming symbolic of the pandemic. Coming onto the ITU unit and seeing an empty bed was no longer just about transfers and discharges; it now represented a rapid turnover, a broken family and another lost battle. But intriguingly, against this backdrop of devastation, I have never felt more a part of the team. Everyone was united – not just against this deadly disease but also in the hope of fewer admissions the next week and fewer deaths in the weeks that followed after that. This hope wasn't just restricted to the medical team. With every medical update, families still held onto hopes of recovery to cope. I was amazed at the strength the families exhibited. On one occasion, a senior nurse asked me, unprompted, if I was doing okay, recognising my inexperience and the challenges that brought. The conversation that followed was a stark reminder that whilst she may be more experienced than me and more equipped to deal with the challenges of Covid-19, she was not immune – her resilience required hope. When I was applying to medical school, over 5 years ago, I distinctly recall the emphasis on resilience – but it was meeting the doctors and ITU nurses, the families, the patients that I understood what it meant.

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## 3B.5 How to do efficient trial design in a pandemic? National implementation via primary care of Germ Defence digital behaviour-change intervention to reduce the spread of COVID-19

Presenter: Jeremy Horwood

Co-authors: Melanie Chalder, Ben Ainsworth, James Denison-Day, Frank de Vocht, Martha Elwenspoek, Pippa Craggs, Rachel Denholm, Jonathan Sterne, John Macleod, Cathy Rice, Beth Stuart, Michael Moore, Paul Little, Gulliford, Martin, Nicholas Francis, Merlin Willcox, Sa

Institutions: Univeristy of Bristol, University of Bath, Univeristy of Southampton, King's College London, Public Health England

**Abstract**

Problem

To help reduce the spread of COVID-19 infections, people should adopt protective behaviours at home (e.g. self-isolation, handwashing, cleaning and disinfecting). There is currently limited support to help individuals conduct these behaviours. Germ Defence is an evidence-based behaviour change website that provides scientifically proven advice on infection control at home. A clinical trial of 20,000 people during the time of the H1N1 pandemic and seasonal 'flu showed that using Germ Defence successfully reduced the number and severity of infections in the home as well as the need for primary care consultations and antibiotics. We are now examining via an efficient randomised controlled trial (RCT) whether the Covid-19 updated version of Germ Defence is effective at reducing infections if disseminated via GP practices.

Approach

The Germ Defence cluster RCT is investigating the effects of randomising dissemination of the Germ Defence website via GP practices on rates of respiratory infection, including COVID-19. Due to the need to rapidly implement the intervention, we adopted a novel efficient trial design. No practice or patient recruitment is required as all outcomes are assessed using anonymous data and GP practices are not required to send the research team any data. Practices are given individualised Germ Defence weblink which will be used to track website usage in each practice to measure roll out. Website analytics will be used to measure uptake of the intervention and types of use. National routinely collected patient record data extracts via NHS Digital will be used to examine whether practices who received the Germ Defence intervention reported decreased respiratory infections.We randomised all GP practices in England to receive an email asking them promote Germ Defence to their patients (N=3292) or usual care (N=3290). Emails were piloted within several GP practices and included example messages (e.g. via text or email) that could be used to encourage patients to use Germ Defence. Intervention practices were contacted throughout Autumn/Winter 2020 and usual care practices in March 2021.

Findings

The trial was endorsed by Chris Whitty is Chief Medical Officer for England, as a national priority project and adopted by the CRN as an Urgent Public Health portfolio study. These endorsements opened doors and allowed access to information. However, despite extensive piloting of the email to practices and message to patients there were significant practical barriers to overcome, such as practice being contacted directly by the research team and not via CRNs and the individualised Germ Defence weblink being perceiving as spam by staff and patients.

Consequences

This is a novel strategy for rapidly implementing and evaluating a national digital

behaviour-change health intervention via primary care.

**Funding acknowledgement**

This research is funded by UKRI Coronavirus Rapid Response Call (CV220-009) and National Institute for Health Research, Applied Research Collaboration West (NIHR ARC West) and NIHR Health Protection Research Unit (HPRU) in Behavioural Science and Evaluation.

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## 3B.6 BCG vaccination to prevent COVID19 in healthcare workers. The international BRACE clinical trial

Presenter: John Campbell

Co-authors: Campbell, J Quinne, L Warris, A O'Connell, A Fletcher, E Rhodes, S Curtis, N

Institutions: University of Exeter; Exeter Clinical Trials Unit; Murdoch Clinical Research Institute, Melbourne , Australia

**Abstract**

Problem

BCG vaccination, introduced 100 years ago, is safe, cheap, and widely available. 4 Billion doses have been administered - currently 120 million annually. Routine BCG administration stopped in the UK in 2005. Evidence from a range of studies identifies a range of 'potent' off-target effects for BCG including anti-viral effects against a range of Corona-like viruses. As part of a large global collaboration, we investigated the hypothesis that BCG may reduce the incidence and severity of COVID19 amongst healthcare workers in Australia, UK, Netherlands, Spain, and Brazil.

Approach

International collaboration led from Melbourne, Australia. 1:1 Randomized controlled clinical trial of standard Danish-strain BCG vaccination (0.1 ml intradermal) versus 0.1ml intradermal saline placebo. Joint primary-outcomes at 6 months follow up - incidence of COVID19 confirmed using routine PCR testing of individuals becoming symptomatic during follow-up, and severity of COVID19 (COVID disease and work absenteeism, admission, or death). Wide range of secondary outcomes including COVID-related, non-COVID-related (eg Herpes Simplex recurrence, upper respiratory infection), work absenteeism, immunological outcomes. Recruitment is from a broad range of hospital and community healthcare settings including carehomes, community pharmacy, ambulance, and nurse settings. Online follow-up using REDCAP for 1 year, with blood testing and questionnaire review at 0,3,6,9,12 months.

Findings

Recruitment is ongoing (>6600 at 23 February 2021), including 175 from southwest UK settings. UK recruitment with a target of 1000 participants started in early October 2020 and stopped 28 January 2021. We latterly encountered a challenging recruitment environment as COVID19-specific vaccines became available and were rapidly and successfully promoted within our target population. Recruitment is ongoing elsewhere. Interim analysis planned after 100 'severe' COVID events documented in trial. We will report on the challenges and complexities of setting up and securing funding for this trial in the current UK context and report the UK baseline recruitment profile.

Consequences

BCG may have important potential against original SARSCoV2, variant SARSCoV2, and as-yet-unknown future pandemic viral agents

**Funding acknowledgement**

Murdoch Clinical Research Institute (Bill and Melinda Gates Foundation) Peter Sowerby Foundation

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## 3B.7 Vulnerability and migration during the pandemic in the UK: a wellbeing perspective

Presenter: Antje Lindenmeyer

Co-authors: Laurence Lessard-Phillips, Jenny Phillimore, Lin Fu

Institutions: University of Birmingham

**Abstract**

Problem

The impact of the Covid19 pandemic has been particularly severe for the health and wellbeing of disadvantaged and excluded populations. While the policy of 'Everyone in' for homeless people has been overall successful (Local Government Association 2020), inequalities have been exacerbated for migrant populations living in precarious situations (DOTW UK, 2020).

Approach

This presentation draws on data collected by Doctors of the World UK on 107 individuals or families with migrant backgrounds who contacted their telephone clinic during April and July 2020 to request help with accessing health services. This data consists of free text notes outlining details of the health concerns service users sought to address and the actions taken until the problem was resolved or contact with the service user was lost. A qualitative content analysis of the free text notes focused on the domains of service users' health status, health services needed, current situation (work/ housing/ immigration status), barriers and facilitators to accessing health services and how their health concerns were resolved (or not). Within these domains, we assessed the ways in which Covid19 influenced service users' health and wellbeing.

Findings

We found a range of impacts of the pandemic; some were direct i.e. reporting symptoms of Covid19, being unable to work or return home. In particular, several women who contacted DOTW to access antenatal care had lost their jobs due to Covid. However, indirect impacts were more widespread, including- DOTW clinics moving online; letters and documents now need to be sent to what could be a temporary address instead of handing over in person- Difficulty registering with a GP (being told the practice did not register new patients due to Covid19, having to contact practices remotely, complex registration apps)- Wider technological issues making contact and registration harder such as lost phone/ using someone else's phone, running out of credit for internet access, no printer- Impacts particular to people in state-run accommodation (homeless, asylum seekers) such as being moved to a different hotel or reluctance to register people from a particular address- Mental health implications (worry, loneliness, feeling homesick)

Consequences

Our findings support the idea that Covid19 has exacerbated the situation of people with precarious or unregulated migration status. In our sample, the pandemic added barriers for people with already complex needs such as financial precarity (leading to unstable housing or digital exclusion) or existing physical and mental health conditions. Our analysis gives an indication of health needs and barriers to health access which are in all likelihood continuing. Primary care practitioners should be aware of these barriers and consider the impact that changes implemented due to Covid19 might have on patients at greatest risk of becoming vulnerable.

**Funding acknowledgement**

Funded by the Nuffield Foundation (project no. WEL/44029)

## 3C.1 What are the implications of frailty and multimorbidity in middle-aged and older people with type 2 diabetes?

Presenter: Peter Hanlon

Co-authors: Peter Hanlon, Bhautesh D Jani, Elaine Butterly, Barbara Nicholl, Jim Lewsey, David A McAllister, Frances S Mair

Institutions: University of Glasgow

**Abstract**

Problem

Frailty and multimorbidity are common in type 2 diabetes (T2D), including people <65 years. Guidelines recommend adjustment of treatment targets in people with frailty or multimorbidity, however guidelines do not differentiate these two related states. It is unclear how recommendations to adjust treatment targets in people with frailty or multimorbidity should be applied to different ages. It is also not known if the relationship between HbA1c and outcomes is similar in people with and without frailty. We assess implications of frailty/multimorbidity in middle/older-aged people with T2D.

Approach

Analysis of UK Biobank participants (n=20,566) with T2D aged 40-72 years comparing two frailty measures (frailty phenotype and frailty index) and two multimorbidity measures (Charlson comorbidity index and a simple count of 40 long-term conditions (LTCs)). Outomes: mortality (all-cause, cardiovascular- and cancer-related mortality), Major Adverse Cardiovascular Event (MACE), hospitalization with hypoglycaemia or fall/fracture.

Findings

Measure choice influenced the population identified: 42% of participants were identified as frail/multimorbid by at least one measure; only 2.2% were identified by all four measures. Both frailty and multimorbidity, by all measures, were prevalent throughout the age range studied. Each measure was associated with mortality, MACE, hypoglycaemia and falls. The absolute 5-year mortality risk was higher in older versus younger participants with a given level of frailty (e.g. 1.9%, and 9.9% in men aged 45 and 65, respectively, using frailty phenotype) or multimorbidity (e.g. 1.3%, and 7.8% in men with 4 LTCs aged 45 and 65, respectively). Using frailty phenotype, the relationship between higher HbA1c and mortality was stronger in frail compared with pre-frail or robust participants.

Consequences

Both frailty and multimorbidity, regardless of measure used, identify people at greater risk of mortality, cardiovascular events, and hypoglycaemia. However, among younger people the absolute mortality risk remained low even among the most frail groups. While these findings support calls to embed identification of both multimorbidity and frailty within routine diabetic reviews, care should be taken to assess risk and appropriate treatment targets at an individual level. This assessment should reflect patients' age, measure used to identify frailty or multimorbidity, as well as other other risk factors. Clinicians should actively identify frailty and multimorbidity in people with type 2 diabetes and tailor management (particularly glycaemic control) to the individual risk and needs of the patient.

**Funding acknowledgement**

Medical Research Council

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## 3C.2 Diagnosing cancer in older adults: a review of international guidelines

Presenter: Blessing Essang

Co-authors: Dr Blessing Essang, Dr Daniel Jones, Professor Richard Neal, Dr Erica diMartino, Dr Sarah Bailey, Professor Niek de Wit

Institutions: Academic Unit of Primary Care, Faculty of Medicine and Health, University of Leeds, Leeds, UK, University of Exeter Medical School, Exeter, UK, Julius Center for Health Sciences and Primary Care University Medical Center, Utrecht, Netherlands

**Abstract**

Problem

Early cancer detection and diagnosis is one of the most effective means we have to improve cancer survival. Primary care is an important setting for achieving this, as most people with cancer see their general practitioner with symptoms in the year before they are diagnosed. Adults aged over 65 account for two thirds of all new diagnoses. However, late diagnosis and emergency presentations remain predominant in this group. In addition, screening programs often have an upper age cut off between 65 and 75. This systematic review of clinical practice guidelines (CPGs) aimed to assess recommendations for investigating suspected cancer symptoms in older adults. Focusing on CPGs from high income countries and the four most common cancers in the UK (breast, prostate, lung, and bowel cancer). We addressed the following: i) what the recommendations for referral for further investigations are; ii) the upper and lower age cut off thresholds for referral; iii) what evidence underpins those recommendations iv) what are the differences between countries in guideline recommendations.

Approach

MEDLINE, Embase and TRIP databases were systematically searched, from 1 May 2020 to October 2020 for guidelines on the assessment of patients with symptoms suggestive of lung, breast, prostate, or colorectal cancer. Known guideline databases, websites and references of related literature were searched. We included CPGs related to diagnosis in symptomatic primary care populations, published within the last 10 years and available in English.

Findings

The search yielded 1592 titles and abstracts. We identified 31 guidelines which covered the management of suspected cancer symptoms in primary care in nine countries (Europe, n = 14; Oceania, n = 4; and North America, n = 13). Preliminary analysis shows most of the CPGs use systematic reviews of existing CPGs and primary research to underpin guidance. Consequently, there is broad consensus between CPGs on which ‘red flag’ symptoms to investigate. However, the presence of age cut offs appear to be a distinguishing factor. There is variance across the different regions, in particular North America versus Europe; with prostate and colorectal cancer guidelines also more likely to provide age cut offs in recommendations for referral.

Consequences

This is the first systematic review of CPGs addressing recommendations in relation to age thresholds for investigating suspected cancer symptoms. The questions posed in this review are key in highlighting the dearth of evidence to support recommendations surrounding age cut offs in referral and investigation of suspected cancer symptoms. In doing this review, we will identify how current recommendations deal with cancer risk in older adults. We believe that it will lead to future research surrounding the interpretation of symptoms in a population

group at higher risk. Full results will be presented at the conference.

**Funding acknowledgement**

National Institute for Health Research

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## 3C.3 Prediction of postural hypotension in the Community ageing Research 75+ (CARE75+) dataset

Presenter: Judit Konya

Co-authors: STJ McDonagh1, G Abel1, V Goodwin1, CE Clark1

Institutions: 1 University of Exeter Medical School, 2 HEE Kernow Health CIC Training Hub

**Abstract**

Problem

Postural hypotension (PH) is a major risk factor for falls, cognitive decline and mortality, although found in approximately 20% of primary care patients it is underdiagnosed. NICE hypertension guidelines advise measuring standing as well as sitting blood pressure (BP) in patients aged >80 years to detect PH; this is seldom undertaken due to time constraints. Prediction tools may support clinicians by identifying people, likely to have PH, for targeted postural BP testing. We previously derived and internally validated such a tool (the DROP score) in an older Italian cohort (InCHIANTI). The DROP score is summative based on 5 factors: taking digoxin, having Parkinson's disease, hypertension, stroke or cardiovascular disease. The electronic Frailty Index (eFI) is now integrated into primary care computer systems. While frailty is associated with PH, the eFI has not been tested for its ability to predict PH.The Community Ageing Research 75+ (CARE75+) study is a longitudinal cohort study collecting data on ageing and frailty in community-dwelling older people in England. It includes detailed demographic and frailty data, eFI scores and sitting and standing BPs. We aim to i) validate the DROP score within this cohort; ii) explore associations of the eFI with PH, and iii) examine whether the eFI, with the DROP score or with other variables, can best predict PH in this representative UK cohort.

Approach

Cross sectional cohort analyses. We will calculate individual DROP scores and assess their predictive value for PH, using area under receiver operating characteristic (AUROC) curves. We will compare AUROC curves for DROP and eFI scores to explore their incremental predictive values for PH. We will examine the combined effects of DROP and eFI scores in predicting PH through logistic regression analyses, and seek to refine a prediction model incorporating these factors.

Findings

Baseline recruitment data are available for 1004 participants; mean (standard deviation) age 81.5 (4.6) years; 49.50% female. Mean seated systolic BP is 143.7 (21.9) mmHg and diastolic 75.0 (12.2) mmHg. There are 559 (58.4%) participants with a diagnosis of hypertension and 222 (21.1%) have PH, defined as a drop from sitting to standing BP measurements ≥20/10 mmHg. Using eFI categories, 97 (10.3%) are classed as severely frail, 233 (24.1%) moderately frail and 310 (32.2%) have mild frailty. Analyses of models are underway and full findings will be presented to conference.

Consequences

We anticipate reporting the external validity of the DROP score, and developing a refined prediction score likely to include the eFI. Demonstration of an eFI based prediction model for PH should facilitate identification of those primary care patients at highest risk of PH, and therefore with most to gain from the

investment of time and resources in measuring sitting and standing BP.

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## 3C.4 Support Needs of Carers Making Proxy Health Care Decisions for People with dementia; a systematic meta-ethnography of qualitative studies

Presenter: Samuel Lassa

Co-authors: Victoria J Hodges, Catherine Hynes, Caroline A Mitchell

Institutions: Academic Unit of Primary Care, University of Sheffield

**Abstract**

Problem

There are 50 million dementia sufferers world-wide. The disease runs a protracted course and comorbidities are common. Decisions about health care often need to be made when the person with dementia (PwD) lacks capacity to do so.This systematic review of qualitative studies aimed to review the existing literature with a view to developing new understanding of the support needs of carers facing these decisions and to inform practitioners who may be in a position to provide support.

Approach

A qualitative systematic review protocol was published on PROSPERO. A search was conducted using three online databases (MEDLINE with full text, CINAHL with full text and PsycINFO). We limited inclusion to decisions about specific medical treatments, and so excluded studies of decisions about place of stay (e.g nursing home placement) or limits of treatment (e.g. advanced care plans). A meta-ethnography was performed to develop descriptive themes and analytical constructs. Thirteen studies were included: five from Australia, five from the UK, two from the USA and one from the Netherlands. All included studies were primary qualitative research involving carers of people with dementia who had been involved in making proxy health care decisions.

Findings

Studies varied in their focus. Some explored decision making about specific health problems, such as cancer treatment decisions or use of antipsychotics, others focussed more broadly on the experience of making health care decisions for a PwD. Support needs fell into 3 main themes: information support, practical support and emotional support. Within the theme of information, carers needed information about dementia and the expected disease trajectory as well as information about the specific health care decision to be made. Health care practitioners (HCPs) who recognize the emotional burden of decision making and act as empathic guides for carers were highly valued. Practical factors included the importance of continuity of care, person centred care and early planning/legal issues such as lasting power of attorney (LPA). LPAs were often poorly understood and underutilised. Carers frequently described their expertise in the PwD being overlooked when health care decisions were made. As a result, opportunities to achieve true patient-centred care were missed.

Consequences

HCPs and policy makers could improve the experience of carers making proxy health care decisions for PwD by integrating carer input more explicitly into NHS frameworks/models of person-centred care. Education of families about the importance of using relevant legal structures such as LPAs for future decision making could be prioritised by HCPs.

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## 3C.5 How can we continue to involve older people in primary-care research despite the restrictions of a pandemic?

Presenter: John Travers

Co-authors: John Travers, Roman Romero-Ortuno, Éidin Ní Shé, Marie-Therese Cooney

Institutions: University College Dublin, Trinity College Dublin, St James Hospital Dublin, University of New South Wales Sydney, St Vincent's University Hospital Dublin

**Abstract**

Problem

An essential consideration in health research is to conduct research with members of the public rather than for them. However, evidence for how to conduct public and patient involvement (PPI) in health research remains limited. Few studies implementing PPI with older people in frailty research have been identified, despite benefits that can be achieved such as improved enrolment, relevance and dissemination. Furthermore, there has been a drop in public and patient involvement during the Covid-19 pandemic. We aimed to involve older people in co-designing a randomised control trial (RCT) intervention to reverse frailty and build resilience. We also wished to encourage wider use of PPI with older people by outlining our approach.

Approach

Older people were invited to co-design a frailty intervention in three structured PPI settings. Community dwelling over 65-year-olds attending a weekly educational programme on successful aging were invited to join two group discussions, facilitated by a general practitioner (GP), where they co-designed an exercise intervention using the Socratic education method. Older adults were invited to contribute feedback on the intervention in one-on-one, semi-structured telephone interviews, during a 9 month feasibility study conducted in a primary care (PC) setting during the Covid-19 pandemic. Older adults attending PC were invited to join three, forty minute, online workshops to optimise the definitive intervention. Multidisciplinary team input from physiotherapists, dieticians, gerontology consultants and GPs as well as previous systematic review and meta analysis findings were applied in the co-design.

Findings

18 contributors to the group discussions (mean age 75, 61% female) helped co-design 11 home-based resistance exercises. 132 telephone interviews with 94 contributors (mean age 77, 63% female) shaped intervention format, gender balance and GP follow up. 10 contributors to 3 workshops (mean age 71, 60% females) co-designed dietary protein guidance and patient communication. The design of an intervention including resistance exercise and dietary protein supplementation was supported by our systematic review and meta analysis findings and multidisciplinary team input.

Consequences

We enabled the meaningful involvement of 122 older people in the co-design of an intervention to reverse frailty and build resilience, by providing diverse ways to contribute. Inclusive involvement can be achieved during a pandemic. Feedback enhanced the feasibility of an RCT intervention in real-world primary-care.

**Funding acknowledgement**

No funding was received

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## 3C.6 Behavioural Activation in Social IsoLation (BASIL): Is it feasible to deliver a remote study involving a psychological intervention to mitigate depression and loneliness in older adults with long-term health conditions during the COVID-19 pandemic?

Presenter: Liz Littlewood

Co-authors: Leanne Shearsmith2, Samantha Gascoyne1, Della Bailey1, Lauren Burke1, Suzanne Crosland1, Andrew Henry1&3, Eloise Ryde1&3, Claire Sloan1, Rebecca Woodhouse1, Carolyn A Chew-Graham4, Peter Coventry1, Dean McMillan1, Gemma Traviss-Turner2, David Ekers1&3, Si

Institutions: Department of Health Sciences, University of York, York, YO10 5DD (1) Department of Health Sciences, University of York, York, YO10 5DD; (2) Leeds Institute of Health Sciences, University of Leeds, Leeds, LS2 9NL; (3) Tees, Esk and Wear Valleys NHS FT, R

**Abstract**

Problem

Older adults with long-term health conditions have a two-to-three fold increased risk of depression. This physical-mental multimorbidity can lead to poorer health outcomes and poorer quality of life for this group. Social isolation and loneliness are important precipitants for mental ill health. The Covid-19 pandemic has had a disproportionate psychological impact on older people with long-term conditions, further increasing their risk of depression, loneliness and social isolation; addressing this mental health impact is an NHS priority.

Approach

The BASIL (Behavioural Activation in Social IsoLation) programme was developed in response to the Covid-19 pandemic. It aims to evaluate the clinical and cost effectiveness of a brief psychological intervention [based on Behavioural Activation (BA) and Collaborative Care] to improve depression and tackle loneliness in older adults with physical-mental multimorbidity during isolation. BASIL was one of only two mental health intervention trials to first receive national priority Urgent Public Health status.The BASIL intervention is based on BA. BA aims to help people to maintain or introduce activities which are important to them and to stay connected with the world and remain active. The BASIL intervention is supported by a self-help booklet. A trained BASIL support worker (BSW) supports the older adult to work through the booklet, monitors depressive symptoms, and facilitates communication with the older adults' healthcare team as part of collaborative care.The BASIL pilot trial explored the feasibility of recruiting and retaining older adults (65+ years) with two or more long-term health conditions, and remote delivery of the intervention by BSWs. Participants were identified via primary care and randomised 1:1 to receive the BASIL intervention or usual care with signposting information. Study and recruitment processes, intervention delivery and BSW training were adapted to acknowledge and comply with Covid-19 restrictions. Data collection was via telephone. Semi-structured interviews were also conducted with a sample of participants and BSWs.

Findings

Ninety-six participants were recruited over 18 weeks. Intervention engagement and delivery was very good; 98% (46/47) of participants randomised to the BA intervention group commenced intervention sessions, with 98% of these completing two or more sessions. Follow-up rates were excellent both at 1 month (94%) and 3 months (90%) post-randomisation. Interview data suggests the remote study processes and self-help booklet were acceptable for older adults; both older

adults and BSWs acknowledged the benefit of the intervention and highlighted the importance of a targeted approach.

Consequences

It is feasible to adapt study and recruitment processes to enable remote delivery of a BA intervention trial for older adults with physical-mental multimorbidity during isolation. These pilot findings have informed the recently commenced definitive main trial (BASIL+ ).

**Funding acknowledgement**

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## 3C.7 Validating primary care markers of the course of dementia through linkage to secondary care records

Presenter: Kelvin Jordan

Co-authors: Paul Campbell 1,2, James Bailey 1, Carolyn A Chew-Graham 1,2,3, Peter Croft 1, Martin Frisher 1, Richard Hayward 1, Rashi Negi 2, Trishna Rathod-Mistry 1, Swaran Singh 4, Louise Robinson 5, Athula Sumathipala 1,2, Nwe Thein 2, Kate Walters 6, Scott Weich

Institutions: 1 Keele University, 2 Midlands Partnership NHS Foundation Trust, 3 West Midlands Applied Research Collaboration, 4 University of Warwick, 5 Newcastle University 6 University College London, 7 University of Sheffield,

**Abstract**

Problem

There are currently no validated methods for routinely predicting and tracking disease progression in dementia. We have established a set of potential markers of dementia-related health, recorded in primary care electronic health records (EHR), which are associated with hospital admission, palliative care, and mortality. The objective was to now determine the validity of these primary care EHR markers as a measure of dementia progression through comparison to cognitive function assessments.

Approach

One thousand individuals consulting a UK secondary care dementia service were invited to take part in the study and asked to consent to linkage of cognitive assessment scores recorded in the dementia service to their primary care EHR. Cognitive assessments included the Mini Mental State Examination (MMSE), Addenbrooke's Cognitive Examination-III (ACE-III) and Mini Addenbrooke's Cognitive Examination (MACE). ACE III and MACE scores were converted into standardised MMSE scores (range 0-30) using established methods. Sixty-three previously established individual markers within 13 broader domains of dementia-related health recorded in the primary care EHR were examined. The number of recorded domains and markers were compared to cognitive assessment scores cross-sectionally and longitudinally (adjusted for earlier score). Additionally, associations between individual domains and cognitive assessment scores were determined.

Findings

258 (26%) patients consented to take part. Cross-sectional analysis was undertaken in 93 patients for whom primary care EHR could be obtained. Compared with individuals with 0-2

domains recorded in primary care in the previous 12 months, individuals with ≥4 domains had poorer cognitive function (mean difference -1.6; 95% confidence interval-3.8,0.6). Individuals with recorded markers in the Safety (-4.6; -8.0,-1.1), Diet/Nutrition (-3.7; -6.0,-1.3), Daily Functioning (-7.6; -11.4 -3.7) and Care (-3.5; -6.2,0.9) domains had lower mean cognitive assessment scores than individuals without markers in these domains. Longitudinal analysis was undertaken in 56 patients that had two cognitive assessments scores at least 12 months apart and linked primary care EHR. Compared with individuals with 1-3 domains recorded between assessments, those with 4-5 domains (-1.0; -3.4, 1.3) and ≥6 domains (-2.5; -5.5, 0.6) had lower adjusted mean cognitive function scores. Individuals with recorded markers in the Safety domain (-3.3; -6.0,-0.7), Diet/Nutrition (-1.9; -4.2,0.4), Daily Functioning (-1.7; -5.3,1.8) and care (-2.2; -4.6,0.1) had lower adjusted mean cognitive function scores than individuals without those markers.

Consequences

This exploratory study highlights the possibility that primary care EHR could be used to monitor the progression of dementia and concords with a previous study that found the number of recorded domains after diagnosis were associated with long term outcomes. The current study also illustrates the challenges of conducting this type of research such as lack of recorded cognitive function assessments within secondary care dementia services, obtaining consent to link them to primary care records, and difficulty in accessing these records.

**Funding acknowledgement**

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## 3D.1 Evaluation of contraceptive provision during SARS-CoV-2 lockdown in the United Kingdom: online survey using social media platforms

Presenter: Richard Ma

Co-authors: Kimberly Foley, Sonia Saxena

Institutions: Imperial College London

**Abstract**

Problem

UK government introduced non-pharmaceutical intervention (“lockdown”) to reduce community transmission of SARS-CoV-2 in March 2020. Health services responded by limiting face-to-face contacts; general practices changed to using total triaging and remote consultations. Contraceptive services, including provision of long acting reversible contraception (LARC) was deemed “low priority” by BMA and RCGP. Given the potential for reduced access to contraception, we conducted a rapid evaluation of contraceptive access in the UK during lockdown.

Approach

Using Qualtrics software, we designed an online survey that asked about contraceptive access, contraceptive use, and preferences before and after the lockdown, with an option for free text comment. After piloting with a patient and public involvement group, we promoted this survey on social media platforms for two weeks from 27th May 2020, targeting cisgender women between ages of 16 and 54 years from all over the UK. We used Microsoft Excel for descriptive analysis of quantitative data and Nivo to organise free text data for thematic analysis.

Findings

Out of 352 visits to the survey site, 214 were cisgender women who consented and completed the survey. We received responses from all UK regions and age groups between 16 to 54 years; modal age was 16 to 18 (n=70, 33%), greatest from South East (31, 15%) and least from Northern Ireland (6, 3%).83% (178/214) were using contraception at the time; 64% (113/178) obtained before lockdown, 37% after lockdown. 38 (17%) were not using contraception at the time. 40% to 60% were concerned about getting their next supply during lockdown; most common reason was perception that GP/contraception clinic was closed or not offering appointments.59 free text responses to the "comments" section were categorised into themes. Respondents reported not knowing how and where to obtain contraception after lockdown and assumed their clinic/GP surgery were shut or not offering face-to-face appointments and LARC fittings. Providers adapted however by offering remote consultations for assessments and issued prescriptions by mail or electronically to nominated pharmacies; this was useful for respondents staying away from their usual residence.Some purchased contraception from online pharmacies or switched methods. One respondent had to travel further for LARC because her local GP was not offering it. Some complained it was unfair blood tests and immunisations were offered but not LARC (injections and implants).While a temporary method to their preferred choice was acceptable to some, this was not for those who relied on it for non-contraceptive benefits such as manging heavy menstrual bleeding and acne.

Consequences

The survey highlighted the need for better information and signposting to obtain free contraception during lockdown. We reported variations in availability and access to contraceptive services across the UK, especially so for LARC because of the restrictions in face-to-face contacts and procedures.

**Funding acknowledgement**

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## 3D.2 The Association Between Domestic Abuse and Atopic Diseases in the United Kingdom: A Population Based Retrospective Cohort Study

Presenter: Katrina Nash

Co-authors: Krishna M Gokhale, Krishnarajah Nirantharakumar, Nicola J Adderley, Joht Singh Chandan

Institutions: College of Medical and Dental Sciences University of Birmingham, Institute of Applied Health Research University of Birmingham, Institute of Applied Health Research University of Birmingham, Institute of Applied Health Research University of Birmingham,

**Abstract**

Problem

Domestic abuse is estimated to affect approximately one third of women and is associated with significant harmful psychological and physical consequences. Women experiencing domestic abuse often present to in primary care, meaning general practitioners are poised to both detect and prevent the negative consequences of domestic abuse. Although cross-sectional studies have previously demonstrated an association between domestic abuse and atopy, no cohort studies have been conducted

worldwide to our knowledge. We aimed to explore the association between domestic abuse and atopy using the IQVIA medical research database, a large UK primary care database. The database has been shown to be generalisable to the UK population in terms of demographics and morbidity prevalence.

Approach

A population based retrospective open cohort study was undertaken between January 1995 to September 2019. 21,093 female patients with a GP recorded exposure to DA were matched to 74,899 unexposed females; age and Townsend deprivation quintile were used as matching parameters, whilst age, Townsend deprivation quintile and smoking status were used as model covariates. Read codes used in primary care were utilised to identify unexposed and unexposed patients and extract information on patient parameters and outcomes. Outcomes of interest were defined by diagnosis of atopic disease (asthma, atopic dermatitis and allergic rhinoconjunctivitis). To compare the risk of atopy between the exposed and unexposed group, unadjusted and adjusted odds ratios (OR) for diagnosis of atopic disease at baseline and incidence rate ratios (IRR) of development of atopic disease during the study period were calculated.

Findings

At study entry, those who were exposed to DA had a higher likelihood of having atopic diagnosis (adjusted OR 1.17, 95%CI 1.13 – 1.21). During the study period, 878 women in the exposed group (incidence rate (IR) 21.3 per 1,000 person years) developed atopy compared to 2,566 in the unexposed group (IR 14.7 per 1,000 person-years) translating to an increased risk following adjustment for covariates (adjusted IRR 1.48, 95% confidence intervals 1.37 – 1.60). The highest risks was seen in the development of asthma (aIRR 1.62, 95% CI 1.40 – 1.87) and allergic rhinoconjunctivitis (aIRR 1.62, 95% CI 1.51, 1.36 - 1.67), and weakest in atopic dermatitis (aIRR 1.40, 95% CI 1.27 – 1.53). Although GP coding of atopy is anticipated to be of high quality, previous studies have demonstrated limitations in the recording of domestic abuse. Therefore, our findings may reflect an over or under-estimate of the true effect size.

Consequences

Patients exposed to domestic abuse have a higher risk of developing atopic diseases, with the greatest risk seen in asthma. In order to reduce the burden of morbidity and mortality associated with domestic abuse, it is paramount to implement targeted public health policies to prevent domestic abuse and its negative downstream consequences.

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## 3D.3 Self-monitoring of blood pressure in women with higher risk pregnancies: the BUMP1 multicentre randomised controlled trial

Presenter: Richard McManus

Co-authors: Katherine Tucker, Hannah Wilson, Sam Mort, Lisa Hinton, Lucy Chappell, on behalf of the BUMP Investigators

Institutions: Universities of Oxford and Kings College London

**Abstract**

Problem

Self-monitoring of blood pressure (BP) in the general adult population has been shown to support the diagnosis and management of hypertension. However, ew data are available for its use in antenatal care. The BUMP1 trial aimed to evaluate whether self-monitoring of BP during higher risk pregnancy improved the detection of pregnancy hypertension.

Approach

This multicentre, non-masked, randomised controlled trial recruited pregnant women at

higher risk of pre-eclampsia at 20 weeks' gestation (+/-4 weeks). Participating women were randomised to either BP self-monitoring with telemonitoring and usual care or to usual care alone. An app provided real time feedback advising women of appropriate actions to take at each blood pressure threshold. The primary outcome was the time to the first recorded raised BP taken by a healthcare professional. Secondary outcomes included maternal and perinatal outcomes, quality of life, and adverse maternal and fetal events. A sample size of 2262 (1131/group) at 90% power was required to detect hypertension 14 days earlier (SD 45 days), assuming 16% of the women would develop hypertension with 15% attrition. Trial Registration: NCT03334149 (clinicaltrials.gov)

Findings

2441 women were randomised to either BP self-monitoring (n=1223) or usual care (n=1218). Primary outcome data were available from 2346 (96%) women. Baseline characteristics including age, parity and baseline blood pressure were similar. Hypertension was diagnosed in 15.5% of women. Time to detection of raised blood pressure was not significantly different between self-monitoring and usual care groups (mean 104 days vs 106 days in the usual care group) giving a difference in days of -1.6 (-8.1 to 4.9, p=0.6). There was no difference in incidence of severe hypertension (adjusted relative risk 1.2 (0.9 to 1.7), p=0.3), quality of life or other maternal and fetal outcomes. There were no significant differences in Serious Adverse Events.

Consequences

Self-monitoring of BP during higher risk pregnancy appears to be safe, but did not improve the detection of hypertension in women with higher risk of pre-eclampsia when used alongside usual care. Further work is required to assess the place of self-monitoring of blood pressure in place of usual antenatal care, for instance in remote consultations, and to assess self-management.

**Funding acknowledgement**

This work is funded from a National Institute for Health Research (NIHR) Programme grant for applied research (RP-PG-1209-10051) and an NIHR Professorship awarded to RM (NIHR-RP-R2-12-015). RM and KT receive funding from the National Institute for Health

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## 3D.4 Identifying and responding to domestic violence in General Practice during the COVID-19 pandemic

Presenter: Elizabeth Emsley

Co-authors: Caroline Coope, Emma Williamson, Jessica Roy, Gene Feder, Eszter Szilassy

Institutions: Centre for Academic Primary Care, Population Health Sciences, Bristol Medical School, University of Bristol

**Abstract**

Problem

Identifying and responding to patients experiencing or perpetrating domestic violence and abuse (DVA) and their children is vital in General Practice (GP). Evidence suggests that while the prevalence of DVA has increased during the COVID-19 pandemic, the imposition of severe lockdown measures has led to a significant reduction in GP DVA identifications and referrals to specialist services. IRIS+, which stands for Enhanced Identification and Referral to Improve Safety, is an integrated primary care system-level training and support intervention. IRIS+ enhances and extends the original IRIS model to all patients affected by DVA. The model involves tailored training for non-IRIS trained and IRIS trained GP practices about DVA and a referral pathway for survivors, perpetrators

and their children. The IRIS+ feasibility stage II study tests the feasibility and acceptability of IRIS+ in England and Wales. In this paper we aim to establish the impact of the COVID-19 pandemic response on DVA identification and response in IRIS+ trained GP practices.

Approach

We will analyse the impact of the COVID-19 pandemic lockdown measures on the identification and response to DVA in one inner city IRIS+ trained GP practice in England by analysing the GP Electronic Medical Record (EMR). In a blinded search we will identify, describe and compare disclosures of DVA recorded in the EMR during the period of the IRIS+ intervention, prior to the COVID-19 pandemic (1st June 2019 to 22nd March 2020) and during the COVID-19 pandemic period (23rd March 2020 to 31st December 2020). For DVA disclosures recorded in the EMR we will also compare signposting and referral to IRIS+, and whether this was accepted by patients prior to and during the pandemic. For DVA disclosures recorded in the EMR we will consider consultation type, reason for consultation and outcomes of the consultation.We will also perform a thematic analysis of interviews with 11 GP health care professionals from England and Wales, including GPs, practice nurses and health visitors. The analysis will consider the impact of the COVID-19 pandemic lockdown measures on the identification and response to DVA in IRIS+ trained GP practices in England and Wales.

Findings

Study data collection is in progress and we will present the early findings of the effect of the COVID-19 pandemic response on DVA identification and referral in IRIS+ trained, with a focus on one inner-city practice. We will also describe emerging themes from interviews with GP healthcare professionals regarding the impact of the COVID-19 pandemic response on DVA disclosures.

Consequences

This study will improve our understanding of the primary care response to DVA including during a period of national lockdown and restriction measures.

**Funding acknowledgement**

I am an NIHR funded Academic Clinical Fellow. IRIS+ is part of the REPROVIDE programme (Reaching Everyone Programme of Research On Violence in diverse Domestic Environments), an independent research programme funded by the National Institute for Health Research.

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## 3D.5 A meta-synthesis of patients' and health providers' attitudes towards the use of long-acting reversible contraceptives (LARCs) in primary care.

Presenter: Emma Linton

Co-authors: Rebecca Mawson, Caroline Mitchell

Institutions: The Academic Unit of Primary Medical Care

**Abstract**

Problem

Unplanned pregnancies carry increased risks and contribute to health inequality. Access to effective and acceptable contraception is needed for reproductive autonomy and to promote planned, healthy pregnancies. LARCs are safe, efficacious and cost effective but their use lags behind other, user dependent, methods of contraception. Whilst LARC prescription is increasing in sexual and reproductive health services, it is static in primary care, where a majority of women access contraception. This meta-synthesis seeks to understand patients' and providers' attitudes to LARC use in primary care. This

objective aligns with a NICE research goal: to determine which benefits and drawbacks of LARCs might influence a woman's choice. Understanding facilitators and barriers enables effective contraceptive counselling. The aim is not to impose LARC use but to facilitate optimal matching of contraception needs to choice.

Approach

The meta-synthesis is registered on Prospero: 156610. The databases CINAHL, Embase, Ovid, PsychInfo and Web of Science were searched for qualitative studies from 2009 to October 2019 using search terms related to 'LARC' and 'General Practice'. Two reviewers independently conducted abstract screening and full text reviews according to inclusion and exclusion criteria. Conflicts were discussed. Quality of included papers was assessed using CASP criteria (ongoing). Papers were not excluded on the basis of methodological robustness but verbatim quotes used to mitigate the risk of low quality papers adversely affecting synthesis. Thematic synthesis described by Thomas and Harden in 2008 has been used to develop analytical themes.

Findings

1441 abstracts were screened and of 82 full text reviews,15 papers met the criteria for inclusion in the meta-synthesis. Papers described research across primary care settings in Europe, USA and Australasia. In the preliminary analysis emergent themes include patients' views of societal norms, perceptions and misconceptions about LARC effects and acknowledging the individual in contraceptive choice. The analytical framework is being developed and will be presented. Of particular interest in the analysis to date are the similarities and differences between patients' and health providers' perceptions. Identifying disconnects here can be used to tailor interventions, better matching patients' concerns with the information they receive at contraceptive consultations.

Consequences

Despite the effectiveness of LARCs, their use in primary care has remained static over recent years. The results of this meta-synthesis will establish if there is an unmet care need: are surmountable barriers preventing more women using LARCs? Gaining an understanding of patients' perspectives will enable practitioners to challenge these barriers through improved contraceptive counselling, and provide a framework to evaluate and improve contraceptive services.

**Funding acknowledgement**

This work was undertaken while Emma Linton was employed as an NIHR Academic Clinical Fellow in Primary Care

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## 3D.6 I have endometriosis. Welcome to my world: Women's experiences of living with endometriosis and the delay in diagnosis. A narrative analysis.

Presenter: Adwoa Sefa

Co-authors:

Institutions: King's College London

**Abstract**

Problem

Endometriosis is a common gynaecological disorder in which endometrial-like tissue that normally lines the uterus is found outside of the uterus triggering local inflammation. Endometriosis commonly causes chronic pelvic pain, dysmenorrhea, deep dyspareunia, and fatigue in addition to psycho-social difficulties. Despite the prevalence of endometriosis in the UK, it currently takes women an average of 8 years from their first presentation, to receive a diagnosis. As part of my third-year medical school curriculum, I

sought to explore the experiences of women diagnosed with endometriosis particularly during their journey to diagnosis. A narrative analysis of three online blogs was conducted to understand why women share their stories of living with endometriosis and what practitioners can learn from these stories regarding: a) the social and psychological impact of endometriosis and b) the effect of struggling to reach an endometriosis diagnosis from the patient's perspective.

Approach

Preliminary google searches identified that online patient narratives were often told through blogs as blogging has become an increasingly popular means of expression during illness. Three online blog entries were analysed in this study. These blogs were identified through google searches, qualified using Labov's model of narrative structure, and subsequently content-assessed against specific inclusion and exclusion criteria. These criteria helped to ensure that the included narratives were unique first-person patient narratives authored by women diagnosed with endometriosis and living in the UK. Of the initial 101 search results, 8 blog entries were eligible to be included in this study, and 3 narratives were chosen to be analysed in sufficient depth. The focus of the narrative analysis was to explore the purpose of each woman's narrative as well as examine some of the linguistic features of the narratives and the intention they serve.

Findings

Upon analysis, it was determined that each woman had chosen to share her narrative to either raise awareness or obtain catharsis and make sense of her diagnosis. Examining both the style and content of the narratives allowed for three primary conclusions to be drawn: firstly, living with endometriosis can cause women high levels of emotional stress; secondly, not having a diagnosis can greatly exacerbate this stress; and lastly, there is a culture of normalisation of chronic pelvic pain in women leading to many women being viewed and treated as 'unlucky' rather than 'unwell' by healthcare providers.

Consequences

Endometriosis can profoundly affect a woman's life physically, emotionally, and socially. The present study highlights that remaining undiagnosed can cause further stress and impact a woman's self-identity. The implications for healthcare professionals are discussed including the use of narrative analysis to foster patient-centeredness, avoiding a normalisation of severe menstrual pain in women to promote earlier investigation, and encouraging the use of non-stigmatising language and phrases in general practice.

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## 3D.7 What are the additional risks of dementia in women taking hormone replacement therapy?

Presenter: Yana Vinogradova

Co-authors: Tom Dening, Julia Hippisley-Cox, Lauren Taylor, Michael Moore, Carol Coupland

Institutions: University of Nottingham, University of Oxford, University of Southampton

**Abstract**

Problem

Dementia is a progressive condition with major consequences for affected individuals, their families and their carers. It is most common in older people, and affects 1 in 14 over the age of 65. Some factors such as smoking, alcohol and obesity are known to increase the risk of developing dementia, but there is a lack of information about the effects of other factors, such as commonly used medications. For example, hormone replacement therapy (HRT) is increasingly

used by women with severe menopausal symptoms, but how exposure to these hormones affects a patient's risk of developing dementia is still unclear. All previous studies have been relatively small short-term or have not accounted for important confounding variables, and the most recent NICE guideline on menopause (2015) stressed the need to acquire more information on HRT risks and benefits with respect to developing dementia. This study focused on risks of incident dementia associated with different types of HRT, using routinely collected primary care data linked to hospital and mortality records and representative of the general female population of the UK.

Approach

Two nested case-control studies used the UK primary care databases, QResearch and CPRD, both linked to Hospital Episode Statistics and Office for National Statistics Mortality data. Overall between 1998 and 2020, 118,501 women aged 55 and older with a record of dementia or use of an anti-dementia drug, were matched by birth year and practice to up to 5 controls, alive and registered at the time of case diagnosis (index date). Exposure to HRT was taken from prescription records, excluding those within the 3 years prior to the index date. Risks for different types of HRT and duration of use were analysed using conditional logistic regression, and adjusted for ethnicity, body-mass index, smoking, alcohol consumption, social deprivation, co-morbidities and other drugs. Analyses were run separately for each database and the results combined using meta-analysis techniques.

Findings

Overall, 16,291 (13.7%) cases and 68,726 (13.8%) controls were ever exposed to HRT. No associations were found between different types or durations of HRT use and overall dementia risk. However, a subgroup analysis of women diagnosed with Alzheimer's disease demonstrated an increased risk associated with oestrogen-progestogen therapy (odds ratio 1.08, 95% CI: 1.03-1.12), particularly for longer exposures (5-10 years: OR 1.11, 95% CI: 1.04-1.20; 10 years or more: OR 1.19, 95% CI: 1.06-1.33).

Consequences

This is the largest single study providing population-based risk estimates. It showed no increased risks in short-term HRT users, but found a small increase in risk of developing Alzheimer's disease for long-term users. The findings should assist doctors and patients considering HRT treatments, especially longer-term use. The results will also inform future national and international guidance on best practice.

**Funding acknowledgement**

The study was funded by School for Primary Care Research NIHR.

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## 3E.1 A qualitative interview study of implementing ReSPECT (Recommended Summary Plan for Emergency Care and Treatment) in care and nursing homes: a valuable means of eliciting emergency care preferences?

Presenter: Jo Kesten

Co-authors: Jon Banks1,3, Anne Pullyblank6, Sabi Redwood1,3, Tracey Stone1,3, Heather Brant 1,3, Liz Hill1,3, Mike Bell1, Mary Tutaev4, Louise George5, Emma Redfern5, Hein Le Roux5, Alison Tavaré5, Lucy Pocock6 Hannah Little5

Institutions: 1NIHR ARC West, 2 NIHR HPRU in Behavioural Science and Evaluation, University of Bristol, 3Population Health Sciences, Bristol Medical School, University of Bristol, 4 Patient and Public Involvement

contributor, 5West of England Academic Health Sciences N

**Abstract**

Problem

Decision making around emergency treatment and end of life care planning is challenging in care and nursing home settings. The Recommended Summary Plan for Emergency Care and Treatment (ReSPECT) form and process is an emergency care treatment plan aiming to facilitate a dialogue and document individuals' preferences for the location and level of treatment they should receive in a medical emergency, accompanied by appropriate clinical recommendations. ReSPECT has been introduced because forms such as 'do not attempt cardiopulmonary resuscitation' (DNACPR), designed to prevent CPR when individuals are near the end of life did not prevent inappropriate health care interventions. This study aimed to understand whether the ReSPECT process encourages and empowers GPs and staff to have, and document, conversations with residents of care and nursing homes about their preferences in the event of a clinical emergency. The study also considered the role of ReSPECT during the COVID-19 pandemic and the experience of conducting these conversations during the pandemic.

Approach

A qualitative interview study with: (a) GPs who provide care to care homes across Gloucestershire and Bristol, North Somerset and South Gloucestershire CCGs; and (b) care home staff and residents who completed or facilitated the completion of ReSPECT forms. Interviews were transcribed, anonymised and analysed thematically.

Findings

Sixteen GPs participated in the interviews and to-date we have interviewed 4 members of staff and 4 residents at 1 care home. GP interviews are complete and care home recruitment is ongoing. We report our preliminary findings from the GP interviews here. GPs saw ReSPECT as supporting and formalising emergency treatment and end of life care planning. The ReSPECT process constituted broad and nuanced discussions, sometimes over several conversations. Capturing these conversations and balancing resident preferences with appropriate clinical recommendations on the ReSPECT form is a complex process. Care home staff play an important role in introducing and supporting the process. Their relationship with residents provides: background information, a conduit for conversation, and a means to support the form being reviewed by a resident. COVID-19 accelerated the rollout of ReSPECT in care and nursing homes but completing the process virtually was challenging, especially when involving residents' families and required additional support from care homes.

Consequences

The evaluation of ReSPECT in care homes in the West of England demonstrates the potential for ReSPECT to support and formalise conversations about nursing and care home resident preferences and treatment decisions for clinical emergencies and end of life care. Our findings highlight the collaboration between care homes and primary care and the value of involving care staff in the ReSPECT process. Multi-disciplinary collaboration is key to ensuring ReSPECT is implemented and used successfully.

**Funding acknowledgement**

This research was jointly funded by the National Institute for Health Research (NIHR) Applied Research Collaboration West (ARC West) at University Hospitals Bristol NHS Foundation Trust and the West of England Academic Health Science Network.

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## 3E.2 Prescribing in the Last Year of Life, and associations with demographic factors, cancer type and unscheduled care use, in people who die from cancer.

Presenter: Sarah Mills

Co-authors:

Institutions: University of Dundee

**Abstract**

Problem

People dying from cancer often experience disease-and-treatment-related symptoms. Provision of medication to help with symptom control is a vital part of community palliative care, and an essential element in achieving a good quality of life in people living with advanced cancer. Little is known about the associations between demographic and clinical factors on provision of prescription medication to people dying from cancer, or the influence that prescribing practices have on unscheduled care use by cancer decedents. In the UK, this unscheduled care is delivered by GP-Out-Of-Hours (GPOOH) and Accident & Emergency (A&E).

Approach

This retrospective cohort study, of all 2,443 people who died from cancer in Tayside, Scotland from 03/2013-06/2015, aimed to understand the patterns and outcomes of unscheduled care attendance in the last 12 months of life, at GPOOH and A&E, by people who die from cancer, and to examine the associations with prescribing factors. Clinical, demographic, cancer registry and prescribing datasets were linked to routinely collected clinical data using the Community Health Index (CHI) number. Anonymised linked data were analysed in SafeHaven. Analysis was descriptive, using Poisson regression.

Findings

Three in four cancer decedents were prescribed strong opioids. Two-thirds of those prescribed opioids were also prescribed laxatives and/or anti-emetics, with only four in ten being prescribed 'Just in case' medication categories and one in ten receiving breakthrough analgesia. The number of prescriptions for analgesia and palliative care drugs increased in the last 12 weeks of life. Cancer decedents who were female, younger, or had lung cancer, were more likely to be prescribed strong opioids. Having a late diagnosis of cancer was associated with increased odds of being prescribed weak opioids and decreased odds of being prescribed strong opioids. Cancer decedents who attended unscheduled care received more prescriptions per person in all drug categories, compared to those who did not. Cancer decedents who attended A&E, versus those who did not, had a higher number of prescriptions for most analgesia; those who attended GPOOH, versus those who did not, had a higher number of prescriptions for all drugs. Frequent or very frequent attenders received more than double the number of prescriptions per person that non-attenders.

Consequences

This research identified multiple prescribing factors associated with increased unscheduled care use. With over a third of all unscheduled care attendances being due to pain and other palliative symptoms, it is possible that targeted interventions to improve symptom control and management could reduce unscheduled care use, minimise distress, and provide timely relief without the delays inherent in attending unscheduled care. Prescribing in the last year of life is an important modifiable risk factor for increased unscheduled care use. Future interventions should target anticipatory care planning, and

Just in Case and breakthrough medication provision.

**Funding acknowledgement**

Sarah Mills was funded by a Clinical Academic Fellowship through the Chief Scientist Office (reference number: CAF_17_06). Initial funding for data extraction and storage was provided through PATCH Scotland Research Grants.

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## 3E.3 Mapping the evidence against the Daffodil Standards for the developing role of community pharmacists in palliative care: a systematic scoping review

Presenter: Mirella Longo

Co-authors: Mala Mann, Lenira Ferreira Semedo, Stephanie Subadha, Emyr Jones, Annmarie Nelson

Institutions: Marie Curie Palliative Care Research Centre, Cardiff University

**Abstract**

Problem

Palliative care is a growing field of medicine that is always looking for ways to develop in order to provide the best care for patients. Following the development and the implementation of the Daffodil standards created for General Practice, these standards are now being designed specifically for community pharmacists delivering palliative care. Community pharmacists have been recognized as having a key role in palliative care due to the access they have to resources and contact time with patients within their homes. This scoping review aims to map evidence against the Daffodil Standards for the developing role of community pharmacists in palliative care.

Approach

A search strategy including keywords such as palliative care, terminal care, end-of-life, hospice care, pharmacies, and community pharmacists was designed, tested, and applied to search seven electronic databases (Medline, EMBASE, EMCARE, PsycINFO, Scopus, Cochrane Library, CINAHL) and 12 relevant websites. The articles collected from the electronic databases and the grey literature were also cross-referenced with a document from the HDAS database that had articles relating to community pharmacists and palliative care to see if there were any more relevant articles that may have been missed from the initial search. Included studies i) refer to 'palliative care' or 'last days' or 'end of life' care, ii) relate to the role of community pharmacists, iii) are published in English, and iv) are from OECD countries. No date or study design constraint was used. Two reviewers independently reviewed the title and abstracts of each source; a third reviewer accessed any disagreements. The key concepts initially discussed were taken into consideration and helped guide the initial screening of the articles and the design of the data abstraction form.

Findings

A total of 1029 records were identified, after removing duplicates and irrelevant records a total of 724 abstracts were screened, from these, 115 full-text articles were assessed for eligibility. Data from 45 articles are being extracted and, themes and subthemes are mapped against the Daffodil Standards for GPs. Full findings will be presented at the conference.

Consequences

Palliative care is increasingly delivered in the community setting, and the capillary presence of community pharmacies makes the pharmacist the 'first port of call' when seeking

health advice. The community pharmacist is now an established member of the primary care team and has much to offer to patients diagnosed with a terminal illness or in end-of-life care due to frailty and their families. This scoping review has been designed to acknowledge the current role of a community pharmacist and how this role can be further extended to improve wider and fairer access to palliative care services.

**Funding acknowledgement**

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## 3E.4 What attendance-level demographic, clinical, and temporal factors are associated with unscheduled care use in people who die from cancer?

Presenter: Sarah Mills

Co-authors:

Institutions: University of Dundee

**Abstract**

Problem

Access to care out-of-hours is essential for supporting patients with advance cancer in living, and dying, well in the community. In the UK, unscheduled care is delivered by GP-Out-Of-Hours(GPOOH) and Accident & Emergency(A&E). Little is known about what factors influence use of unscheduled care by cancer decedents, and most of the research that does exist does not examine GPOOH.

Approach

This retrospective cohort study, of all 2,443 people who died from cancer in Tayside, Scotland from 03/2013-06/2015, aimed to understand the patterns and outcomes of unscheduled care attendance in the last 12 months of life, at GPOOH and A&E, by people who die from cancer, and to examine the associations with demographic, clinical, temporal, and prescribing factors. Clinical, demographic, cancer registry and prescribing datasets were linked to routinely collected clinical data using the Community Health Index(CHI) number. Anonymised data were analysed in SafeHaven. Analysis used Generalised Estimating Equation (GEE).

Findings

The majority of unscheduled care attendances, by cancer decedents in their last year of life, took place in GPOOH, rather than A&E. Cancer decedents who were women, younger, and had GI symptoms or infections had greater odds of using GPOOH; those who were male, older, had lung cancer, and presented with pain, breathlessness, acute neurological symptoms, or 'unwell' or 'palliative care', had higher odds of using A&E compared. Presenting complaints were associated with age and cancer type. Cancer decedents who attended A&E had over eight times greater odds of being admitted to hospital than those who attended GPOOH. Frequent or very frequent attenders, had greater odds of using GPOOH preferentially to A&E. Older cancer decedents, those coded as 'unwell' or 'palliative care', and those who attended after their cancer diagnosis, had lower odds of being admitted to hospital after unscheduled care attendance. Cancer decedents with a late diagnosis, those presenting with breathlessness, GI symptoms and infection, and those whose attendances had high clinical priority had greater odds of being admitted following unscheduled care attendance. Cancer decedents who were frequent or very frequent attenders had lower odds of being admitted to hospital following unscheduled care contact.

Consequences

This research demonstrates that unscheduled care use by cancer decedents is more prevalent than previously thought, and mostly

delivered in GPOOH. It identified a number of factors associated with increased unscheduled care use. Targeting modifiable factors associated with increased unscheduled care use can minimise potentially avoidable unscheduled care use, and its consequences, for people dying from cancer. Identifying individuals with non-modifiable factors, who are at high risk of unscheduled care use – particularly frequent unscheduled care use – allows for focusing of resources and support to those people for whom it would confer the most benefit.

**Funding acknowledgement**

Sarah Mills was funded by a Clinical Academic Fellowship through the Chief Scientist Office (reference number: CAF_17_06). Initial funding for data extraction and storage was provided through PATCH Scotland Research Grants.

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## 3E.5 What's missing in Unscheduled Care Big Data? A free-text analysis of General Practice Out-of-Hours (GPOOH) Attendances by People who Die from Cancer.

Presenter: Sarah Mills

Co-authors:

Institutions: University of Dundee

**Abstract**

Problem

Access to care General Practice Out-of-Hours (GPOOH) is key to supporting patients with advance cancer in living, and dying, well in the community. Unfortunately, the clinical content in GPOOH data is poorly coded; over half of all consultations for people who die from cancer are coded as 'other' or having missing coding. Consequently, very little is known about why people with advanced cancer access GPOOH.

Approach

This free-text analysis was part of a wider retrospective cohort study involving all 2,443 people who died from cancer in NHS Tayside from 03/2013-06/2015. This cohort was defined using General Registry Office (GRO) data to identify all people with cancer in position 1 on heir death certificates, and was cross-linked to demography and cancer registry datasets using Community Health Index (CHI) numbers. Clinical information for all contacts with GPOOH in patients' last year of life was obtained. For the 2,443 people in the cohort this represented 5,749 GPOOH attendances. The free text were cleaned and anonymised through the Health Informatics Centre (HIC) and stored in the virtual SafeHaven platform. This free-text analysis used a randomly-generated sample of 575 attendances, representing 10% of the cohort's GPOOH attendances. All consultations were read, analysed and coded into 'main reason for presentation', presence of palliative care symptoms, purpose of consultation (cancer-related, pain-related or palliative-care-related), and evidence of Anticipatory Care Planning (Do Not Attempt CPR forms, Just in Case medication prescribing, presence of electronic palliative care summaies). Half (n=288 attendances) were double-coded by two reviewers. A Kappa analysis was performed on all allocated variables. Only variables scoring as having moderate-to-perfect inter-rater agreement were included in the final analysis.

Findings

Palliative care and pain accounted for half of the assigned presenting complaints. More than half of GPOOH attendances recorded at least one key or additional palliative care symptom. Breathlessness, nausea and vomiting and cough were the commonest key palliative care symptoms recorded in GPOOH consultation free texts. Agitation, oedema and weight loss were the commonest additional palliative care symptoms recorded

in consultation free text. The underlying reason for consultation was cancer-related in over seventy percent attendances, pain-related over sixty percent of attendances and palliative care-related in over forty percent of attendances. Anticipatory care planning paperwork and medication were poorly recorded in the notes and often absent. There was a significant association between presence of eKIS summaries, DNACPR forms and JIC medication.

Consequences

This is the first free-text analysis of GPOOH consultations in patients who die from cancer, and fills a knowledge gap in determining why people with advanced cancer use GPOOH. It identified a number of anticipatory care planning and prescribing factors which are associated with increased GPOOH use, and which could be targeted in order to minimise avoidable GOOH use by cancer decedents.

**Funding acknowledgement**

Sarah Mills was funded by a Clinical Academic Fellowship through the Chief Scientist Office (reference number: CAF_17_06). Initial funding for data extraction and storage was provided through PATCH Scotland Research Grants.

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## 3E.6 Enabling people to live and die well with dementia: a new primary care intervention

Presenter: Greta Brunskill

Co-authors: Claire Bamford, Jane Wilcock, Alison Wheatley, Louise Robinson on behalf of the PriDem team

Institutions: Newcastle University; University College London

**Abstract**

Problem

Currently, the support available following a dementia diagnosis in the UK is inconsistent and individual experiences are highly variable. It has been suggested that primary care should take a more central role in the care of people living with dementia, similar to other long term conditions. The PriDem project aims to develop and test a new intervention based in primary care to improve the support of people living with dementia and their families from the point of diagnosis to end of life care.

Approach

We conducted literature reviews, interviews with commissioners and service managers, and in depth qualitative studies of six different service models in England. We also explored views on a primary care based approach with professionals, people living with dementia and their carers. Using these findings, ideas for intervention were refined through a co-development process involving our programme management board, stakeholder involvement panel (the Dementia Care Community), and a series of virtual task groups with representation of all stakeholders.

Findings

The new intervention will be led and facilitated by a clinical dementia expert, a specialist nurse or similar professional with dementia expertise, based within a primary care network. The intervention will focus on three interlinked areas designed to address key concerns identified by the research: developing systems; building capacity and capability; and delivering tailored care and support. Developing systems will address the lack of shared knowledge about the services available, and establish systems to support how services and transitions between them are navigated. Building capacity and capability will focus on enhancing the skills, knowledge and confidence of primary care practitioners in caring for people with dementia. Delivering tailored support will focus on improving the consistency and quality of dementia reviews

and care planning, and ensuring the right level of support is provided at the right time to meet the needs of each person living with dementia. Implementation of the intervention will be flexible to the local context, with an emphasis on developing a local dementia pathway of support, and enhancing the ability of primary care to deliver evidence-based, person-centred dementia care for the long-term.

Consequences

With the right systems and resources in place, primary care could offer the optimum setting for providing good quality post diagnostic support to people living with dementia and their families. The feasibility and implementation of the new intervention will be now tested in a small number of primary care sites.

**Funding acknowledgement**

This work was supported by funding from Alzheimer's Society Centre of Excellence grant number 331.

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## 3E.7 Perceptions and experiences of residents and relatives of emergencies in care homes: systematic review and meta-synthesis

Presenter: Despina Laparidou

Co-authors: Despina Laparidou1, Ffion Curtis2, Withanage Iresha Udayangani Jayawickrama1,3, Dedunu Weligamage1,3, W. K. W. Sarathchandra Kumarawansha1,3, Marishona Ortega4, Aloysius Niroshan Siriwardena1

Institutions: 1. Community and Health Research Unit, University of Lincoln; 2. Lincoln International Institute of Rural Health, University of Lincoln; 3. Postgraduate Institute of Medicine, University of Colombo; 4. Library, University of Lincoln

**Abstract**

Problem

Medical emergencies in care homes, both residential and nursing care homes, are common and costly, often resulting in calls to an out-of-hours general practitioner or Emergency Medical Services. Ambulance attendance frequently results in conveyance to hospital with concomitant high costs and risks of, often prolonged, hospitalisation. Previous studies and systematic reviews on emergencies in care homes have focused mainly on rates and reasons for transfer to hospital, with less consideration for the wider context. To ensure high quality emergency care that is effective, efficient, safe, providing a good experience for service users, we need to understand more broadly the experience of emergency care provided within care homes from the perspectives of residents and their relatives.The aim of this systematic review was to provide a comprehensive synthesis of the perceptions and experiences of care home residents and their family members, who have experienced medical emergencies in a care home setting.

Approach

We searched five electronic databases, supplemented with internet searches and forward and backward citation tracking from included studies and reviews. Data were synthesised thematically following the Thomas and Harden approach. The CASP Qualitative Checklist was used to assess the quality of the studies included.

Findings

The search strategy identified 6,140 citations. After removing duplicates and excluding citations based on title, abstract, and full-text screening, ten studies from four countries (Australia, Canada, UK, US) were included in the review and meta-synthesis. All included

studies were considered of acceptable quality. Through an iterative approach, we developed six analytical themes. 1. Infrastructure and process requirements in care homes to prevent and address emergencies (describes the experience and perceptions of care home care from the perspective of residents and relatives); 2. The decision to transfer to hospital (describes the experience and perceptions of transfer decisions); 3. Challenges of transfer and hospitalisation for older patients (describes negative and positive experiences of care home residents and relatives and perceptions of emergency department, hospital care and return to the care home); 4. Good communication vital for desirable outcomes (describes the importance of information sharing and communication between residents, relatives and healthcare staff for good health outcomes and experiences); 5. Legal, regulatory and ethical concerns (describes the legal status of family members, regulatory responsibilities of staff and ethical concerns including advance care planning and end-of-life decisions); and 6. Trusting relationships enabled residents to feel safe (describes the importance of positive ongoing relationships with staff and trust in care workers for safe urgent care).

Consequences

The emergency care experience for care home residents can be enhanced by ensuring resources, staff capacity and processes for high quality care. Building trusting relationships underpinned by good communication and attention to ethical practice were also identified as important factors.

**Funding acknowledgement**

Supported by NIHR Applied Research Collaboration East Midlands.

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## 3F.1 WORKSHOP: Delivering Research with GPs in a place-based Integrated Care Ssystem

Presenter: Paul Carder, Ruth Burnett

Co-authors:

Institutions: Paul Carder, Head of Research for the West Yorkshire Clinical Commissioning Groups (WY R&D) Ruth Burnett, Executive Medical Director at Leeds Community Healthcare NHS Trust and Leeds GP Confederation

**Abstract**

West Yorkshire Research and Development (WY R&D) is the R&D team for CCGs and general practices across the West Yorkshire and Harrogate Health and Care Partnership, working collaboratively with partners to support practices to develop, deliver and implement research. This session will explore the implications of the ongoing transformation of Clinical Commissioning Groups into Integrated Care Systems. In West Yorkshire a place-based ICS model has allowed for the development of new place-based research delivery models across our system. This session will provide an opportunity to discuss ongoing pilot work related to these, with particular focus being given to three different models being developed alongside local partners in Bradford, Leeds and Wakefield. This session will also provide an opportunity to discuss barriers and opportunities that relate to the recruitment of participants to primary care research studies, exploring issues related to I.T. systems, data access, and an increasing need for high quality research to be made more accessible to those who are currently most underserved. The development of a place-based ICS will provide opportunities to shape the primary care research landscape in new, innovative ways and this session will give time to exploring the potential there is to work collaboratively with general practices to

increase research activity in our area and beyond.

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## 3G.1 WORKSHOP: Whose decision is it anyway? A Forum Theatre workshop

Presenter: Jess Drinkwater, Alice O'Grady and five actors

Co-authors: Jess Drinkwater (1), Delia Muir (2), Alice O'Grady (3), Anne MacFarlane (4), Maureen Twiddy (5), David Meads (1), Ruth H Chadwick (6), Ailsa Donnelly (6), Phil Gleeson (6), Nick Hayward (6), Michael Kelly (6), Robina Mir (6), Graham Prestwich (6), Martin

Institutions: (1) Leeds Institute of Health Sciences, University of Leeds. (2) Leeds Institute of Clinical Trials Research, University of Leeds. (3) School of Performance and Cultural Industries, University of Leeds. (4) School of Medicine, University of Limerick

**Abstract**

**Aim**

We aim to explore relationships between patients and staff collaborating on general practice service improvement through an interactive co-produced online Forum Theatre (FT) workshop.

Participants will have the opportunity to experience FT and reflect on their own experiences of working in partnership with patients and staff.

**Format**

- Scene setting and warm up (10 minutes):

Patient Participation Groups (PPGs) in general practice, what are they, who is involved, and what are they for?

- Live performance of a fictional PPG meeting. (10 minutes)
- Facilitated discussion with the actors in role about their experience of the meeting and their relationships. (30 minutes)
- Reflective discussion with the research team and actors out of role. (10 minutes)

**Content**

Covid-19 offers an opportunity to reshape general practice services and improve patient care to support living and dying well. Who makes the decisions affects what decisions are made. The NHS constitution enshrines the rights of the public to be involved in service delivery decisions. In general practice this is enacted in part through contractual obligations to have a PPG. However, our research suggests the ability to share decisions meaningfully is mediated by relationships based on power, legitimacy, and credibility. Safe space for critical reflection is currently missing from practice, inhibiting impact.

We are a group of patients, researchers, and general practitioners, developing and evaluating interventions to support meaningful patient involvement in general practice organisational decision making. Working with actors and applied theatre practitioners we developed and piloted this online FT workshop with patients and staff.

FT is a problem solving technique within the broader Theatre of the Oppressed (TO). TO aims to explore power dynamics at a personal and societal level, aiming for empowerment of individuals and communities. Within our workshop, performance acts as a catalyst for discussion, with a focus on unresolved problems or power imbalances. A facilitator invites audience members to interact with the characters and explore whether they feel are oppressed or lacking power. Participants are encouraged to suggest practical solutions and rerun the performance to review their impact.

This provides safe space for participants to critically reflect on their relationships and develop empathy for different perspectives.

Workshop participants will have the opportunity to experience participating in the FT workshop. We will then facilitate a reflective discussion covering the process of co-producing the workshop, a comparison with public involvement in research, and FT as a mechanism for stimulating reflective practice.

**Funding**

*This project has been sponsored by the ESRC Impact Acceleration Account. Additional funding from NHS England.*

*Jess Drinkwater is funded by a National Institute for Health Research (NIHR), Doctoral Research Fellowship for this research project.*

*This abstract presents independent research funded by the National Institute for Health Research (NIHR), UK. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.*

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## 4A.1 How accurately can the NICE Traffic Light System predict serious illness in acutely unwell children under five? A retrospective cohort study.

Presenter: Amy Clark

Co-authors: Kathryn Hughes, Rebecca Cannings-John

Institutions: Cardiff University, PRIME Centre Wales, Cardiff University Centre for Trials Research

**Abstract**

Problem

The NICE Traffic Light System was created to facilitate the assessment of acutely unwell children under the age of five in primary care. It characterises their clinical features into 'green', 'amber', or 'red'; corresponding to a low, intermediate, or high risk of serious illness respectively. Studies in international and emergency settings have demonstrated that this tool has good sensitivity but poor specificity in the detection of serious illness. However, no studies have evaluated the predictive value of this clinical decision rule for identifying seriously ill children in UK general practice, a setting with a different presenting population and lower incidence of serious illness. The aim of this study is to evaluate the predictive value of the Traffic Light System in identifying serious illness in acutely unwell children under five presenting to UK general practice.

Approach

This retrospective cohort study performed secondary analysis on a dataset of acutely unwell children in general practice, collected for the Diagnosis of Urinary Tract Infection in Young Children study (DUTY). This dataset was linked to routinely collected hospital data to identify the children who were admitted to hospital after consulting with their GP. Their clinical features captured in general practice were categorised according to the Traffic Light System, as part of a separate unpublished study. ICD-10 clinical diagnosis codes were used to identify the outcome of serious illness in those admitted to hospital. Logistic regression will be used to evaluate the predictive value of the Traffic Light categories.

Findings

This study is still in progress, with completion by May 2021. Current findings have revealed that 32% of 6,791 children presenting to general practices with an acute illness were

categorised as ‘red’, 63% as ‘amber’, and 6% as ‘green’. GPs referred 1.6% of the ‘red’ children for same day hospital assessment (30/2149); 41 children from ‘red’ or ‘amber’ categories were referred overall (0.6%).Over 98% of children have been linked to hospital admission records (6703/6791). A total of 139 children seen in GP were admitted to hospital within 7 days; serious illness was diagnosed in 17 of these.

Consequences

This study is important because no previous research has determined the predictive value of this clinical decision tool in UK general practices, where it is widely used and recommended by NICE. NICE guidelines advise that ‘red’ children require immediate hospital assessment. However, our initial findings suggest that high numbers of children fit the ‘red’ criteria, and that GPs are only referring a small percentage of these to hospital. The results of this study may highlight the need for amendments to the tool; to improve its ability to correctly identify the most unwell children, while preventing unnecessary hospital admissions for children who are more likely to have a self-limiting viral illness.

**Funding acknowledgement**

I would like to thank the Wolfson Foundation for their funding of this project as part of their intercalated award bursary.

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## 4A.2 Findings from the Best Emollients for Eczema randomised trial comparing four types of emollients in children with eczema

Presenter: Matthew Ridd

Co-authors: Miriam Santer,2 Stephanie MacNeill,3 Emily Sanderson, 3 Sian Wells, 1Jonathan Banks,4 Alison R G Shaw, 1Eileen Sutton, 1Amanda Roberts,5 Julie Clayton,1 Kirsty Garfield,3 Lyn Liddiard, 1 Tiffany J Barrett,6 J Athene Lane, 3 Helen Baxter,1 Laura Howells,7

Institutions: 1 Centre for Academic Primary Care, Bristol Medical School, University of Bristol, Bristol, UK 2 Primary Care and Population Sciences, University of Southampton, Southampton, UK 3 Bristol Randomised Trials Collaboration, Bristol Trials Centre, University

**Abstract**

Problem

Eczema affects ~20% of children and emollients are the mainstay of treatment. However, there are many products and weak evidence that any one is better than another. Consequently, a “trial and error” approach to prescribing is commonplace, causing frustration and waste. In the 2013 James Lind Alliance eczema research prioritisation exercise, “Which emollients are the most effective and safe in treating eczema?” was one of the highest ranked uncertainties. We have completed a randomised trial comparing the effectiveness and acceptability of the four most commonly prescribed types of lotion, cream, gel and ointment.

Approach

The BEE study is a pragmatic, multicentre, individually randomised, parallel group superiority trial. To be eligible, children had to be >6 months and <12 years of age, with eczema of at least mild severity, and no known sensitivity to the study emollients. Invitation was via GP surgeries in West of England, Wessex, and East Midlands Clinical Research Networks. Participants were randomised to one of the four types of study-approved emollient to use as their only “leave-on” moisturiser for 16 weeks (the primary outcome period). However, if the family had problems with or disliked their allocated emollient, they could stop it and seek an alternative from their GP. Participants were followed-up for 52-weeks.

Data were collected on eczema symptoms (POEM – Patient Orientated Eczema Measure, primary outcome), signs (Eczema Area Severity Index, by masked researcher), adverse events, and quality of life. We estimated that 416 participants (520 allowing for 20% loss to follow-up) were required to detect a clinically important difference of 3.0 in POEM scores between any two groups with 90% power and a significance level of 0.05 (after adjustment for multiple pairwise comparisons). Analysis is by intention-to-treat, using linear mixed models for repeated measures. Ethical approval: NHS REC (South West - Central Bristol Research Ethics Committee 17/SW/0089. Trial registration: ISRCTN84540529.

Findings

We exceeded our recruitment target, and 550 children were recruited via 77 GP surgeries. At baseline, 46.4% (255) were female, with a mean age of (SD) 4.9 (3.2) years and POEM score of 9.3 (5.5) – indicating moderately severe disease. Follow-up was 76.7% at 16 weeks and 66.0% at 52 weeks. Electronic medical record data was obtained on 95.3% of participants. Analyses are underway and the findings will be presented at the July meeting.

Consequences

This is the first head-to-head pragmatic trial comparing commonly prescribed emollients for children with eczema. The findings will inform shared decision-making about which emollient to try first, whilst supporting patient choice and access to effective treatments.

**Funding acknowledgement**

Funded by the NIHR Health Technology Assessment (15/130/07). The views expressed in this publication are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

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## 4A.3 The association between exposure to childhood maltreatment and the development of atopic diseases

Presenter: Katrina Nash

Co-authors: Krishna M Gokhale, Krishnarajah Nirantharakumar, Nicola J Adderley, Joht Singh Chandan

Institutions: College of Medical and Dental Sciences University of Birmingham, Institute of Applied Health Research University of Birmingham, Institute of Applied Health Research University of Birmingham, Institute of Applied Health Research University of Birmingham, I

**Abstract**

Problem

Childhood maltreatment affects over one in three children worldwide and is associated with substantial morbidity and mortality. The proposed proinflammatory effects of childhood maltreatment has been demonstrated to lead to disruption and shifts of T-helper 1 and 2 cells which may consequently lead to abnormalities in immune responses to environmental allergens. The association between childhood maltreatment and atopic disorders are not yet well understood. Of note, general practitioners play a vital role in the management of atopic disease in the community and also in the safeguarding of children at risk of maltreatment and so may be well positioned to support patients should there be any link. We aimed to explore the association between childhood maltreatment and atopy using the IQVIA medical research database, a large UK primary care database.

Approach

A population-based retrospective open cohort study was undertaken between January 1995 to September 2019. 238,986 patients with a

code relating to childhood maltreatment or related concerns (exposed group) were matched to 681,376 unexposed controls by age, sex and deprivation. The primary outcome was defined by a GP recorded diagnosis of an atopic disease (asthma, atopic dermatitis or allergic rhinoconjunctvitis). The relative risk of developing atopy was described using adjusted incidence rate ratios (aIRR) with 95% confidence intervals (CI) presented.

Findings

At study entry, patients in the exposed group had an increased likelihood of having a diagnosis of asthma (adjusted odds ratio (aOR) 1.34: 95% CI 1.32 – 1.36) but a lower likelihood of atopic dermatitis (0.80: 95% CI 0.78 – 0.80) and allergic rhinoconjunctivitis (0.75: 95% CI 0.74 – 0.77) in comparison to the unexposed group. During the study period, 17,468 (IR 29.1 per 1,000 person years) patients in the exposed group developed an atopic disease compared to 48,811 (IR 24.4 per 1,000 person years). When considering confounders relating to the development of atopic disease this translated to an increased risk of aIRR 1.19 (95% CI 1.17 – 1.21); the strongest association was seen in asthma (aIRR 1.40, 95% CI 1.36 – 1.44). The findings must be considered in the context of their limitations. The main limitations revolve around misclassification of cases of childhood maltreatment. Although recent evidence suggest electronic health records have a high positive predictive value for identifying maltreatment, the prevalence in primary care data is substantially lower than national survey estimates.

Consequences

Patients exposed to childhood maltreatment have an increased risk of developing atopy, with the highest risk seen in asthma. It is imperative that public health approaches, including those aimed at preventing and detecting childhood maltreatment and its associated negative consequences, are implemented in order to prevent subsequent ill health. Further research is needed to confirm these findings in other cohorts and also to explore the mechanistic pathways.

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## 4A.4 CREATIVE PIECE: Living well with childhood eczema

Presenter: Fiona Cowdell

Co-authors:

Institutions: Birmingham City University

**Abstract**

“Eczema mindlines” is a short film documenting the process of co-creating and imaginatively sharing five key, consistent, messages across practitioner-patient-wider society boundaries to improve care of childhood eczema. As practitioners, we know we should be delivering evidence-based care. There are dozens of strategies to support moving evidence-to-practice, but we have no magic bullet to get this knowledge into day-to-day care. NICE provides guidance for managing childhood eczema1, but I have witnessed the misery of the condition for child and family alike, the challenges of self-management and the heart-sink nature of some consultations. This inspired me to look for new ways to improve care. Knowledge Mobilisation (KMb) is about sharing knowledge between different communities to catalyse change. Some knowledge mobilisation literature can be dense and seem removed from the real world. I had an “aha” moment when I read “Practice-based Evidence for Healthcare: Clinical Mindlines”2. Mindlines offer a grounded understanding of how practitioner’s thoughts and actions are constructed and therefore, a new opportunity to explore innovative methods of KMb. Mindlines go beyond explicit guidelines, they combine evidence from many sources to generate rich internalised evidence for real world practice. They are developed, refined

and modified through social interactions. If practitioners have mindlines, it seems reasonable to think that patients, parents and wider society have an equivalent in “lay lines”. My aim was to find novel, simple and pragmatic methods of modifying eczema mindlines. Co-creation workshops with practitioners, parents, young people and researchers identified how care of childhood eczema may be improved. We need to share five key, consistent messages across practitioner-patient-wider society boundaries 1. Eczema is more than just dry skin 2. Eczema doesn’t just go away 3. Moisturisers are for every day 4. Steroid creams are okay when you need them 5. You know your child’s eczema best These messages have been shared using different media across one locality through events in for example, shopping centres, places of worship, schools, primary care practices and community pharmacies. Now, working with the orchestra Sinfonia Viva, we have written “The Dragon in my Skin”, to share five key messages with primary school children. In online sessions children with eczema created and recorded their own song inspired by the story and their own experiences. Children’s songs, the illustrations and the story have been brought together to create an animated movie. We will share the movie together with curriculum-linked resources for primary school teachers, to help spread messages more widely. This film shows how simple but important “knowledge nuggets” can be widely and creatively delivered to increase shared understanding and offer clear and consistent approaches to improving eczema care. Screening will be followed by conversation about possibilities of using KMb more widely in primary care. References 1. NICE 2007. Atopic eczema in under 12s: diagnosis and management Clinical guideline CG57] 2. Gabbay J, Le May A. 2010. Practice-based evidence for healthcare: clinical mindlines. Routledge.

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## 4A.5 An assessment of the frequency of symptoms that guidelines associate with non-IgE mediated cow’s milk allergy: a secondary analysis of the Enquiring About Tolerance (EAT) Study.

Presenter: Rosie Vincent

Co-authors: Vincent Rosie1, MacNeill Stephanie1, Marrs Tom2, Craven Jonanna3, Logan Kirsy4, Flohr Carsten4, Lack Gideon4, Radulovic Suzana2, Perkin Michael5, Ridd Matthew1

Institutions: 1University of Bristol, 2King's College London and Guy's and St Thomas' NHS Foundation Trust, St Thomas' Hospital, 3National Institutes of Health Bethesda, 4King's College London. 5Population Health Research Institute, St George's, University of London

**Abstract**

Problem

The Milk Allergy in Primary Care (MAP) Guideline, updated in 2019 (international MAP), was developed to help identify infants with cow’s milk allergy. However, concerns have been expressed that such guidelines may misattribute normal symptoms and contribute to over-diagnosis of this condition, resulting in the unnecessary prescription of specialized infant formula milks and potentially discourage breastfeeding. We sought to establish the frequency of symptoms associated with CMA in the 2019 iMAP guideline; and compare symptom frequency in infants with and without eczema.

Approach

We undertook secondary analysis of data from the Enquiring About Tolerance (EAT) randomised controlled trial, including 1303 breastfed infants, and performed subgroup analysis of infants with visible eczema at three months. A consensus approach was used to

map EAT data collected to the iMAP listed symptoms.

Findings

The mean monthly proportion of infants with two or more of the mild-moderate non-IgE mediated CMA symptoms was 25.3% over the first 3-12-months of life. The peak figure (37.6%) occurred when infants had two or more different symptoms at three months of age – at this point no children were consuming cow's milk directly. The percentage reduced with age, with 14.4% of infants reported to have two or more symptoms at 11 months. When the symptoms 'pruritus' and 'eczema' were excluded, a mean of 17.9% of infants with eczema had two or more symptoms each month, compared 18.5% of those without. At six months, there was no difference in the number or severity of symptoms between participants consuming or not consuming cow's milk.

Consequences

Symptoms listed in the iMAP guideline are very common in infants. Non-eczema symptoms are no more frequent among infants with eczema. Guidelines such iMAP this may promote overdiagnosis of CMA, and unnecessary cow's milk protein exclusion from maternal and infant diets.

**Funding acknowledgement**

Vincent R has been funded by a 3-month International Society of Atopic Dermatitis (ISAD) Research Fellowship. The sponsor of this award, Pfizer, have not had any input into the design or reporting of this study. The study was also supported by NIHR School

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## 4A.6 Effectiveness of behaviour change techniques in improving children's hand hygiene to reduce illness-related absence in educational settings in high-income countries: a systematic review.

Presenter: Emily Hoyle

Co-authors: Lee J.J., Davies H., Bourhill J., Roberts N., Albury C.

Institutions: University of Oxford

**Abstract**

Problem

Respiratory tract (RT) and gastrointestinal (GI) infections are highly infectious, spreading quickly between children. Guidelines recommend that children should wash their hands regularly in educational settings to reduce spread of infection. NICE recommend that educational settings implement the following actions to support effective handwashing: action planning, information about social and environmental consequences, demonstration of the behaviour, and adding objects to the environment. However, the evidence for these particular techniques in supporting effective handwashing is unclear.

Approach

We are conducting a systematic review and behaviour change techniques analysis. Our primary outcome is to find out which behaviour change techniques are used in hand hygiene interventions in educational settings. Our secondary outcome is to identify which BCTs, or groups of BCTs, may be effective at improving the hand hygiene of children in educational settings. This will be measured through incidence of school absence due to respiratory tract and

gastrointestinal infection.We searched MEDLINE, EMBASE, social science & science citation indexes, CINAHL, Cochrane Library, Education resource information centre and British education index to identify relevant literature. We included randomised controlled trials of hand hygiene interventions (including cluster controlled trials) which were conducted in schools, or other educational settings, in high income countries (according to the World Bank classification). Our population of interest were 3-11 year old school children and, where possible, the staff who work with them. Studies where there was not overlap with the specified age range were excluded. A group of primary teachers reviewed our search terms, and advised on our application of behaviour change techniques to educational settings.

Findings

We have completed searches and BCTv1 coding. Searches showed 11 eligible papers, from nine studies. Behaviour change techniques taxonomy (v1) coding showed that 18 BCTS were used. Studies used between 6 and 11 BCTs. Instruction on how to perform the behaviour was used most frequently (9 studies) whilst action planning and credible source were each used in 8 studies. Our next step is to extract and synthesise these data. Aggregate data will be used to quantitatively assess the difference that each intervention type made to incidence of infection related school absence. If studies are sufficiently homogeneous, we will carry out a meta-analysis, using random effects models.

Consequences

Respiratory tract infections (RTIs) gastrointestinal (GI) infections are a common cause for medical attendance, particularly in children. Physical interventions, like handwashing, are recommended to reduce transmission. However, there is little evidence in how to motivate handwashing behaviours in children in educational settings. Once completed, our review has potential to offer an evidence-base of effective practice to support crucial hand-washing behaviours to limit disease transmission in educational settings.

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## 4A.7 Evaluation of childhood immunisations and a potential COVID-19 immunisation in the Somali population in the London Borough of Hammersmith and Fulham

Presenter: Alastair Green

Co-authors: Mandekh Hussein, Sharon Sridhara, Aysha Esakji, Azeem Majeed, Nicola Lang

Institutions: Department of Primary Care and Public Health, Imperial College London, London Borough of Hammersmith and Fulham

**Abstract**

Problem

Previous studies have suggested a lower than average childhood immunisation uptake in the Somali population in London. Surveys on COVID-19 immunisations have suggested significant numbers in the UK may not accept a vaccine, particularly in Black, Asian, and Minority Ethnic groups, who are disproportionately affected by the virus. There is no published data on immunisation uptake of the Somali population in the London Borough of Hammersmith and Fulham. However, there have been concerns from healthcare professionals in primary care about immunisation uptake levels in this population in the borough through anecdotal evidence. This service evaluation set out to explore and address these issues with the following aims:1. Review data on childhood immunisation uptake amongst different ethnic groups in the London Borough of Hammersmith and Fulham.2. Explore views of Somali-origin parents on childhood and

COVID-19 immunisations in Hammersmith and Fulham in focus groups.3. Propose interventions to improve immunisation uptake in the Somali community in Hammersmith and Fulham.

Approach

We undertook a service evaluation of immunisations in the Somali population in Hammersmith and Fulham. Data on immunisation uptake and ethnicity was requested from the Child Health Information Services. Data on immunisation status was collected on children born in Hammersmith and Fulham between 1st January and 31st December in 2014, 2017, and 2018. Outcome measures were immunisation status for vaccines up to age five and ethnicity.Focus groups were used to ascertain views on immunisations. Participants were Somali parents living in Hammersmith and Fulham recruited from three parents' groups. Three focus groups with 7, 12, and 20 participants were run. Outcome measures for the focus groups were views on childhood and COVID-19 immunisations, and how to improve uptake for the Somali population.

Findings

Overall immunisation uptake was lower for the African and Black British groups compared with the White British group in all cohorts. For the African group, 22% lower in 2014, 17% in 2017, and 8% in 2018. For the Black British group, 7% lower in 2014, 3% in 2017, and 23% in 2018. In the focus groups, all parents were aware of the importance of childhood immunisations and had immunised their children. Most concerns were about MMR and some had delayed vaccinations. Participants reported unclear information and lack of time with clinicians led to seeking information from peers instead. There was general distrust from the majority of participants about COVID-19 vaccinations, with only one participant saying they would accept it.

Consequences

Primary care has a crucial role in improving immunisation uptake in the Somali population of Hammersmith and Fulham. More time is needed to discuss immunisations with healthcare professionals. Question and answer sessions with a trusted professional would be welcomed, as well as written information in Somali.

**Funding acknowledgement**

This work is independent research supported in part by the National Institute for Health Research (NIHR) Applied Research Collaboration (ARC) Northwest London. The views expressed in this publication are those of the authors and not necessarily those of the funders

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## 4B.1 A feasibility study of online training in empathic and optimistic communication in primary care: adapting to the COVID pandemic

Presenter: Felicity Bishop

Co-authors: Jane Vennik, Stephanie Hughes, Kirsten A Smith, Jennifer Bostock, Jeremy Howick, Christian Mallen, Lucy Yardley, Paul Little, Mohana Ratnapalan, Emily Lyness, Hajira Dambha-Miller, Leanne Morrison, Geraldine Leydon, Mary Steele, Clare McDermott, Hazel Eve

Institutions: University of Southampton, University of Oxford, Keele University, KCL

**Abstract**

Problem

Empathic and optimistic healthcare interactions have the potential to improve patient quality of life and satisfaction with care. We previously rigorously developed brief online training for primary care practitioners (PCPs) in empathic and optimistic communication. This study aimed

to establish the feasibility of trial procedures, recruitment, outcome and process measures to evaluate practitioner training versus usual care.

Approach

A cluster-randomised controlled feasibility trial was designed in which ten GP practices were to be randomised to online training or usual care. Plans included testing the feasibility of: PCPs completing the online training; different ways for PCPs and researchers to recruit patients in practices; PCPs filming consultations as part of the training and as part of a trial; patients completing a variety of outcome and process measures. Approvals had been obtained and the feasibility trial was due to start in early 2020. The COVID-19 pandemic and the consequent situation in primary care required rapid adaptation of the trial protocol. With very limited access to GP practices, new ethics approval was sought and obtained to recruit recent primary care consulters via social media and complete our process and outcome measures online. Some PCPs were still able to complete the online training. PCPs and patients participated in qualitative interviews about their experiences over the telephone.

Findings

11 PCPs took part. On average, they spent just under one hour completing the online training (mean = 57 minutes; standard deviation = 25 minutes) and completed it in between one and ten sessions (median = 3) during working hours. PCP-completed process measures had acceptable internal consistency (min. alpha = 0.69) and scores indicated that PCPs were confident they could enact the empathy and optimism behaviours in the training, intended to implement their goals and expected the changes they made would positively impact patient outcomes. 437 patients consented to complete our online questionnaires, of whom 301 completed our post-consultation process and outcome measures and 219 completed follow-up measures after 2 weeks. Preliminary analysis suggests that: PCPs are able to complete our online training; further intervention optimisation is needed to ensure the training is relevant for different forms of remote consultations; it is possible to use social media and other remote methods to recruit patients who have recently had a primary care consultation; our chosen outcome and process measures are broadly acceptable to patients. Quantitative and qualitative data analysis are ongoing: results will be finalised ready for presentation at the conference.

Consequences

Rapid adaptation, flexibility and good teamwork enabled research to continue, providing valuable feasibility data despite COVID-19 restrictions. Practitioner feedback on the intervention was generally very positive and, pending final tweaks to ensure relevance to remote consultations, the training is now ready for evaluation in a full trial.

**Funding acknowledgement**

The EMPATHICA project is supported by a National Institute for Health Research (NIHR) School for Primary Care Research grant (project number 389).

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## 4B.2 Can we reduce salbutamol overuse in patients with asthma? A Quality Improvement project in east London primary care using a learning health system approach

Presenter: Anna De Simoni

Co-authors: Jim Cole, Hajar Hajmohammadi, Paul Pfeffer, Chris Griffiths, Crystal Williams, Sally Hull

Institutions: Queen Mary University of London

**Abstract**

Problem

In the UK about 1,200 people/year die from asthma. Two thirds of these deaths could be prevented by better management. In east London, hospital admissions for asthma are 14% above the London average. Annual admissions rise from 1.3 to 7.5% as the number of prescribed short acting beta agonist (SABA) inhalers rises from 1–3 to >12/year for those on inhaled corticosteroids. There is evidence that electronic alerts may reduce excessive prescribing of SABA inhalers.

Approach

Drawing on emerging models of Learning Health Systems, we propose to develop a clinical decision support system that identifies risk of hospital admission in people prescribed inappropriate or excessive treatment (data into knowledge) and with the use of an alert, prompts a patient intervention, for example a review of asthma medications, to reduce the risk of future asthma exacerbations (knowledge into practice). Our objectives are:1. To develop electronic tools to support asthma management in practice: a) In-consultation prompts for patients overusing SABA inhalers; b) Tools using real-time prescribing data to produce lists of patients using excessive SABA; c) Educational material (written guidance, patient videos, webpages) to support asthma reviews.2. To use feedback data (e.g. practice dashboards, use of prompts and tools) to engage practitioners and CCGs in the implementation and refinement of the intervention.3. To evaluate the impact of the intervention on prescribing of SABA at CCG level using an interrupted time series design, with two neighboring CCGs as natural controls. 4. To identify the characteristics of patients most likely to respond to the intervention, using a cohort study.

Findings

The clinical decision support system was activated in October 2020 in all 49 practices in the intervention CCG (total population 400,000, 16,091 patients with asthma aged 5-80 years).Baseline prescribing data are consistent with existing evidence on SABA overuse,(6% of children, 11% of adults 18-60, and 25% of older adults >60 were prescribed >12 SABA in the previous 12 months). The in-consultation SABA alert resulted in 9,716 activations (from October 2020 to February 2021). GPs mainly chose to review patient medications, while non-clinical staff mostly invited patients for asthma reviews verbally or by letter.

Consequences

The translational focus of this work will demonstrate new ways to rapidly translate and implement new knowledge into practice. We expect our studies to generate more accurate methods of predicting individual patient risk of hospital admission. Such an approach has the potential to achieve implementation more quickly than traditional knowledge translation, and the potential advantage of rapid scalability, both locally, and nationally. Progress in reducing over-reliance on SABA inhalers would represent a true step change in asthma practice.

**Funding acknowledgement**

Barts Charity reference MGU0419. REAL-Health: REsearch Actionable Learning Health Systems Asthma programme

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## 4B.3 Patient perceptions of empathy in primary care telephone consultations; a nested qualitative study

Presenter: Jane Vennik

Co-authors: Felicity L Bishop, Clare McDermott, Stephanie Hughes, Kirsten A Smith, Jennifer Bostock, Jeremy Howick, Christian Mallen, Lucy Yardley, Paul Little, Mohana Ratnapalan, Emily Lyness, Hajira Dambha-Miller, Leanne Morrison, Geraldine Leydon, Mary Steele, H

Institutions: University of Southampton

**Abstract**

Problem

The use of telephone consultations in primary care has increased significantly during the Covid pandemic. A big challenge faced by medical professionals is to establish meaningful communication with patients during remote consulting. Empathic communication is valued by patients and can improve satisfaction with management, quality of life and pain outcomes. However, evidence for its effectiveness has focused around face-to-face interactions. Uncertainties remain about how doctors can express empathy without non-verbal communication, and how it is perceived by patients in primary care consultations.

Approach

We planned a feasibility study of our rigorously developed brief online training for primary care practitioners in empathic and optimistic communication (Empathica). The onset of the Covid pandemic required rapid adaptation of the trial protocol. To evaluate our feasibility process and outcome measures we used social media to recruit patients who had a recent primary care consultation. Measures were completed online and patients took part in telephone qualitative interviews. Interviews were transcribed and analysed through inductive thematic analysis.

Findings

302 patients completed outcome measures and 30 took part in a qualitative interview. Patients perceived that PCPs expressed empathy through their demonstration of genuine interest, concern, and reassurance. However, some perceive less social talk and rapport in telephone consultations, and many report that PCPs lack prior knowledge of the patient history. Patients felt their concerns were elicited through thorough questioning, seeking their expectations, being prompted for more detail, and being allowed to tell their story. However, patients missed the visual cues to know when to stop talking and interruptions were common. Patients felt listened to, through PCPs responding appropriately and summarising their concerns. PCPs often gave clear instructions for future treatment or management plans, although confusions and misunderstandings occur.

Consequences

Telephone consultations were acceptable to patients in the Empathica feasibility study, and PCPs were perceived to express empathy. The lack of visual cues can affect communication, but this is countered by PCPs putting more emphasis on their verbal responses and summaries. Patients felt listened to, acknowledged, and were generally satisfied with telephone consultations, but further work is needed to determine whether these views and perceptions are retained after the lifting of the Covid restrictions.

**Funding acknowledgement**

The EMPATHICA trial is supported by a National Institute for Health Research (NIHR) School for Primary Care Research (project number 389). The Primary Care Department is a member of the NIHR School for Primary

Care Research and supported by NIHR Research

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## 4B.4 CREATIVE PIECE: Lost in translation

Presenter: Najma Ahmed

Co-authors:

Institutions: King's College London

**Abstract**

Our enquiry piece is titled Lost in Translation and this was inspired by observing the difficulties faced by non-English speaking patients in both the GP surgery waiting rooms and in the consultations. We were placed in a London GP for a year where the majority of patients were from Turkish, Polish and Somali backgrounds. In most of the consultations we'd seen, there would be some aspect of translation needed - whether that be from family members or requesting translation services. We decided to do two poems - one from a staff perspective and one from a patients. We also interviewed some patients and this gave us the insight to create these poems. Although the UK has free healthcare, the language barriers that exist mean that important information and understanding may be lost in the translation process. I believe our creative piece ties in with the themes of the conference because firstly, primary care generally across the UK experiences such issues and secondly, a language barrier and lack of understanding would prevent "living and dying well" and as such, is very important to highlight.

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## 4B.5 A dynamic prediction model for early detection of colorectal cancer using routine blood test results from primary care

Presenter: Pradeep S. Virdee

Co-authors: Pradeep S. Virdee, Jacqueline Birks, Tim Holt

Institutions: Centre for Statistics in Medicine (NDORMS, University of Oxford, Oxford, UK), Nuffield Department of Primary Care Health Sciences (University of Oxford, Oxford, UK)

**Abstract**

Problem

Colorectal cancer is the fourth most common type of cancer in the UK. It develops gradually in the bowel lining. Around 55% of patients are diagnosed at a late stage (Stage 3 and 4), where likelihood of survival is reduced: five-year survival is 93% at Stage 1 versus 10% at stage 4. This highlights the importance of early detection. The full blood count (FBC) is a common blood test in primary care. Some FBC indices, including haemoglobin, mean cell volume, and platelet count, are known to change over time as the cancer develops. We built a dynamic prediction model that uses repeated FBC measurements of these three indices to identify risk of a colorectal cancer diagnosis two years in the future.

Approach

We performed a cohort study using FBC data from the Clinical Practice Research Datalink linked with colorectal cancer diagnoses from the National Cancer Registration and Analysis Service. We developed a multivariate joint model of longitudinal and time-to-event data for males and females separately. Using historical repeated FBCs over five years prior to baseline (last included FBC), age-adjusted trajectories in haemoglobin, mean cell volume, and platelet measurements informed two-year risk of colorectal cancer diagnosis,

using a Cox model. Model performance was assessed using Harrell's c-statistic for discrimination.

Findings

Due to the computational challenges of developing joint models, we used a random sample of 150,000 males and 150,000 females, of whom 0.4% (n=591) and 0.3% (n=438) were diagnosed with colorectal cancer two years after their baseline FBC, respectively. Simultaneous age-adjusted decreases in haemoglobin and mean cell volume and increase in platelets from the population trajectory (patients with no diagnosis recorded) increased the risk of diagnosis for both males and females (each $p<0.05$). The c-statistic was 0.749 (95% CI: 0.729, 0.768) for males and 0.736 (95% CI: 0.713, 0.759) for females.

Consequences

Our dynamic prediction model has the potential to utilise small changes in FBC indices occurring simultaneously over time to identify patients who need further investigation for colorectal cancer. Such changes can appear before overt symptoms occur, so the prediction model could facilitate earlier detection. Further model performance statistics will be presented, including plots of observed versus predicted probabilities for calibration.

**Funding acknowledgement**

Pradeep S. Virdee is funded by the National Institute for Health Research (NIHR), Doctoral Research Fellowship programme (DRF-2018-11-ST2-057) for this research project. Jacqueline Birks is funded by the NIHR Oxford Biomedical Research Centre (BRC), Oxford

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## 4B.6 Validation and Public Health Modelling of Risk Prediction Models for Kidney Cancer in UK Biobank

Presenter: Hannah Harrison

Co-authors: Hannah Harrison, Lisa Pennells, Angela Wood, Sabrina H. Rossi, Grant D. Stewart, Simon J. Griffin, Juliet A. Usher-Smith

Institutions: 1Department of Public Health and Primary Care, University of Cambridge, Cambridge, UK 2Department of Surgery, University of Cambridge, Addenbrooke's Hospital, Cambridge, UK

**Abstract**

Problem

In the UK, kidney cancer is responsible for 4500 deaths annually. Although early detection is associated with improved survival rates, 25% of newly diagnosed kidney cancers are metastatic. One barrier to the introduction of a screening programme is the low population prevalence of kidney cancer. Population risk stratification could minimise harms to individuals and improve the efficiency of a screening programme. Stratification requires a model that accurately identifies individuals at high risk of undiagnosed kidney cancer. Although several models have been developed most have not been externally validated, and the benefits of incorporating them in a screening programme have not been assessed.

Approach

We identified phenotypic risk models in a recent systematic review and validated them in a large population cohort (UK Biobank) with 6-year follow-up. We assessed discrimination and calibration of the models for men, women and the whole cohort. We undertook a public health modelling analysis using the best performing models to estimate their accuracy in the UK population (individuals aged 40-70). We accounted for differences in demographics (age and sex) and kidney

cancer incidence between the UK Biobank cohort and the general population, using ONS and CRUK data respectively. We compared the ability of the models to identify high-risk individuals for screening with simple age- and sex-based screening strategies.

Findings

We included seventeen studies (corresponding to 30 models) in the review. Eight models had reasonable discrimination (AUROC>0.62) in men, women and the mixed sex cohort. However, many of the models had poor calibration in the UK biobank cohort. Public health modelling demonstrated the accuracy of the best models over a range of thresholds (6-year risk: 0.1%-1.0%). At any particular risk threshold, the models performed very similarly. At all thresholds considered they showed a small improvement in ability to identify high-risk individuals compared to age- and sex- based screening. At a cut-off threshold of 0.4%, the best performing model screens 12.3% of the population and detects one case for every 180 individuals screened. Screening all men over the age of 60 (14.1% of the population) would detect one case for every 206 individuals screened. All of the models performed less well in women than men.

Consequences

This is the first comprehensive external validation of risk prediction models for kidney cancer. Five models showed both reasonable discrimination and good calibration in a UK-based population. The best-performing models could improve the efficiency of screening by similar amounts in a UK population, with the choice of model depending on the availability of data. However, very few people are predicted to have a 6-year risk higher than 1% and the models have worse performance in women. Future research may consider the potential benefits of adding biomarkers or genetic risk factors to phenotypic models.

**Funding acknowledgement**

HH was supported by a National Institute of Health Research Methods Fellowship (RM-SR-2017-09-009) and is now supported by a National Institute of Health Research Development and Skills Enhancement Award (NIHR301182). SHR is supported by The Urology Foundation

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## 4B.7 The consultation as a liminal space – understanding what happens in extended role GP consultations for persistent physical symptoms

Presenter: Kate Fryer

Co-authors: Professor Chris Burton, Professor Monica Greco, Dr Tom Sanders

Institutions: University of Sheffield, Goldsmiths University London, Northumbria University

**Abstract**

Problem

GP consultations normally fit a pattern which is appropriate for diagnosing common diseases, but may fall short of fulfilling the needs of patients presenting with persistent physical symptoms (PPS). Evidence suggests that patients with PPS make repeated GP visits, the outcome of which are unsatisfactory to both the patient and the GP.

Approach

The Symptoms Clinic is an extended-role GP intervention, comprising an initial 45 minute consultation and 3 further 15 minute consultations, based on 4 elements: Recognition; Explanation; Action; and Learning (REAL). It is being tested in an ongoing randomised controlled trial: Multiple Symptoms Study 3. A process evaluation is embedded within the trial, to examine how

the intervention works in practice, and what processes and mechanisms appear to lead to better outcomes. 68 consultations (17 sets), 17 patient interviews and 6 GP interviews have been analysed, using an inductive qualitative approach.

Findings

Here, we use the idea of liminal space, "betwixt and between" worlds (such as daily life and a conventional GP appointment), to understand what happens in the Symptoms Clinic. Our findings suggest that by breaking conventional norms, the extended consultation becomes a liminal space, where customary roles are put aside and transformations are made possible. In the recognition phase of the intervention, GPs established the possibility of a liminal space. Extended time and active listening allowed the patient's story to be recognised and their experiences validated. Explanation then used this space to create something new. The GPs worked with patients to construct an acceptable, recognisably medical explanation, usually in terms of somatic and neuro-psychological function. By explaining "unexplained" symptoms in appropriate language the GPs appeared to free patients from the responsibility for causing, or finding the cause of, their symptoms. These explanations were offered as possible, even speculative, rather than definitive, as the GP invited the patient to negotiate or co-construct the explanation. Actions and learning followed from the explanation, and again, were co-constructed with the patient. The liminal space observed within these consultations appears important in allowing patients to explore new ways of thinking and doing, without the risk of failure. While all patients described the consultations as giving them time, those who perceived a benefit described a process that had given them new understandings of, and "tools" to manage, their symptoms as they moved forward.

Consequences

By bending the rules of normal GP consultations, and applying the REAL elements, extended role GPs are able to create a liminal space in which to reframe their symptoms. While it is tempting to think patients are looking for certainty, it appears that indefinite but plausible explanations in this liminal space are both possible and possibly therapeutic.

**Funding acknowledgement**

This study is funded by the National Institute for Health Research (NIHR) Health Services and Delivery Research (NIHR HS&DR) Programme (project number 15/136/07).The views expressed are those of the author(s) and not necessarily those of the funders

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## 4C.1 How do GPs approach deprescribing of long-term medicines within the context of limited life expectancy?

Presenter: Deborah McCahon

Co-authors: GA Abel, RA Payne

Institutions: Centre for Academic Primary Care, Population Health Sciences, University of Bristol, Primary Care, University of Exeter Medical School, Exeter

**Abstract**

Problem

Polypharmacy is a widespread, growing challenge for health care. Many medicines associated with polypharmacy have long-term benefits, but patients with limited life expectancy (e.g. in the last year or two of life) may not live long enough to benefit fully. In such situations, deprescribing (the supervised withdrawal of medicines) may be appropriate. However, evidence suggests many long-term medications are continued even up to the final few weeks of life, which may reflect

difficulties in reliably determining future life expectancy or uncertainties in the risks or benefits of deprescribing. This study sought to better understand GP attitudes and approaches to deprescribing of long-term medicines within the context of limited life expectancy, including the role of individualised life expectancy and risk information in informing the deprescribing process.

Approach

Semi-structured interviews were conducted with practising GPs. Interviews addressed current approaches to ascertaining life expectancy and medication risks/benefits in routine practice, and the role of individualised patient information in informing decision making. During the 40–50-minute interviews, interviewees were presented with hypothetical clinical vignettes focused on deprescribing statins, representing patients with differing clinical characteristics (including life expectancy and risks of a cardiovascular event in the remaining lifetime) to stimulate discussion. Audio-recorded interviews were transcribed, anonymised, and analysed thematically utilising a data-driven inductive approach.

Findings

Fifteen GPs from 12 general practices within the Bristol area participated. Mean time as a practising GP was 14 years (range 6-31 years), and 9 participants were male. All participants perceived deprescribing of long-term medicines to be important for patients with limited life expectancy. In assessing eligibility for discontinuation of long-term medicines, GPs tended to consider factors such as frailty, recent admission to hospital or nursing home and history of falls as well as number of medicines. Alongside life expectancy estimates, individualised risk data was considered helpful for informing and guiding discussions with patients around stopping medicines. Many GPs, however, expressed a reluctance to evaluate, document and share estimates of life expectancy with patients unless this information has been specifically requested. Reasons for this were a lack of confidence in life expectancy estimates, uncertainty around how best to communicate this information and concern about the patient response.

Consequences

For patients with limited life expectancy, deprescribing is considered important by GPs, with individualised risk data having an important role to play in decision making. However, further research is required to understand how best to overcome barriers to the use of explicit estimates of life expectancy to support deprescribing of long-term medicines in these patients.

**Funding acknowledgement**

This research was funded by the Bristol, North Somerset and South Gloucestershire CCG, Research Capability Funding.

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## 4C.2 Development of a model of medication review for use in clinical practice: Bristol Medication Review Model

Presenter: Rupert Payne

Co-authors: Deborah McCahon, Rachel Denholm, Alyson Huntley, Shoba Dawson, Polly Duncan

Institutions: Centre for Academic Primary Care, Population Health Sciences, University of Bristol

**Abstract**

Problem

Medication review is a core aspect of medicines optimisation, although robust evidence is lacking that this translates to improvements in important clinical outcomes. Existing models of medication review vary

substantially, both in content and structure, and are not necessarily easy to implement in real-world clinical practice. This study aimed to use evidence from the existing literature to identify the 'active ingredients' of a medication review, and use this to inform development of a model of medication review for use in clinical practice.

Approach

A systematic review was conducted (PROSPERO: CRD42018109788) to identify randomised control trials of medication review in adults, with no specific therapeutic or prescribing objective, that did not form part of more complex medication optimisation interventions. Searches were conducted up to 2018, using MEDLINE and Embase, building on the previous review by Huiskes (BMC Fam Pract 2017). A working group, comprising primary and secondary care clinicians as well as patients, was convened to develop the model through an iterative consensus process. The group was presented with the systematic review findings, brief evidence summaries for core review components, and examples of previous models. Working group members agreed the main purpose of the review model, overarching model structure, review components, and supporting material.

Findings

We identified 1498 potential records, of which 16 were suitable for full-text assessment, and 12 articles included in the analysis. From the original 33 articles identified by Huiskes, 20 were considered suitable for inclusion. The resulting 32 articles represented 28 unique studies, with moderate bias overall. Consistent medication review components included reconciliation (26/28 studies), safety assessment (22), suboptimal treatment (19), patient knowledge/preferences (18), adherence (14), over-the-counter therapy (13) and drug monitoring (10). There was limited evidence from studies for improvement in key clinical outcomes; studies were too heterogenous to allow meta-regression of review components with outcomes.The review structure was underpinned by patient values and preferences, with parallel information gathering and evaluation stages, feeding into the final decision making and implementation. The working group included most of the key components identified in the literature within the proposed model, although cost reduction and use of potentially inappropriate prescribing tools were excluded. The working group considered the final model to benefit from a patient-centred, holistic approach, which captured both patient-orientated and medication-focused problems, and aligned with traditional consultation methods thus facilitating implementation in practice. Additional materials were developed to support implementation.

Consequences

The Bristol Medication Review Model is suitable for use by all health care professionals with relevant clinical experience, providing flexibility of implementation not limited to a particular healthcare setting. The model provides a clear framework for standardised delivery of structured medication reviews which will be appropriate for use in both a clinical and research environment.

**Funding acknowledgement**

Supported by Research Capability Funding from Bristol, North Somerset and South Gloucestershire CCG.

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## 4C.3 What influences locum GPs' antibiotic prescribing and engagement with antibiotic stewardship? A mixed-methods study

Presenter: Aleksandra Borek

Co-authors: Koen Pouwels, Oliver van Hecke, Julie Robotham, Chris Butler, Sarah Tonkin-Crine

Institutions: University of Oxford, Public Health England

**Abstract**

Problem

Most antibiotics are prescribed in primary care, contributing to developing antimicrobial resistance. Different strategies have helped optimise antibiotic prescribing in general practices in recent years, but it remains a challenge for some prescribers and practices. Turnover of locum general practitioners (GPs) has been suggested as one of the challenges to optimising antibiotic prescribing in high-prescribing practices. This study aimed to identify (i) how locums' prescribing compares to other general practice prescribers, and (ii) what influences their antibiotic prescribing and engagement with antimicrobial stewardship.

Approach

This was a mixed-methods study. Firstly, data on antibiotic prescribing, diagnoses and patient, practice and prescriber characteristics were extracted from The Health Improvement Network (THIN) database. A mixed effects logistic model was used to assess whether locums are more likely to prescribe antibiotics than other healthcare professionals for conditions that generally do not require antibiotics. We excluded patients with comorbidities and recurrent/chronic cases to reduce the probability that difference would be explained by case-mix. Secondly, locum GPs were recruited through GP newsletters and mailing lists, purposefully sampled to ensure varied characteristics, and interviewed by phone using a semi-structured topic guide. Interviews were recorded, transcribed and analysed thematically.

Findings

Locum GPs accounted for 11% of consultations analysed. Locums prescribed antibiotics more often for cough, sore throat, asthma exacerbations and acute bronchitis, compared to other GPs and nurse prescribers. The percentage of patients receiving antibiotics for these conditions were 4% higher (on absolute scale) when consulting with locum GPs compared to other GPs, while prescribing percentages were similar for other conditions. Nineteen locums were interviewed. The findings showed that although antibiotic prescribing is an individual clinical decision and GPs use individual strategies to optimise prescribing, different contextual factors, specific to locums, influence their approach to prescribing antibiotics and antimicrobial stewardship. These are captured by the three themes: (1) the nature and patterns of locum work (e.g., unfamiliarity between patients and locums, flexibility and control over working pattern); (2) relationships between practices and locums (e.g., lack of embeddedness within practice teams, limited communication, influence of prescribing cultures in practices); and (3) opportunities for training and engagement with antimicrobial stewardship (e.g., professional isolation, limited opportunities for peer learning, access to training and professional networks).

Consequences

Prescribing data suggests that locum GPs may contribute to higher antibiotic prescribing. Qualitative data suggests that locums face specific challenges to optimising antibiotic prescribing, but also perceive opportunities for contributing to antimicrobial stewardship. More focus is needed to address these

barriers and facilitators (e.g., with more communication, feedback and training). As locum GPs are a growing proportion of GPs, they have an important role in optimising antibiotic prescribing and antimicrobial stewardship which needs to be better addressed.

**Funding acknowledgement**

The research was funded by the Scientific Foundation Board of the Royal College of General Practitioners (grant no. SFB 2018-12).

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## 4C.4 Excessive polypharmacy and cumulative prescribing of drugs predisposing to adverse drug events in residents of 147 care-homes: a cross-sectional analysis

Presenter: Clare MacRae

Co-authors: MacRae C1#, Henderson D1#, Mercer SW1, Burton JK2, De Sousa N3, Grill P4, Marwick C3, Guthrie B1 # Contributed equally

Institutions: 1 Usher Institute, School of Medicine, University of Edinburgh, 2 Institute of Cardiovascular and Medical Sciences, University of Glasgow, 3 Division of Population Health and Genomics, School of Medicine, University of Dundee, 4 School of Medicine, Univer

**Abstract**

Problem

Background GPs provide the majority of medical care for care-home residents who have complex cognitive and physical needs, are often older and have more long-term conditions than adults not living in care-homes. Reduced renal, cognitive and sensory function, and altered pharmacokinetics and pharmacodynamics put older people at increased risk of adverse drug events (ADEs). Polypharmacy is associated with potentially harmful drug-drug and drug-disease interactions and ADEs are the primary cause of 10% of hospital admissions in older adults. Previous estimates of polypharmacy are based on studies examining a limited number of care-home residents and small numbers of drugs. Aim To determine the prevalence of polypharmacy and cumulative prescribing contributing to specific ADEs in a complete geographical population of care-home residents.

Approach

Method Cross-sectional analysis of prescribing for all residents of 147 care-homes in two health board areas in Scotland. Systemically pharmacologically active drugs prescribed within the 56 days prior to 31st March 2017 were included. Duplicated prescriptions were removed. Polypharmacy was deemed presence of prescriptions for ≥5 distinct drugs within the study period. Cumulative prescribing of medications increasing the risk of eight ADEs (anticholinergic effects, bleeding, constipation, heart failure, hypotension, renal injury, sedation and urinary retention) was identified by counting drugs identified as being associated with each ADE, referring to a Cumulative Toxicity Tool. The number of drugs co-prescribed within each ADE group was counted as measure of potential risk of each ADE. Counts/percentages of polypharmacy and ADE group co-prescribing, multilevel logistic regression modelling and two-level hierarchical logistic regression (identifying between care-home and associations with resident and care-home characteristics examined by intra-cluster coefficient [ICC]) was performed using R (v3.2.5). Statistical significance was assumed at 5%, ORs were reported with 95% CIs.

Findings

Results 4324 people were included; 71.4% were women and 48.1% were aged ≥85 years. Polypharmacy was seen in 71.5% of women and 68.2% of men. Mean number of drugs

prescribed per person was 6.3 (SD 3.3). Adjusted regression models showed smaller care homes and third sector/local authority run care-homes had higher levels of polypharmacy. Two-level hierarchical multi-level modelling - in progress. Co-prescribing of drugs associated with ADEs was common across all ADE groups with highest levels in constipation and sedation, where 39.9% and 34.0% of residents (consecutively) were co-prescribed ≥2 drugs. 20.6% of residents were prescribed an opiate and 18.1% a antipsychotic drug (constipation), and 20.6% of residents were prescribed an opiate and 19.6% an SSRI (sedation).

Consequences

Conclusion Polypharmacy and co-prescribing of drugs associated with ADEs was widespread in care-home residents, people who are particularly vulnerable to harm. Further research is needed to support bespoke medication reviews that balance the need for symptomatic relief of symptoms and long-term preventative therapies against the potential risks of prescribing specific drugs and polypharmacy.

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## 4C.5 Tackling Polypharmacy in Practice: Too little evidence or too much emotion? A video-reflexive ethnography study in general practice.

Presenter: Deborah A Swinglehurst

Co-authors: Nina Fudge

Institutions: Queen Mary University of London

**Abstract**

Problem

The World Health Organisation identifies polypharmacy as a global safety issue. Polypharmacy is primarily the domain of generalists whose expertise includes caring for patients with multiple long term conditions. It is a 'wicked' problem: difficult to define (what really is the trouble?); difficult to locate (where in the complex system does the trouble really lie?); and characterised by a troubling gap between 'what is' and 'what ought to be'. So what are GPs to do?

Approach

We present findings from seven Video-Reflexive Ethnography (VRE) workshops, conducted in three UK general practices, involving 34 participants. We showed short clips, selected from 18 video-recorded consultations to VRE participants (some of whom also featured in the selected clips). The videos focused on processes of medication review involving older patients prescribed 10+ items of medication. The video extracts were a catalyst for inter-professional conversations about polypharmacy, prompting an opportunity to reflect collectively on the nature of the polypharmacy problem as clinicians experience it 'on the ground'.VRE is based on four principles: exnovation (foregrounds the accomplishment and complexity of taken-for-granted care practices); collaboration (participatory co-creation); reflexivity (participants re-view and re-imagine their practices); care (creating a safe space for participants).

Findings

Clinicians articulated many different ways of conceptualising and re-defining polypharmacy and expressed a wide range of concerns relating to how to conduct a medication review in a zone of such uncertainty. Medication review, described by one participant at the outset as 'just a medication review' was re-imagined for its complexity and inherent challenge. Clinicians' conversations focused primarily on matters of emotion and relationships (both clinician-patient and inter-professional) rather than on technical matters of science and evidence. Medicines were constructed as objects with deeply embedded social attachments, and the

medication review an occasion when fear, courage, hope, despair, trust and mistrust played out as clinicians and patients sought to navigate competing priorities in a situation of 'not knowing'.

Consequences

Clinicians who seek to tackle polypharmacy find themselves stranded in an evidence desert with few landmarks and no useful map to guide their actions. The boundary between 'appropriate' and 'problematic' polypharmacy is fuzzy, and the business of changing complex medication regimens is fraught with uncertainty and emotional labour. VRE is a productive methodology for revealing what is unseen, uncovering assumptions, and enabling professionals to discover afresh the complexity of their 'ordinary' everyday practice. Our findings casts doubt on the capacity for polypharmacy interventions that focus solely or primarily on technical evidence to translate into meaningful changes to practice. Medicines 'adherence', it turns out, is not just a challenge for patients who are taking medicines. Medicines are sticky things for professionals to remove, even in the context of 'high risk' polypharmacy.

**Funding acknowledgement**

National Institute of Health Research

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## 4C.6 Supporting prescribing in older patients with multimorbidity and significant polypharmacy in Irish primary care (SPPiRE); a cluster randomised controlled trial

Presenter: Caroline McCarthy

Co-authors: Barbara Clyne, Fiona Boland, Frank Moriarty, Emma Wallace, Michelle Flood, Susan Smith

Institutions: 1. HRB Centre for Primary Care Research, Department of General Practice, Royal College of Surgeons in Ireland, Dublin, Ireland, 2. Data Science Centre, Royal College of Surgeons in Ireland, Dublin, Ireland, 3. School of Pharmacy and Biomolecular Sciences,

**Abstract**

Problem

There is a rising prevalence of multimorbidity and polypharmacy, particularly in older patients. There is a need for evidence based medicines management interventions for this population. The SPPiRE trial aimed to assess the effectiveness of a GP-delivered intervention in reducing significant polypharmacy and potentially inappropriate prescribing (PIP) in older people with multimorbidity and significant polypharmacy in Irish primary care.

Approach

We conducted a cluster-randomised controlled trial among 51 practices and 404 patients aged ≥65 years and prescribed ≥15 medicines. Following baseline data collection, practices were allocated using minimisation for location and size. Intervention GPs received online educational support material and conducted web-based individualised medication reviews with participants, including screening for PIPs and identification and management of individual treatment priorities. Control GPs delivered usual care. An independent blinded pharmacist assessed primary outcomes which were the number of medicines and the proportion of patients with any PIP. Secondary outcome measures included medication related measures such as the number of medicines stopped and started and the number of PIP and patient reported outcome measures including health related quality of life, patients' attitudes towards deprescribing and treatment burden. We performed intention-to-treat analysis using random-effects regression.

Findings

Recruited participants had significant disease and treatment burden at baseline and recruitment was challenging, requiring more time and resource than planned. Participants had a mean age of 76.5 years (SD 6.52), mean number of medicines of 17.21 (SD 3.54) and 93% had at least one PIP. Interim analysis of 90% of patients followed up to date indicated a small but significant reduction in the number of medicines in the intervention group (IRR 0.95, 95%CI; 0.89–0.99, p=0.03). The adjusted odds of having at least one PIP in the intervention versus control group was 0.32 (95%CI; 0.11–0.94, p=0.04), though interpretation of this measure is limited by the low numbers with no PIP, and an inconclusive effect on secondary PIP measures. With respect to secondary prescribing related measures, there was a significant number of medicines stopped (IRR 1.49, 95%CI; 1.18–1.19) and a reduction in the proportion of participants prescribed ≥ 15 medicines (OR 0.32, 95%CI; 0.16–0.62) in the intervention compared to the control group. There was no effect on any patient reported outcome measures, but this was limited by a reduced questionnaire response rate at follow up (56%).

Consequences

Given the challenges recruiting and retaining this patient group, future similar studies could target patients with moderate rather than severe disease burden who may have greater capacity to participate in a medicines review and prioritisation process. While the effect on PIPs is unclear, SPPiRE was effective in reducing the number of medicines, which would have a significant impact at a population level.

**Funding acknowledgement**

This research is funded by the Health Research Board, Primary Care Clinical Trial's Network, Ireland

## 4C.7 Experiences of taking antiretroviral medication as pre-exposure prophylaxis amongst men who have sex with men attending sexual health clinics in Wales: a nested qualitative study

Presenter: David GIllespie

Co-authors: Fiona Wood, Adam Williams, Richard Ma, Marijn de Bruin, Dyfrig Hughes, Adam Jones, Zoe Couzens, Kerenza Hood

Institutions: Cardiff University, PRIME Centre Wales, Imperial College London, Radboud University Medical Center, Bangor University, Public Health Wales

**Abstract**

Problem

HIV pre-exposure prophylaxis (PrEP) is an antiretroviral medication which has been demonstrated to be highly effective against reducing HIV in key populations. It has been available through the NHS in Wales since July 2017 to anyone considered at-risk from contracting HIV. There has been considerable work studying the uptake of PrEP in key populations, with relatively less attention directed to how PrEP is taken when it is prescribed. This is particularly true in the UK, where PrEP has until recently only been available through research studies or online purchase. The aim of this work therefore was to gain an in-depth understanding of the contextual factors which act as barriers and facilitators for the initiation, consumption and continuation (or discontinuation) of PrEP amongst men who have sex with men (MSM).

Approach

We conducted a qualitative study nested within an ecological momentary assessment (EMA) study of PrEP use and sexual behaviour in Wales. Semi-structured interviews were carried out via video call with MSM who were accessing PrEP through sexual health clinics

across Wales. We aimed to include individuals who had discontinued PrEP during the EMA study. Interview questions were developed with groups of academics and key stakeholders, and were focused primarily to align with key processes around medication use (initiating, implementation, and persistence). Question probes related to components of the theory of planned behaviour model, and questions were also asked on the extent to which PrEP use influenced sexual behaviour. Interviews concluded with questions around the support individuals received around their PrEP use as well as the ways in which PrEP has changed their life (to elicit key outcomes for future research). Interviews were professionally transcribed verbatim, coded by the lead author (with double coding taking place to assess to validity of the coding frame and subsequently for reliability of coding), and analysed thematically.

Findings

Twenty-one interviews were conducted between 13th May 2020 and 6th November 2020. Participants were from two of the four sexual health clinics included in the overarching study, with four participants discontinuing PrEP use during the course of the study. Analysis is ongoing, but an initial theme includes the role of self-efficacy and control around an individual's sex life (be that through their change in relationship with their sexual health clinic, their communication with sexual partners, or the importance of habit formulation when it comes to PrEP use). Key experiences around initiating and stopping PrEP will also be described. The ways in which the COVID-19 pandemic has impacted PrEP use will also be described.

Consequences

These findings will provide a detailed account of contextual factors influencing PrEP use amongst MSM in Wales and indicate areas in which additional support for optimising PrEP use may be needed.

**Funding acknowledgement**

The DO-PrEP study was funded by the Welsh Government through Health and Care Research Wales (project ref HF-17-1411).

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## 4D.1 Does a leaflet-based intervention, 'Hypos can strike twice', prevent recurrent hypoglycaemic attendances by ambulance services?

Presenter: Vanessa Botan

Co-authors: Prof Graham R Law, Ms Despina Laparidou, Dr Elise Rowan, Dr Murray D. Smith, Dr Colin Ridyard, Prof. Niroshan A Siriwardena

Institutions: University of Lincoln

**Abstract**

Problem

Hypoglycaemia is a common complication in people with diabetes needing prompt recognition and treatment. It often results in ambulance attendance and is associated with morbidity, mortality, and increased health services costs. Patient education is important for maintaining glycaemic control and preventing recurrent hypoglycaemia. We investigated the effect of an intervention in which ambulance staff were trained to provide advice supported by a booklet - 'Hypos can strike twice'- issued following a hypoglycaemic event to prevent future attendances.

Approach

We used a non-randomised stepped wedge-controlled design. The intervention was introduced at different times (steps) in different areas (clusters) of operation within East Midlands Ambulance Service NHS Trust (EMAS). During the first step (T0) no clusters were exposed to the intervention and during

the last step (T3) all clusters were exposed. The main outcome was the number of unsuccessful ambulance attendances (i.e. attendance followed by a repeat attendance). Data were analysed using a general linear mixed model (GLMM) and an interrupted-time series analysis (ITSA). The achievement of a care-bundle (i.e. blood glucose recorded before and after treatment for hypoglycaemia) was also checked for.

Findings

The study included 4825 patients (mean age= 65.42 years, SD=19.42; 2166 females) experiencing hypoglycaemic events attended by EMAS. GLMM indicated a reduction in the number of unsuccessful attendances in the final step of the intervention when compared to the first (OR: 0.50, 95%CI: 0.33-0.76, p=0.001). ITSA indicated a significant decrease in repeat ambulance attendances for hypoglycaemia - relative to the pre-intervention trend (p=0.008). The hypoglycaemia care bundle was delivered in 66% of attendances during the intervention period, demonstrating a significant level of practice change ($\chi 2=30.16$, $p<0.001$).

Consequences

The 'Hypos can strike twice' intervention had a positive effect on reducing numbers of repeat attendances for hypoglycaemia and in achieving the care bundle. The study supports the use of informative booklets by ambulance clinicians to prevent future attendances for recurrent hypoglycaemic events.

**Funding acknowledgement**

This study has been funded by NIHR Applied Research Collaboration (ARC) East Midlands, UK

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## 4D.2 A randomised controlled trial to improve treatment adherence in people with type 2 diabetes mellitus (INTENSE): A progress report

Presenter: Hiyam Al-Jabr

Co-authors: Marlous Langendoen-Gort2, Jacqueline G Hugtenburg3, Femke Rutters4, Maartje de Wit5, Amber A van der Heijden2, Frank Snoek5,6, Andrew Farmer7, Petra JM Elders2, Debi Bhattacharya1

Institutions: 1 University of East Anglia, 2 Department of General Practice, Amsterdam UMC; 3 Department of Clinical Pharmacology and Pharmacy, Amsterdam UMC; 4 Epidemiology and Data Science, Amsterdam UMC; 5 Department of Medical Psychology, Amsterdam UMC, location VU

**Abstract**

Problem

Medication non-adherence is a common problem among people with type-2 diabetes mellitus (T2DM), and is associated with increased hospitalisation and healthcare costs. Interventions developed to enhance medication adherence rarely allow for significant tailoring to individual need. This study aims to investigate the (cost-) effectiveness of a personalised intervention program to improve medication adherence in people with T2DM who are non-adherent to oral antidiabetic and/or antihypertensive medicines.

Approach

The study was designed for the Netherlands and adapted for a UK population through working with a patient and public involvement (PPI) group and relevant stakeholders. This is a 1:1 parallel-group, cluster randomised controlled trial conducted in community pharmacies in both countries. The target recruitment is 300 participants (150 per country) with six months of follow-up. Eligible

patients in England are smartphone users aged 35 to 75 years with T2DM, non-adherent to oral antidiabetic and/or antihypertensive medicines and able to read and write in English. Community pharmacies and associated general practices are being approached to participate. General practices identify and invite potentially eligible patients who are later recruited by their pharmacy. Participants are asked to complete a questionnaire pack at baseline comprising an adherence profiling questionnaire, medication adherence report scale, diabetes treatment satisfaction questionnaire, beliefs about medicines questionnaire, and quality of life questionnaire. They are then randomised using electronic 1:1 block randomisation per pharmacy into an intervention or control group. Intervention group participants have a consultation with a pharmacist whereas control group participants have a consultation with a pharmacy assistant. Due to COVID-19, remote consultations are being conducted. Intervention group participants are offered a range of personalised supporting programs as informed by their responses to the adherence profiling questionnaire, these include smart messages and/or completing an online self-help application. Usual care and access to a general T2DM website is provided to the control group.The primary outcome is change in medication adherence measured by telephone pill count. Secondary outcomes include change at six months in blood pressure, HbA1c, quality of life and healthcare costs.

Findings

Two meetings with PPI members were conducted and patient-facing supporting programs were adapted to suit the UK population. Several medical practices and their most proximal community pharmacies have expressed interest in the study and three sites are currently recruiting participants. Thirteen patients (54% males) with a median age (IQ) of 66 years (62-71) have been recruited. Of these participants, five have been randomised into the intervention group and eight into the control group. Recruitment of new sites is ongoing.

Consequences

The study will report the impact of a personalised adherence intervention on diabetes-related health, health-related quality of life and healthcare costs.

**Funding acknowledgement**

Funding provided by the European Foundation for the Study of Diabetes

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## 4D.3 Exploring the feasibility of conducting primary care trials in the Irish context: lessons from the IDEAs (Improving Diabetes Eye-screening Attendance) study

Presenter: Fiona Riordan

Co-authors: Susan M Smith, Patricia M Kearney, Sheena M McHugh

Institutions: University College Cork, Royal College of Surgeons in Ireland

**Abstract**

Problem

The research infrastructure in primary care is still developing and investment is relatively recent. Understanding practices' 'readiness' to engage in trials and their experience is important to inform trial procedures and supports. However, there are few case studies of specifically conducting trials in the Irish context. We explored the acceptability and feasibility of study procedures used as part of a cluster randomised pilot trial of an intervention in primary care (July 2019 – July 2020) to improve uptake of Ireland's national diabetic retinopathy programme, Diabetic RetinaScreen.

Approach

Eligible General Practices (GP) had ≥1practice nurse and computerised patient records. The intervention comprised practice reimbursement, an audit of patients with diabetes, electronic prompts targeting professionals, GP-endorsed patient reminders, and a patient information leaflet. As part of the process evaluation, we explored feasibility and acceptability of the study procedures, by conducting interviews with a purposive sample of staff from four intervention practices, consulting research logs, and, analysing audit data. Interviews were analysed using the Framework Method.

Findings

Nine staff (3 GPs, 4 nurses, 2 administrators) were interviewed. An interest in the topic area or research motivated practices to take part in the trial. Reimbursement meant they could 'afford' to participate. Staff valued the researcher briefing at the start of the trial, to avoid 'going in slightly blind', and felt everyone involved in the study needs to understand the nature of the investment required (i.e., skills, workload) before they decided to take part and to ensure these resources are in place. Not all staff were involved in the decision to take part in the study and did not receive the explanatory information. While staff varied in audit skills and confidence, and some found this aspect challenging, a 'step-by-step' audit manual and regular researcher contact, helped them stay on track and troubleshoot during data collection (e.g., searches within GP software). Delays with starting and finishing the audit were linked to the timing; annual leave during Summer when the trial began and the busy flu vaccination period in October/November.

Consequences

Staff felt the study procedures were acceptable and feasible, highlighting the importance of dedicated time to brief staff on the trial, manuals, and regular contact with a readily accessible research team. Audit challenges suggest the need for greater guidance and support. Issues with the reach and clarity of the communication about study requirements, suggest the need to be upfront about the investment and staff skills required, to facilitate practices to assess their capability and capacity (i.e., readiness) to take on the extra work involved.

**Funding acknowledgement**

Health Research Board DIFA-2017-006

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## 4D.4 How accurate are non-invasive and minimally invasive glucose monitoring devices for detecting of hypoglycaemia?

Presenter: Nicole Lindner

Co-authors: Aya Kuwabara, Tim Holt

Institutions: Nuffield Department of Primary Care Health Sciences, University of Oxford, Oxford, OX2 6GG, UK, Department of Family Medicine, University of Marburg, Marburg, Germany

**Abstract**

Problem

Minimally and non-invasive monitoring devices (including continuous glucose monitoring and flash glucose monitoring) have evolved rapidly over recent years and an increasing number of patients using those devices are seen in primary care. While many manufacturers advertise the safety and convenience with which their devices warn of hypoglycaemic episodes, there is no clear evidence on how accurately they can actually detect hypoglycaemia. To address this question, we assessed systematically the diagnostic accuracy of minimally and non-invasive hypoglycaemia detection in comparison to capillary or venous blood

glucose in patients with Type 1 or Type 2 diabetes.

Approach

Clinical Trials.gov, Cochrane Library, Embase, PubMed, ProQuest, Scopus and Web of Science were systematically searched. Two authors independently screened the articles, extracted data using a standardised extraction form and assessed methodological quality using an established quality assessment tool for diagnostic accuracy studies (QUADAS-2). A meta-analysis was performed to assess diagnostic accuracy of hypoglycaemia using a bivariate random effects model. The effect of pre-specified co-variates was analysed using meta-regression. Systematic review registration: PROSPERO 2018 CRD42018104812.

Findings

We identified 3416 nonduplicate articles. Finally, 15 studies with a total of 733 patients were included. Different thresholds for hypoglycaemia detection ranging from 40 to 100 mg/dl were used. The most common threshold was 70 mg/dl. Pooled analysis revealed a relatively poor mean sensitivity of 69.3% [95% CI: 56.8 to 79.4] and a mean specificity of 93.3% [95% CI: 88.2 to 96.3]. Meta-regression analyses showed better hypoglycaemia detection of minimally invasive devices as compared to non-invasive devices. Furthermore, in studies indicating a higher overall accuracy and in studies funded by manufacturers pooled sensitivity was significantly higher. Finally, we saw a notable rate of side effects and adverse events and a limited sensor stability.

Consequences

The present data suggest that minimally and non-invasive monitoring systems are not sufficiently accurate for detecting hypoglycaemia in routine use. Primary care physicians have to be aware of this limitation when communicating with individuals interested in or using those devices.

**Funding acknowledgement**

No funding was received for this work.

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## 4D.5 What is the effect of routinely assessing and addressing depression and diabetes distress using patient reported outcome measures in improving outcomes among adults with type 2 diabetes?

Presenter: Rita McMorrow

Co-authors: Barbara Hunter, Christel Hendrieckx, Dominika Kwaśnicka, Leanne Cussen, Felicia Ching Siew Ho, Jane Speight, Jon Emery, Jo-Anne Manski-Nankervis

Institutions: University of Melbourne, Deakin University, The Australian Centre for Behavioural Research in Diabetes Diabetes Victoria, Department of Endocrinology, Beaumont Hospital

**Abstract**

Problem

Up to four in ten people with type 2 diabetes experience problems related to mental health, such as depression, anxiety, and diabetes distress. Diabetes guidelines recommend assessment of depressive symptoms and diabetes distress during diabetes care using patient reported outcome measures. This systematic review examines the effect of routinely assessing and addressing depressive symptoms and diabetes distress using patient reported outcome measures in improving outcomes among adults with type 2 diabetes.

Approach

Medline, Embase, CINAHL Complete, PsycInfo, The Cochrane Library and Cochrane Central

Register of Controlled Trials were searched using a pre-specified strategy on August 3rd 2020. Eligible studies include studies of adults with type 2 diabetes with the intervention includes both completion of a patient reported outcomes measure of depressive symptoms or diabetes distress and feedback of the responses to a healthcare professional. Two review authors independently screened abstracts and full texts with disagreements resolved by a third reviewer, if required, using Covidence software. Two reviewers undertook risk of bias assessment using Cochrane Risk of Bias 2 tool. Due to heterogeneity of the interventions, a narrative synthesis of the studies is underway.

Findings

The systematic search identified 3,581 citations of which 147 full-text citations were assessed for eligibility, and eight studies met the inclusion criteria. Three studies were rated as some concerns on the risk of bias assessment. Six of the studies used the Patient Health Questionnaire-9 to assess depressive symptoms, with two of these also administering a diabetes distress measure (Diabetes Distress Scale and Problem Areas in Diabetes scale). Two studies measured diabetes distress only as part of the intervention. Patient reported outcome measure responses were frequently collected (6/8 studies) by study team members not involved in ongoing clinical care, either via the telephone or at the clinic. All studies had an associated complex co-intervention, such as telephone counselling, case management or clinical decision support. Results showed improvement in mental and emotional health in six studies. Two studies showed improved self-management, with one study showing improvement in glycaemia. No studies assessed changes in person-centred communication.

Consequences

This review's findings provide a foundation for understanding how patient reported outcome measures for assessing depressive symptoms and diabetes distress are used in the care of people with type 2 diabetes. The review highlights that patient reported outcome measure collection in type 2 diabetes is most frequently by trained study team members with responses linked to complex interventions. There is a need for scalable interventions to support assessing and addressing depressive symptoms and diabetes distress in routine general practice.

**Funding acknowledgement**

RM is recipient of a PhD scholarship from Australian Rotary Health and the University of Melbourne.

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## 4D.6 Association of type 2 diabetes remission and risk of cardiovascular disease in pre-defined subgroups

Presenter: Hilda Hounkpatin

Co-authors: Beth Stuart, Andrew Farmer and Hajira Dambha-Miller

Institutions: 2. Primary Care Research Centre, University of Southampton ;Nuffield Department of Primary Care, University of Oxford; Primary Care Research Centre, University of Southampton

**Abstract**

Problem

Remission of type 2 diabetes has been shown to be achievable through lifestyle changes alone. The extent to which remission is associated with reduced cardiovascular disease (CVD) outcomes in key subgroups of people with type 2 diabetes has not previously been assessed. We aimed to quantify the association between type 2 diabetes remission and 5-year incidence of CVD outcomes, overall and in pre-defined subgroups.

Approach

A retrospective cohort analysis of 65,347 adults with type 2 diabetes from the Care and Health Information Analytics (CHIA) database. Multivariable Cox models were used to assess the association between biochemical remission within the first two years of follow-up and incidence of cardiovascular disease (CVD) outcomes including events, microvascular and macrovascular complications at 7-year follow-up. Effect modification by age, sex, diabetes duration, pre-existing CVD, baseline body mass index (BMI) and HbA1c level were assessed.

Findings

29,705 (46.0%) people achieved remission during the first two years of follow-up. Overall, remission was associated with lower risk of CVD outcomes. Remission was associated with reduced risk of CVD events and microvascular complications for younger age groups (aHR ranging from 0.51(0.38-0.69) to 0.85(0.76-0.96)) but not in those aged 85+ years (aHR: 0.74 (0.52-1.05) and aHR: 0.77 (0.60-1.00), respectively). People with no comorbidities had lowest risk of CVD events (aHR: 0.67(0.57-0.77), microvascular complications (aHR: 0.64(0.58-0.70)), macrovascular complications (aHR: 0.74(0.64-0.84)) compared to those with 1-2 or more than 3 comorbidities (aHR: 0.79 (0.67-0.93), aHR: 0.81(0.72-0.90), aHR: 0.83(0.73-0.95), respectively). There were no significant interactions in the remaining subgroups.

Consequences

Achieving remission of type 2 diabetes is associated with a lower risk of CVD outcomes, particularly for younger groups and those with few comorbidities. Targeted interventions that focus on promoting remission in these groups may reduce the impact of CVD and associated health costs.

**Funding acknowledgement**

HDM is a National Institute for Health Research funded Academic Clinical Lecturer and has received NIHR SPCR funding (SPCR2014-10043) for this project. AF is a NIHR Senior Investigator and receives support from NIHR Oxford BioMedical Research Centre.

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## 4D.7 Evaluating the effectiveness of the NHS DPP programme at reducing conversion of NDH to T2DM, using the Clinical Practice Research Datalink (CPRD)

Presenter: Rathi Ravindrarajah

Co-authors: Pete Bower, Matt sutton, Evangelos Kontopantelis

Institutions: University of Manchester, Centre for Primary Care

**Abstract**

Problem

The NHS Diabetes Prevention Programme (NDPP) is a behaviour-change programme in patients who are at risk of developing Type 2 Diabetes Mellitus (T2DM). People who have raised blood glucose levels but not in the diabetic range are identified as at risk of developing T2DM and this condition is known as Non-Diabetic Hyperglycaemia (NDH). The aim of the study was to explore the effectiveness of the NHS DPP at reducing conversion of NDH to T2DM, using the Clinical Practice Research Datalink (CPRD).

Approach

CPRD is one of the largest active primary care databases of electronic health records (EHR) in UK. We used data from the CPRD AURUM which contains data from the EMIS software system. To study the effectiveness of the programme we used data from the post-intervention period and compared NDH to T2DM conversion rate between patients referred to the scheme versus matched patients not referred, within the same

practice. Patients were matched based on age (within 3 years), sex and within 365 days of NDH diagnosis. The primary outcome is conversion to T2DM within a year. Cox proportional-hazards models evaluated predictors of conversion. The final matching cohort included a total of 76,705 participants with 18,413 cases and 58,292 controls.

Findings

The mean age of the cohort was 64.6(SD=12.6) years, 52% were female. The mean BMI of the cases and controls were similar (Cases: 30.8[SD=6.5]; Controls: 30.0[SD=6.3]). However, those referred were more likely to be obese. Ex or current smokers were more likely to be referred to the programme, with cases having 46% of current smokers and 35% of ex-smokers. A total of 3036 participants developed T2DM in the study period. The differences in conversion rates between the two groups will also be presented.Females were less likely to convert to T2DM with a HR of 0.9(95% CI: 0.85 to 1.00) compared to men. Individuals aged 85 years and over were less likely to develop T2DM compared to those aged 18-34, with a HR of 0.58(95% CI: 0.3 to 0.93). People with high BMI had a much higher risk of conversion to T2DM, with those classed overweight (BMI 25-30) having a HR of 1.45 (95% CI: 1.21 to 1.74), and those classed obese (BMI>=30) having a HR of 2.1 (95% CI: 1.8, 2.5), compared to individuals with a normal BMI (18.5 to 25). Having depression at baseline slightly increased the risk of conversion (HR=1.14, 95% CI 1.04, 1.24). Those who had a prescription for metformin were at a higher risk of developing T2DM with a HR of 3.3(95 % CI 2.7 to 4.2).

Consequences

Our final findings on the effectiveness of the programme will be confirmed once we also conduct further analysis which will be across practice matching to control for potential unmeasured confounding in referrals, by matching referring practices to non-referring practices over a set period

**Funding acknowledgement**

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## 4E.1 Test-retest reliability, construct validity and responsiveness of the Polymyalgia Rheumatica Impact Scale (PMR-IS)

Presenter: Helen Twohig

Co-authors: Professor Christian Mallen, Dr Caroline Mitchell, Dr Sara Muller

Institutions: Helen Twohig, Christian Mallen, and Sara Muller - Keele University, Caroline Mitchell - University of Sheffield

**Abstract**

Problem

Polymyalgia rheumatica (PMR) causes pain, stiffness and disability in older adults. It usually has a sub-acute onset and responds rapidly to treatment with steroids, although the initial improvement is typically followed by longer periods of lower-level symptoms and episodes of relapse. Steroids themselves cause significant morbidity and adverse effects have to be balanced against PMR symptoms. There are currently no validated patient reported outcome measures (PROMs) that measure the impact of PMR and its associated treatments from the patient's perspective .We developed the PMR-impact scale (PMR-IS) comprising symptom, function, emotional and psychological well-being and steroid side-effects domains and here we present its first validation study.

Approach

People diagnosed with PMR in the preceding 3 years, identified via primary and secondary care services in the West Midlands, were invited to participate. Participants completed a baseline questionnaire booklet comprising the PMR-IS, the modified Health Assessment Questionnaire (mHAQ) and the Short Form-36 (SF-36). A second questionnaire booklet, comprising a series of anchor questions and the PMR-IS, was completed 1-6 weeks later.Test-retest reliability was evaluated in the group reporting that they had 'stayed the same' on the anchor question. The intra-class correlation coefficient (ICCagreement), standard error of the measurement (SEM) and the limits of agreement (LoA) were calculated for each domain. Construct validity was assessed by testing pre-specified hypotheses about the relationship between the comparator questionnaires and domains of the PMR-IS.Responsiveness was evaluated by testing hypotheses about the mean change scores on domains of the PMR-IS in participants grouped according to their anchor question responses. Consideration was also given to the interpretability of the measure - risk of floor and ceiling effects, the smallest detectable change (SDC) and the minimally important change (MIC).

Findings

210 first booklets and 179 paired questionnaires were analysed. Test-retest reliability was good for each domain (ICC>0.8) although the LoA were fairly wide. Construct validity was satisfactory with only one out of 11 hypotheses rejected. Responsiveness and interpretability analysis are underway (results will be available for the meeting).

Consequences

This is the first PROM specifically developed for PMR and this study is the first step towards establishing it as a tool fit for use in research and clinical practice. The availability of such a measure will enable the assessment of what truly matters to people with PMR to be incorporated into research into the condition and ultimately improve person-centred care for PMR. The results from this study demonstrate good test-retest reliability and construct validity, satisfying COSMIN standards for these properties. Full results for other measurement properties will be presented at the meeting.

**Funding acknowledgement**

Helen Twohig is funded by a Wellcome Trust Primary Care Doctoral Fellowship

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## 4E.2 Vfrac – a simple clinical tool that identifies older women with back pain at high risk of osteoporotic vertebral fractures

Presenter: Tarnjit K Khera

Co-authors: Linda P Hunt, Sarah Davis, Rachael Gooberman-Hill, Zoe Paskins, Tim J Peters, Jon H Tobias, Emma M Clark

Institutions: University of Bristol, Keele University, University of Sheffield

**Abstract**

Problem

Osteoporosis and associated fragility fractures are one of the most common musculoskeletal conditions in older people. It is estimated that approximately three million people in the UK have osteoporosis. Osteoporotic vertebral fractures (OVFs) identify people at one of the highest risks of future fractures, but despite this, less than a third of patients with fractures come to clinical attention. Improving understanding about which clinical signs should be used to trigger referral for diagnostic spinal radiograph has potential to increase identification of OVF so that treatments to prevent further fracture can be instigated. Building on evidence that symptoms differ between adults with back

pain and OVFs and those with back pain but no OVFs, the study aimed to develop a simple clinical tool to help clinicians to decide which older women with back pain should have a spinal radiograph.

Approach

1635 women aged 65+ with backpain in the previous four months were recruited from primary care in two regions of the United Kingdom (NRES 18/WS/0061; ISRCTN16550671). Data were collected through self-completion questionnaires, simple physical examination, spinal radiographs and GP records. Exposure data included descriptions of back pain, traditional risk factors for osteoporosis, basic anthropometry and reported height loss. The outcome was the presence/absence of OVF identified using the Algorithm-Based Qualitative method. Severity of the fracture was categorised using the Genant semi-quantitative (SQ) method. A series of logistic regression models identified independent predictors of OVFs. Model validation included calibration-in-the-large (CITL), calibration slope and heuristic shrinkage (Van Houwelingen). 500 bootstrapped samples were obtained and used to estimate shrinkage and adjust the calibration slope and AUC optimism. The proposed final cut-off to identify which older women with back pain should have a spinal radiograph because of high risk of fracture was based on a maximised sum of sensitivity and specificity.

Findings

Mean age was 73.9 years (range 65.4 to 96.8), and 209 (12.8%) had OVF. The AUC of the final model (including 15 independent predictors) was 0.802 (0.764-0.840), sensitivity was 72.4% and specificity was 72.9%. Of those recommended for spinal radiographs based on Vfrac, 27.1% had an OVF. Vfrac identified 62.0% of those with one OVF and 92.7% of those with >1 OVF. It identified 92.3% of those with severe OVF and 63.1% of those with mild/moderate OVF. The Vfrac tool provides a targeted method to identify people with OVF and hence at high risk of future fragility fracture. Next steps include testing of the tool's real-world clinical and cost-effectiveness.

Consequences

Vfrac will be a web-based online tool that can be supported through NHS IT systems.

**Funding acknowledgement**

The Vfrac Study is funded by a Clinical Studies grant from Versus Arthritis (grant reference 21507). Vfrac also acknowledges support of the NIHR Portfolio through the Clinical Research Network.

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## 4E.3 Towards better healthcare delivery for fibromyalgia: people's experiences in primary care

Presenter: Stefanie Doebl

Co-authors: Gary Macfarlane, Rosemary Hollick, Peter Murchie

Institutions: SD/GJM/RH: Epidemiology Group and Aberdeen Centre for Arthritis and Musculoskeletal Health, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen; PM: Academic Primary Care, School of Medicine, Medical Sciences and Nutrition, Universi

**Abstract**

Problem

Fibromyalgia is common. Whilst knowledge about fibromyalgia has increased over time, diagnosis and management are complex. People with fibromyalgia report frustrating and difficult journeys through the healthcare system, including primary care. However, we do not know how best to organise and provide the most person-centred care. Hence, this research project is exploring people's experiences and healthcare journeys.

Approach

The project had two parts. First, a cross-sectional postal survey was conducted with an existing Scottish cohort of people with a reported formal fibromyalgia diagnosis or suggestive symptoms. The questionnaire collected information including diagnostic characteristics, healthcare usage and care experiences in primary care. Statistical analysis of these data was performed in STATA15. Second, semi-structured qualitative interviews were conducted with people reporting fibromyalgia from across the United Kingdom. They were recruited in various ways including from the original cohort and via social media. Interviews explored healthcare experiences, impacts of fibromyalgia and coping strategies. Interviews were analysed in NVivo 12, using reflexive thematic analysis. The recorded interviews, which were conducted in person, online or by phone, will now be used as a resource on the award-winning website https://healthtalk.org. Patient partners were involved throughout the research.

Findings

421 people returned postal questionnaires. 85 people (86% female) reported a formal fibromyalgia diagnosis. Median lengths to receive a diagnosis after first consulting a healthcare professional for their symptoms was three years (IQR 0, 10). 34% were diagnosed by their GP. Whilst 61% consulted their GP practice in the past three months, only 43% reported receiving ongoing care from their GP. Healthcare needs important to them were often not well met such as receiving appropriate information and self-management support. The semi-structured interviews included 31 participants (27 female) aged 23 to 77 years. The minority was diagnosed in primary care. People commonly reported lacking crucial information about fibromyalgia, formal needs assessments, self-management planning and emotional support in primary care, which they felt impacted their quality of life. People who reported trusting their GP felt better supported than those who did not. Whilst participants appreciated the NHS, many were concerned that it was under resourced and that GPs are overburdened. Access to regular primary care nursing support such as that offered for asthma or diabetes was identified as one key solution for improving healthcare delivery for fibromyalgia.

Consequences

The findings suggest that current fibromyalgia management guidelines are not implemented well by GPs. Research into the role of the wider primary care team and how they can coordinate optimal fibromyalgia care is needed. This is especially important considering likely challenges to be faced by general practices during and after the current pandemic. It is envisaged that the Healthtalk website may provide a useful resource for supporting people with fibromyalgia to achieve a meaningful life.

**Funding acknowledgement**

Stefanie Doebl was funded through a University of Aberdeen PhD studentship. The PhD was part of the PACFIND programme of work which is funded by Versus Arthritis (Grant No. 21958).

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## 4E.4 How does multimorbidity impact quality of life, disease activity and health assessment in patients with new-onset rheumatoid arthritis?

Presenter: Fraser Morton

Co-authors: Bhautesh Jani, Philip McLoone, Jordan Canning, Frances Mair, Barbara Nicholl, Stefan Siebert

Institutions: University of Glasgow

**Abstract**

Problem

Rheumatoid arthritis (RA) is a chronic autoimmune disease most commonly associated with inflammation of the synovial membrane, which can cause pain, joint damage, and result in loss of function, disability and a reduced quality of life (QoL). Despite high levels of comorbidity and multimorbidity (≥2 long-term conditions (LTCs)) seen in people with RA, little is known about how presence of multimorbidity impacts health outcomes in people living with RA over time. This study aims to longitudinally assess the overall effect of the presence of multimorbidity in people with RA in relation to commonly used QoL, disease activity and health assessment metrics.

Approach

We identified 572 RA participants from the Scottish Early Rheumatoid Arthritis (SERA) inception cohort and collected data at baseline, month 6 and month 12. Participants comorbidities were counted and categorised into the groups: RA only, RA +1 LTC and RA ≥2 LTCs. Mixed effects models (adjusted for age and sex) were used to investigate the association between the number of comorbidities and disease activity (DAS28-ESR), QoL (EQ-5D), function (HAQ-DI), and anxiety and depression status (HADS), with effects determined using estimated marginal means.

Findings

In the dataset 251 (43.9%) participants had no additional comorbidities, 174 (30.4%) one and 147 (25.7%) two or more. There were significant differences between the RA ≥2 LTC and RA only groups at each visit for DAS28-ESR and HAQ-DI scores. At baseline for DAS28-ESR the mean difference was 0.47 (95% CI 0.12-0.83) and at month 12 0.45 (95% CI 0.09-0.81). For HAQ-DI the difference was 0.37 (95% CI 0.17-0.56) at baseline and 0.27 (95% CI 0.07-0.47) at month 12. For EQ-5D and HAD depression scores any significant differences present between LTC groups at baseline were not present at month 12. There were no significant differences in anxiety between LTC groups at any visit. Across all LTC groups, there was a significant improvement in all measures at month 6 and month 12 relative to baseline.

Consequences

These findings suggest that multimorbidity should be taken into account in the management of patients with RA. While it has been demonstrated that in all LTC groups disease activity, QoL, function, anxiety, and depression can all be significantly improved, it may not be possible for patients with two or more additional LTCs to achieve the same level of improvement as patients with only RA for DAS28-ESR and HAQ-DI scores. This could have implications for the treat-to-target strategy recommended for the management of RA, where the goal is for the patient to reach a disease activity level of remission or low activity, and raises the prospect of personalised treatment goals that take into consideration multimorbidity.

**Funding acknowledgement**

Versus Arthritis Grant Reference: 21970

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# 4E.5 The impact of guidelines on the proportion of OA consultations associated with an X-ray request: a time trend analysis

Presenter: Connor Henry-Blake

Co-authors: Michelle Marshall, George Peat, John Edwards

Institutions: School of Medicine, Keele University, Keele, Staffordshire, ST5 5BG, UK

**Abstract**

Problem

Osteoarthritis (OA) is a frequent cause of primary care consultations. X-rays have often been used to confirm a diagnosis of OA. The current NICE and Royal College of Radiologists (RCR) guidelines discourage the routine use of X-rays as they do not improve diagnostic confidence, have cost implications, and may inappropriately alter management. It is unclear if guidelines have affected X-ray requests. This study aimed to describe trends in X-ray requests in primary care OA consulters, and the potential impact of guideline publication.

Approach

Consultation data from seven general practices in North Staffordshire were extracted from a primary healthcare database (CiPCA). The practice and overall annual proportion of X-ray requests in OA consulters from 2000-2012 (defined as at least one X-ray Read code within 30 days of an OA consultation) were calculated. More recent data was unavailable for analysis. Joinpoint regression analysis was used to construct trend models; a likelihood ratio test statistic was calculated to identify the model with the best fit to the observed data. Joinpoint dates were compared with the publication dates of four relevant UK guidelines.

Findings

Between 2000-2012, 18,114 patients had at least one recorded OA consultation. The proportion of X-ray requests in patients consulting for OA ranged between 14.3% in 2000 to 19.8% in 2003 (mean 17.3%). Marked variation existed between GP practices, with quarterly X-ray requests ranging from 10.5% to 25.3%. From 2000 Q1-2003 Q2, X-ray requests increased by 2.6% per quarter (95% CI:1.0%, 4.3%). From 2003 Q2-2012 Q4 the model identified a fall in the proportion of X-ray requests by 0.5% per quarter (95% CI: -0.8%, -0.2%). This amounted to a 16.4% decrease from 2003 Q2-2012 Q4. The joinpoint at 2003 Q2 coincided with the publication date of the RCR 2003 guideline (June 2003).

Consequences

The high proportions of X-ray requests in OA consulters found in this study are consistent with other studies. The publication date of one of the four national guidelines coincided with a change in trend. The simultaneous nature of the publication of the RCR guideline and the change in trend is not necessarily supportive of a causal association, as there would have been no time for dissemination. Therefore, the cause of the reduction in X-ray requests is unknown, though guidelines appear to have a limited impact on X-ray requests. The need to look beyond guidelines for an effective solution is highlighted in the latest NHS report on 'Transforming radiology elective care services' (2019). Further exploration of the variation seen between practices may help identify factors that lead to an X-ray request for OA.

**Funding acknowledgement**

JJE is funded by an Academic Clinical Lectureship from the National Institute for Health Research (NIHR) for this research project (CL-2016-10-003). The views expressed in this publication are those of the

author(s) and not necessarily those of the funders

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## 4E.6 'They were laughing at us and mocking us': the experiences of people attending a novel behavioural programme for chronic low back pain in a rural Nigerian primary care centre

Presenter: Chinonso Igwesi-Chidobe

Co-authors:

Institutions: Department of Medical Rehabilitation, Faculty of Health Sciences and Technology, College of Medicine, University of Nigeria, Enugu Campus.

**Abstract**

Problem

Nigeria has one of the greatest burdens of low back pain (LBP), with a one-year prevalence rate of 40-85%, which is greater than 14-51% in other African countries; and a point prevalence rate of 33-40%, which is greater than 10-33% in high income countries. The burden of LBP is disproportionately greater in rural Nigeria with a prevalence rate approaching 85% among rural farmers, a much higher value than the 39% in urban Nigeria. However, there is currently no access to effective treatment of LBP in rural Nigeria. This increases disability, poverty, and rural-urban inequality. Consequently, a novel theory-informed biopsychosocial intervention was developed to target the predictors of chronic LBP disability in rural Nigeria. This is a once weekly six-week community-based group self-management programme that incorporates exercise sessions with discussion sessions informed by cognitive behavioural therapy and motivational interviewing. This study explored the experiences of people attending the programme in a rural primary care centre in Nigeria.

Approach

Structured exit feedback interviews were conducted after programme completion to specifically answer questions important for programme improvement. An open-ended interview guide explored participants' experiences of the novel programme. Interviews were transcribed verbatim in Igbo. There was forward and back translation of Igbo transcripts. Inductive content analysis was conducted with NVivo version 10. Themes relating to experiences and acceptability of the programme were identified and the number of people reporting these were noted.

Findings

There were 13 adults (10 women; 3 men). Majority were married, middle-aged, farmers, with primary school education.Positive perceptions of the programme and adequate understanding of recommended behaviour change by participants: All but one of the participants viewed the programme positively due to the group structure, being health professional-led, practical demonstration of exercises and postural hygiene, participant perception of improvement in symptoms, provision of information regarding chronic LBP using collaborative communication style. All participants demonstrated adequate understanding of recommended self-management strategies such as exercise, postural hygiene and emotional regulation being ongoing and part of daily life. Negative community perceptions of programme: all participants reported being mocked by community members because they were performing exercises and practising postural hygiene regarded as illegitimate treatment. They reported that their community members regarded pharmacological treatment as the only legitimate means of treating health conditions. This resulted in two participants missing two programme sessions, and five participants concealing that they were coming for the programme to avoid being mocked.

Consequences

Negative community perceptions of non-pharmacological treatment hindered participants' programme adherence. Behavioural journalism, a social cognitive theory method, may help in promoting the legitimacy of non-pharmacological treatment in this population. This may foster long-term adoption of exercises, postural hygiene, and emotional regulation thereby improving programme effectiveness in this community with entrenched biomedical healthcare model.

**Funding acknowledgement**

Schlumberger foundation, The Netherlands.

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## 4E.7 Living well with chronic musculoskeletal pain

Presenter: Noureen Shivji

Co-authors: 1. Carolyn Chew-Graham, 2. Hollie Birkinshaw, 3. Adam Geraghty, 1. Helen Johnson, 3. Paul Little, Michael Moore, Beth Stuart, 2. Tamar Pincus

Institutions: 1. School of Medicine, Keele University, 2. Department of Psychology, Royal Holloway, University of London, 3. Faculty of Medicine, University of Southampton

**Abstract**

Problem

Musculoskeletal pain impacts on people's quality of life, and is a common problem brought by patients to primary care consultations. Symptoms such as feeling low, lacking motivation, and struggling to maintain relationships are commonly reported by people with chronic musculoskeletal pain and maybe labelled as depression by general practitioners. Evidence suggests that the distress experienced in relation to living with chronic pain is different from 'clinical' depression. Although symptoms may appear identical, the underlying causes are qualitatively different. Current interventions and referral pathways may be suboptimal for patients with pain-related distress. Specifically, antidepressants are unlikely to be effective and there is a lack of patient-centered interventions available to patients and clinicians. The De-STRESS study aims to develop a patient-centered intervention for people with chronic musculoskeletal pain and pain-related distress.

Approach

University ethical approval obtained. A qualitative study utilising semi-structured interviews with GPs and people with pain to explore and understand: pain-related distress and how it differs from depression; how GPs currently manage people with chronic musculoskeletal pain and distress; and which interventions are considered useful and acceptable. We are using a range of recruitment methods including social media, local radio, local advertising. A patient advisory group has contributed to all aspects of the study so far.

Findings

Analysis of the data will be used to develop a framework to understand the identification and management of pain-related distress in primary care. We will present initial findings from our analysis, focussing on strategies people use to live with pain, the expectations of primary care services for support, improving access to support groups, and commissioning of more acceptable 'talking therapies'. We will also present learning from our varied recruitment strategies for our study and more general lessons for primary care research.

Consequences

The findings from the De-STRESS study will contribute to the improvement of the care and support for people with chronic

musculoskeletal pain, to help them live well, with their pain; to help GPs manage people with pain and distress in clinical practice, and influential to guideline developers focussed on pain and wellbeing. The value of using a variety of recruitment strategies will be emphasised.

**Funding acknowledgement**

We would like to acknowledge Versus Arthritis for funding the De-STRESS pain study.

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## 4F.1 WORKSHOP: "Well me" – optimising the LIC, designing, delivering and implementing health literacy and population health improvement projects

Presenter: Ffion Williams (1 & 2), Katie Webb (1)

Co-authors:

Institutions: (1) Cardiff University (2) Bangor University

**Abstract**

**Aim and intended outcome/educational objectives**

1. How to enthuse students to participate in community engagement

2. Guiding students to explore appropriate pedagogy to teach health literacy. Adapting pedagogy in Covid-19 times

3. Providing guided exploration to overcome barriers to community projects - especially focusing on sustainability

**Format**

Introductory slides to introduce CARER and the "Well Me" project (15 mins)

Use of facilitated breakout rooms for smaller groups (30 mins)

Feedback from smaller groups, summary and closing remarks (15 mins)

**Breakout rooms format:**

Random allocation to 3 groups

Use of symbol rock, paper, scissors to decide on roles for the group – white board scribe, spokesperson to the main group

Hand symbol = Paper

Thumbs up = Rock

Teammates cross arms = Scissors

Discussion of Point 1

Prior to moving from learning objective 1 to 2, participants must participate in a lightning scavenger hunt (e.g find a red item) and subsequently to proceed from 2-3

Spokespeople to summarise discussions and closing remarks 15 mins

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# 4G.1 WORKSHOP: An Early Career Researchers' Solution Room

Presenter: Jo Butterworth, Jess Drinkwater, Adam Grice, Rebecca Morris

Co-authors:

Institutions: Jo Butterworth, University of Exeter  Jess Drinkwater, Adam Grice, University of Leeds  Rebecca Morris, University of Manchester

**Abstract**

**Preparation**

Attendees

- Attendees come prepared to discuss one pressing career-related question/concern each in small break-out groups.

Expert panel

- An 'expert advisory panel' are invited to attend. (Proposed panel of mid-career or senior researchers, two from clinical backgrounds and two non-clinical.)

The panel will come prepared to introduce themselves and to aid facilitation of small groups but mostly to provide the answers ("solutions") to the most common/pressing questions/concerns at the end of the session.

Workshop organisers will inform the panel of the concerns that are likely to be raised, based on experiences from the 2019 workshop.

**The workshop**

Introduction from workshop organisers

Introductions from the panel

Organisers provide an explanation of the task

20 mins Small groups breakouts and scribing of individual problems.

Scribed problems are made available for whole workshop to view (using IT facilities available).

The group nominates a spokesperson who summarises each breakout group's main questions/concerns to the whole workshop.

15 mins  The panel take it in turns to describe their own inspirational career pathways – 3 mins each.

(Meanwhile the organisers amalgamate the small group questions and prioritise them to present to the panel).

Questions/concerns are answered by the panel.

Signposting for any unanswered questions

Close.

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## POSTERS

### P1.10.02 CREATIVE PIECE: “Oh Doctor, just one more thing for you”

Presenter: Agalya Ramanathan

Co-authors:

Institutions: University College London

**Abstract**

A short poem, written based on gut instinct by me, describing the journey of a medical student, learning the ropes of medicine and their onward path to become a doctor, always trying to fit in and to belong. It encapsulates the desire to work alongside the status quo, and not to question or change things, even when they know they are moving further and further away from their own identities and at times, not even looking after themselves the way they would their own patients. It hopefully serves as a reminder that we need to nurture ourselves and we need to pause, to think and to eat and drink, and use the toilet like anyone else. I also hope that people will notice the implications on mental health, of neglecting our physical health and this constant burden of wanting to be accepted or not trouble anyone. This poem also reflects on how doctors struggle to seek help for their own medical problems, and wonders if this is related to a sense of professional identity and not wanting to be weak. It also implies that this is partly because we forgot our sense of self and struggle to accept we could have the same problems we so frequently treat. It takes on a negative tone, to draw attention and make the intended points. Hopefully, people will be able to reframe the comments and pick out ways and points for change and be inspired to make these changes in their own routines and lives.

**“Oh Doctor, just one more thing for you”**

When we look into the mirror what do we see?
A glimpse of ourselves and a view into our souls.
Has it changed since we started this journey?
From the day
we first attended medical school desperately trying to fit in and
to attain the standards of good medical practice.
Has it changed since we took our first steps onto the wards? Clueless,
lost, and desperate to be useful. Wanting to learn from
patients and staff, without being a source of trouble.
Has it changed since we first started, scurrying around the wards? Trying to piece together clues to diagnose and
treat our patients and give the senior what they wanted?
Has it changed since we thought, let's just see just
one more patient in the admission unit? Lunch can wait we thought until
it was time to leave, and we left feeling faint and hungry?
Have we changed to cope when we see our patients die and
wonder what we could have done differently, but barely have time, before the next patient review and
the imminent rush to get through the afternoon list?
Have we changed to cope, to pass our exams and get through the cycle of hoops and ropes just to
provide more and question ourselves even more?
When do we stop to pause and to think? To acknowledge
when our patients wonder about incontinence, that some of us
have also got the same and ignore it and never share?
When do we stop to pause and to think? To seek help when we feel low?
Do we lose our identity by admitting to others we need the help of our own?
When do we stop to reflect and to share? When do we stop to eat and drink?
Whilst we get better at this, we hope, there will always be just another,
just one more to see? Till we feel flank pain and dizziness and building resentment.

When do we stop to say no? Do we take on everything? When do we share our selves?
What makes us tick and what makes us who we are?
Or do we always, pretend to be the same as the many others who fit in the cog
of this machine all around us and mispronounce our own names so it suits others?

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## P1.10.1 Factors affecting the decision to investigate or refer older adults with cancer symptoms: a systematic review

Presenter: Daniel Jones

Co-authors: Erica Di Martino, Steve Bradley, Scott Hemphill, Judy Wright, Cristina Renzi, Claire Surr, Niek de Wit, Richard Neal

Institutions: University of Leeds

**Abstract**

Problem

Diagnosing cancer at an early stage is important and associated with improved survival. In older adults, these survival benefits are reduced, largely due to reduced life expectancy. Older and frail patients have an increased risk of morbidity and mortality from cancer surgery and intolerance of chemo and radiotherapy. The imperative to diagnose cancer early in older adults must be balanced against the preferences of older patients. Older adults have demonstrated a preference for quality rather than length of life, and would accept a higher risk of cancer being undiagnosed. As a result, when older patients present to primary care with cancer symptoms a complex decision is required regarding possible investigation and referral. The aim of this systematic review of the world literature was to determine the effect of older age on diagnostic processes for cancer and determine the specific factors which affect diagnosis.

Approach

Electronic databases were searched for studies of patients over 65, preventing with symptoms suggestive of cancer to primary care. A search strategy was developed around the concepts of Cancer, Older adults, Primary care and Shared decision making. Titles and abstracts were screened, full texts reviewed and data extracted independently by two reviewer. Studies were synthesised using thematic synthesis and according to the synthesis without meta-analysis (SWIM) guidelines.

Findings

Of the 5336 articles generated through our searches, 57 studies met our inclusion criteria. Analysis of the 33 papers that provided quantitative data found mixed results of the effect of age on the time to investigation or referral, with the majority of studies reporting that age did not affect the length of the primary care interval. Analysis of the 24 qualitative studies highlighted significant variation in the impact of frailty, co-morbidities and cognitive impairment on GPs which resulted in uncertainty in decisions to investigate or refer older adults with cancer symptoms. Patients showed a clear wish to be involved in these complex decisions.

Consequences

The review has highlighted significant uncertainty and variation in the management of older adults with cancer symptoms by GPs which is largely as a result of a lack of evidence on which to base the decisions. The review has highlighted both patients' and their family's wishes to be involved in these decisions. Older adults may need a different diagnostic approach to cancer symptoms. Given the uncertainty regarding optimum management of this group of patients a shared decision-making approach is likely to be helpful. However, it is not clear how best

to implement this, and several barriers were highlighted, most notably the possible presence of cognitive impairment and the need for addition time within a consultation.

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## P1.10.2 Detecting High-Risk Smokers in Primary Care Electronic Health Records

Presenter: Lamorna Brown

Co-authors: Brown, L., Sullivan, F., Agrawal, U., Kelsey, T.

Institutions: University of St Andrews

**Abstract**

Problem

In the UK, lung cancer is a leading cause of cancer death, accounting for 21% of all cancer related mortality. Between 74-76% of individuals are diagnosed at a late stage (i.e. stage III/IV). This has resulted in poor patient prognosis, with only 16% surviving 5 or more years. However, screening has the potential to improve survival rates and reduce lung cancer mortality. To effectively implement screening programmes, a targeted approach has been recommended which requires the development of criteria to identify individuals at risk. Previous risk models identified sub-populations at risk of lung cancer incidence by utilising data from clinical trials or surveys but access to GP patient records could achieve better targeting of high-risk groups as demonstrated by Atkinson et al. using the SAIL databank in 2017. This study will aim to develop a model which predicts incidence of lung cancer, using GP electronic health record data.

Approach

This project will be an observational study, to examine factors contained in electronic health records (EHRs) that are associated with and produce estimates of risk for lung cancer. This project is limited to working with data collected as part of the Early detection of Cancer of the Lung Scotland (ECLS) trial and the same participants EHR information. Natural language processing will be used to extract information on smoking behaviour, from the free-text in participants EHRs. This data will then be used to model risk of lung cancer incidence.

Findings

The primary outcome of the study is incidence of lung cancer. With the objectives of the study i) to identify pre-existing clinical and non-clinical factors that are predictive of lung cancer in individuals that smoke and ii) to develop a method to identify and categorise smoking behaviour in people who are at high risk of developing lung cancer. As this project is still in the planning stage, there are no findings to report as yet.

Consequences

As the project will develop metrics for modelling that may not be available to researchers utilising data from clinical trials or surveys, this research will identify whether there are further risk factors that should be considered in risk modelling. With the study having the potential to aid GP practices in identifying high-risk patients that may need referral or safety netting, reducing delays and improving patient prognosis. Moreover, as uptake of screenings is an issue related to this area, future research may look at interventions to target those at high-risk by using EHRs.

**Funding acknowledgement**

The study is funded by The Melville Trust for the Care and Cure of Cancer.

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## P1.10.3 Missed/delayed referrals for investigation of suspected cancer: a candidate indicator of practice-level care quality

Presenter: Luke Mounce

Co-authors: Dr Bianca Wiering, Dr Monica Koo, Prof. Hardeep Singh, Prof. Georgios Lyratzopoulos, Prof. Gary Abel

Institutions: University of Exter Medical School, University College London, University of Houston

**Abstract**

Problem

Assessing the quality of cancer diagnostic activity in general practice is difficult, with outcome indicators dependant on small numbers of patients. We investigated the utility of a novel indicator tracking expidited referrals following 'red flag' cancer symptoms in accordance with National Institute for Health and Care Excellence (NICE) guidance.

Approach

Clinical Practice Research Datalink electronic primary care records from 2014-2015 for patients reporting one of six cancer symptoms for which expedited referral is suggested under NICE guidance on for suspected cancer (dysphagia, breast lump, rectal bleeding, post-menopausal bleeding, haematuria, iron-deficiency anaemia) were linked to Hospital Episode Statistics referrals data. Practices' proportion of patients receiving an expedited referral request within 14-days of presentation was assessed for adequate variation (odds ratio ≥1.50 between 10th and 90th centiles) and reliability (median ≥0.70). The effect of case-mix adjustment on performance was explored using Kendall's tau. The indicator was also investigated at the level of individual practitioners.

Findings

Altogether, 19,787/48,847 (40.5%; 95%CI 40.1%-40.9%) patients from 279 practices received an expedited referral; median practice performance was 40.1% (IQR 33.5%-46.5%). The odds ratio for the difference in performance between the 10th and 90th centiles was 2.55, indicating considerable variation in performance. Very good reliability was also demonstrated, with a median of 0.82 (IQR 0.70 to 0.88), and was sufficient when using a single year of data. Single symptom indicators for dysphagia, breast lump, post-menopausal bleeding, and haematuria individually showed sufficient variability and reliability. Adjustment for age, gender, and symptom led to modest reordering of practices and is recommended (Kendall's tau=0.74). At the practitioner-level, the indicator had sufficient variability, but not reliability, due to the lower counts at this level of aggregation.

Consequences

Practice-level proportion of patients receiving an expedited referral following six red flag cancer symptoms has the potential to be an effective care quality indicator, with one year of data sufficient for adequate reliability.

**Funding acknowledgement**

This work was funded by the Gordon and Betty Moore Foundation.

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## P1.10.4 Gut instinct for the diagnosis of cancer in general practice: a diagnostic accuracy review

Presenter: Masahiro Yao

Co-authors: Makoto Kaneko, Greg Irving

Institutions: Yokohama City University, Graduate School of Health Data Science

**Abstract**

Problem

Overcoming diagnostic delay in cancer is challenging in primary care. While screening tests are useful in breast, colon, and cervix, symptom-based diagnosis is often difficult because of uncertainty due to patients' concerns, doctor-patient relationship, and psychosocial context. According to the past literatures, cancer-related gut instinct may improve access to specialists, but it might have been under-rated. The consensus statement of gut instinct by Stoppers at el defined it as ‘a physician’s intuitive feeling that something is wrong with the patient, although there are no apparent clinical indications for this, or a physician’s intuitive feeling that the strategy used in relation to the patient is correct, although there is uncertainty about the diagnosis’. Diagnostic accuracy studies of the performance of gut instinct for the diagnosis of cancer in primary care have yielded variable results. For example the positive predictive value for the use of gut instinct to diagnose cancer has varied widely from 3 - 35 % in General Practice populations. The purpose of this presentation is to determine the diagnostic accuracy of ‘gut instinct’ compared with reference standards for the diagnosis of cancer in general practice.

Approach

Design: Systematic review with meta-analysis with hierarchical summary receiver operating characteristic models following Cochrane methods. Methodological quality was appraised using Quality Assessment of Diagnostic Accuracy Studies 2 (QUADAS2) criteria. Data sources: MEDLINE, EMBASE, Cochrane, DARE, Medion databases were searched. Eligibility criteria: Cross-sectional, randomised and cohort studies of test accuracy that compared gut instinct with an appropriate reference standard (MDT conference cancer diagnosis.

Findings

Results: 1231 potentially relevant papers were identified. 4 studies met the inclusion criteria. No studies satisfied all QUADAS2 criteria. Compared with the reference MDT confirmed cancer gut instinct had a sensitivity of 0.112 (0.037 to 0.292) and a specificity of 0.990 (0.928 to 0.999); The false positive rate was 0.010 (0.001 to 0.072)

Consequences

Conclusions: Gut instinct when used in general practice has a low sensitivity and high specificity. Future studies should try to meet the STARD criteria. Assuming a prevalence 30 per 1000 population for all cancers in England the PPV of 4% meets the NICE criteria of 3%for urgent action if present.

**Funding acknowledgement**

The Grant-in-Aid for Young Scientists(20K18847)

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## P1.10.5 Can artificial intelligence/machine learning (AI/ML) techniques aid the early detection of skin cancer in primary care settings?

Presenter: Owain Jones

Co-authors: K Prathivadi(2), CKI Ranmuthu(2), MS Islam(2), N Calanzani(1), M van der Schaar(3,4), J Emery(5,1), RN Matin(6), H Williams(7), FM Walter(1,8)

Institutions: Department of Public Health & Primary Care University of Cambridge, Department of Applied Mathematics and Theoretical Physics University of Cambridge, Centre for Cancer Research University of Melbourne, Department of Dermatology Churchill Hospital Oxford,

**Abstract**

Problem

Most people who are concerned about a skin lesion first present in primary care, where primary care clinicians need to distinguish rare melanomas and other skin cancers from common benign lesions. There has been a recent boom in the application of AI/ML techniques in medicine, including in diagnosis of skin cancer. There is some evidence that these technologies can match the diagnostic performance of experienced dermatologists. If AI/ML techniques could reproduce this level of performance in primary care settings they could aid GPs in the triage of suspicious skin lesions, potentially leading to earlier diagnosis, improved outcomes for patients, and reduced burden on overstretched secondary care services.

Approach

Our aim was to identify AI/ML technologies that could be used in primary care settings to aid detection of skin cancer. We performed a systematic review, extended through a scoping review of commercially available AI technologies. We searched Medline, Embase, SCOPUS, and Web of Science bibliographic databases from 01/01/2000 to 25/08/2020, looking for primary research of any study type, in any language, that provided evidence on the accuracy of AI/ML technologies in the assessment of skin cancer, their potential for implementation in primary care settings, and barriers to implementation.

Findings

10,456 studies were identified; 198 met inclusion criteria. Two thirds of studies used neural network methodology. The study populations varied: while none used primary care patients or images alone, 196 studies used secondary care data, and 2 used a mixture of primary and secondary care data. Half the studies included images from the International Skin Imaging Collaboration image database, in publications from 2016 onwards. Database size ranged from 100 to 131,873 images. Only 6 studies performed validation of their AI/ML technique in an independent dataset, and only 2 studies were prospective. We found no data on implementation barriers or cost-effectiveness. Risk-of-bias assessment highlighted a wide range in study quality. Marked heterogeneity between study design and outcomes measures made meta-analysis unfeasible.

Consequences

AI/ML techniques applied to the triage of skin lesions have great potential to support the early detection of skin cancer in primary care, potentially leading to improved outcomes for patients, improved survival, and reduced burden on secondary care services. However, there is a notable absence of primary care data in the development and validation of these technologies, meaning we are unable to comment on their accuracy and suitability for use in primary care settings at the current time. There is also a lack of evidence on cost-effectiveness, acceptability to patients and clinicians, and implementation barriers. Further research is required to build the

evidence base and ensure these technologies are safe and effective enough for implementation into clinical practice.

**Funding acknowledgement**

This research was commissioned and funded by the National Institute for Health Research (NIHR) Policy Research Programme, conducted through the Policy Research Unit in Cancer Awareness, Screening and Early Diagnosis, PR-PRU-1217-21601. The views expressed

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## P1.10.6 What are the priorities for implementation in the early detection and diagnosis of cancer?

Presenter: Thomas Willis

Co-authors: Richard Neal, Robbie Foy

Institutions: Leeds Institute of Health Sciences, University of Leeds

**Abstract**

Problem

There is well-documented variation in the diagnosis and detection of cancer in the United Kingdom. A proportion of this can be considered 'unwarranted variation' insofar as it cannot be solely attributed to differences in patients or resources. There are recognised gaps in the implementation of clinical guidelines, in referral rates and the use of investigations, although the extent and impacts of unwarranted variations are not fully known. Implementation research is the scientific study of methods to promote the translation of research evidence into routine practice, and thereby improve care quality and patient outcomes. We aimed to identify and prioritise opportunities for implementing evidence-based practice in the early detection and diagnosis of cancer within primary care.

Approach

We conducted a consensus exercise to identify and then prioritise implementation opportunities. In Stage 1, we generated a list of potential implementation priorities by approaching stakeholders and experts for their suggestions. Participants responded by email, with opportunity for follow-up telephone discussion to clarify issues and rationale. The list was then discussed and filtered by the research team. In Stage 2, we established a consensus panel of primary care representatives to consider the list generated in Stage 1. Panel members rated the proposals against specific criteria and scores were discussed at a facilitated meeting. Participants were then invited to complete a second round of rating.

Findings

This remains work in progress, with initial list generation underway. The completed process will result in a ranked list of the leading candidate clinical policies and practices for implementation (i.e. introduced or increased) and de-implementation (i.e. ceased or reduced) to consider for further investigation and intervention development.

Consequences

Clinical research can only benefit patient and population health if findings are incorporated into routine care. We will highlight those priorities with most scope to improve earlier diagnosis and detection of cancer as targets for quality improvement and further implementation research.

**Funding acknowledgement**

This study was supported by the Policy Research Unit in cancer awareness, screening and early diagnosis, which is funded by the NIHR Policy Research Programme.

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# P1.11.1 PROSPECTIVE EVALUATION OF THE FAMCAT TOOL TO IDENTIFY FAMILIAL HYPERCHOLESTEROLAEMIA (FH) IN PRIMARY CARE

Presenter: Arushan Kirubakaran

Co-authors: Arushan Kirubakaran*1, Stevo Durbaba1, Mark Ashworth1, Nadeem Qureshi2 Mariam Molokhia*1,

Institutions: King's College London, University of Nottingham

**Abstract**

Problem

About one in 250 people (0.4%) has familial hypercholesterolaemia (FH), characterized by elevated plasma low-density lipoprotein cholesterol (LDL-C) and early onset cardiovascular disease. Mutations in any of three genes (LDLR, APOB and PCSK9) are known to cause autosomal dominant FH, however the majority are thought to have a polygenic trait, caused by common LDL-C-raising and other variants. FH is underdiagnosed- less than 10% of predicted in the UK is known. To help address this, the 2019 NHS long term plan, aims to improve FH detection through the NHS genomics programme. For FH adults, NICE suggests high dose lipid lowering therapy. Despite increased risks of early heart disease, many patients are unaware of their condition, and there are no national screening programmes in England. Previous studies have suggested screening in primary care is able to identify a large % of undiagnosed individuals.

Approach

Aim: To prospectively evaluate usability of the FAMCAT tool to identify FH in primary care. Methods: Design: Feasibility study in 5 Lambeth and Southwark practices, London. Intervention: Use of the validated FAMCAT tool, in GP electronic health records, to identify adults aged 18 years and over with a high probability of FH.

Findings

We identified 50/52,388 (0.1%) diagnosed FH individuals and 269/52,388 (0.5%) individuals ranked very high-risk FH (“high probability FH”) that were not previously diagnosed. Of those diagnosed with FH, only 30/50 (60%) were prescribed high/medium potency lipid lowering drugs. For high probability FH groups (n=2009): 19% were prescribed high/medium potency lipid lowering drugs, (70.7% received no lipid lowering medicines), lipid specialist referrals were <0.01% in the last 12 months, and relevant family history was missing for 84.5%. Around 52% of high probability FH individuals were aged below 50 years.

Consequences

We demonstrated a feasible diagnostic and ascertainment pilot in South London using the FAMCAT tool. We identified a large burden of undiagnosed, untreated and undertreated individuals at high risk of FH. We found >50% of high risk individuals were aged below 50 years, suggesting this group would benefit from targeted interventions to reduce avoidable cardiovascular disease and morbidity.

**Funding acknowledgement**

This work is  is supported by the National Institute for Health Research Biomedical Research Center at Guy’s and St Thomas’ National Health Service Foundation Trust and King’s College London.

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## P1.11.2 What is the incidence of orthostatic hypotension in UK primary care? An electronic health record database study

Presenter: Cini Bhanu

Co-authors: Professor Irene Petersen, Dr Mine Orlu, Dr Daniel Davis, Professor Kate Walters

Institutions: Research Dept of Primary Care & Population Health, UCL; UCL School of Pharmacy; UCL MRC Unit of Lifelong Health & Ageing

**Abstract**

Problem

Orthostatic hypotension (OH) is estimated to affect up to a third of community-dwelling older adults. OH and its resulting effect on reduced cerebral blood flow is linked to falls, fractures, ischaemic events, cognitive impairment and increased mortality. Older people with OH are 2.5 times more likely to have recurrent falls, compared to those without, costing the NHS > £2.3 billion. The potential benefits of routine screening for OH remains unclear and no studies have examined the incidence of symptomatic cases presenting to GP. This study aims to i) examine the incidence of OH over the last decade recorded in GP and ii) examine how trends in incidence of documented OH vary by age, sex and socio-demographic characteristics.

Approach

Longitudinal cohort study using the IQVIA medical research database – a primary care database of > 12 million patients. We included patients aged > 50 years, registered with a GP practice contributing data for at least 1 year between 2000 and 2018. Cases were identified as those with a new record of a Read code for OH. The recording of OH was estimated per 1,000 person years at risk (PYAR). A multivariable Poisson regression model was used to examine incidence by sex, age and social deprivation.

Findings

In total, 24,973 individuals (amongst 2,911,260 patients) had an electronic record indicating a new diagnosis of OH between 2008 and 2019. This was equivalent to 1.70 per 1,000 PYAR (95% CI 1.68-1.72). We found a higher incidence of OH with increasing age-band, with increasing social deprivation and in men compared to women. The incidence of OH increased at a greater rate by age-band amongst men, compared to women.

Consequences

The incidence of documented OH in GP between 2008-2018 was very low. There are no other studies examining incidence of OH in GP to make comparisons. However, a crude period prevalence of approximately 1% of coded cases amongst this dynamic cohort indicates this estimate is much lower than other studies which suggest community-dwelling prevalence to be closer to 20%. Low incidence in GP is likely due to a mixture of underreporting by patients where asymptomatic , under-detection and poor coding. Rising OH incidence with social deprivation is likely due to a greater prevalence of cardiovascular disease (CVD), multimorbidity and polypharmacy. Higher incidence of OH in men likely represents similarities in underlying pathology between OH and CVD. Further studies are needed to understand the significance of OH cases in GP and potential benefits of early identification.

**Funding acknowledgement**

Dunhill Medical Trust Research Training Fellowship

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## P1.11.3 Does low blood pressure predict future depression in older adults?

Presenter: Deniz Turkmen

Co-authors: Christopher E Clark, Gary Abel, Vicki Goodwin

Institutions: University of Exeter Medical School, Primary Care Research Group

**Abstract**

Problem

Between 10% and 20% of older adults experience depression. Currently there are mixed findings as to whether low blood pressure (BP) is a predictor of future depression. Heterogeneity amongst existing study findings, due in part to differences in analytical methods and treatment of potential confounding variables, makes it difficult to draw clear conclusions as to whether low BP is implicated in the development of depression in older adults. There is also uncertainty over the impact of postural hypotension (PH) on development of future depression. We aimed to examine whether low BP and/or PH is associated with subsequent depression in a representative cohort of older adults.

Approach

Prospective cohort analysis of participants in the CARE75+ study; a representative UK cohort of community-dwelling older adults, aged over 75, recruited from general practices in England. We studied participants free of depression and antidepressant use at recruitment. Primary outcomes were Geriatric Depression Scale (GDS) scores at 6 and 12 months. We examined linear regression models adjusted for recruitment GDS scores, for associations between BP, PH and depression (defined as a GDS score ≥5 at 6 or 12 months). Analyses were adjusted for body mass index, tobacco and alcohol consumption, cognitive function, health-related quality of life, loneliness, living alone, frailty, ethnicity, highest attained educational level, and finally, also for antihypertensive use.

Findings

We studied 493 participants: 47.9% female; age range 76 to 100 years. After 6 months, participants with low systolic BP (<110 mmHg: 4.5% of cohort) had higher mean GDS scores than those with normal BP (systolic 110 to 130 mmHg; 23.7%): difference 0.856 (95% CI: 0.091 to 1.062; P=0.028). For diastolic BP GDS scores for low BP (<70 mmHg: 32.5%) were higher than with normal diastolic BP (70 to 80 mmHg: 38.5%): mean difference 0.419 (95% CI: 0.067 to 0.772; P=0.020). For each 20mmHg increment in systolic BP the GDS score was 0.089 points lower (95% CI: -0.241 to 0.061; P=0.244). After 12 months, there was no longer evidence that BP categories were associated with depression. Exploration of adjusted models taking account of demographic factors and antihypertensive drug use did not influence the findings. PH was present in 18.8% participants but was not a significant predictor of depression.

Consequences

We found evidence that low BP is associated with higher GDS scores after 6, but not 12, months. The magnitude of differences is too small to represent clinically meaningful differences. Few participants had low systolic BP however, substantial prevalences of low diastolic BP and of PH were noted in this population, emphasising the importance of regular medication review and assessment in older age

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## P1.11.4 Diagnosis of peripheral arterial disease in primary care: a survey of general practitioners in England & Ireland

Presenter: Judit Konya

Co-authors: STJ McDonagh1, P Hayes3, G Abel1, K Boddy1, CE Clark1

Institutions: 1 University of Exeter Medical School, 2 HEE Kernow Health CIC Training Hub, 3 University of Limerick School of Medicine

**Abstract**

Problem Lower extremity peripheral arterial disease (PAD) represents substantial economic and health care burdens. PAD is poorly understood by patients, and is under-diagnosed, partly due to the variability of symptoms presented. The EuroPAD expert advisory group, convened to raise awareness of PAD, have developed a survey to investigate current general practitioners' (GPs) approaches to detecting and monitoring PAD throughout Europe. Here we report findings using the English language version from England and the Republic of Ireland (ROI). Approach The online survey was distributed between January 2020 and January 2021. We approached GPs by email via Clinical Research Networks, Faculty newsletters for the Royal College of General Practitioners and the RCGP Rural Forum Google Group. We surveyed GPs in England and ROI regarding their approaches to diagnosis and management of people with PAD. Preliminary baseline data are included in this abstract and full analyses and results will be presented at the conference.

Findings

111 surveys were completed (68, England; 43, ROI); GP mean age 45.7 (SD 9.5) years, 78% from urban or semi-rural practices. 77% of GPs reported only palpating lower limb pulses in the presence of symptoms suggesting PAD, and only 20% specifically in patients with cardiovascular risk factors who present with rest pain or claudication. Whilst no differences in clinical approaches between England and ROI were noted, only 25% of English GP practices do not measure ankle-brachial index compared to 55% in ROI ($p<0.05$). After revascularisation for PAD, 14% of GPs do not regularly follow their patients up. Those who do are more likely to re-refer to vascular specialists when required in England (56%) compared to ROI (29%); $p<0.02$).

Consequences

Our findings seem to confirm poor awareness of PAD in English and Irish primary care settings, and offer insight into areas of diagnosis and management amenable to intervention. Our results will be merged with other national surveys led by the EuroPAD investigators and contribute to a Europe-wide report that will guide future policy.

**Funding acknowledgement**

Our survey study has been supported by the Practitioner's Allowance Grant from the Royal College of General Practitioners Scientific Foundation Board.

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## P1.11.5 Stroke recovery - what are people talking about on Twitter?

Presenter: Katie Gallacher

Co-authors: Daniel Petrie, Diane Pennington, Terry Quinn

Institutions: Institute of Health and Wellbeing - University of Glasgow, Institute of Cardiovascular and Medical Sciences - University of Glasgow, Department of Computer and Information Sciences - University of Strathclyde

**Abstract**

Problem

Stroke survivors and their carers have benefited from advances in treatments and improved support with recovery because of an expanding evidence base, yet certain areas of stroke care require further attention from researchers and funding bodies. A Stroke Priority Setting Partnership is currently being conducted in the UK by The Stroke Association using a process developed by The James Lind Alliance that involves surveys and workshops with stroke survivors, stroke carers and health professionals. Another valuable source of information about issues that are important to stroke survivors and their carers is Twitter, one of the largest social media platforms globally.

Approach

We aimed to ascertain common topics of discussion in relation to stroke recovery on Twitter amongst stroke survivors, their carers, and the general public. An electronic search of the social media website was performed to analyse the content of two major stroke discussion tags: #strokesurvivor and #strokerecovery. Tweets made by stroke survivors and their carers or other interested members of the public were included and those made by health professionals or organisations (e.g. charities or health care providers) were excluded. All tweets were fully anonymised and edited where necessary to omit any identifying information. The remaining content of each tweet was analysed thematically, with tweets being coded by their content and sentiment to identify trends in discussion. Tweets were collected using an open-source extension for the internet browser Chrome and analysed using the qualitative research software NVIVO. Tweets spanning 5 weeks over the course of January to February 2021 were analysed.

Findings

Common themes uncovered included: the burden of stroke treatments; financial burden after a stroke; difficulties in returning to employment; managing risk of stroke recurrence; accessing resources about stroke recovery; accessing covid-19 vaccination; monitoring of stroke recovery progress, fundraising and generating awareness. A large portion of the dataset included tweets in which external links and media were shared. Stroke survivors commonly shared personal recovery stories and motivational statements including functional improvements and milestones. A large portion of the data set was made up by the sharing of resources among stroke survivors, ranging from links to educational materials to rehabilitation services and motivational content.

Consequences

Our findings can inform researchers and the organisations that fund stroke research about the topics commonly discussed by stroke survivors, their carers and the general public in relation to stroke recovery on social media. This can aid the prioritisation of research topics that require funding.

**Funding acknowledgement**

The Stroke Association TSA LECT 2017_01

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## P1.11.6 Long term risk of cardiovascular disease in patients presenting to primary care with undiagnosed chest pain: an electronic health records study

Presenter: Kelvin Jordan

Co-authors: Trishna Rathod-Mistry, James Bailey, Ying Chen, Lorna Clarson, Spiros Denaxas, Richard Hayward, Harry Hemingway, Mamas Mamas, Danielle van der Windt

Institutions: Keele University, University College London, Xi'an Jiaotong - Liverpool University

**Abstract**

Problem

2% of adults present in primary care with chest pain symptoms annually. Most will not receive a specific diagnosis ("unattributed" chest pain). The aim was to assess if there is an increased long term (10-year) risk of coronary heart disease and stroke in patients with new unattributed chest pain in primary care compared to those recorded with a non-coronary cause of chest pain, and determine whether investigations and interventions are targeted at those most at risk.

Approach

We used the CPRD Aurum database containing electronic health records from general practices in England linked to admitted patient hospitalisations from the Hospital Episode Statistics database. The study population was patients aged 18 and over with a new primary care record of chest pain with cause unattributed or non-coronary cause, between 2002 and 2018, and no record of cardiovascular disease up to six months (diagnostic window) afterwards. Outcomes were cardiovascular (coronary and stroke) events starting from end of the six-month diagnostic window. Flexible parametric survival analyses were used to compare risk of a cardiovascular event by type of chest pain, adjusted for covariates. Covariates included risk factors in the QRISK3 general population cardiovascular risk algorithm, alternative explanations for chest pain, and other comorbidities predictive of cardiovascular disease. Analyses were repeated for coronary, acute myocardial infarction, and stroke outcomes separately. We determined the prevalence of cardiac diagnostic investigations and lipid-lowering prescriptions during the six month diagnostic window in patients rated as elevated risk (≥10%) using the QRISK3 algorithm.

Findings

There were 375,240 patients with unattributed chest pain and 245,329 with non-coronary chest pain. Median follow-up was 6 years. 11% (193/10,000 person-years) of the unattributed chest pain group and 9% (144/10,000) of the non-coronary chest pain group had a cardiovascular outcome. There was an increased risk of cardiovascular events for patients with unattributed chest pain compared to non-coronary chest pain, highest in the first year after index date (hazard ratio 1.25; 95% CI 1.21, 1.29), but remaining after 10 years (1.09; 1.06, 1.13). Patterns were similar when restricted to coronary outcomes. Patients with unattributed chest pain had a consistently increased risk of myocardial infarction over time, but no increased risk of a stroke. 38% of patients with unattributed chest pain and at high risk received an investigation and 30% were prescribed lipid-lowering medication.

Consequences

Patients presenting to primary care with unattributed chest pain are at increased risk of cardiovascular events. Many do not receive an investigation or intervention, and primary prevention to reduce future cardiovascular events is sub-optimal, even in those at higher risk. This is particularly relevant given the high incidence of patients with unattributed chest pain in primary care.

**Funding acknowledgement**

Study funded by the British Heart Foundation, reference PG/19/46/34307. KJ also supported by matched funding awarded to the NIHR Applied Research Collaboration (West Midlands). This study is based in part on data from the Clinical Practice Research Datalink

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## P1.11.7 Determinants of cardiovascular disease in a multi-ethnic population in adult women aged 18 years and over in South London

Presenter: Sarah Yousif

Co-authors: Sarah Yousif*1, Stevo Durbaba1, Mark Ashworth1, Seeromanie Harding1, Mariam Molokhia*1,

Institutions: King's College London

**Abstract**

Problem

CVD (including coronary heart disease and stroke) is a leading cause of women's deaths worldwide. In the UK, there are ~3.7 million women living with CVD, and 81,000 deaths annually (~14,000 in women <75 years old) and the risks vary by ethnicity. The aim of this study was to examine the determinants of CVD among an ethnically diverse adult population of women in Lambeth.

Approach

Method: Patient data was collected from 40 practices contributing to Lambeth DataNet in adult women ≥18 years. CVD risk was the main outcome variable and was assessed across six ethnic groups. Confounders which included demographic factors, socio-economic indicators (income quintiles), lifestyle factors, co-morbidities, medications, and access to care variables were adjusted for in the models. Stata 16 was used to run sequential models of logistic regression which were adjusted for practice effects using multi-level modelling.

Findings

Models were stratified by age-group 40-69 and ≥70 years. The fully adjusted model for CVD in women aged 40-69 years showed the following associations: lipid lowering drugs OR 6.6 (p<0.001, 95% CI 5.6-7.7), CVD drugs OR 7.3 (p<0.001, 95% CI 5.3-10.1). The main risk factors for this age-group were smoking OR 1.5 (p<0.001, 95% CI 1.2-1.7), hypertension OR 1.4 (p<0.001), 95% CI 1.3-1.6), and age (years) OR 1.1 (p<0.001, 95% CI 1.0-1.1). Black African ethnicity OR 0.8 (p<0.001, 95% CI 0.7-1.0), diabetes OR 0.8 (p<0.001,95% CI 0.7-1.0) and serious mental illness OR 0.7 (p<0.05, 95% CI 0.5-1.0) were found to be significantly protective. In the fully adjusted model for women aged ≥70 years CVD risk was strongly associated with lipid lowering drugs OR 2.3 (p<0.001, 95% CI 2.0-2.6) and CVD drugs OR 7.2 (p<0.001, 95% CI 4.5-11.6). Hypertension OR 1.4 (p<0.001, 95% CI 1.2-1.6), diabetes OR 1.3 (p<0.001, 95% CI 1.2-1.5) and smoking OR 1.3 (p<0.001, 95% CI 1.1-1.6) were also strongly associated with CVD in this age group. Both Black African ethnicity OR 0.6 (p<0.001, 95%CI 0.5-0.8) and Black Caribbean ethnicity OR 0.8 (p<0.001, 95% CI 0.7-0.9) were found to be protective against CVD.

Consequences

The study suggests important determinants of CVD in ethnically diverse women included age, lifestyle factors such as BMI, smoking, hypertension and diabetes (where effects were divergent by age group). Black African, Black Caribbean ethnicity and serious mental illness showed protective associations with CVD after adjusting for other determinants of CVD including deprivation measures.

**Funding acknowledgement**

This work was supported by the National Institute for Health Research Biomedical

Research Center at Guy's and St Thomas' National Health Service Foundation Trust and King's College London.

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## P1.11.8 What are the effects of the comorbidity of chronic pain, cardiometabolic disease and depression on health outcomes? A UK Biobank cohort study

Presenter: Simin Wu

Co-authors: Frances Mair, Sara Macdonald, Philip McLoone, Barbara Nicholl

Institutions: General Practice and Primary Care, Institute of Health and Wellbeing, University of Glasgow

**Abstract**

Problem

Chronic pain commonly co-occurs with cardiometabolic disease and depression. There is a lack of evidence regarding the implications of this combination of comorbidity. This study aimed to examine the prevalence of the comorbidity in the UK Biobank, and to examine the effect of the comorbidity on health outcomes (all-cause mortality) and Major Adverse Cardiovascular Events (MACE).

Approach

We identified people with the comorbidity of chronic pain, cardiometabolic disease (diabetes, hypertension, coronary heart disease, stroke/Transient Ischaemic Attack, atrial fibrillation, peripheral vascular disease, heart failure) and depression from the UK Biobank. Clinical outcomes were identified from linkage to national mortality registers and hospital episode statistics over a median follow-up time of approximately 11 years. Outcomes examined in the study included all-cause mortality and MACE. Cox-proportional hazards models were used to assess the association between the comorbidity (chronic pain, cardiometabolic disease and depression) and each outcome compared to participants in the cohort with no long term conditions (LTCs). The survival analysis was adjusted for demographic and lifestyle factors: age, gender, deprivation, ethnicity, smoking status, alcohol intake frequency, physical activities and BMI.

Findings

Among 500,313 eligible participants, 8,640 (1.73%) participants had the comorbidity which was associated with female gender, more deprivation, smoking, less physical activities and higher BMI. Participants aged between 55-59 years were at the most risk of having the comorbidity. People with this combination of comorbidity had 2.08 (95% CI: 1.82 – 2.39) times the risk of all-cause mortality compared to participants with no LTCs, after adjusting for confounders. Participants with the comorbidity also had 2.17 (95% CI: 1.84 – 2.57) times risk of MACE from the comorbidity compared to participants with no LTCs, after adjusting for confounders.

Consequences

The comorbidity of cardiometabolic disease, depression and chronic pain was common in this cohort, particularly women and more socioeconomically deprived. The combination of conditions was associated with increased risk of adverse health outcomes. Greater attention should be focused on the implications for management of people with this pattern of comorbidity.

**Funding acknowledgement**

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## P1.12.1 Health care professionals' beliefs and practices regarding food allergy testing for children with eczema

Presenter: Anna Gilbertson

Co-authors: Dr R J Boyle, Dr S MacNeill, Dr M J Ridd

Institutions: Population Health Sciences, University of Bristol, Bristol UK, National Heart and Lung Institute, Imperial College London, London UK

**Abstract**

Problem

Atopic eczema/dermatitis ("eczema") affects ~20% of children and symptoms can be difficult to manage. Parents often request food allergy tests or exclude foods from their child's diets to manage symptoms. The value of routine food allergy testing of children with eczema is uncertain. Current guidance advises only to suspect food allergy if the child has IgE mediated symptoms or the eczema is difficult to treat. Children may be managed by health care professionals (HCPs) across specialties but data on HCPs' beliefs and practices regarding food allergy testing in children with eczema is limited. We sought to investigate HCPs' beliefs and practices regarding blood specific IgE or skin prick food allergy tests for children with eczema.

Approach

A short survey was compiled with fixed, multiple-choice style questions and one optional free text question at the end, which invited respondents to explain their responses. HCPs in the UK who diagnose and treat children with eczema were invited, via professional networks and social media, to participate anonymously via a GDPR compliant survey host (www.onlinesurveys.ac.uk). The survey was open for four weeks.

Findings

129 eligible HCPs responded to the survey from four specialties: 50% (65/129) General Practice (GP), 17% (22/129) Allergy, 9% (12/129) Dermatology and 23% (30/129) Paediatrics. Beliefs about when to request food allergy tests varied by scenario and speciality, with HCPs in Allergy and Paediatrics more likely to request tests than HCPs in GP or Dermatology. For a child with no clinical history of an allergic reaction, more GPs (56/65, 86%) would never undertake food allergy tests, compared to dermatologists (7/12, 58%), paediatricians (16/30, 53%) and allergists (5/22, 23%). For a child with eczema and an immediate reaction to food, more HCPs in Allergy (20/22, 91%) and Paediatrics (22/30, 73%) always requested, compared to GP (16/65, 25%) and Dermatology (3/12, 25%). For a child with very severe eczema but no history of clinical reaction to food, more HCPs in Allergy (8/22, 36%) and Paediatrics (9/30, 30%) would request an allergy test, compared to GP (6/65, 9%) or Dermatology (0/12, 0%). However, there was more agreement with respect to testing children with clear skin (82% of allergists to 100% GPs "never" testing) and parent requests influencing testing decisions.

Consequences

The disparities are likely to cause increased costs to the NHS, with potential long-term consequences for children in terms of nutrition, loss of tolerance and/or risk of IgE-mediated reactions. Future research should focus on strengthening evidence on the role of food allergy tests and dietary exclusions in children with eczema and exploring how evidence-based guidance can be effectively disseminated amongst HCPs.

**Funding acknowledgement**

AG was funded by a Research Capability Funding award (reference 19/20-104)

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## P1.12.2 Which interventions work to improve sleep duration in children? A Systematic Review of the literature.

Presenter: Lucia Magee

Co-authors: U. Chaudhry, C.M. Nightingale, A. Donin, E. Stovold, A.R. Rudnicka, C. G. Owen

Institutions: St George's University London

**Abstract**

Problem

Adequate sleep duration in childhood has important implications for social, mental, and physical health. With declining sleep durations in children, effective approaches to increase time asleep are needed. However, strategies to encourage sleep have been inconclusive. A limited number of trials appear to suggest that multi-behavioural interventions that promote bed-time routines might work. However, the effectiveness of such interventions has not been adequately quantified. Moreover, specific themes and strategies which increase sleep duration, and by how much, have not been formally quantified.

Approach

We have carried out a systematic review and meta-analysis to understand and quantify the effectiveness of sleep interventions to improve sleep duration and quality in children within community settings (PROSPERO ID CRD42019160089). We screened 11621 randomised control trials (RCT), after carrying out a search using combined text words and MeSH criteria in CENTRAL, MEDLINE, EMBASE, PSYCHINFO, Web of science, clinicaltrials.gov, and WHO trials databases. Studies involving infants under 1 year, trials using medications, and targeting children with behavioural / sleep problems were excluded. Full text screening of 341 studies identified 46 studies for data extraction. All screening was carried out independently by two reviewers using a web-based platform for systematic reviews (Covidence).

Findings

The selected studies were carried out nearly proportionally across the age ranges: 20% in >1 to 5 years age group, 26% >5 to 10 years, 30% >10 to 15 years, 24% >15 years. The mode of delivery of the majority of interventions was face to face (70%). The intervention setting was most commonly school based in just over half of the studies (52%), with 19% based in the home environment. Intervention duration was less than one month in most studies (48% of studies), with a third (33%) of studies having a duration between one to six months; the maximum duration was 3 years in one study. There was significant heterogeneity in reporting of sleep duration, with different analytic methods being employed. A summary of the findings from these studies on the impact of the intervention on sleep duration (including an overview of the behavioural strategies employed and effectiveness) will be outlined.

Consequences

This review will enhance our understanding of interventions to improve sleep duration in children and provide a platform from which to explore population level health interventions to improve sleep. Given challenges assimilating data, an overarching aim is to develop approaches that could be used to homogenise reporting in future RCTs in order that evidence can be summarised more easily.

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## P1.12.3 The Geographic Inequities of Child Nutrition Service Readiness in Nepal's Primary Care System: A Cross-Sectional Analysis

Presenter: Lucy McCann

Co-authors: ilary Davies-Kershaw, Subash Yogi, Ramesh Prasad Adhikari, Kenda Cunningham

Institutions: London School of Hygiene and Tropical Medicine, Helen Keller International

**Abstract**

Problem

Despite progress, undernutrition remains responsible for 45% of deaths in children under five years, with substantial variation depending on geographical and socioeconomic factors. Universal coverage of quality growth monitoring and promotion (GMP) services for children under 24-months is essential to effectively and sustainably address this global health challenge. Nutrition interventions during this critical period contribute to preventing short- and long-term morbidity and mortality, reducing poverty, and stimulating national economic growth. However, evidence suggests that appropriate primary care infrastructure readiness - a prerequisite to the provision of quality nutrition services - is lacking. This research aims to assess potential geographical factors associated with primary care facilities' readiness to provide GMP services in Nepal to support the development of evidence-informed strategies to reduce inequalities in service provision.

Approach

Cross-sectional health facility assessment data, collected in 2017 by Suaahara II, a USAID-funded multisectoral program, across all primary care facilities in 41 of Nepal's 77 districts was analyzed. Infrastructure readiness was assessed in terms of the availability of basic amenities, anthropometry equipment, and nutrition supplements required for the provision of GMP services to children under 24-months. Basic amenities score was the primary outcome variable. Multivariate logistic and linear regression analyses were used to identify geographic predictors for infrastructure availability, with random effects to control for clustering by district.

Findings

All 1,895 primary care facilities were included. Primary care facilities in Provinces 3 and 7 had increased equipment scores compared to Province 1 (β:0.80; 95% CI:0.29-1.31; p=0.002 and β:0.59; 95% CI:0.12-1.05; p=0.013, respectively), yet there was no evidence of an association between province and basic amenities score. Primary care facilities in the lowland plains, versus those in the hills, had an increased basic amenities score (β:0.52; 95% CI:0.29- 0.76; p<0.001) and equipment score (β:0.47; 95% CI:0.12-0.82; p=0.009). Urban primary care facilities also had a higher basic amenities score than rural centers (β:0.16; 95% CI:0.06-0.27; p=0.002). The availability of each micronutrient supplement was above 95%. Individual models of availability of power and of a consultation room had a significant interaction between ecological region and province (likelihood ratio test p-value<0.05).

Consequences

Overall, this study found primary care facilities had sub-optimal infrastructure readiness to provide GMP services to children under 24-months, with rural, mountain, and hill areas significantly less prepared than urban and lowland areas. Federal and local governments must acknowledge these discrepancies to effectively prioritize where to make future investments into primary care services. Such improvements will optimize the quality and minimize the inequities of services provided. Further research is needed to determine if these inequities apply to other countries.

## P1.12.4 UK primary care practitioners' views, understanding and current practice regarding the management of chronic insomnia in young children.

Presenter: Samantha Hornsey

Co-authors: Dr Catherine Hill, Dr Ingrid Muller, Dr Beth Stuart, Professor Hazel Everitt

Institutions: University of Southampton (for all authors), University Hospital Southampton NHS Foundation Trust (for Dr Catherine Hill)

**Abstract**

Problem

Paediatric behavioural insomnia, categorised within chronic insomnia (CI), is common and impacts child health and development. Behavioural interventions have been shown to be effective and primary care has potential for addressing CI early. However, a review of paediatric sleep problems in primary care (Honaker and Meltzer, 2016) suggested professional training may be lacking and a systematic review specific to management of CI (pending publication), revealed limited research evidence. This study aims to explore primary care professionals' (PCPs) views, understanding, knowledge of paediatric CI (including professional training), current practice regarding management, unmet needs, and whether there are any types of support tool that PCPs would like for management.

Approach

A mixed-methods study (surveys and qualitative interviews) exploring PCPs views, current practice, understanding and training regarding insomnia in children age < 5 years. Participants: UK-practicing PCPs (including community PCPs) such as GPs, health visitors, practice nurses. The survey was advertised via (1) ten local clinical research networks to GP practice staff, (2) an NHS Trust health visitor manager and (3) the community. Survey participants could express interest in a qualitative interview. The survey used closed or Likert scale questions and open questions. Descriptive statistics, group differences and predictors will be explored with statistical analyses. Qualitative interviews used a semi-structured topic guide with open-ended questions to gather more in-depth data, transcribed verbatim are being analysed in NVivo using inductive thematic analysis.

Findings

Data collection is near completion, with 259 survey participants currently (mostly GP practice staff, n=249). Preliminary analyses indicate most participants 'agreed' or 'strongly agreed' that CI affects the children and their families and that it is important to advise about/manage CI in primary care. 162 'strongly agreed' (and 104 'agreed') it is important to manage/advise about CI using behavioural interventions. Participants indicated their likelihood of making different recommendations. For example, the highest proportion of respondents indicated 'never' for the 'cry it out' technique and positive bedtime routines 'every time'. Likelihood of some other types of recommendations were varied. PCPs confidence levels varied. 218 reported they did not receive formal teaching specific to CI when training to become a health professional. 210 would like to access further sleep teaching opportunities about paediatric CI. 20 interviews have been conducted and are undergoing analysis. Findings will be presented at the conference.

Consequences

Final analysis will highlight PCPs' views/beliefs, understanding / professional training, and current practice. This will highlight areas for improvement and direct future research. Preliminary analysis suggests it may be useful to develop suitable training materials or resources for PCPs, or to develop suitable resources that PCPs can signpost

families to (that discuss various management strategies).

**Funding acknowledgement**

This study/project is funded by the National Institute for Health Research (NIHR) School for Primary Care Research. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

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## P1.13.1 Can primary care-based link workers providing social prescribing improve health outcomes for people with multimorbidity in socially deprived areas? A randomised controlled trial.

Presenter: Bridget Kiely

Co-authors: Emer Galvin, Sonali Loomba, Fiona Boland, Vivienne Byers, Barbara Clyne, Patrick O'Donnell, Deirdre Connolly, Eamon O'Shea, Susan M Smith for the LinkMM study team

Institutions: Royal College of Surgeons Ireland, Trinity College Dublin, University of Limerick, National University of Ireland, Galway

**Abstract**

Problem

The model of link workers providing social prescribing has been piloted in areas of deprivation, but there remains insufficient evidence to support cost-effectiveness. Multimorbidity is increasing in prevalence and affects those in areas of deprivation at an earlier age, but there are limited evidence-based interventions to improve outcomes. This paper presents the methods and results of a randomised controlled trial that investigated the impact of link workers based in general practices in deprived areas in improving health outcomes for people with multimorbidity.

Approach

Community dwelling adults with multimorbidity (≥two chronic conditions) identified as suitable for referral to the link worker were invited by their GP to participate. Intervention group participants were referred to the link worker and the 'wait list' control received usual GP care. The link workers were based in GP practices, met with participants over a one-month period, helped them identify a personalised set of goals and supported them to access community and online resources. The control group met the link worker once after completing follow up data collection and received a list of personalised resources. The link workers also mapped local community resources and reported back to the referring GP. Primary outcomes were health related quality of life (EQ5D-5L) and mental health (HADS). Data were collected at baseline pre-randomisation and on intervention completion at 1 month using self-completed questionnaires. The link workers recorded details of all meetings including goals set, type of support provided and resources recommended. There are ongoing parallel process and economic analyses.

Findings

240 patients were recruited in 12 GP practices in urban deprived areas of Limerick, Cork, Waterford and Dublin. The trial did not recruit to target as recruitment was particularly challenging potentially due to low health literacy and the ongoing COVID-19 pandemic. The majority of participants were aged less than 65 (59%), female (63%) and were eligible for a GMS card (entitles holders to free primary care based on means testing) (85%). 10 link workers, with a variety of backgrounds in psychology and social care, were recruited and trained. The intervention was adapted to address pandemic public health guidance, with a focus on addressing digital poverty, connecting participants with online supports and coping with the restrictions. 113 of 123

intervention participants met the link worker at least once, with a median of 3 follow up contacts and a median of 3 community resources were recommended. 35% reported achieving their primary goal at one month.

Consequences

The results of the LinkMM trial suggest that the intervention is feasible with the majority of patients engaging with the link workers and identifying community supports. RCT data analysis is ongoing and will be available for presentation.

**Funding acknowledgement**

Health Research Board Ireland Health Service Executive "Slaintecare Integration Fund"

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## P1.13.2 Overcoming patient resistance to using a free e-cigarette to support smoking reduction in a primary care trial

Presenter: Charlote Albury

Co-authors: Charlotte Albury, Rebecca Barnes, Anne Ferrey, Paul Aveyard, Rachna Begh

Institutions: University of Oxford

**Abstract**

Problem

Almost everyone with a serious smoking-related disease tries to stop smoking on diagnosis, but relapse is common, and many are unable or unwilling to quit. Many people with chronic disease receive repeated advice to quit smoking but harm reduction may offer a more appropriate alternative. Harm reduction reduces exposure to the harmful constituents in tobacco smoke by providing nicotine though less harmful sources. E-cigarettes have now become the most popular non-tobacco system of obtaining nicotine, with 42% of smokers using this method to support quit attempts. The MaSC trial investigated whether clinicians could deliver advice about e-cigarettes and offer support to smokers with chronic disease who had declined standard stop smoking support. Primary care clinicians gave brief advice about e-cigarettes, offered a free starter kit to their eligible patients, and discussed switching a few cigarettes for an e-cigarette. In this study we used recordings from the trial, aiming to identify how clinicians responded to patients who were resistant to the offer of an e-cigarette and the communication strategies used to attempt to overcome that resistance.

Approach

We used conversation analytic methods to analyse 164 audio-recordings from the MaSC trial. We focussed on cases where patients were initially resistant to using an e-cigarette, but subsequently accepted the offer. We aimed to identify any common persuasive strategies and resources clinicians drew on to reach acceptance including grammar, action, sequence, and prosody. We then compared the interactional features of these 'turnaround' cases with cases where turnarounds were not forthcoming, and considered the differences.

Findings

Of 164 patients, 29 initially displayed negative views of e-cigarettes, and were subsequently persuaded to accept. Clinicians achieved these 'turnarounds' by eliciting the patient's perspective on e-cigarette acceptability, prior to making a direct offer. This sequence trajectory allowed patients to display resistance to using e-cigarettes in general, without explicitly rejecting the clinician's offer. Clinicians then countered the basis for resistance (e.g. potential for harm), through a series of incremental steps, providing information tailored to the patient's concerns. When the offer of a free e-cigarette was subsequently made, patients would usually accept, as their prior concerns had been allayed. Some clinicians did not do this and were met with further resistance.

Consequences

Obtaining patient's perspectives on the acceptability of e-cigarettes prior to making a direct offer was instrumental in allowing bases for resistance to be elicited and addressed, and subsequent offers to be accepted. Prior to recommending e-cigarettes clinicians should first assess patients' perspectives and address concerns that may prevent uptake. This work adds to a growing body of evidence that a more cautious approach, eliciting a patient's perspective before offering something that has the potential to be received negatively is useful in supporting informed uptake.

**Funding acknowledgement**

The study is funded by a National Institute for Health Research (NIHR) Postdoctoral Fellowship awarded to RB (PDF-2016-09-043) and an NIHR School for Primary Care Research project grant (project reference 333). The views expressed in this publication are the authors'.

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## P1.13.3 Factors Affecting Recruitment to Trial in General Practice: A Systematic Review

Presenter: Keith Moffat

Co-authors: Wen Shi, Paul Cannon, Frank Sullivan

Institutions: School of Medicine, Medical & Biological Sciences, Population and Behavioural Science Division, North Haugh, St Andrews, United Kingdom; Veterinary & Life Sciences, Information Services, University of Glasgow Library, Hillhead Street, Glasgow, G12 8QE

**Abstract**

Problem

The aim of this systematic review is to identify factors associated with recruitment of individuals and practices to RCTs in general practice. While this will be of more general interest, we will use the findings from this to inform the development of a predictive model of recruitment to RCTs in general practice.

Approach

The protocol has been registered with PROSPERO (registration number: CRD42018100695) and published in BMC Trials with the completed PRISMA-P checklist. Any primary study design that investigated recruitment to RCTs where the intervention was based in in general practice was included. MEDLINE, Embase, Cochrane Database of Systematic Reviews, OpenGrey, National Technical Reports Library. The journal BMC trials was hand searched. Titles and abstracts of studies found using the search strategy and from other sources were independently screened by two reviewers. The full text of those studies that potentially met the inclusion criteria were retrieved and independently assessed for eligibility by two reviewers. Two review authors (KM and WS) extracted data independently from included studies and conflicts were resolved through discussion. Two reviewers independently assessed study quality (KM and WS). A narrative synthesis of the included studies was performed.

Findings

Analysis of the included studies is not yet complete. We have completed tabulation of the summary characteristics for the included papers and will soon being collation of quality appraisal outcomes and then analysis of the included papers. We aim to have this completed by the time of the conference. Results of the search: The search resulted in 7297 papers. After Title and abstract screening, and full text screening 37 studies were included. Initial conclusions: 1. Studies investigating recruitment to trials in GP are generally of low quality. This reflects the fact that most recruitment studies arise out of difficulty in recruiting and are descriptive in

nature, rather than having been planned in advance of the RCT and rigorously designed.
2. There are many factors that have been investigated in relation to recruitment. We will analyse these in advance of the conference.

Consequences

1. Trialists should recognise trial recruitment as a ubiquituous threat. They should use existing evidence to inform the design of their trial, however since this is largely lacking, where feasible they should embed a rigorously designed recruitment study to improve the evidence base and more comprehensively inform future trials. The Studies Within A Trial (SWAT) approach is important here.

2. Researchers should carefully consider the need for further low-quality descriptive recruitment studies that do not add to the evidence base. Adequate resourcing of research teams by funders to study recruitment could ensure researchers use their time producing research of greater importance.

3. Implications of the specific factors affecting recruitment will be discussed once analysed.

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## P1.13.4 A systematic review investigating the use of microbiology outcome measures in randomised controlled trials evaluating antimicrobial stewardship interventions over the past 10 years

Presenter: Mandy Lau

Co-authors: David Gillespie, Rhian Daniel, Kerry Hood, Mandy Wootton, Kathryn Hughes

Institutions: Centre for Trials Research, Cardiff University

**Abstract**

Problem

AntiMicrobial Resistance (AMR) is one of the most serious global public health threats this century. Antimicrobial stewardship interventions (ASI) are a component of a multi-faceted approach to improve appropriate prescribing of antimicrobials, optimise clinical outcomes for the patient, reduce adverse effects and emergence of AMR. ASIs are also identified as one of the key actions of the World Health Organization Global Action Plan to contain AMR. ASIs have proved to be beneficial in numerous health care settings. However, several reviews show that many ASIs focus exclusively on process measures, with lack of evidence for clinical and microbiological impacts of these interventions. This is surprising given that reducing AMR is the ultimate goal of ASIs and AMR can only be measured if the microbiological data is collected.

Approach

A systematic methods review is being conducted to investigate the use of microbiology outcome measures in ASIs and to describe the analytic approaches used to report the microbiological outcome. A systematic review protocol has been written and published on the PROSPERO website. https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021226585

The search strategy included performing searches on electronic databases (PubMed & EMBASE) of published articles using both MeSH headings and key words between 1st February 2011 and 1st February 2021. Studies considered for inclusion were antimicrobial stewardship trials that involved human subjects at any age in both primary care and secondary care settings. Only randomised controlled trials (RCT) evaluating at least one antimicrobial stewardship intervention were included. Systematic reviews, meta-analyses, non-RCTs, case reports, protocols, non-English

language, studies concerning animals and non-humans; or focused mainly on human immunodeficiency virus were excluded.

Findings

Currently at data extraction stage. Information such as study title, year of publication, location of the study, study setting, sample size, whether microbiological outcome was collected, type of outcomes collected, number of participants with the outcome and included in the analysis, and analytical approach/es will be extracted from each included paper. Analysis will be finished at the end of April 2021. A summary of the findings will be presented at this conference.

Consequences

This will be the first systematic review evaluating the use of microbiological outcomes in RCTs of ASIs. Appraising if microbiological outcomes have been collected and how these data have been analysed is an important step towards understanding whether efficiencies in trial conduct can be gained by maximising the richness often contained within microbiological datasets. This work will pave the way for further investigations into more alternative analytical approaches which focuses on maximises the information gained from high-dimensional data such as these.

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## P1.13.5 increasing uptake and completion of pulmonary rehabilitation with lay health workers: protocol of a cluster randomised controlled trial

Presenter: Patrick T White

Co-authors: Gill Gilworth, Stephanie Taylor, Simon Lewin, Nicholas Hopkinson, Fiona Reid, Arietta Spinou, Julia Fox-Rushby, Emma Godfrey, Les Hamilton.

Institutions: Queen Mary University of London, Norwegian Institute of Public Health, South African Medical Research Council, Imperial College, London

**Abstract**

Problem

We are reporting the design of an NIHR funded trial scheduled to start in September 2021. Pulmonary rehabilitation (PR) is the most effective treatment for the symptoms and morbidity of COPD. Uptake and completion of PR is about 40% across the NHS and in other countries in Europe, North America, and Australasia. Causes of low uptake and completion are lack of perceived benefit by participants, travel difficulties, referrers' uncertainty of its effectiveness, inconvenient timing, current smoking and depression. Referrals by GPs are associated with the lowest rates of uptake and completion. No interventions have so far proved effective in increasing uptake and completion of PR. We have shown the feasibility, intervention fidelity and acceptability of an intervention based on a lay health worker (LHW) intervention in which the LHWs were patients with COPD who had undergone PR.

Approach

National cluster randomised controlled trial of the intervention in 38 NHS pulmonary rehabilitation services, 19 intervention sites

and 19 control sites. COPD patients who have completed PR will be recruited and trained as lay health workers in each PR centre by trained PR teams. The aim of training is to prepare LHWs to support newly referred patients in the take-up and completion of PR. Training will include face to face and telephone communication skills, boundary setting, confidentiality, and behaviour change techniques to address obstacles. All communication will be recorded by smart phone. Intervention fidelity will be assessed using recorded interactions. Primary outcome will be the rate of uptake and completion of PR. Secondary outcomes will include quality of life, exercise capacity and breathlessness. A detailed process evaluation and a health economic evaluation will be carried out.

Findings

The LHW intervention is a novel approach to address a significant problem in the impact of GP referrals to PR of people with COPD. LHWs may significantly contribute also to the achievement of lifestyle changes in the secondary prevention or the amelioration of the impact of other chronic illnesses.

Consequences

If the LHW intervention is effective it will lead to considerable improvement in the burden of COPD across the NHS. The trial includes an implementation plan which will avoid the need for a Stage IV trial of effectiveness. The LHW model could be considered in a range of chronic illnesses in which the take up of important life style changes has been inconsistent.

**Funding acknowledgement**

Funding for this trial has been provided by the NIHR Health Services and Delivery Research Programme. NIHR130999.

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## P1.13.6 Development of a primary care research network focused on chronic disease: is this feasible for both practices and networks?

Presenter: Raymond O'Connor

Co-authors: Andrew Murphy, Patrick Murphy, Mike O'Callaghan, Susan Smith, Liam Glynn, Claire Collins, Rory O'Driscoll.

Institutions: Discipline of General Practice, National University of Ireland Galway, Galway, Ireland.

**Abstract**

Problem

When researching true population health issues, pooled general practice (GP) data should be a key resource. The challenges faced by researchers working with primary care data are the lack of tools to explore a narrative record that contains no coded or structured data. Despite the advantages that computers offer with respect to note-keeping and prescribing, clinical coding of consultations remains an area that is far from universal in countries as diverse as, Australia and Ireland. The limitations of Irish general practice coding have impacted on the ability to conduct trials. The overall aim was to assess the feasibility and effectiveness of a program of training and feedback to improve the quality of coding for chronic conditions in general practice information systems. Specific objectives were to assess: 1. How feasible is it to deliver this programme and collect the data? 2. How reliable is the data generated by this activity?

Approach

Searches were developed for GP software. Gross prevalence of type 2 diabetes mellitus (T2DM), asthma, chronic obstructive pulmonary disease (COPD), ischaemic heart disease (IHD), heart failure (HF), atrial fibrillation (A/Fib), transient ischaemic attack

(TIA) and stroke was studied. Average monthly prevalence was compared with national and international estimates.

Findings

16 practices were recruited, with 65.5 full time equivalent GPs and 36,327 patients. Average prevalence of all conditions varied greatly, being lowest for T2DM and A/Fib (3.6 and 5.4 fold difference respectively) and highest for IHD and HF (34.0 and 20.0 fold respectively). The average reported prevalences were as follows: T2DM 6.8%; Asthma 9.2%; COPD 4.1%; HF 1.7%; IHD 3.3%; Stroke 2.2%; TIA 1.1%; A/Fib 4.3%. These rates were similar for December. Some showed large variation with estimated Irish figures (e.g. COPD 4.1 times estimated figure) and others were broadly similar (e.g. HF 1.1 times estimated figure). T2DM (6.8%) and IHD (3.3%) figures were broadly similar to English rates (6.3% and 3.2% respectively), while A/Fib (4.3%) and COPD (4.1%) were substantially different (1.7% and 1.8% respectively). Search accuracy was improved by automation.

Consequences

It is feasible to deliver training, collect monthly data and issue reports. There is considerable variation of known prevalence of the conditions studied, both between practices and with national and international rates. Coding accuracy should be confirmed by audit.

**Funding acknowledgement**

Health Research Board, Ireland.

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## P1.14.1 How do transgender people experience their relationships with their GPs?

Presenter: Me (Adam Shepherd)

Co-authors: Andy Guise, Benjamin Hanckel

Institutions: King's College London, Western Sydney University

**Abstract**

Problem

Transgender people, on average, have been found to experience greater health inequalities than lesbian, gay, and bisexual cisgender people. Experiencing discrimination in healthcare settings has been documented to contribute to trans people delaying or avoiding seeking healthcare in the future, amplifying these health inequalities. Primary care is often the first entry into the healthcare system, and as a result the relationships people have with their general practitioner (GP) can impact health outcomes. The Royal College of General Practitioners' position statement on transgender care in June 2019 highlighted key issues with current National Health Service (NHS) systems and pathways. However, there is a dearth of research into trans peoples' experiences of primary care, much less within the NHS setting. This study aimed to explore how transgender people experience their relationship with their GP and what factors contribute to this?

Approach

In this exploratory study eight semi-structured, in-depth interviews were completed face to face or over Skype. In-depth interviews are beneficial for understanding the contexts in which people live whilst their versatility enables participants to talk about what matters to them. A purposive sampling methodology was used to select participants registered with a GP in England, and a thematic analysis was carried out on verbatim transcripts.

Findings

Three main themes emerged. (1) All participants had one or more long term conditions, but none described the care they received from their GPs for these as a contributing factor to having a meaningful relationship with their GP. Half the participants felt their dissatisfaction with this care impeded their ability to build such a relationship. (2) Communication was central to how participants experienced their relationships with their GPs. It was a facilitator where GPs engaged personally with participants and provided space for participants to negotiate their needs and wants. Where there was a breakdown in communication due to GPs exercising their professional dominance over participants, this became an interpersonal barrier. (3) Participants faced structural barriers within the GP practice and wider NHS system which impacted on how they related to their GPs. A perceived lack of administrative staff training resulted in five participants viewing their GP practice as a whole more negatively, whilst the computer system's inability to communicate the anatomy of participants' bodies impeded care delivery.

Consequences

These results provide a new insight into an area where there is limited previous research available. The implications for GP practice are to relate to the significance of communication, and developing an awareness of the structural barriers transgender people have to overcome when seeing their GP. However, as an exploratory study, these implications are subject to further research. With further research, a deeper understanding of the underlying processes which impact the healthcare experiences of transgender people can help to promote better health outcomes.

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## P1.14.2 What is the potential for digital facilitation to support patient access to online primary care service? A scoping literature review

Presenter: Brandi Leach

Co-authors: Sarah Parkinson, Evangelos Gkousis, Jon Sussex, Gary Abel, Christopher Clark, Emma Cockcroft, Christine Marriott, Emma Pitchforth, John Campbell

Institutions: RAND Europe; University of Exeter Medical School

**Abstract**

Problem

Amidst efforts to get more primary care (PC) patients to use online services, evidence suggests slow and uneven uptake with medically underserved populations less likely to engage with online services. PC practices may be able to support the use of online services and address their potential contribution to inequalities through 'digital facilitation' (DF), or 'that range of processes, procedures, and personnel which seeks to support NHS patients in their uptake and use of online services.' However, the models and impact of DF currently in use are unclear.

Approach

We conducted a scoping review of the literature to understand the potential for DF to support patient use of online services. We searched academic databases (PubMed, Embase, CINAHL, Web of Science and the Cochrane Library) and grey literature (published 2015-2020). We conducted snowballing searches of reference lists of included articles and articles identified during screening as relevant to digital facilitation, but which did not meet inclusion criteria due to article type restrictions. Titles and abstracts were independently screened by two reviewers. Data from eligible studies were

analysed by four researchers using a narrative synthesis approach.

Findings

We screened 12,277 records plus the reference lists of 74 articles resulting in 89 included publications. We found that DF included approaches aimed at training PC staff to help patients (e.g. improving staff's knowledge of online services; enhancing their technical or communication skills), and those aimed directly at patients: promotion of services, training patients to improve their technical skills, or other guidance and support. Our review identified few rigorous evaluations of DF approaches. However, qualitative evidence suggests that some forms of DF may be effective at promoting uptake and use of online services (e.g. recommendation of online services by practice staff; coaching). We found little evidence that providing patients with initial assistance in registering for or accessing online services would lead to increased long-term use. Few studies addressed the effect of DF on healthcare inequalities. Those that did suggested that providing technical training for patients could be an effective approach for reducing inequalities, although no approach was shown to fully overcome intergroup disparities. We found no studies assessing the cost-effectiveness of DF. Factors affecting the success of DF include: perceptions of the usefulness of the online service, trust in the service, patients' trust in providers, capacity of primary care staff, guidelines or regulations supporting facilitation efforts, and staff buy-in and motivation.

Consequences

Evidence from our review suggests that digital facilitation has the potential to increase the uptake and use of online services by PC patients, but that to understand which approaches are most effective and cost-effective, for whom, and under what circumstances, further research that includes rigorous evaluations of the approaches identified by our scoping review are required.

**Funding acknowledgement**

NIHR HSDR (Project ref 128268; 18/183 HSDR)

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## P1.14.3 OPTEL – Older People and 'telephone access' to general practice

Presenter: Dr Carol Bryce

Co-authors: Associate Professor Helen Atherton (PI), Professor Jeremy Dale, Dr Jo Fleming, Dr Jo Parsons, Dr Jennie Newbould, Mrs Gillian Grason-Smith

Institutions: University of Warwick, RAND.

**Abstract**

Problem

A new system for accessing appointments, 'Telephone first,' has been introduced in general practice; promoted as a way of better managing demand for appointments. There are indications that older people may face additional challenges in expressing their needs over the telephone, or may require a carer to make their appointments. This may act as a barrier to accessing timely care and potentially have a negative impact on their health.

Approach

A qualitative study, using semi-structured interviews with patients and carers, and focus groups with general practice staff. We will recruit eight practices and will conduct interviews with six patients (or carers) from each, and a total of six focus groups. We will analyse data using thematic analysis by applying modified grounded theory.

Findings

To date, we have recruited eight practices and carried out 41 interviews and six focus groups;

recruiting a diverse range of patients and maximum variability across practices. We will describe findings, identify themes, and challenges of reaching diverse samples. We will describe how older people experience the use of 'telephone first,' and any challenges they may experience.

Consequences

We will outline ways of responding to the needs of older people and their carers in using a ‘telephone first’ approach.

**Funding acknowledgement**

This project has been funded by NIHR Research for Patient Benefit (RfPB) (reference: NIHR200778).

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## P1.14.4 Written action plans to support the self-management of eczema: findings from an international review

Presenter: Charan Singh Thandi

Co-authors: Charan Singh Thandi, Rosie Vincent, Matthew Ridd

Institutions: University of Bristol

**Abstract**

Problem

Eczema is a common inflammatory condition which can affect 15-30% of children and 2-10% of adults1. Eczema can have a significant impact2 and can also lead onto other conditions which include asthma and allergic rhinitis. The management of eczema can be challenging and it is important for patients, parents, and caregivers to know how to look after their skin. Adherence to treatment in eczema is poor and therefore it is important that there are adequate resources made available which can be used to self-manage eczema. One way to support this is to give them a written action plan (WAP), which contains information about steps that can be taken which can help self-management of eczema.

Approach

Our aim is to map the written eczema plans that are available which can be used by patients, parents, and caregivers. We searched relevant databases (MEDLINE, Embase, COCHRANE) from inception to the latest available date at the time of the search for publications in any language using English search terms. In addition to this an email was sent out requesting any further resources relevant to the review via the UKDCTN (UK Dermatology Clinical Trials Network), SAPC (Society for Academic Primary Care) and ISAD (International Society of Atopic Dermatitis). We followed preferred reporting items for systematic reviews and meta-analysis (PRISMA) guidelines. Our searches identified over 300 papers and these were independently reviewed by two different reviewers. We looked at a number of outcomes which included the length of the WAP, whether the WAP is visually appealing, how it was developed and whether it had been evaluated.

Findings

We found multiple written action plans, with many given by secondary care providers to help patients manage their condition at home. A significant number also contained information on how to get support and certain triggers that may lead to worsening eczema. However, only a small proportion of written action plans describe any theoretical underpinning which led to their design or evaluation of their acceptability or effectiveness. In addition only a few of the currently available WAPs contain a diary section for patients or caregivers to record their daily progress.

Consequences

While there are many eczema WAPs, it is apparent that there needs to be more research done which evaluates their perceived value and impact on treatment adherence and eczema control. WAPs need to be accessible and easy to use for both patients and caregivers and a standardised approach is likely to be helpful.

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## P1.14.5 Could automated translation improve communication of key medical information for low-level English fluency individuals in primary care?

Presenter: Khadija Meghrawi

Co-authors: Polly Duncan

Institutions: University of Bristol

**Abstract**

Problem

Refugee, asylum seeker, migrant and low-level English fluency patients face barriers to accessing primary healthcare services, often the first port of contact between these groups and the NHS. This can create significant difficulties, leading to excess morbidity and mortality, due to a delay in receiving the required standard and route of treatment. Many factors influence healthcare provision for these individuals, with a predominant issue being substantial language barriers without adequate interpretation service. Quality of primary care can be compromised by inadequate history taking and miscommunication decreasing time to safety net, creating a lack of trust and confidence between the patient and healthcare provider. Research shows that focusing on aiding information being recorded and communicated to healthcare providers could alleviate the communication barrier specifically. eConsult is a tool widely used in primary care to gain information ahead of the appointment. Evidence demonstrates an improvement in communication between healthcare professionals and patients when it is used, but this is currently unassessed in those of low-level English fluency. The purpose of the study is to gain insight into the experience of communication of medical information for low-level English fluency individuals (including those from a refugee, asylum seeker and migrant background) to healthcare professionals, and to assess whether automated translation could form an effective part of an intervention (such as eConsult) to facilitate the communication of information of medical information.

Approach

A mixed method design will be used to gather data from three groups: low- level English fluency individuals, support workers with experience with this group, and healthcare professionals with experience with this group. Part of the interview will be framed around taking participants through translated open and closed questions from the primary care “eConsult” service, then assessing their perceived efficacy of this. Co-researchers from these groups that would use the intervention will feed into the topic guide design and the research process, providing expertise by experience. Data will be analysed using a thematic analysis with a framework approach to determine the main themes.

Findings

These will be used to draft intervention plans to develop draft plans with the co-researchers for an intervention to aid this using a person-centred approach. Focus groups will then be held to gain feedback on the content, interface, and format of these plans.

Consequences

These insights will be used to develop a tool to improve communication of key medical

information between low-level English fluency individuals and primary healthcare professionals. This could be incorporated into the healthcare services available to aid communication, both preceding and during primary care appointments, potentially improving access and reducing health inequalities for this important group.

**Funding acknowledgement**

With thanks to Dr Sabi Redwood. Dr Tom Allport and Dr Michelle Farr for supervision.

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## P1.14.6 Arabic Online Health Information (OHI) use by the public in Saudi Arabia: A scoping review

Presenter: Saffanah Alturkistani

Co-authors: Dr. Fiona Hamilton, Dr. Henry Goodfellow, Prof. Fiona Stevenson

Institutions: Umm Al Qura University; Saudi Arabia, UCL; UK

**Abstract**

Problem

Despite the rise in the use of the internet among the public in Saudi Arabia, there is a lack of formal review of it, and if so how, the internet is used for information about health. We conducted a scoping review to explore what is known and inform future research in this area.

Approach

A search strategy was developed around three search concepts: Saudi Arabia, the Internet and health information. Eleven databases were searched (8 Global, 3 Arabic). Studies were screened and data extracted, Arabic data were translated into English. Results of the studies were mapped and analysed inductively.

Findings

A total of 84 studies were included in the review. Two different focuses were identified with some overlap: the internet as a source of knowledge about a health-related topic; and how online health information is used. Quantitative results showed that the internet was identified as a source of health knowledge for a median of 32.2% (IQR: 21.7;52.5) of participants. Younger, female, those with higher education and higher monthly income, as well as people living with chronic conditions were identified as more likely to use the internet. Consumers reported using the internet in Arabic approximately twice a month. Video and short messages regarding health information on social media platforms were preferred. . Healthcare providers' personal accounts or pages followed by governmental spaces were most used and trusted. Although most reported health information was useful, they tend to judge available Arabic online health information content as untrustworthy and unreliable.

Consequences

The findings indicate an appetite for more reliable and trustworthy online health information (OHI) content in Arabic. This indicates a need for more research in this area, specifically in-depth exploration of factors that affect consumers' trust and perception of reliability in order to provide insights into ways to provide Arabic OHI content. This will be the next study in my PhD.

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## P1.14.7 Health care experiences of adults with Chronic Obstructive Pulmonary Disease (COPD) across health care settings: a meta-ethnography

Presenter: Sanduni Madawala

Co-authors: Christian Osadnik, Narelle Warren, Karthika Kasiviswanathan, Chris Barton

Institutions: Monash University

**Abstract**

Problem

Chronic obstructive pulmonary disease (COPD) is a preventable, progressive respiratory illness and a major source of morbidity and mortality internationally and in the Australian community. Current studies that have explored lived experiences of COPD patients raise important concerns regarding experiences in health care settings and interactions with health care professionals; interactions that may not bring the support patients living with chronic respiratory illness had hoped. People who smoke often describe feelings of guilt and shame associated with their COPD and may consequently experience stigma and a poor experience of care that may affect health-related outcomes. Poor patient experience can interfere with the delivery of evidence based treatment and result in this group of patients being treated unequally, potentially exacerbating negative experiences or threat (anticipation) of stigma. The aim of this study is to systematically scope, identify and synthesise findings from peer-reviewed qualitative studies published in academic journals describing health care experiences of patients living with COPD across a variety of health care settings.

Approach

The methodology followed the seven steps for meta-ethnography described by Noblit and Hare (1988). These include identifying a refined research question, defining focus of synthesis and locating relevant studies, reading the studies, determining how the studies are related, translating studies into one another, synthesising translations and expressing the synthesis. We searched Ovid MEDLINE, PsychINFO, Ovid Emcare, CINAHL Plus and Sociological Abstracts for relevant articles. A search strategy for each database was developed in consultation with a university subject librarian. Peer-reviewed qualitative studies published in academic journals, drawing upon any interpretative methodology (eg. phenomenology, grounded theory) that described experiences of care of patients living with COPD were included. Studies identified from these searches were uploaded to COVIDENCE to support selection and appraisal of studies.

Findings

A total of n= 5870 papers were identified in our initial search after duplicates were removed. Following title and abstract screening, papers will be downloaded in full and appraised for quality. Data will be extracted from eligible studies using a data extraction form developed for this review. Sub-group analyses will be conducted across health care settings and by smoking status to explore these dimensions of COPD patient experiences of care.

Consequences

Qualitative syntheses such as the meta-ethnography, provides evidence for the lived experiences of disease conditions, including how patients experience a condition. Individual qualitative studies are invaluable for exploring and describing experience of care, however ‘synthesis’ of qualitative evidence from multiple studies provides the opportunity to identify and highlight important themes in the lived experiences of patients and the underlying reasons and context associated with these experiences.

## P1.14.8 Does a feedback intervention reduce potentially harmful gabapentinoid painkiller prescribing in general practice?

Presenter: Sarah Alderson

Co-authors: Luke Budworth, Thomas Willis, Stella Johnson, Kaiwen Wang, Sana Khan, Paul Carder

Institutions: University of Leeds, West Yorkshire Research and Development

**Abstract**

Problem

Many doctors and professional bodies are concerned about the rise in potentially harmful gabapentinoid prescribing, with primary care prescribing doubling between 2007-2017. There is little evidence for the effectiveness of these drugs in long-term chronic neuropathic pain and accumulating research indicating that harms, such as addiction, increased hospitalisations and mortality, outweigh the benefits. Audit and feedback is a frequently used, moderately effective, population-level quality improvement approach that aims to improve patient care by reviewing health care performance against explicit standards. We investigated whether an enhanced feedback intervention, comprising comparative and personalised practice feedback, embedded with evidence-based behaviour change techniques, reduced gabapentinoid prescribing in primary care.

Approach

We delivered a feedback intervention to all 310 practices within West Yorkshire, bimonthly from January-December 2018. 373 practices across the wider Yorkshire and Humber area form our control group. We compared gabapentinoid prescription rates in intervention and control practices for five pre-intervention, one intervention and two post-intervention years using publicly available prescribing data and a controlled interupted time-series analysis. We also assessed potential wider impacts on primary care prescribing for pain (opioid and non-steroidal anti-inflammatory drugs (NSAIDS)), whether practice or patient characteristics are associated with any intervention effects and the impact of reclassification of gabapentinoids as class C drugs introduced after the intervention (April 2019).

Findings

Intervention and control practices differed significantly pre-intervention in deprivation scores, percentage of patients employed, percentage of patients with long-term conditions and Quality Outcomes Framework achievement. Rates of gabapentinoid, opioid and NSAID prescribing were lower in the intervention group compared to the control group at all time points. There was no difference between rates of gabapentinoid prescribing between intervention and control group during or post- intervention (p=0.71). Full analysis to assess the impact of regulatory changes and associations between practice or patient characteristics is awaited.

Consequences

This feedback intervention did not change the underlying trend of gabapentinoid prescribing compared to control. We suggest five potential explanations: i) Prescriber awareness of upcoming changes in drug classification reducing intervention impact; ii) The intervention began six months after a similar intervention to reduce opioid prescribing, leading to competing priorities; iii) Relatively small numbers of patients taking gabapentinoid medications (compared to opioids) making it more challenging to reduce prescribing; iv) Publicly available data includes ‘noise’ (e.g. gabapentinoids prescribed for other indications); and v) Significant differences between intervention and control practices pre-intervention. Ideally, head-to-head comparisons of different ways of

delivering feedback within randomised designs to increase effectiveness of feedback interventions are needed. External contexts, competing demands and patient influences remain important challenges to quality improvement in prescribing. Addressing the rise of gabapentinoid prescribing is likely to require sustained, coordinated efforts across all levels of healthcare systems and target organisational, clinical and patient behaviours.

**Funding acknowledgement**

This work is funded by the NIHR Applied Research Collaborative Yorkshire and Humber Improvement Science theme

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## P1.15.01 Primary Care Evaluation of COVID-19 Infection Surveillance in Our Network (PRECISION Study)

Presenter: Abdullah Mukit

Co-authors: Polly Duncan, Sabrina Grant, Katrina Turner and Alastair Hay

Institutions: University of Bristol

**Abstract**

Problem

The COVID-19 pandemic has led to significant changes in how healthcare is delivered within UK General Practice, with a significant shift towards more remote (phone/video) consultations to reduce the risk of spreading COVID-19 infection. Clinicians must now weigh up the risk of seeing patients face-to-face and potentially spreading COVID-19 infection, against the risk of not seeing patients and missing important diagnoses. Access to locally-relevant real-time COVID-19 surveillance reports may help inform decisions, both at a practice and patient-level, about how care is delivered to patients. Practices in England have access to surveillance reports but these are limited by a non-standardised approach to coding, concern from academics of poor coding quality, and the need for practice staff to proactively generate the reports. The perceived usefulness of surveillance reports to primary care professions is an important evidence gap. This project aims to refine and develop weekly practice-level and CCG-level surveillance reports about COVID-19 and respiratory tract infections, and to explore clinician and practice manager views about their usefulness and potential impact.

Approach

Longitudinal semi-structured interviews with up to 20 clinicians and practice managers from 10 GP practices in the Bristol area. Three phases are planned: (i) development and refinement of reports in partnership OneCare (a GP-led organisation with access to CCG-level and practice level data) and clinicians/practice managers (complete), shared weekly with participating practices from March 2021; (ii) initial interviews (March/April 2021) and (iii) follow-up interviews to detect changes in perceptions over time (May/June 2021). Reports will include CCG-level and practice-level data about COVID-19 (e.g. confirmed cases, hospital admissions, deaths, proportion of patients vaccinated within vaccination categories) and trends in other respiratory tract infections. Interviews will be based on topic guides and grounded by referring to a surveillance report from the interviewee's practice. Data will be analysed using thematic analysis.

Findings

Reports are currently being refined and finalised for weekly distribution from March 2021. Initial interviews will take place in March and follow-up interviews in May/June 2021.

Consequences

This project will create strong evidence regarding the perceived value of real-time locally relevant COVID-19 surveillance reporting in the primary care community. If the reports are deemed useful, we will quickly provide the DH&SC, NHS England and CCGs nationally with a report showing: (i) how to set up a standardised coding system for COVID-19 infection; and (ii) how practices have used the information, themed with practical, implementable examples. The project will assess the likely value of reporting for future pandemics and seasonal infectious diseases.

**Funding acknowledgement**

UKRI QR Strategic Priorities Funding

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## P1.15.02 Nature of patient-reported safety concerns in the UK during the early phase of the COVID-19 pandemic: preliminary analysis of a cross-sectional survey

Presenter: Anna Torrens-Burton

Co-authors: Anna Torrens-Burton1, Andrew Carson-Stevens1, Joy Mcfadzean1, Tom Purchase1, Rhiannon Phillips2, Natalie Joseph-Williams1

Institutions: 1. Prime Centre Wales, School Of Medicine, Cardiff University, Cardiff, UK 2. Cardiff School Of Sport And Health Sciences, Cardiff Metropolitan University, Cardiff, UK

**Abstract**

Problem

COVID-19 has led to profound changes in the way in which primary care, and other forms of healthcare, is delivered across the UK. Shifting resources to support virus cases has compromised individual healthcare for non-COVID related illnesses leading to potential safety concerns experienced by patients. Patients can play a critical role in identifying safety incidents, and frequently report concerns not captured by typical incident reporting systems or medical records. Therefore, it is essential we understand the nature of these concerns during this period to inform safer care processes moving forward. The aim of this preliminary analysis was to examine the nature of patient-reported safety concerns experienced during the first wave of the COVID-19 pandemic, using results from a cross-sectional survey of UK patients.

Approach

Data were collected as part of an ongoing, longitudinal mixed-methods cohort study exploring COVID-19 experiences of the adult UK population (COPE Cymru). An optional module exploring healthcare experiences during the first wave of the COVID-19 pandemic (March – June 2020) was included in the 3-month follow-up survey (June 2020). Respondents were asked: 'while trying to access or receive NHS care during the coronavirus outbreak, have you or someone you care for experienced something that you thought was a 'safety concern'?'. Subsequent questions related to the setting and nature of the safety concern, perceived seriousness and whether respondents believed it could have been avoided. Descriptive analyses were performed to characterise the sample and describe frequency, setting, nature, and seriousness of safety concerns.

Findings

From 3993 respondents to the survey module, 314 patients reported experiencing a safety concern. Most safety concerns were reported to occur in a general practice setting (n=121; 30%), followed by outpatient services (n=82; 21%), then A&E (n=47; 12%). Within primary care, the nature of most frequently relating to service access (19%) and diagnosis (17%). Overall, most safety concerns related to 'access to services' (n=105; 16.2%) or were 'coronavirus specific' (n=103; 15.8%) e.g.

insufficient or improper use of personal protective equipment (PPE) worn by staff, inadequate hygiene / sanitisation procedures, cross-contamination between COVID and non-COVID patients, and lack of social distancing. Most respondents perceived their safety concern to be 'serious' and could have 'definitely' or 'probably' been avoided.

Consequences

These results reflect current trends of change to service access during the pandemic and highlight priority areas for targeted incident report analysis. Further research, through qualitative interviews with the same respondents, will explore patient-perceived contributory factors and outcomes of these concerns. This will be used to inform policy change to improve service delivery within primary and other healthcare settings moving forward and in future pandemics.

**Funding acknowledgement**

This preliminary analysis was conducted with support from PRIME Centre Wales. PRIME Centre Wales is funded by Welsh Government through Health and Care Research Wales.

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## P1.15.03 How can we adapt to ensure continued Patient and Public Involvement and Engagement within research?

Presenter: Eloise Ryde

Co-authors: Andrew Henry1&2, Leanne Shearsmith3, Elizabeth Littlewood2, Samantha Gascoyne2, Della Bailey2, Lauren Burke2, Suzanne Crosland2, Claire Sloan2, Rebecca Woodhouse2, Carolyn A Chew-Graham4, Peter Coventry2, Dean McMillan2, Gemma Traviss-Turner3, David Ekers

Institutions: Tees, Esk and Wear Valleys NHS FT, Research & Development, Middlesbrough, TS6 0SZ; 1. Tees, Esk and Wear Valleys NHS FT, Research & Development, Middlesbrough, TS6 0SZ; 2. Department of Health Sciences, University of York, York, YO10 5DD; 3. Leeds Institu

**Abstract**

Problem

Patient and Public Involvement and Engagement (PPIE) is recognised as a vital component of research, keeping studies grounded from concept, design and management through to interpretation and dissemination. The Covid-19 pandemic may have impacted on the ability of research teams to embed effective PPIE within research, and for PPIE members to continue to contribute to research in light of Covid-19 restrictions.

Approach

We had developed a PPIE Advisory Group (PPIE AG) as part of an existing programme of research (Multi-Morbidity in Older Adults – MODS) when the Covid-19 pandemic arrived in the UK. Our PPIE AG members include older adults with experience of long term health conditions, depression and/or caregiver experience and so were directly affected by the introduction of Covid-19 social restrictions. We responded to the Covid-19 pandemic by adapting our existing MODS intervention to facilitate the remote delivery of a new research programme (Behavioural Activation for Social IsoLation – BASIL). BASIL aims to evaluate a brief psychological intervention to mitigate depression and loneliness in older adults with long term health conditions during isolation. A vital aspect of the rapid development of the BASIL research programme was the involvement of our existing PPIE AG members. The research team had to adapt to working remotely, including finding ways to facilitate the continued input from the PPIE AG.

Findings

We will describe how we worked in collaboration with our PPIE AG members to

enable their continued 'virtual' involvement in the research. We will describe the changes that have been implemented as a result of their valuable input; for example, their participation in a co-design virtual stakeholder workshop to adapt the existing MODS intervention to consider social isolation and Covid-19 restrictions for the BASIL study. We will discuss how PPIE AG meetings are a forum for connecting people in a remote world where social isolation has increased, and highlight the value of remote PPIE for PPIE members and research teams. Finally, we will outline how we strive to work ever more collaboratively with our PPIE AG as the research progresses. This work will be presented in collaboration with our PPIE group.

Consequences

Research can continue to benefit significantly from the involvement and engagement of patients and the public, despite the need to adapt to working together 'from a distance'. PPIE can respond to the challenges that connecting virtually can bring and can help research to remain grounded, acknowledging the impact of Covid-19 restrictions on many areas of society. PPIE may itself help people to feel connected and to 'keep them going' through difficult times. Virtual PPIE may not replace 'face-to-face' involvement, but it opens up opportunities for future PPIE work to consider wider geographic representation from patient/public groups in national studies.

**Funding acknowledgement**

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## P1.15.04 Development, deployment and evaluation of a digitally enabled rehabilitation programme for patients with long Covid

Presenter: Henry Goodfellow

Co-authors: Elizabeth Murray, Ann Blandford, Stuart Linke, Chris Robson, Fiona Stevenson, Manuel Gomes, Fiona Hamilton, John Hurst, Delmiro Fernandez-Reyes, William Henley, Melissa Heightman, Paul Pfeffer, William Ricketts, Hannah Hylton, Richa Singh, Julia Bindman

Institutions: UCL, Exeter Univercity, Southampton Universtiy, Barts Hospital, UCLH, Royal Free Hospital

**Abstract**

Problem

Large numbers of patients are suffering from distressing and disabling symptoms for many months after being infected with Covid. There is a large variety of long term symptoms but the majority of patients suffer from fatigue, breathlessness, cognitive impairment and anxiety. NHS is creating new long covid clinic to help treat this large cohort of patients but faces challenges over large patient numbers and lack of available staff.

Approach

We built on previous experience of providing efficient, effective, personalised support to large numbers of patients, using User-Centred Design (UCD) principles to adapt and iteratively refine an existing platform. The digital intervention includes an App for patients which collects Patient Reported Outcome Measures (PROMS), provides information, support and treatments and allows 2-way messaging between patients and their clinicians. There is a digital dashboard for clinicians which displays the PROMS data, allowing rapid, efficient review of large numbers of patients. nitial content focused on

fatigue, deconditioning and breathing pattern disorders, however, as other long-term sequelae emerged, we added content around anxiety, depression, brain fog and nutrition. Our agile UCD approach allows for rapid iterative development cycles, with changes to content, navigation and usability in line with user feedback. A clinical pathway directs patients who are safe and suitable for rehab to an MDT assessment where treatment goals are agreed and patients onboarded onto the App. They are reviewed weekly by a physio, using the dashboard.

Findings

DHI is implemented in the Camden, Barts hospital and Hampshire and Isle of Wight / Solent (6 clinics). In the first six months, 99 patients, with demographics as above, have been registered on the App. Of these >60% use the App regularly, with engagement probably outperforming that of face-to-face clinics. Looking at those patients who have been on the App for at least one week, patients undertake a mean average 7.0 actions per week covering recording weight, completing a patient reported outcome measure (PROM) such as questionnaires, tracking exercise and/or fatigue diary. On average each patient has read eleven articles with approximately half of patients creating and tracking goals.

Consequences

Over 150 Patients now onboarded across all the clinics and In the process of being implemented in Barnet, Enfield, Islington, Homerton, and North East London Foundation Trust, Oxford, Kent and Medway

**Funding acknowledgement**

This work has been funded by the NIHR learning and recovery Covid fund. NIHR132243

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## P1.15.06 A Rapid Realist Review of the Role of Community Pharmacy in the Public Health Response to COVID-19

Presenter: Ian Maidment

Co-authors: Emma Young, Maura MacPhee, Andrew Booth, Hadar Zaman, Juanita Breen, Andrea Hilton, Tony Kelly, Geoff Wong

Institutions: Aston University, University of Sheffield, University of British Columbia, University of Bradford, University of Tasmania, University of Hull, University of Oxford

**Abstract**

Problem

Community pharmacy has remained accessible to the general public providing essential services despite significant pressures during the COVID-19 pandemic. They have successfully expanded the influenza vaccination programme and are now supporting the delivery of the COVID-19 vaccination. This rapid realist review aimed to understand how community pharmacy can most effectively deliver essential and advanced services, with a focus on vaccination, during the pandemic and in the future.

Approach

An embryonic programme theory was generated using four diverse and complementary documents plus project team expertise. Academic databases, preprint services and grey literature were searched and screened for documents meeting our inclusion criteria. Data was extracted from 103 documents to develop and refine a programme theory. Our analysis generated 13 context-mechanism-outcome (CMO) configurations explaining when, why and how community pharmacy can support public health vaccination campaigns, maintain

essential services and capitalise on opportunities for expanded and sustainable public health service roles. The views of stakeholders including pharmacy users, pharmacists, pharmacy teams and other healthcare professionals (e.g. GPs) were sought throughout the study to refine the initial explanatory configurations.

Findings

Community pharmacy has been able to offer key services, including vaccination, during the pandemic. We provide key recommendations for decision makers to optimise this key public health function.

Consequences

Decision makers must endorse, articulate and support a clear public health role for community pharmacy. Overall, policy and practice must focus on the clinical rather than the retail role of community pharmacy.

**Funding acknowledgement**

Jointly funded by UKRI and NIHR COV0176. The views expressed are those of the author(s) and not necessarily those of the NIHR, UKRI or the Department of Health and Social Care.

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## P1.15.07 Understanding and tackling COVID-19 vaccine hesitancy in ethnic minorities in south-west London

Presenter: Ilankeeran Elango

Co-authors: Rohan Dhillon

Institutions: Faculty of Medicine, Imperial College London

**Abstract**

Problem

The implementation of an effective vaccination programme is a crucial step in ending the COVID-19 pandemic. Vaccine hesitancy poses a significant barrier to the successful vaccination of the population with around 18% of the population likely to be vaccine hesitant. Vaccine hesitancy is significantly higher amongst ethnic minority groups compared to those of White ethnicity. This is particularly worrying as people from ethnic minorities have an increased risk of mortality from COVID-19 compared to their White counterparts. Therefore, there is a need for effective interventions to combat vaccine hesitancy in ethnic minority groups.

Approach

The intervention focused on contacting places of worship in South West London which have a high proportion of people from ethnic minorities in their community, and supporting the faith leaders in combatting vaccine hesitancy. An initial email was sent to 12 religious organisations, which explained the project and asked for their support. After this they were called, and enquiries were made on whether faith leaders would be willing to encourage vaccine uptake. Participating individuals were offered support throughout the process to help deal with any specific queries that individuals in their community had. An interview with the faith leader was scheduled one week later to discuss the impact of the intervention.

Findings

Of the 12 organisations contacted, 5 organisations responded and 1 was willing to address vaccine hesitancy in their congregation. We recruited a South West London Evangelical Church who agreed to discuss COVID-19 vaccinations during online meetings. The interview with the Head of the Church revealed a high level of vaccine hesitancy due to concerns about safety, worries about BAME individuals being used as “guinea pigs” to test the vaccines and religious concerns that the vaccines “had the mark of the beast”. Furthermore, individuals in the community were concerned about the

effects on fertility and whether the vaccine altered DNA. A repeated issue that was identified was the negative impact that social media misinformation had on the community. The pastor successfully organised sessions with his congregation where he discussed and dispelled false rumours surrounding the vaccine. Overall, the pastor described a large shift in attitudes towards the vaccine with even some who initially firmly opposed vaccination agreeing to be vaccinated.

Consequences

We believe contacting influential and trusted faith leaders is an effective method in combatting vaccine hesitancy in ethnic minority populations. Targeted, tailored, culturally-competent campaigns that address the root causes of vaccine hesitancy in BAME groups with the full engagement of community champions and religious leaders, is supported by evidence and will be useful in overcoming vaccine hesitancy and increasing COVID-19 vaccine uptake.

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## P1.15.09 What do the public and staff think about digital tools to support COVID-19 contact tracing in Scotland?

Presenter: Kate O'Donnell

Co-authors: Alessio Albanese, Susan Browne, Louisa Harding-Edgar, Neave Corcoran, David Blane, Tracy Ibbotson, Lynn Laidlaw, David Lowe, David Heaney, Sara Macdonald

Institutions: General Practice & Primary Care, Institute of Health & Wellbeing, University of Glasgow

**Abstract**

Problem

'Contact tracing' is a key feature of global governments' public health response to COVID-19 outbreaks; countries with robust contact tracing systems are typically amongst those thought to have been 'better' at containing the virus. Scotland established 'Test and Protect' in the summer of 2020 to identify contacts of those testing positive. Test and Protect is part of NHS Scotland, with many contact tracers coming from public health and other parts of the health system. To speed up contact tracing, digital online tools have been developed to collect information on people and places positive cases have been in contact with. We explored the views of members of the public, stakeholders representing marginalised groups, and staff involved in contact tracing to understand how such digital tools and viewed and used.

Approach

Data collection has covered two periods of roll-out. 42 were interviewed people in June-August 2020 as the digital tools were being developed: 29 members of the public, in either interviews or focus groups; and 13 key informants from a range of community-based organisations. Further interviews with public users and contact tracers (n=25) are taking place in February-March 2021, when the digital tolls are operational. All interviews and focus groups were conducted on Zoom v5. Thematic analysis was conducted by the team with key findings and illustrative verbatim codes extracted from sound files.

Findings

Participants were familiar with the Test and Protect programme; most gained their information from the daily government briefings or online research. Participants were uniformly supportive of the programme and saw adherence as a civic responsibility. In the summer of 202, most were willing to share their own information, although many were cautious about sharing information on their contacts. Concerns about data governance was an issue for some, but the clear involvement of NHS Scotland was a reassurance. Most participants envisaged a

range of potential challenges with the programme including recollection, and issues related to self-isolation. Interviews exploring the experience of those actually using the online contact tracing are currently ongoing. Contact tracers working either in the National Centre or in Health Boards report mixed responses when they contact those who have completed contact information online; while some expected to be contacted personally, others did not and this can be a source of concern.

Consequences

Digital tools to collect information on recent contact of those testing positive are feasible and acceptable. Consideration must be given to those who cannot use such tools and care must be taken not to increase workload for contact tracers. Contact tracing appears acceptable when it is clearly part of the health system and integrated with the NHS.

**Funding acknowledgement**

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## P1.15.10 Adapting the IMP2ART implementation strategy to the context of primary care during a COVID-19 pandemic

Presenter: Kirstie McClatchey

Co-authors: Atena Barat, Brigitte Delaney, Viv Marsh, Tracy Jackson, Emma Kinley, Steve Holmes, Vicky Hammersley, Liz Steed, Stephanie J.C. Taylor, Hilary Pinnock

Institutions: Queen Mary University of London, University of Sheffield, University of Edinburgh, University of Edinburgh, University of Edinburgh, Severn School of Primary Care, Health Education England (South West), University of Edinburgh, Queen Mary University of Lo

**Abstract**

Problem

Understanding and adapting to context is crucial if complex intervention implementation is to be successful. Within the IMP2ART programme, we had developed a theoretically-informed implementation strategy to improve supported self-management (SSM) for asthma in routine practice, with a cluster-randomised trial due to start in January 2020. The global COVID-19 pandemic dramatically changed the context and many aspects of the IMP2ART strategy required adaptation.

Approach

With input from patient and public involvement (PPI), and a professional advisory group, the programme team reviewed all components of the IMP2ART strategy. Changes were made to a) enable safe delivery of the implementation strategy in a pandemic, b) to offer advice on novel modes of practice, and c) to ensure resources reflected the new context.

Findings

Safe delivery of the IMP2ART strategy: Whole-practice SSM facilitation visits (IMP2ART workshops) to implementation practices will not be possible for the foreseeable future, so we adapted the facilitation for remote delivery. Novel modes of practice: We scoped and collated resources to support remote consultations, adapting them to provide advice on remote asthma reviews. Resources were provided for both practices and patients and made available on the IMP2ART trial website. On-line consultations were a new format and specific advice for asthma reviews was developed. Reflecting the new context: Educational modules were updated with examples of remote reviews and remote completion of action plans. Illustrations were checked to ensure some reflected remote delivery of care.

Consequences

Adapting the implementation strategy to the COVID-19 pandemic has been a comprehensive process, and some aspects (e.g. remote delivery of the IMP2ART workshop) required governance approvals. The adapted strategy is now ready be evaluated in the IMP2ART UK-wide cluster-RCT (n=144 practices), assessing its impact and cost-effectiveness.

**Funding acknowledgement**

Funding: NIHR PGfAR (RP-PG-1016-20008).

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## P1.15.11 Spiritual health and Burnout

Presenter: Orla Whitehead

Co-authors: Carol Jagger, Patience Kunonga, Suzanne Moffat, Gemma Frances Spiers, Eugene Tang, Barbara Hanratty

Institutions: Newcastle University

**Abstract**

Problem

Staff burnout is a pressing concern during the covid pandemic. A link between the concepts of spiritual health (the soul along with meaning and purpose, transcendence, and religious and ethical practice) and burnout, and also moral injury has been hypothesised. Burnout is seen by the World Health Organisation as not primarily a physical or mental health issue, and was described by Christina Maslach as 'erosion of the soul'. Unfortunately, discussion of spiritual health, and what keeps our spirits up, is often stigmatised and uncomfortable. In order to take an holistic approach to staff wellbeing, and mitigate the expected burnout crisis, it's important we investigate the relationship between spiritual health and burnout, to allow effective intervention.

Approach

An evidence synthesis was undertaken, to assess current knowledge, and the weaknesses in previous research on this topic. A survey of UK GPs is planned, assessing burnout and spiritual health, as we start to recover from the covid pandemic. If the hypothesis of a link between the concepts is supported, depth interviews will follow, with staff who have lived experience with burnout, to investigate their experiences of burnout and spiritual health.

Findings

A review of the literature identified 33 studies worldwide after systematic searching, where quantifications of burnout had been compared with spiritual health, wellbeing, general spirituality or religiosity. These 34 studies were heterogeneous, often of poor quality, vulnerable to sampling and response bias. Most studies were based in the USA, similar to other aspects of spiritual health research. There lacks a 'gold standard' to assess spiritual health, and this limits comparison of the studies, as does the diversity of settings, and sampling methods. The larger studies found asked solely about religiosity, rather than the wider concept of spirituality. While many studies found an association between spiritual health and burnout, this was not always consistent across burnout domains, and the effect was often small and/or not statistically significant. There were no studies focussing on Northern Europe, and only 3 in primary care. While the evidence for an effect of spiritual health on burnout is limited, it does deserve further exploration, as evidence from the UK and in primary care is lacking. To explore this gap, a nationwide survey using validated tools (Maslach Burnout Inventory, and the FACIT-Spiritual Wellbeing-Non-Illness score) will be carried out in GPs in the UK.

Consequences

An understanding of burnout, its predisposing, precipitating, perpetuating and protective factors, needs to include spiritual health to be fully holistic. Identifying whether improving spiritual health, and identifying systemic and workplace approaches to this, could be a way to develop effective interventions to prevent and mitigate burnout in staff.

**Funding acknowledgement**

Dr O Whitehead is funded by an NIHR In practice fellowship

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## P1.15.12 Telephone based digital triage in urgent care provision: A routine data analysis of patients' service use and patterns of triage advice

Presenter: Vanashree Sexton

Co-authors: Prof. Jeremy Dale, Dr Gary Abel, Dr Helen Atherton

Institutions: University of Warwick

**Abstract**

Problem

Urgent care services that provide out of hours care often use digital triage. This involves a health care service staff member using a 'digital triage tool' to help refer the patient to an appropriate service to receive health care, based on the patient's symptoms. In part digital triage helps to manage high demand within the healthcare system whilst improving patients' access to care. Despite wide adoption, there has been limited research into patterns of use and factors that influence the recommended urgency of advice that is generated within digital triage tools, particularly in relation to gender, ethnicity and level of deprivation. Using large routine datasets from NHS care providers in England, this research aims to understand how patients use digital triage services. It will investigate characteristics of users, their presenting symptoms, and factors that influence the priority and urgency of advice. Datasets spanning before and after the emergence of Covid-19 will be analysed in order to explore changes in these outcomes since the start of the pandemic. Telephone based care has been of increasing importance during the Covid-19 pandemic; digital triage is central to telephone based care and if optimised has potential to improve care for patients whilst reserving the need for face to face contact for when it is necessary.

Approach

This is an observational cross-sectional study that utilises routine data for approximately 200,000 patients from four English services, spanning April 2019 – October 2020. The dataset comprises anonymised call records from urgent care providers for patients who have been triaged. The data includes the following variables, which will be descriptively analysed: patient demographics (age, sex, level of deprivation, ethnicity), presenting symptoms and triage advice generated. Subgroup analysis will be conducted to better understand factors that influence the priority and urgency of advice, including factors such as: age, sex, symptom type (for example chest pain or abdominal pain). Changes over time, prior to and during the Covid-19 pandemic will be analysed using time series regression, building in appropriate 'step terms' to account for changes such as: pandemic control measures, local changes within services, and seasonal changes that may affect service use.

Findings

Early findings are expected in July 2021 and will relate to two key areas: 1) Service users' characteristics and presenting symptoms before and after the start of the Covid-19 pandemic 2) Patterns of triage advice,

including factors that influence the priority and urgency of advice given to patients.

Consequences

This study will make recommendations for services and policymakers based on findings relating to 1) patterns of service use, for example under-use amongst certain sub-groups and 2) findings relating to in-built bias within digital triage tools, which could highlight areas for improvement within digital triage tools.

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## P1.16.1 Exploring the experiences of a patient with Type 1 diabetes and diabulimia: a narrative analysis

Presenter: Gopikaa Anandkumar-Sreevidya

Co-authors:

Institutions: King's College London

**Abstract**

Problem

'Diabulimia' is a term referring to an eating disorder in which a person with Type 1 diabetes (T1D) restricts their insulin in order to lose weight. Consequences of diabulimia include blindness, limb loss, heart disease and kidney failure due to prolonged high blood sugar levels. It can even be fatal, with a significantly greater risk of mortality in patients with T1D and diabulimia compared to those with T1D alone. The prevalence of diabulimia is high and increasing, with research showing that it affects up to 60% of people with T1D. Despite becoming well-documented in the media, it is not currently recognised as a formal medical diagnosis; therefore, many healthcare professionals lack awareness and understanding of this condition. Current research about diabulimia predominantly focuses on defining diabulimia, its complications and possible treatment methods. However, there is little research focusing on patient experience of living with the condition. Therefore, this study aims to explore a patient's first-hand experience of diabulimia through analysis of an online narrative.

Approach

An online search of first-person patient narratives authored by people with T1D and diabulimia was conducted. From 100 search results, 16 narratives were identified, and one was selected in order to analyse it in sufficient depth. Subsequently, a narrative analysis was carried out on the selected journal article.

Findings

The challenges of living with diabulimia were identified, including its harmful impact on not just the patient's physical health, but also their mental health. Physical effects included complications related to dangerously high blood sugar levels, and effects on mental health were severe enough to prompt suicidal thoughts. Additionally, the lack of awareness of clinicians towards this condition could contribute to the perpetuation of the patient's diabulimia, causing harm to the patient. This lack of awareness manifested itself in a number of ways: failure to recognise the onset and symptoms of diabulimia in patients, use of stigmatising language, and a lack of sensitivity when discussing topics such as weight in patients at risk of developing or with diabulimia.

Consequences

Online patient narratives are a useful source of qualitative data that can provide deeper insight into patient experience. Results of this narrative analysis, although not generalisable, may highlight implications for practice. Primary care providers have a key role to play in the prevention and recognition of diabulimia in their patients. Therefore, appropriate awareness and knowledge of this condition is necessary. The lack of awareness of clinicians and its negative impact on

patients with diabulimia appeared to be a prevalent theme across the other narratives identified. Thus, further research in this area is warranted. Findings from this study may encourage systemic change in areas such as formal recognition, screening, awareness and use of non-stigmatising language by general practitioners.

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## P1.16.3 The role of Primary Care Pharmacists in the care of patients with diabetes – a narrative review of studies in the United Kingdom

Presenter: Judit Konya

Co-authors: CE Clark

Institutions: University of Exeter Medical School, HEE Kernow Health CIC Training Hub

**Abstract**

Problem

Diabetes is one of the most prevalent chronic conditions in the UK with approximately 3.3 million patients living with diabetes in 2019 in England. Diabetes management in the primary care system should be a multidisciplinary process. Pharmacists have an increasingly important role in the community diagnosis and management of diabetes and evidence suggests their impact on clinical outcomes is beneficial. However, it is not known to what extent pharmacists contribute to diabetes management in primary care in the United Kingdom.

Approach

The aim of this study is to identify recent or current UK based initiatives involving pharmacists in diabetes care in general practice. Medline and CINAHL databases were searched, with relevant websites such as PSNC and PCDS. Any publication type were included.

Findings

3002 titles were screened, of which 10% were double-screened by two independent reviewers. 21 articles reporting on outcomes were included for data analysis. 19 of these involved community pharmacies, while 2 reported on other pharmacist roles within general practice. The type of included publications were diverse (peer-reviewed research paper, n=14; service evaluation, n=3; service case studies, n=4). Findings indicated that a range of interventions can be delivered by pharmacists which are generally positively valued by patients, pharmacists, commissioners and primary healthcare staff; and improve clinical outcomes where reported. The community pharmacy is a convenient, accessible setting for screening, diagnosing and assisting the management of diabetes.

Consequences

Various pharmacist roles can support the care for patients with diabetes in the primary care setting. It is encouraged that general practitioners are aware of services being offered by community pharmacies.

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## P1.16.4 Primary care service utilisation and outcomes in type 2 diabetes: A longitudinal cohort analysis

Presenter: Sam Hodgson

Co-authors: Jeffrey Harrisskitt, Hilda Hounkpatin, Beth Stuart, Hajira Dambha-Miller

Institutions: Primary Care Research Centre, University of Southampton; 2. Strategy and Transformation Department, NHS South, Central and WestNHS

**Abstract**

Problem

It is unclear what relationship, if any, exists between service utilisation and clinical outcomes in patients with type 2 diabets. Trends in primary care utilisation in this group over time are also unknown.

Approach

Using routine data from the Electronic Care and Health Information Analytics (CHIA) database, we performed a retrospective cohort study in 110,240 adults with type 2 diabetes in the South of England between 2013 and 2020. Utilisation patterns over time were summarised using descriptive statistics. Maximally adjusted multivariable logistic regression models were used to examine associations between service utilisation, defined as total number of primary care contacts, cardiovascular events, and all-cause mortality.

Findings

Between 2013 and 2020 mean number of primary care attendances pre year quarter rose from a mean (standard deviation) of 2.48 (2.01) to 2.78 (2.06). After adjusting for potential confounders, we observed an association between higher rates of service utilisation and higher rates of cardiovascular events (odds ratio (OR) per additional consultation 1.0058; 95% confidence intervals 1.0053 - 1.0062; p<0.001) and mortality (OR 1.0057; 95%CI 1.0051 - 1.0064; p<0.001).

Consequences

Between 2013 and 2020 primary care usage increased 12% among people with type 2 diabetes. As opposed to achieving better disease control and developing fewer complications, patients with more frequent primary care contacts had higher HbA1c, higher rates of CVD, and higher rates of mortality. Although these patients tended to be older and more multimorbid, these associations persisted after adjustment for these and other confounders. Further research capturing the nature, content and duration of contacts in relation to delivery of care for type 2 diabetes is needed to understand the mechanisms underlying this association and address contributory factors.

**Funding acknowledgement**

SH and HDM's salaries are funded by the NIHR.

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## P1.16.5 How can national clinical audit be optimised to improve the primary care of diabetes?

Presenter: Thomas Willis

Co-authors: Su Wood, Jamie Brehaut, Heather Colquhoun, Benjamin Brown, Fabiana Lorencatto, Robbie Foy

Institutions: Leeds Institute of Health Sciences, University of Leeds (TW, SW, RF); Ottawa Hospital Research Institute (JB); Department of Occupational Science and Occupational Therapy, University of Toronto (HC); Centre for Health Informatics, University of Manchester

**Abstract**

Problem

Audit and feedback is a widely used healthcare quality improvement tool, whereby achievement against specified standards is monitored and shared with clinical teams. It is generally but inconsistently effective and research is needed to understand how to optimise its impact. We examined outputs from two United Kingdom national clinical audits: the National Diabetes core Audit (NDA), which monitors primary care diabetes management and has a significant reach to approximately 8000 general practices, and the Trauma Audit Research Network (TARN). Both audits have

recently made changes to their delivery of feedback; comparisons of their methods can offer insights for improvement. We drew upon Clinical Performance Feedback Intervention Theory (CP-FIT), a comprehensive theory of feedback, to identify opportunities for strengthening the feedback cycle for diabetes.

Approach

We completed semi-structured interviews with 19 individuals with relevant experience and knowledge, including audit and feedback researchers, audit managers, healthcare staff, and patient and public representatives. Interviews were structured around the CP-FIT feedback cycle, with participants invited to discuss one or both audits. We utilised rapid analysis techniques to explore the extent to which both audits achieved (or not) each of the cycle processes. We produced summaries of each interview rather than full, formal coding; the summaries were then combined to produce a matrix of positive and negative comments for each audit together with illustrative quotes.

Findings

We produced detailed assessments of both audits. Interviewees identified features of both audits that were likely to influence successful progress through the feedback cycle. The NDA's move to more frequent data release was considered consistent with best evidence and meet the needs of users. Potential barriers to progress were difficulties reaching target recipients, off-putting data presentation, and a failure to provide recommendations for action.

Consequences

Our findings suggest ways in which feedback to general practices could be further strengthened and hence improve the delivery of diabetes care. Audit and feedback is used locally and nationally as a primary care quality improvement tool and our study emphasises the importance of ensuring the fundamentals are achieved. Namely, ensuring the feedback actually reaches its intended target, and then making sure that it is user-friendly and easy to interpret. Failure to do this is likely to prevent clinical audit from achieving its aim of improving patient care.

**Funding acknowledgement**

This study was funded by the National Institute for Health Research (NIHR) [Health Services & Delivery Research programme (project reference 16/04/13)]. The view expressed are those of the authors and not necessarily those of the funders

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## P1.16.6 How can we optimise the impact and effectiveness of national clinical audit programmes?

Presenter: Thomas Willis

Co-authors: Alexandra Wright-Hughes, Rebecca Walwyn, Ana Weller, Stephanie Wilson, Sarah Alderson, Amanda Farrin, Suzanne Hartley, Robbie Foy

Institutions: Leeds Institute of Health Sciences, University of Leeds (TW, SA, RF); Leeds Institute of Clinical Trials Research, University of Leeds (AWH, RW, AF, SH); Centre for HCI Research, City University, London (AW, SW)

**Abstract**

Problem

Audit and feedback aims to improve patient care by reviewing health care performance against explicit standards. It is widely used to monitor and improve patient care, including through National Clinical Audit programmes in the United Kingdom (UK). One example is the National Diabetes Audit which monitors primary care diabetes management and collates data from around 8,000 general practices in England. Audit and feedback is

variably effective; conducting individual randomised trials to address the many unanswered questions about how to optimise its effectiveness would be relatively inefficient. We evaluated different modifications to feedback in an online experiment, as an efficient way of identifying leading candidates for further 'real world' evaluation. Even relatively small improvements to feedback's effectiveness would have the potential for substantial population health impacts.

Approach

We conducted an innovative, fractional factorial screening experiment, randomising recipients of feedback from five UK national clinical audit programmes to different combinations of six feedback modifications through a web portal. Outcomes, assessed immediately after working through the online modifications, included intended enactment of audit standards (primary outcome), comprehension, user experience, and engagement.

Findings

We randomised 1241 participants (clinicians, managers and audit staff). During the response period, we detected suspicious activity associated with repeated (duplicate) participant completion. Our primary analysis population conservatively excluded 603 (48.6%) participants during the defined 'contamination period' and included 638 (51.4%) participants with 566 (45.6%) complete responses. None of six modifications to feedback independently increased intended enactment of audit standards across the five audits. We observed both synergistic and antagonistic effects across all outcomes when feedback modifications were combined. For example, the most effective combination of modifications resulted in predicted intended enactment (on a scale of -3 to +3) of 2.40 (95% confidence interval 1.88, 2.93) versus 1.22 (0.72, 1.72) for the least effective combination in clinical participants in the National Diabetes Audit. Intended enactment for clinical participants was optimised by providing multimodal feedback, recommending specific actions, incorporating the 'patient voice', and minimising extraneous cognitive load. We also observed that the audit itself and whether recipients had a clinical role had a dominant influence on outcomes.

Consequences

None of six feedback modifications improved intended enactment of audit standards in isolation. However, we observed potentially important synergistic and antagonistic effects in various combinations of feedback modifications, audit programmes and recipients. This suggests that the design of feedback needs to explicitly consider how different features are likely to act together. The findings have implications for the design of national clinical audits, with the potential to enhance the effectiveness of audits used within UK primary care.

**Funding acknowledgement**

This study was funded by the National Institute for Health Research (NIHR) [Health Services & Delivery Research programme (project reference 16/04/13)]. The view expressed are those of the authors and not necessarily those of the funders

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## P1.17.1 What is the role for shared decision-making in dental recall interval setting?

Presenter: Anwen L. Cope

Co-authors: Hannah Scott, Fiona Wood, Natalie Joseph-Williams, Anup Karki, Emyr Roberts, Candida Lovell-Smith, Ivor G. Chestnutt

Institutions: Cardiff and Vale University Health Board, Cardiff University, Public Health Wales, The Courtyard Dental Care

**Abstract**

Problem

Clinical guidelines recommend that the frequency of dental check-ups should be tailored to patients' risk of oral disease. Risk-based recall interval for adult patients may range from 3-months (for patients at high risk of disease) to 24-months (low risk patients). However, there is still uncertainty as to whether risk-based recalls are more clinically or cost-effective than regular 6-month recalls. In situations where there is no clear evidence of the superiority of one management strategy over another, how patients value the risks and benefits of different options becomes particularly important. Since it is known that patients may have preferences regarding both the frequency and costs of dental visits, shared decision-making may have a role to play in decisions about dental recall interval.

Approach

This study aimed to describe current arrangements regarding dental recall interval setting and explore the potential role for shared decision-making in these decisions. Semi-structured telephone interviews were conducted with 25 NHS patients and 25 NHS general dental practitioners in Wales, UK. Transcripts were thematically analysed.

Findings

In contrast to decisions about operative treatment, in which many patients wanted to actively participate, most patients expected their dentist to guide them in advising about recall interval. Most patients reported they would happily accept small changes to their recall interval having considered the impact on time, travel and cost of care. However, most would be unhappy to extend their recall interval beyond 12 months. Although dentists' understanding of shared decision-making varied, practitioners placed importance on involving patients in decisions about their dental care. However, some dentists thought that decisions about recall interval should be clinically led. Since having in-depth discussions about treatment options can be time-consuming, dentists may prioritise the extent to which they engage patients on different decisions. As a result, discussions about oral health education and operative treatment may be prioritised over those about dental recall.

Consequences

Patients are likely to have preferences about the frequency of their dental check-ups, as evidenced by a strong desire to be seen at least once a year. Since uncertainty exists about the most clinically and cost-effective dental recall strategy, consideration should be given to whether greater emphasis should be placed on eliciting patient preference in relation to decisions about dental recall. The current study has also highlighted a number of barriers to the use of shared decision-making more widely in primary dental care. There is a need for evidence as to how educational interventions could increase dentists' awareness, understanding, and implementation of shared decision-making. Furthermore, if there is a desire to increase the use of shared decision-making in NHS general dental practice, contracting arrangements should incentivise the

involvement of patients in decisions about their care.

**Funding acknowledgement**

This study was funded by Health and Care Research Wales (ref: RfPPB-17-1375(T)).

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## P1.17.2 Testing a prototype clinical decision support tool for the management of male LUTS

Presenter: Sarah Milosevic

Co-authors: Sarah Milosevic, Natalie Joseph-Williams, Bethan Pell, Michael Drinnan, Haroon Ahmed, A Joy Allen, Alison Bray, Emma Thomas-Jones, Chris Harding, Adrian Edwards

Institutions: Cardiff University, Newcastle University, The Newcastle upon Tyne Hospitals NHS Foundation Trust, Newcastle upon Tyne NHS Hospital Trust

**Abstract**

Problem

Lower urinary tract symptoms (LUTS) are common amongst men as they get older, and can have a considerable impact on quality of life. Although in most cases LUTS could be treated in primary care - benefitting the patient and reducing NHS costs - referrals to urology specialists are increasing. Management can be complex, and GPs currently do not have access to a simple tool to support diagnosis. Therefore, the National Institute for Health Research (NIHR) released a 2015 Health Technology Assessment (HTA) commissioned call for the development of a decision aid to help inform treatment choice or need for specialist referral for men presenting with LUTS in primary care. The PriMUS study was funded to address this brief and has resulted in the development of a prototype clinical decision support tool. A qualitative user-testing study has been conducted, aiming to gather feedback from GPs to inform future development of the tool.

Approach

GPs involved in the PriMUS study were invited to test the online prototype tool using fictional patient data, and provide feedback via a brief telephone interview. Interviews were conducted with 10 GPs, who were asked for their views on the content, design and usability of the tool. All interviews were audio-recorded, transcribed verbatim and thematically analysed.

Findings

GPs found that the tool had a user-friendly design and layout. The management recommendations generated were considered helpful and straightforward to follow. GPs reported that the tool would be useful in practice and had the potential to reduce urology referrals. They suggested that it could be used to facilitate greater patient involvement, as it provided useful visual displays of likely diagnoses and management recommendations. Several recommendations were made for the future development of the tool, for example that it should be integrated into the clinical system, provide links to printable patient advice leaflets, and give specific examples of medications to try.

Consequences

Findings generated useful, specific recommendations for the future development of the clinical decision support tool, which have the potential to increase its uptake and usability, and in turn improve the management of male LUTS in primary care.

**Funding acknowledgement**

The PriMUS study was funded by the NIHR (Health Technology Assessment programme), funder reference 15-40-05.

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## P1.17.3 What are the self-reported opioid prescribing practices of Australian GPs? A nationwide survey.

Presenter: Pallavi Prathivadi

Co-authors: Chris Barton, Danielle Mazza

Institutions: Department of General Practice, Monash University

**Abstract**

Problem

Reducing opioid-related harm is a public health priority for many western nations including Australia, USA and the UK. Australian general practitioners (GPs) prescribe approximately half of the country's opioids. Despite up-to-date opioid prescribing guidelines and other initiatives, prescribing rates continue to increase. Understanding the self-reported practices of GPs may help engagement with provider-targeted opioid prescribing interventions. Furthermore, recognising GP demographic factors associated with possible unsafe prescribing may guide intervention delivery to specific subgroups of the GP population and help close the evidence-practice gap in this complex clinical area. Therefore, this study aimed to survey Australian GPs about their opioid prescribing practices, their attitudes and beliefs towards pain management, their perceptions of opioid prescribing interventions, their readiness for changing prescribing behaviours, and to identify demographic factors associated with evidence-based GP prescribing.

Approach

A de-identified paper-based survey was posted to a nationally representative sample of 4000 GPs across Australia in 2019, with reminders sent 4-weeks later. The 29-item survey collected demographic information and data around five primary questions exploring prescribing practices and included a hypothetical case study of an elderly woman with low back pain. Univariate and multivariate logistic regression, parametric tests and predictor modelling examined the association between GP demographic factors and higher confidence in prescribing, use of opioid risk reduction strategies, and attitudes towards changing current practices.

Findings

A total 482 surveys were completed (response rate of 12%). Cronbach's Alpha was 0.7. Most GPs (73%; n= 222/305) felt they did not need to change their current opioid prescribing practices. However, 57% (n= 272/478) of respondents stated they would likely or definitely change their practices with increased pain management education and training. Best predictors of confidence in opioid prescribing were: being male (95% CI 0.114 to 0.310) and aged over 55 years (95% CI 0.084 to 0.156). The best predictors of opioid prescribing risk reduction strategies were: being female (95% CI -0.233 to -0.017) and overseas trained (95% CI 0.051 to 0.282). Pain not controlled by simple analgesia (74.1%) and patient quality of life (67.9%) were the most commonly reported factors influencing the decision to prescribe opioids. Guidelines were the least commonly reported factor influencing prescribing practices (21.8%).

Consequences

This is the first Australian study to report GPs' confidence in various aspects of opioid prescribing, use of risk reduction strategies, and attitudes towards prescribing interventions. The majority of participants demonstrated low readiness for change-highlighting a major barrier to prescribing interventions including limited availability or use of guidelines. Interventions to improve knowledge also need to specifically improve GPs' confidence in opioid prescribing.

**Funding acknowledgement**

This study was supported by a research grant from the Shepherd Foundation in 2019

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## P1.17.4 Priority-setting and shared-decision making in primary care: a secondary analysis of the GP consultations archive

Presenter: Yuri Hamashima

Co-authors: Amanda Owen-Smith, Tim Jones, Joanna Coast

Institutions: Population Health Sciences, Bristol Medical School, University of Bristol

**Abstract**

Problem

Primary care physicians make decisions about allocating resources, while also acting as the patient's advocate. However, there is a concern that these decisions may inhibit patient-centred care. Previous interview studies with GPs reported that these decisions tend to occur implicitly. It remains unclear how doctors convey allocation decisions to the patient and how it influences on the patient's perception about shared decision-making process.

Approach

This is a secondary analysis with multiple methods using One in a million: primary care consultations archive. We undertook a cross-sectional study with the survey data to examine the impact on patient perceptions of decision-making when their expected outcome was not achieved (such as referral). The primary outcome was set as the binary outcome about post-consultation perceived shared decision-making, that is, looking at whether patients perceived the decision was made in line with shared decision-making process or not. These were measured using the Patient control Preference Scale (Degner et al.,1997), the Physician perception of decision-making (Janz et al., 2004) and the Patient perception of decision-making (Janz et al., 2004). We also conducted a qualitative analysis of the transcripts from the consultations to investigate how those priority setting issues arise and how doctors manage patients' demands. Cases were selected based on the patients' pre-consultation surveys indicating that they expected to receive onward care. We thematically analysed the transcripts and constantly compared the themes and codes emerging from the data to develop a thematical understanding.

Findings

In the post-consultation survey, 104 patients indicated they had been given a referral, 81 GPs said they had made a referral and 57 GPs and patients were in agreement. Thus, the transcript data was also used for determining the exposure group (i.e. those who did or did not receive referrals) in the quantitative analysis. For the qualitative analysis, 60 consultations were selected to date. Among them, 39 patients were female, and 21 patients were male. The patients' age ranged from 20 to 87 (mean: 51 years). From the consultation data, there was evidence of GPs acting at different points as agents both for the healthcare system and for the patient. There was also some indication that they sometimes tried to combine elements of these roles. For example, GPs (i) acted as a 'gatekeeper' and thus as an agent for society but also regarded their role as conducting the 'groundwork' on behalf of the patient, before that patient sees a specialist (ii) declined the patient's request for referral but sought their preferences for other treatment or diagnostic processes.

Consequences

Priority-setting during consultations is not necessarily conducted implicitly. Facing rationing decisions, GPs often demonstrated their ability to move between these agent

roles and balance how they played out within the consultation.

**Funding acknowledgement**

Grant for Groundbreaking Young Researchers 2019, Suntory Foundation

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## P1.18.1 The SHIPS Study: SHaring Information at the Primary/Secondary care interface for patients with a poor prognosis

Presenter: Lucy Pocock

Co-authors: Sarah Purdy, Stephen Barclay, Lucy Selman

Institutions: University of Bristol, University of Cambridge

**Abstract**

Problem

Up to one in three people die in the 12 months following an emergency hospital admission and this is an opportunity for hospital clinicians to identify patients with a poor prognosis and share this with General Practitioners (GPs). There is a lack of consensus about this communication and a need to synthesise the evidence in order to improve continuity of care. Aim To investigate the communication of poor prognosis from secondary care to primary care at hospital discharge.

Approach

The study will be conducted in two phases: 1. A systematic review with narrative synthesis of evidence on sharing information about patients with a poor prognosis between secondary care and primary care. The review will address the following questions: How is poor prognosis communicated? What are the facilitators of, and barriers to, this communication? What evidence exists of the impact of this communication on patient care? How acceptable and useful is this communication to patients, family/carers and clinicians? 2. A focused ethnography to explore the communication of poor prognosis to GPs on discharge from hospital. Data collection will take place in four hospital trusts and linked GP surgeries in two regions in England. Non-participant observation will be conducted on 12 hospital wards across the four trusts, to explore decision-making around the sharing of prognostic information with GPs at discharge and the facilitators of, and barriers to, sharing this information. Anonymised examples of written information sharing will be collated alongside documentation of telephone calls with GPs in the medical records. In-depth interviews will be conducted with purposive samples of hospital clinicians, GPs, patients and carers about the process of information-sharing and their views of this.

Findings

The results of the phase one systematic review will be available for presentation at the time of the conference.

Consequences

A lack of communication from secondary care in relation to prognosis is a potential barrier to the initiation, or continuation, of Advance Care Planning conversations by GPs. Addressing these GP information needs would facilitate this process and improve care at the end of life.

**Funding acknowledgement**

This work is being undertaken as part of an NIHR funded doctoral research fellowship.

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## P1.18.2 Electronic Palliative Care Coordination Systems (EPaCCS): what works for whom and in what circumstances? A realist evaluation

Presenter: Dr Lucy Pocock

Co-authors: Lydia French, Michelle Farr, Richard Morris, Sarah Purdy

Institutions: University of Bristol, National Institute for Health Research Applied Research Collaboration West

**Abstract**

Problem

EPaCCS aim to provide a shared record for Health Care Professionals (HCPs), summarising information about patients' preferences and plans for care. They are in use across the UK, although empirical evidence into their effectiveness is poor. Previous studies have suggested that primary care staff perceive EPaCCS as a potential burden due to an increased workload, without offering a benefit to them.

Aims: 1. Describe the socio-demographic characteristics of patients who die with an EPaCCS record and their cause and place of death, and compare these with patients who die without an EPaCCS record. 2. Explore the impact of an EPaCCS on the experience of receiving end of life care for patients and carers, and understand HCPs' views and experiences of using an EPaCCS Approach. This is a mixed-methods study to explore the impact of an EPaCCS on end of life care, as provided by Bristol, North Somerset and South Gloucestershire (BNSSG) Clinical Commissioning Group (CCG) in England. The study was conducted in five phases: (1) development of the initial programme theory; (2) focus group with CCG stakeholder board; (3) individual interviews with twenty-one HCPs, including in and out of hours GPs, four patients, one current, and seven bereaved, carers; (4) retrospective cohort study of routinely collected data on EPaCCS usage and (5) data analysis and synthesis of study findings. This study will draw on a realist evaluation approach. A randomised, experimental study design is not possible as the implementation of EPaCCS has been strongly advocated and promoted by NHS England, with 83% of CCGs in England reported to have an operational EPaCCS, or be in the planning stages, by 2013. BNSSG CCG had recently operationalised an EPaCCS at the time of study design.

Findings

Uptake and engagement with the EPaCCS was variable and dependent on engaged leadership. Only 18% of the study sample died with an EPaCCS record and people who died of cancer were more likely to have an EPaCCS record (27%) than those who died of a non-cancer cause (15%). The EPaCCS concept was valued by all HCPs, although it didn't add extra value to the information that GPs can already access. The lack of appropriate technology was a barrier to usage. Patients and carers were not aware of the EPaCCS, but were positive about HCPs sharing information.

Consequences

This study provides valuable insights into the implementation of EPaCCS. Getting the technology right matters and it is vital that all HCPs can both access and update the information held within the EPaCCS. To support clinical decision-making the information in the EPaCCS needs to be dynamic and reliable.

**Funding acknowledgement**

The lead author was funded by the National Institute for Health Research (NIHR) School for Primary Care Research through a GP Career Progression Fellowship. This research also received funding from the BNSSG CCG under study.

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## P1.18.3 End-of-life care in the community during the first peak of COVID-19: what were the views and experiences of primary healthcare professionals?

Presenter: Sarah Mitchell

Co-authors: Phillip Oliver, Clare Gardiner, Helen Chapman, Dena Khan (PPI co-author), Kirsty Boyd, Jeremy Dale, Stephen Barclay, Catriona Mayland

Institutions: University of Sheffield, Sheffield Teaching Hospitals, NIHR CRN West Midlands Young People's Steering Group, University of Edinburgh, University of Warwick, University of Cambridge

**Abstract**

Problem

Thousands of people in the UK have required end-of-life care in the community during the COVID-19 pandemic. Primary healthcare teams (general practice and community nursing services) have provided the majority of this care, alongside specialist colleagues. There is a striking lack of research in this area from previous pandemics. This study aims to provide learning from experiences in primary care during COVID-19 in order to inform future service delivery and planning.

Approach

A web-based, UK-wide questionnaire survey circulated via general practice and community nursing professional networks during September and October 2020. Responses were analysed using descriptive statistics and an inductive thematic analysis.

Findings

Valid responses were received from 559 individuals (387 community nurses, 156 General Practitioners (GPs) and 16 unspecified role), from a diverse range of regions across the UK. The vast majority of respondents reported increased involvement in providing end-of-life care in the community during the pandemic, due to both COVID-19 and non-COVID-19 conditions. Contrasting and potentially conflicting roles emerged between general practitioners and community nurses in their response to growing demands and complexity of end-of-life care during the first phase of the COVID-19 pandemic. Community nurses took greater responsibility in most aspects of palliative care practice. Use of virtual consultations by general practitioners resulted in community nurses feeling isolated, and for some there has been considerable emotional distress.

Consequences

Primary healthcare services played a critical role in meeting increased need for end-of-life care during the first phase of the COVID-19 pandemic, and continue to do so. They have adapted rapidly, but the significant emotional impact, especially for community nurses, needs addressing alongside rebuilding trusting and supportive team dynamics.

**Funding acknowledgement**

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## P1.19.01 How should we approach / operationalise Generalism in Medical Education? A narrative review of International Policy and Mission Documents

Presenter: Agalya Ramanathan

Co-authors: Dr Madeleine Fowler, Dr Nicola Clarke, Professor Sophie Park

Institutions: Research Department of Primary Care and Population Health, UCL

**Abstract**

Problem

Whilst generalists are essential for healthcare, there is a lack of understanding about what generalism means and how to support training of doctors. This review forms part of a larger project seeking to articulate the nature of generalism. This review aims to examine how generalism is characterised within undergraduate and postgraduate medical education in health policy documents from across the UK, Canada and North America and how doctors should be trained.

Approach

Systematic searches were conducted in Medline, Psycinfo, Socioindex, EMBASE, OVID Healthstar, Scopus and Web of Science. Search terms included 'generalism', generalist', 'internal medicine', 'surgeon', 'paediatrics' and 'psychiatry". Grey literature was also explored. Texts from 1999–present were included. This review limited inclusion to English language policy or mission documents. Forward citation searches and hand-searching references of relevant documents was also undertaken. We began by familiarising ourselves with documents and identifying relevant sections. An iterative process of deductive and inductive analysis was then performed to answer our research questions.

Findings

So far 31 relevant documents have been identified. Whilst the period covered spans a number of years, there seems to be little shift over time. Some differences have emerged in how generalism is described by primary care professionals and specalists; Speciality-based texts position generalism in terms of 'breadth' and 'basic training'. Family medicine texts, highlight a number of additional characteristics, or elements of 'generalist expertise'. Common themes include a mission to increase applications for postgradaute generalist training, similar barriers to recruitment, a need to have generalists as role models for students and descriptions of stigma against generalism. There also seems to be a paradox, that whilst generalist training is valued, it can be seen as a basis for further training, rather than expert or specialist knowledge in its own right. Early results suggest there is little information about how generalism is 'done'. Whilst the different organisations seem to concur that 'excellent generalist care' should be valued and there is an imperative to increase generalist training, it is not clear exactly how this should be achieved.

Consequences

Our review will set out recent descriptions of generalism. It will comment on key characteristics, challenges and how doctors should be trained. It will also identify gaps in current literature and consider future directions.

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## P1.19.02 Medical student experiences of a generalist curriculum: A qualitative study.

Presenter: Agalya Ramanathan

Co-authors: Dr Nicola Clarke, Dr Sara Thompson, Professor Sophie Park

Institutions: Research Department of Primary Care and Population Health

**Abstract**

Problem

Recruitment to general practice (GP) is a national challenge. Medical student experience during placements is an important factor in shaping career choices. One important challenge is to demonstrate the intellectual stimulation and complexity of clinical practice in this setting, which can be difficult in fast paced consultations. In response to the Wass Report, a London medical school (UCL) expanded year 5 general practice placements from four to six weeks. 'Connected curriculum' sessions were introduced to highlight complex elements of generalism including 'ways of knowing', how and when to use evidence in primary care, 'Health Justice'; 'prescribing in primary care', culinary medicine' integrating science and practice of diet, 'multi-morbidity' and critical analysis of interactions using video analysis and micro-ethnographic guide. This study aims to examine student experiences and perceptions of impact on future professional practice, as well as workplace-based and remote learning during the COVID-19 pandemic.

Approach

Data Collection: We will recruit medical students by purposive sampling and will use student communication channels, such as the student bulletin, in order to do this. We plan to interview around 20 medical students from the 5th year to understand their thoughts about learning experiences in their primary care course, which is intended to teach them about the thinking underpinning decision making in these settings. In order to explore students' thought processes in depth, interviews will be conducted 1:1 by a facilitator using a semistructured interview guide using MS teams, due to covid-19 restrictions. We will transcribe these interviews. Analysis: we will then perform a thematic analysis of the data, to identify codes and frequent themes, which emerge from the qualitative research.

Findings

This work is currently awaiting ethical approval. We anticipate we will gather rich data from student interviews and explore which sorts of teaching sessions and consultations have made an impact on them. We will also explore how they learned from the situation and the style of learning that occurred; was it more self or tutor-led? We will also explore how they responded to the scenarios they describe, for example anxiety in cases where they felt overwhelmed. We will explore the data to see if students do experience the intended benefits of this course and whether further restructuring is required.

Consequences

We will explore the data to see if students do experience the intended benefits of this course and whether further restructuring or support is required in order to maximise learning opportunities for students. This course is relatively unique and we hope learning from this project can be shared more widely to inform the training of medical students.

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## P1.19.03 Examiner perceptions of the UK Recorded Consultation Assessment introduced during the COVID-19 pandemic: cross-sectional study

Presenter: Prof Aloysius Niroshan Siriwardena

Co-authors: Vanessa Botan, Despina Laparidou, Viet-Hai Phung, Peter Cheung, Adrian Freeman, Richard Wakeford, Meiling Denney, Graham R Law

Institutions: University of Lincoln, Royal College of General Practitioners, University of Exeter, University of Cambridge

**Abstract**

Problem

Objective structured clinical examinations (OSCEs) for high stakes licensing assessments have had to be adapted to reduce risks to candidates, examiners and patients or simulators from COVID-19, and to allow trainees join the medical workforce. The Recorded Consultation Assessment (RCA) was rapidly piloted to replace the Clinical Skills Assessment (CSA) OSCE for UK general practice licensing during the pandemic. We aimed to investigate examiner perceptions of the RCA.

Approach

We used a cross-sectional survey of RCA examiners with attitudinal, demographic and free text response options. We conducted descriptive statistical and factor analysis of quantitative data using Stata 15.1 and qualitative thematic analysis for free text responses supported by NVivo 12.

Findings

Overall, 182 of 260 (70%) examiners completed the questionnaire. Responders felt that consultations submitted were representative of the work of a typical GP during the pandemic and provided a good sample of cases across the curriculum. They were also generally positive about the logistic, advisory, and other support provided, as well as the digital platform. Despite responders generally agreeing there was enough information available in video or audio consultations to judge candidates' data gathering, clinical management, and interpersonal skills, they were less confident about their ability to make judgments of candidates' performance compared to the CSA. The qualitative analysis of free text responses detailed the problems of case selection and content, explained examiners' difficulties when making judgments, and detailed the generally positive views about support, training, and information technology. Responders also provided helpful recommendations for improving the assessment.

Consequences

The RCA was feasible and broadly acceptable, although examiners experienced challenges of case selection, case content and judgments and suggested areas for improvement.

**Funding acknowledgement**

Royal College of General Practitioners

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## P1.19.04 Embedding Social Prescribing to the Medical School Curriculum

Presenter: Charis Sung

Co-authors: Jessica Hodgson

Institutions: Lincoln Medical School

**Abstract**

Problem

Social prescribing (SP) is now a key aspect of 21st century healthcare delivery and NHS Long term plan, yet it is missing from the core undergraduate curriculum in UK medical schools. We explored how to introduce this new content to ensure early years students understand what social prescribing is, how it works and why it is beneficial.

Approach

In devising the curriculum delivery format in a new medical school we used a combined approach. Collaboration was with student Social Prescribing champions, academic staff, Social Prescribing researchers and partner stakeholders from the voluntary sector. We devised structured content that makes use of the skills and resources available. Year 1: Intro to social prescribing – created and presented by social prescribing researchers, along with myself as social prescribing lead. Year 2: Talks given by expert patients who have benefited from social prescribing to enable medical student to see results from a patient's point of view – sourced by the voluntary sector. Year 3: Interactive simulated MDT– researched by social prescribing lead and researchers observing real time MDTs, then writing and performing a scripted MDT based around social prescribing, for medical student to see how it can work in action.

Findings

Results from the first two years of this pilot project show that the programme delivery has been well received by the cohort, with survey data so far showing that students have increased awareness (60%), interest in the subject (100%), and 63% were more likely to identify opportunities for SP on placement. We found that taking an integrated, structured approach which builds on the content and delivery year on year, first established a core knowledge base and secondly led to increased engagement from students in the topic. Having implemented SP into the curriculum, it will now be retained in the core timetable. We are currently in the process of more formalising our findings. Rather than student post-surveys, we are creating an assessment for this new content in the form of a case study. Students will complete this social prescribing based case study before and after the session and results can be directly compared, providing authentic results.

Consequences

Embedding SP into the early years curriculum in a structured and interactive manner is feasible and is an important addition to 21st century medical education. The pilot has also led to the creation of a novel link worker 'shadowing' scheme for medical students as part of an optional module, is association with regional SP stakeholders, as a further development.

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## P1.19.06 Does gender impact professionalism lapses at medical school?

Presenter: Dr Kiranjit Juj

Co-authors: Dr Gurvinder Sahota, Dr Jaspal Taggar

Institutions: University of Nottingham Division of Primary Care

**Abstract**

Problem

Medical School concern forms as a means of professionalism lapse identification is an internationally recognised approach by institutions and medical regulators. Written records of undergraduate professionalism lapses have shown associations with further medical school and postgraduate professionalism lapses. Furthermore the literature suggests males are more likely to have professionalism lapses than females. Despite the widespread research of medical professionalism there are few contemporary analyses of actual professionalism lapses at medical school. This innovative explorative study examines professionalism concerns throughout the entirety of a cohort's medical school journey.

Approach

This retrospective observational study was designed with a positivist, quantitative approach. The University of Nottingham (UoN) has a longstanding professionalism concern form submission process for medical students. 247 UoN medical students' pseudo-anonymised electronic professionalism records were reviewed for concern forms over the course of their 5 year medical degree (2012 entry cohort). These were matched with gender data to allow for analysis. Records were reviewed against the General Medical Council's Good Medical Practice (GMP) document as the professionalism standard and was used to identify forms as lapses. The GMPs 4 domains were used to broadly categorise lapses whilst maintaining anonymity of students.

Findings

37 forms with lapses were identified for 24 students (9.72% of cohort). 14 were for males and 10 for females, this difference was not statistically significant (p=0.05). 9 students (3.64% of cohort) received multiple professionalism lapse form submissions; 7 male and 2 female, this result was statistically significant (p=0.014). Males had most lapses for 'Knowledge, skills and performance' and females for 'Communication, partnership and teamwork'. Analysis of differences in form submission revealed no significant differences between gender and domain categorisation of lapses.

Consequences

In keeping with the literature, this study demonstrated the majority of students had no professionalism lapses identified and domain mapping was consistent with previous studies. In contrast, the authors found no significant gender differences in professionalism lapse data. However, males were significantly more likely to have multiple lapse forms. Study lapses highlight the need for undergraduate professionalism curricula to emphasise: 1) Appropriate communication with colleagues and wider staff. 2) The professional obligation of medical students to attend teaching/ placements. Identification of students with professionalism lapses is only as strong as the reporting mechanisms in the institution and variance may not be due to differences in student behaviour but in the recognition and recording. There is currently no set gold standard in how lapses should be identified and recorded. The authors advocate and term a '3 R's approach' of recognition, recording and remediation, which is based on professional identity formation principles. Future research is needed to explore the effectiveness in differing professionalism

reporting mechanisms and of the effect of remediation too future professionalism.

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## P1.19.07 How Has the COVID-19 Pandemic Impacted UK Medical Students' Experiences of Teaching and Learning? A National Survey

Presenter: Nicola Clarke

Co-authors: Agalya Ramanathan, Michael Harrison, Sophie Park, Yath Premadasan, Hugh Alberti, Liam McHale

Institutions: UCL, University of Newcastle

**Abstract**

Problem

The COVID-19 pandemic, and resulting social distancing restrictions, has caused an unprecedented disruption to the delivery of medical education worldwide. In the UK, the role of the medical student during the pandemic has been debated. We seek to elicit the view of UK medical students regarding the impact on, and changes to, their teaching and learning during this time. We also aim to seek their opinion on their role during this pandemic.

Approach

In a joint project between University College London Medical School and University of Newcastle Medical School, we sought the opinions of UK medical students using a national online survey. This has been distributed nationally via the Heads of Schools.

Findings

The survey is currently live; with over 180 responses thus far. Results will be presented with particular focus on clinical on-site learning, clinical off-site learning, synchronous and asynchronous remote teaching and the role of medical students during the pandemic.

Consequences

We will present the impact of the COVID pandemic on UK medical students' learning and teaching, and their role during the pandemic from their point of view. We hope this feedback can be utilised in order to help guide and develop both pandemic and post-pandemic teaching and learning in the future.

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## P1.19.08 Practical tips for virtual facilitation: Lessons from the Lancashire Next Generation GPs

Presenter: Nicola Cooper-Moss

Co-authors: Aaron Poppleton, Kirstie Caine, Amy Boydell-Smith, Umesh Chauhan

Institutions: University of Central Lancashire, University of Manchester, Irwell Medical Practice, NHS North West Leadership Academy

**Abstract**

Problem

Working in health and care against the backdrop of COVID-19 has led to significant changes in practice, priorities and people. There will no doubt be many lessons to emerge from this time over the coming months and years. Not least how the workforce, together with the community, came together (despite being physically distant) to respond with courage, creativity and a determination to adapt where possible. Here we share how the Next Generation GP Lancashire team adapted their approach, looked for the opportunities and embraced the learning to emerge from working virtually.

Approach

In March 2020, the Lancashire Next Generation GP team were in the process of organising physical events for a local leadership programme based on the existing national programme model. Following

cancellation of the programme due to COVID-19, regular virtual meetings were held to explore how to work differently. An associate from the NHS North West Leadership Academy contributed to discussions exploring virtual facilitation, leadership approaches and community building. The learning to emerge has shaped the design and delivery of the first virtual Lancashire and Manchester Next Generation GP programme.

Findings

Several recommendations emerged from the discussions around the transition towards working virtually. Firstly, there was early recognition of transition points indicating when to work differently, which were openly communicated with participants. Secondly, the new context presented the opportunity to reflect on how to shape the new approach to design, including building on feedback on both local leadership and community needs. Following this, community principles were examined to reduce potential barriers to virtual engagement and detailed consideration was given to the transition from creating a virtual community space into relationship building. 90 participants were subsequently recruited to the virtual programme, which is currently ongoing. Feedback from participants will be available to share at the meeting.

Consequences

The complex adaptive system environments in which we work require different approaches to leadership and facilitation at different points in time. These recommendations can be applied to establish a social learning architecture which optimises engagement and relationship building among virtual communities. Ten top tips will be presented in the meeting, which can be flexibly applied to develop shared leadership approaches and design of other educational programmes which are transitioning into virtual delivery.

**Funding acknowledgement**

The NHS North West Leadership Academy provided funding for the mentoring support as detailed.

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## P1.19.09 Introducing quality improvement in the final year general practice placement at UCL medical school.

Presenter: Nitisha Nahata

Co-authors: Rebecca Mackenzie, Will Coppola, Sophie Park

Institutions: UCL Research Department of Primary Care and Population Health (University College London), Rebecca Mackenzie University College London Hospitals

**Abstract**

Problem

Clinician engagement in ongoing health service quality improvement (QI) is an important component of improving clinical outcomes. The Academy of Medical Royal College (2016) advocates the inclusion of QI in the undergraduate medical curriculum and the General Medical Council has declared it as one of its outcomes for new graduates (GMC, 2018). Yet, undergraduate medical curricula are varied in their coverage of the subject: from a complete absence, to an extracurricular activity, to structured teaching. The most promising form of experiential learning combines classroom learning with practical projects (Health Foundation, 2012). With this knowledge, UCL medical school introduced QI teaching combined with a QI project task for the primary care assistantship module in the final year of the MBBS program. Our objective is to evaluate the effectiveness of this teaching in improving self-reported understand of QI, confidence in the applying taught QI

techniques and recognition of QI as part of 'the duties of a doctor'. A secondary objective is to evaluate the GP tutors' experience in supervising quality improvement projects in primary care.

Approach

Using a mixed-method approach to gather student views, we collected data from pre- and post-placement Likert Scale surveys (with a free text box) and organised a focus group with 12 final year medical students (2 from each placement cohort). We also conducted a focus group with 10 GP tutors. Observations were noted during the focus group contemporaneously. Focus group recordings were transcribed verbatim, anonymised and thematically analysed using a framework approach.

Findings

These include participant perspectives such as the experience of organisational culture and dynamics, opportunity to practice 'soft skills' and usefulness of structured teaching. We will discuss the importance of context, including practice characteristics, GP tutor and student attitude, GP tutor's QI knowledge and placement timing in relation to the COVID-19 national lockdowns/vaccination drives. We will share examples of topics undertaken; impact on practices; and the value they attach to the exercise. We will also explore the opinions of students and GP tutors regarding the scope of the QI project (e.g., the utility of a partially completed project laying the groundwork for other practice members to take forward in the future). Barriers to undertaking a QI project include insufficient time during the placement, conflicting practice and student priorities, inadequate support or supervision.

Consequences

Our findings will provide insights and explanations to inform future re-structuring and development of QI project implementation in the general practice setting and maximise effectiveness for students and the GP practices.

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## P1.19.10 Sedentary behaviour in General Practice; Should we be taking a stand?

Presenter: Richard Mayne

Co-authors: Nigel Hart, Neil Heron

Institutions: Queen's University Belfast

**Abstract**

Problem

Excessive sedentary behaviour is associated with a number of adverse health outcomes and increased all-cause mortality. Despite this, General Practice has traditionally been a highly sedentary job. However, a recent systematic review identified that sedentary behaviour among GPs has had minimal previous investigation. GPs are at the coalface of the NHS, with unique opportunities for the promotion of healthy lifestyles. They are also among the most trusted professions within the British public. GPs who are more physically active are more likely to recommend physical activity to their patients. Patients are more likely to act on lifestyle advice from their clinician if they feel that the clinician follows the lifestyle advice themselves. By reducing their sedentary behaviour and increasing their physical activity, GPs could therefore play a crucial role in creating a less sedentary and more physically active society. This study gained quantitative data on levels of sedentary behaviour among General Practitioners working in the UK NHS.

Approach

A multi-item, validated, sedentary behaviour questionnaire survey was disseminated to GPs working in Northern Ireland. Subsequently, a

purposive, maximally varied sample of 20 participants were recruited to wear thigh-worn accelerometers and complete a sleep/work log. This allowed comparison of subjective, self-reported data with objective, accelerometer data regarding their levels of sedentary behaviour.

Findings

Out of 1999 GPs in Northern Ireland, the questionnaire received 352 valid responses (response rate of 18%). Overall mean workday sedentary time for GPs was 10 hours 20 minutes. Overall mean non-workday sedentary time was 4 hrs 47 minutes. Only 6% of GPs had access to an active workstation, such as a sit-stand desk. 86% of those who didn't have an active workstation would consider using one. GPs who would not consider using an active workstation were older than those who would consider using one (45 vs 40 years ($p = 0.017$)). Those that had access to an active workstation had an overall mean workday sedentary time of 7 hours 53 mins. Those that did not have access to an active workstation had an overall mean workday sedentary time of 10 hours 28 mins. This was a statistically significant difference of 2 hours 35 mins ($t = 3.459$; $p = 0.001$). 81% of GPs reported they are spending more time sitting in work now than prior to the COVID-19 pandemic. 87% of GPs would prefer less time sitting in work.

Consequences

Sedentary behaviour among GPs has increased since the onset of the COVID-19 pandemic, with the vast majority of GPs having excessive sedentary behaviour. Further research is required to identify ways of reducing sedentary behaviour and increasing physical activity among GPs in order to improve the health and happiness of General Practice staff and patients alike.

**Funding acknowledgement**

Richard Mayne's study fees and maintenance come from Health and Social Care Research and Development Division, Public Health Agency's GP Academic Research Training Scheme and EAT/5332/19.

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## P1.19.11 The impact of cognitive load on clinical practice in AEC - can team working mitigate the effects?

Presenter: Sara McKelvie

Co-authors: Dr Margaret Glogowska, Professor Daniel Lasserson, Professor Joanne Reeve

Institutions: University of Southampton, Oxford Health NHS Foundation Trust, University of Oxford, University of Warwick, Hull and York Medical School

**Abstract**

Problem

AEC (Ambulatory Emergency Care) provides acute assessment and treatment in the community with patients staying in their own homes or care homes overnight (or in between visits). This ethnography aimed to understand the cognitive work of the senior clinicians in the AEC environment.

Approach

Three AEC sites were purposively sampled to recruit twelve clinicians with backgrounds in Geriatrics, General Practice, Emergency and Acute Medicine. This qualitative investigation used focused ethnography within a case study approach to understand the decision-making processes in the context of the AEC environment. Observation during an AEC shift was complemented by informant interviews. A framework approach to thematic analysis used a priori and data derived codes to develop explanatory themes. Ethnographic principles of constant comparison and

cognitive task analysis were used to evaluate the clinicians' decision-making processes for index patient cases.

Findings

This ethnography established three environmental factors in AEC that increased cognitive load; high demand, low time and disruptions. AEC clinicians described their experiences of working under cognitive load as fear of forgetting, frustration and anxiety about the potential for error. Clinicians managed cognitive load caused by their environment by varying the work task, the duration of the task, the way they enact the task and the team members involved in the task. Cognitive load affected decision making through altered task time, referral thresholds, clinical behaviours and team working. Task time altered in response to environmental pressures, particularly disruption and high demand. Clinicians controlled AEC demand by altering their referral thresholds; reducing patient acceptance rates when demand was high or actively seeking patients when AEC had capacity. Clinical roles were altered under cognitive load with shared responsibility and mutual support enabling cohesive teamwork.

Consequences

The impact of teamwork on mitigating environmental pressures in urgent care is a new insight gained from interpretation of the ethnographic data in this study. Further research is needed on team-based decision-making in urgent care setting including urgent primary care. It is hoped this work will inform the development of generalist curriculum for future interdisciplinary teams working in urgent primary care.

**Funding acknowledgement**

This research was funded by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care Oxford at Oxford Health NHS Foundation Trust. The views expressed are those of the author(s) and not necessarily

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## P1.19.12 Evaluation of undergraduate medical education "Primary Care Culinary Medicine" course innovation

Presenter: Sara Thompson

Co-authors: Sara Thompson, Jessica Xie, Abinav Bhansali, Victoria Vickerstaff, Shoba Poduval, Elaine Macaninch, Sophie Park

Institutions: Department of Primary Care and Population Health University College London, Culinary Medicine UK

**Abstract**

Problem

There is a growing body of evidence that medical students globally recognise the value of nutrition and dietary intervention in clinical care, and that there is currently an unmet need for teaching in this area in the majority of medical schools. A learning needs assessment was conducted (Xie et al, 2020) to inform the development of a Culinary Medicine course situated within students' 6-week General Practice rotation. The new course combines discussion of patients encountered during placements with practical kitchen experience; motivational interviewing practice; and discussion of case studies and implementation of the relevant evidence-base. In particular, the course focuses on enabling engagement with patients across different socioeconomic and cultural contexts. Our aims were to evaluate student satisfaction and perceptions to assist with course development. Also to assess any changes in self-perceived confidence in nutrition clinical skills.

Approach

A learning needs assessment was carried out and analysed prior to the development of this course (Xie et al, 2020). Students completed an online questionnaire after their face-to-face workshop for the first two terms of the academic year 2019/21. A variety of question styles were used: Likert-type, multiple choice and free text. Quantitative analysis of Likert-type and multiple choice questions was carried out to compare student confidence in nutrition skills pre and post workshop. Qualitative thematic analysis was used to analyse free text responses and identify themes for improvements. Iterative improvements to the curriculum were made using an action research model to incorporate student and facilitator reflections.

Findings

Student's confidence in nutrition assessment skills increased from 48% to 80% and confidence to discuss nutrition with patients from 20% to 59% comparing data from the needs assessment to post attendance. Main positive themes included the multi-professional teaching team; engaging format; and clinical relevance. However, some students wanted clearer links to student assessment and a wider range of advice for specific clinical conditions, with many students requesting more curriculum time.

Consequences

Our findings show the efficacy and acceptability of a hands-on "Primary Care Culinary Medicine" course in meeting students' nutritional education needs. Utilising student and facilitator feedback helps to develop novel, short practical and clinically focused nutrition teaching. There is potential to replicate this model across other medical schools to enable future doctors to better identify and support the nutritional needs of patients with chronic diseases and multi-morbidity.

## P1.19.13 Clinical humanities - a precursor to social prescribing?

Presenter: Sarah Chitson

Co-authors: Dr Ann Wylie

Institutions: King's College London

**Abstract**

Problem

Social prescribing and clinical humanities are encouraged by RCGP, with Public Health England and the NHS actively promoting and implementing social prescribing. How is this to be reflected in medical undergraduate curricula? This study examined the relationship between clinical humanities and social prescribing, to assess the impact of clinical humanities in medical undergraduate GP teaching and whether this could be an antecedent to developing social prescribing skills. It draws on the lessons learnt from an undergraduate curriculum implementation of social prescribing and clinical humanities projects.

Approach

As part of the undergraduate medical curriculum, second-year students (n=400) undertook a student-led group project during their longitudinal general practice placement. Half of the groups explored social prescribing for physical activity, the Active Practice project, and half carried out a clinical humanities project producing a creative response to their placement. Qualitative data were coded using NVivo 12 software and findings triangulated. The data analysed included: • Two focus groups with students from Active Practice cohort (n=7, n=8) • Free text comments from GP tutor evaluation questionnaires (n=15) and student evaluation • questionnaires (n=315), both cohorts. • A sample of student reflective essays submitted for assessment: Active Practice (n=18), Clinical Humanities (n=19)

Findings

Students from the clinical humanities cohort demonstrated learning which linked with the Active Practice project, sometimes triangulating with areas identified for improvement. Humanities students understood and empathised with vulnerable patients' health in the context of their lives. This linked with Active Practice findings to tailor the approach to suit patients' own goals, increase participation and satisfaction. Humanities students grasped the local nature of general practice, reporting a better understanding of the demographic issues. Some Active Practice students commented that they needed better insight into the Practice and its community to create a project with more sustainable impact. Humanities students engaged on a personal and emotional level with patients in a way which was able to motivate the team to move forward with ambitious projects. Both Active Practice and Clinical Humanities projects built students' knowledge of the structure of primary care, including clinical commissioning and interactions with local services related to their projects.

Consequences

There is scope for medical students to have experiential learning opportunities in General Practice concerning clinical humanities, which can be beneficial for student learning and empathising, enabling GPs to develop their social prescribing skills and potentially improving patients' lives. In the current cohort, COVID-19 has produced additional challenges for the projects such as reduced placement which may impact on the experiential learning gained. The pandemic has further highlighted the significance of social determinants of health including physical activity on morbidity. Consequently, clinical humanities and Active Practice projects are important to enable medical students to influence these social determinants in their future careers.

## P1.19.14 Challenges and Innovations in Remote Placements for Medical Students

Presenter: Dr Tom Garratt-Kirk

Co-authors: Dr Ellie Hammond, Professor Jo Protheroe

Institutions: Keele University Medical School

**Abstract**

Problem

Keele University Medical School prides itself on its Early Clinical Placements in Primary Care Scheme for years 1 and 2 medical students. These placements are usually in-situ giving students early clinical exposure, with student-patient encounters having an educational rather than clinical focus. Our team showed innovation and adaptability to deliver the ECPPC despite facing considerable obstacles due to the COVID-19 pandemic. This included safety considerations of patient's students and clinicians, equity of experience for students, teaching practice recruitment and retention issues and developing an online format and resources at short notice with constantly changing governmental guidelines.

Approach

In order to maintain the safety of all parties concerned, clinical placements were converted into an online format whereby students had a video encounter with a GP tutor in practice and a patient for an educational encounter using online platforms. After the programme had been developed, the Medical Schools Council and GMC subsequently published guidance (1,2), which aligned with the AGP Keele team placement vision. As the pandemic progressed, further lockdowns meant students were told to leave campus and return home. Many teaching practices withdrew due to workload and workforce pressures. This posed new difficulties maintaining equity of student experience, patient confidentiality and

sustainability of placements. Remote placement tutorials were created in order to remedy these issues. In this innovative format students reviewed pre-reading materials and a playlist of pre-recorded patient consultations from the Virtual Primary Care Website (3). Consultation analysis with a clinical facilitator formed the basis of the tutorial, following student 'break out room' discussions. The remote format allowed recruitment of practices further afield and those who traditionally lack room capacity, making delivery of remote clinical placements more sustainable than their in-situ counterparts.

Findings

This scheme continues to develop but has proved effective in being able to find placements for all students despite multiple setbacks and fulfil the teaching requirements for years 1 and 2 Undergraduate Medical Students. Informal feedback has been and will be gathered throughout the year. After the initial pilot of year 1 and 2 remote placements/ tutorials, both students and GP tutors generally felt these were an engaging, interactive and effective teaching tool. The team is also undertaking a pilot to include more clinical consultations in the remote programme, in partnership with a local longstanding GP teaching practice. A more formal evaluation will be completed at the end of the academic year.

Consequences

The overwhelmingly positive informal feedback and ability to deliver remote primary care placements and tutorials has massive implications for the future. It provides a sustainable way forward for recruitment of practices, mobilising a greater pool of practices geographically, whilst maintaining safety and providing an equitable and high standard of teaching for students.

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## P1.19.15 Can the presentation of research findings as composite narratives address challenges of reflexivity and confidentiality for insider researchers?

Presenter: Zoe McElhinney

Co-authors: Catherine Kennedy

Institutions: University of Dundee

**Abstract**

Problem

Researchers are often drawn to investigate topics which concern them directly, increasing the likelihood that they will investigate their own workplaces. As 'insider researchers' they must acknowledge their own feelings and opinions about the phenomena they are investigating and ensure reflexivity, perhaps drawing on autoethnographic study to examine their own experience of the phenomenon. The close proximity of research participants, who may be their colleagues, enhances the need to ensure their anonymity, particularly if the setting for the study is small or clearly identifiable. This approach can also raise questions of how to maintain confidentiality if the research is to be disseminated. This paper describes how the author addressed these concerns by taking a methodological approach of creating composite narratives. This involved combining narrative data from participants with the researcher's autoethnographic narrative, blending the experiences of multiple participants into a representative whole. Composite narratives are a means of presenting research findings which have not, to our knowledge, previously been used in medical education research.

Approach

Composite narratives were utilised in researching the pathways into and experiences of being an Academic GP at a

Scottish University. The philosophical approach to the research was constructivism which emphasises the importance of multiple viewpoints in understanding a phenomenon as well as the importance of understanding the researcher's own constructs. These must be synthesised with the data to come to a new level of knowledge of the phenomena under investigation. Aligned with this constructivist approach, multiple methods of data collection were employed including written autobiographical narratives, semi-structured individual interviews and the author's autoethnographic study (comprising written narrative and interview). Written and interview data was analysed independently by two researchers using a thematic narrative approach. Composite narratives were produced by multiple readings of the data to discern commonalities within participants' narrative arcs as well as common predominant themes. Three groups who shared common experiences were identified and three composite narratives which synthesised the data from the participants in these groups were produced.

Findings

Composite narratives are an effective way of conveying findings in research where it is important to preserve the anonymity of participants. In the case of insider research, they can be used to combine autoethnographic enquiry with data from other participants to enhance reflexivity for the researcher and anonymity for participants including the researcher.

Consequences

Composite narratives can convey emotionally authentic findings while addressing some of the concerns raised by insider research and autoethnography. They make research findings accessible to audiences from the lay as well as scientific communities, and as such could be useful in disseminating research findings to policy makers and the public.

## P1.20.2 GPs' perceptions of their relationship with the pharmaceutical industry: a qualitative study

Presenter: James Larkin

Co-authors: James Larkin1 MSc, Ivana Pericin2 MSc, Maurice Collins3 MSc, Susan M. Smith1 MD, David Byrne1 MB BCh BAO, Frank Moriarty4 PhD

Institutions: 1. Department of General Practice, RCSI University of Medicine and Health Sciences, Dublin, Ireland 2. School of Social Work and Social Policy, Trinity College Dublin 3. Department of General Practice, RCSI University of Medicine and Health Sciences, Dubl

**Abstract**

Problem

The pharmaceutical industry invests heavily in promoting medications to physicians. This promotion is associated with inappropriately increased prescribing rates, lower prescribing quality, and/or increased prescription costs. GPs are likely to be an important promotional target for the pharmaceutical industry because they are high initiate a high proportion of patient prescriptions. Ireland offers an interesting case study, as the regulatory environment is similar to many European countries. This study therefore aimed to understand GPs' experience of interacting with the pharmaceutical industry, and explore their views and perceptions of the impact of this interaction on general practice in Ireland.

Approach

A qualitative design was used, and GPs practicing in Ireland were eligible. A phenomenological approach was applied in order to gather rich, in-depth data and gain a better understanding of GPs' perceptions and everyday experiences. A combination of

purposive and snowball sampling was used to recruit participants. Semi-structured interviews were conducted. Thematic analysis, following a six-step process, was used to develop themes from the data.

Findings

Twenty-one GPs and one GP trainee participated. Five themes were developed: (1) GP and pharmaceutical industry interface, (2) the industry's methods of influence, (3) the uncomfortable relationship between GPs and industry, (4) GPs' perceptions of being unconsciously influenced, and (4) GPs' lack of knowledge of relevant regulations. Participants interacted with pharmaceutical representatives in their surgery and through continuing professional development (CPD). Reported methods of influence included biased information and the offer of gifts. Some participants chose not to meet with pharmaceutical representatives. Most participants felt their prescribing was unconsciously influenced by pharmaceutical representatives. A minority felt that they were only influenced in a way that improved their prescribing. The study shows that GPs in Ireland are interacting with pharmaceutical representatives in a variety of contexts. Also, that there can be a lack of clarity among GPs about relevant regulations and about the potential impact of interactions with the pharmaceutical industry on prescribing.

Consequences

These findings provide an in-depth understanding of the processes involved in the relationship between the pharmaceutical industry and GPs as well as an understanding of the variation in GPs' perceptions of the industry and its potential influence over their profession. This can inform strategies to ensure an appropriate relationship between GPs and the pharmaceutical industry. Educational bodies should consider providing more education on regulations, guidelines, and best-practice surrounding interactions with the pharmaceutical industry. As evidenced by this research, some educational groups and GP practices have a policy of not interacting with the pharmaceutical industry. Introducing these policies more widely, has the potential to reduce the impact of pharmaceutical representatives on prescribing. However, alternative educational funding for CPD would need to be established.

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## P1.20.3 Exploring public attitude toward using community pharmacy for management minor Ailments

Presenter: Suha Alharbi

Co-authors: Tracey Thornley and Claire Anderson

Institutions: Division of Pharmacy Practice and Policy, School of Pharmacy, University of Nottingham, Nottingham, UK

**Abstract**

Problem

Demand for healthcare services is increasing due to the number of older people and people with long-term conditions. Increasing the use of community pharmacy (CP) services for minor ailments (MAs) could help relieve pressure on healthcare providers. In the United Kingdom (UK), CPs are recognized as a place for treatment and advice for MAs. Understanding public attitudes toward these services are useful for future planning and development. We aimed to explore public attitudes toward using CP for the management of MAs pre-COVID-19.

Approach

A mixed-methods approach was adopted utilising validated online surveys, and telephone interviews. The survey was distributed through a marketing research company and participants asked to take part in interviews. This research was undertaken between October 2019 and mid-March 2020

(before and during COVID-19). The survey and interview guide were designed to meet the study objectives developed by the researchers. Data were analysed using descriptive statistics and thematic analysis. Ethical approval was obtained for this study.

Findings

208 responses were available for analysis with a response rate of 20%. More than half of the participants were female (59.1%), and the majority of them below 35 years old. 82% of the participants had visited CP at least once within the last six months. Most participants felt that the pharmacist and their team could help with MAs (72% (n =150)). However, the most preferred source of information to manage MAs was personal experience then family or friends. While the NHS111 was the lowest favourable source of advice. Regarding pharmacists' role in self-care, 85 % of the participants thought that the community pharmacist could provide advice to them to improve their health. The pharmacist prescriber's role in self-care was also recognized by 56% of the participants. Furthermore, 40% thought that the community pharmacist role in self-care could be through referring them to other health care providers 40 %, providing educational material 38%, and signposting them to online material 34%. Twelve participated in semi-structured telephone interviews. Overall these participants were positive about using CP for managing MA, and three main themes emerged from the interviews: 1) Accessibility of community pharmacy, 2) positive perception about CPs and pharmacist, and 3) facilitators and barriers to use CP for managing MA.

Consequences

This study indicates that a significant number of participants are willing to accept the pharmacist's role in managing MAs. This is useful in informing policymakers and pharmacy professional organisations what is required to further advance the services in the CP. However, the result of this study should be applied with caution due to the small sample size and impact of COVID-19 on services delivered by General Practitioners and CPs.

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## P1.20.4 Recruiting Chinese Participants into an End-of-Life Care Research: Strategies and Outcomes

Presenter: Susan Zhao

Co-authors: Prof Jeremy Dale, Dr Rachel Potter

Institutions: University of Warwick

**Abstract**

Problem

Undertaking end of life (EoL) research faces many challenges from study design to recruitment, particularly studies involving ethnic minority groups. Chinese people have specific beliefs and attitudes towards death and dying, which may affect the delivery of EoL care and participation in research. Here we describe strategies used to recruit Chinese participants to an EOL study in community settings in England.

Approach

Methods of publicising the study included posters displayed in the areas with high density of Chinese population, working with community organisations, and word of mouth using social networks. A 'same as them' approach was employed to build trusting relationships, reach participants, and collect sufficient data. The success of recruitment approaches was assessed based on number of participants approached and consented.

Findings

Between September 2020 and December 2020, we successfully recruited 53 participants. Of these 37 (69.8%) were

recruited through work with community organisations, which mainly recruited from London, Manchester and Liverpool. 16 (30.1%) through word of mouth using social networks, which mostly recruited from West Midlands. The poster display approach was not effective in the study. Use of multiple culturally relevant strategies (e.g., building trusting relationships through enrolment, use of bilingual researcher, support from gatekeepers of community organisations, and employing linguistically appropriate materials) was crucial to recruitment. Our "same as them" approach of recruitment was another important factor contributing to our successful recruitment.

Consequences

A range of strategies and substantial effort was required for successful recruitment into a study of Chinese caregivers in EOL care. The applied strategies may be applicable to the more widespread issue of recruitment and retention of Chinese participants in research.

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## P1.21.1 Changes in the human microbiome among community-based individuals experiencing respiratory tract infection: exploratory analysis of a feasibility cohort study.

Presenter: Claire A Woodall

Co-authors: Claire A. Woodall1, Ashley Hammond1, Peter Muir2, Ben Pascoe3, Sam Sheppard3, Andy Preston3 and Alastair D. Hay1.

Institutions: 1Centre for Academic Primary Care, Population Health Sciences, Bristol Medical School, University of Bristol, Canynge Hall, 39 Whatley Road, Bristol BS8 2PS, UK. 2Public Health England, South West Regional Laboratory, National Infection Service, Southmead

**Abstract**

Problem

There are a distinct lack of studies tracking microbial provenance during an RTI episode. Our longitudinal feasibility study was designed to address this lack of evidence by recruiting community-based individuals with an RTI and identify microbial patterns before, during, and after the RTI episode and also to reveal microbial biomarkers suggestive of susceptibility to RTI acquisition.

Approach

Adults were recruited between October 2019 and March 2020 and stool and saliva samples were collected from participants, as a proxy for gut and upper respiratory tract, respectively. Participants reported RTI symptoms (RTI-S) and collected samples at three time points: (As) pre-RTI, (B) during-RTI and (Cs) post-RTI. Whereas those with no RTI symptoms (non-RTI) collected samples at two time points: (An) pre-RTI and (Cn) post-RTI. Bacterial genomic DNA was extracted, amplified and the 16S rRNA gene was sequenced. Taxonomic and statistical analysis was performed using QIIME2 and R. Reverse transcriptase (RT)-PCR was used to detect respiratory pathogen gene targets including the SARS-CoV-2 virus. Covariate demographic, characteristic and PCR data were cross-tabulated with the associated microbial profile.

Findings

In total, 19 and 28 participants reported RTI-S and non-RTI, respectively. The mean age of RTI-S participants was 46.1 years and 74% were female. Non-RTI participants had a mean age of 48.3 years and 50% were female. A total of 104 stool and 104 saliva samples were analysed. We compared microbiome diversity between As and An (Shannon alpha diversity index, $p = 7.17 \times 10^{-8}$) and between; A to B ($p = 3.18 \times 10^{-2}$), B to C ($p = 2.50 \times 10^{-6}$), A to C ($p = 2.96 \times 10^{-6}$) also in saliva samples

between coagulase-negative Staphylococcus sp., (CoNS) positive vs CoNS negative (p = 0.0012). All samples were negative for coronavirus Beta-Cov, E and SARS-CoV-2, S genes. In RTI-S and non-RTI saliva at time-points As and Cs, 73.7%, 57.1% and 76.5%, 47.6% were PCR positive for CoNS respectively and RTI-S saliva at time point B, 84.2% were positive for CoNS.

Consequences

Our feasibility study has demonstrated successful recruitment of participants and collection of samples despite Covid-19 disruptions. Preliminary longitudinal microbiome data highlights dynamic microbial dysbiosis that occurs in the gut and oral cavity during an RTI. Further research is necessary to understand causal pathways.

**Funding acknowledgement**

This work was supported by in part the Medical Research Council and Wellcome Trust Institutional Strategic Support Fund (WT ISSF), awarded to CAW on a Daphne Jackson Trust Development Fellow in collaboration with the Elizabeth Blackwell Institute

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## P1.22.1 What are the experiences of carers supporting individuals taking multiple medications?

Presenter: Sarah Spencer

Co-authors:

Institutions: QMUL

**Abstract**

Problem

Polypharmacy is a complex area, involving not only clinicians' decision to prescribe, but also individual patients' perspectives on medicine taking, their capacity to fit medicine-taking into their daily lives and the support that is available to facilitate this. Approximately a third of all prescribed medicines in the United Kingdom are not taken as prescribed (WHO 2003). This study aimed to extend our understanding of carers' perspectives and priorities in relation to medicine-taking and to develop an appreciation of how this affects medication practices in the home.

Approach

This was a narrative study using semi-structured interviews and ethnographic observation. Eight participants who provided regular informal care to individuals prescribed five or more medications were recruited from a carers support group. Interviews were transcribed verbatim and analysis was guided by a discursive approach which generated four inter-related themes: Medication Facilitation, Relationships, Prioritising the Normal and Information Gathering.

Findings

Carers' perspectives affect the care that they provide in the home environment. Clinicians should be cautious when discussing the needs of the carer or patient as individuals. In this study, their needs were very much entwined. Carers were acutely aware of the dangers of medicine taking. This often resulted in increased workload in the form of safety netting and increased emotional burden. Carers had good relations with their doctors but were often uncertain about the boundaries of their responsibilities regarding medication taking. This occasionally resulted in covert monitoring and information gathering from the internet, support groups and other non-medical means.

Consequences

There is recognition within government that the health and social care system should be adapted to support the needs of carers. They recommend that informal carers' expertise should be recognised and that their views ought to be considered in decision making. The results of this study suggest this should go

further, by encouraging healthcare professionals to understand the importance of the prior relationship and to establish carer/patient priorities in medicine taking. Neglecting to do so may inhibit carers from seeking support when they need it and result in medication regimes being covertly adapted.

**Funding acknowledgement**

I am a GP ACF hosted by QMUL

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## P1.22.2 A systematic review and meta-analysis of the prevalence and impact of potentially inappropriate prescribing in middle-aged adults

Presenter: Michael Naughton

Co-authors: Mariam Molokhia, Frank Moriarty, James Bailey, Liza Bowen, Patrick Redmond

Institutions: King's College London

**Abstract**

Problem

Potentially inappropriate prescribing (PIP) is known to be common in the elderly and to be associated with adverse clinical outcomes, such as increased healthcare utilisation and adverse drug reactions (ADEs), as well as increased economic cost. Work in Ireland and London have shown that PIP may be common in middle-aged adults (MAA). However, the effects of the of this prescribing in MAA on health, quality of life (QoL) and economic outcomes is unclear.

Approach

A systematic review and meta-analysis were conducted according to the PRISMA reporting guidelines (PROSPERO CRD42020206617-registered 07/10/2020). Searches were performed in Ovid Medline, Embase, CINAHL, Cochrane Library, Web of Science, ProQuest Dissertation and thesis database, OpenGrey, Clinicaltials.gov and WHO ICTRP. All papers were eligible through to September 2020. Inclusion criteria were, studies that: applied an explicit PIP criteria to adults in 45-64 year age group, reported the prevalence of PIP or outcomes associated with PIP. Studies where no English language translation could be obtained, letters, opinion pieces, editorials, case series, case studies and studies using implicit PIP criteria were not included. Risk of bias and overall certainty of findings were assessed using the QUIPS and GRADE tools.

Findings

8,183 records were screened following deduplication. Of these, 87 met our criteria and underwent full text review. Twenty-three studies were included in a narrative synthesis. Fifteen unique PIP criteria were used to define PIP in the middle-aged in these studies. Only one PIP criteria (PROMPT) was designed for use in the middle-aged population. Most studies were focussed on the elderly with some MAA included. Four studies which had disaggregated prevalence data for the middle-aged were included in a meta-analysis (PIP prevalence 38%, 95% CI 25-52%, n=753,030; I2= 99.9%, $p<0.01$, High certainty (GRADE criteria). Individual studies showed female sex, number of medications, number of long-term conditions and level of education were determinants of PIP in MAA. Two small cohort studies reported the association of PIP with clinical outcomes, healthcare utilisation and a quality-of-life score, however in these studies no statistically significant association between PIP and these outcomes were shown. Risk of Bias assessment of the papers found: 3 were high risk; 11 were moderate risk; 8 were low risk.

Consequences

Potentially inappropriate prescribing in middle aged adults is common. Some determinants of PIP have been described, however more detailed analysis of the effects of deprivation are lacking. Overall, there was insufficient data on whether PIP has any

negative health, quality of life or economic outcomes in middle aged adults, therefore no robust evidence was available.

**Funding acknowledgement**

Dr Michael Naughton's post is funded by the National Institute for Health Research (NIHR) and Health Education England (HEE).

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## P1.23.1 The impact of patient mental health on the identification and referral to specialist services for Domestic Violence and Abuse before and during the COVID-19 pandemic: an observational cohort study

Presenter: Dr Caroline Coope

Co-authors: Dr Elizabeth Emsley, Professor Gene Feder, Dr Eszter Szilassy

Institutions: Bristol Medical School (Population Health Sciences), University of Bristol, Bristol, UK

**Abstract**

Problem

The COVID-19 pandemic has resulted in changes to service delivery within General Practice and public utilization of those services, the consequences of which are yet to be fully realised. Two of the most immediate impacts appear to be an increase in presentations for Common Mental Health Conditions at General Practice together with a concomitant suppression of disclosures of domestic violence and abuse (DVA) to services. We aim to explore changes in primary care use (consultation type, reason for consultation and outcomes of consultation) within a DVA affected population of adults with and without prior Common Mental Health Conditions and co-morbidities (significant past or active problem) during the IRIS+ intervention period (June 2019 to 31 December 2020). This population of primary care patients form part of a feasibility study which is testing an adaptation of IRIS called IRIS+ which involves a training and support programme to facilitate identification and referral to specialist services of patients affected by DVA, including women, men and children, through general practice.

Approach

The study uses a mixed methods approach incorporating an observational analysis of service data extracted from General Practice Electronic Medical Records and specialist DVA services across two UK Regions, and semi-structured interviews and questionnaires with healthcare professionals and patients.

Findings

We will present the results of the mixed methods analysis to describe changes in primary care use within a DVA affected population of patients comparing those with existing and past Common Mental Health Conditions and co-morbidities, before and during the COVID-19 pandemic, to identify those most vulnerable to presenting with Common Mental Health Conditions to General Practice during the pandemic. Data from qualitative semi-structured interviews will provide insight into the barriers and facilitators for identification and referral to specialist DVA services within this population.

Consequences

How the COVID-19 pandemic has impacted on the mental health of men and women affected by DVA is yet to be fully understood. Exploring the possible role of past and existing Common Mental Health Conditions and co-morbidities, within this already vulnerable group, on presentations to General Practice during the pandemic may help us understand better this impact and how best to target help and support to this group.

**Funding acknowledgement**

IRIS+ is part of the REPROVIDE programme (Reaching Everyone Programme of Research On Violence in diverse Domestic Environments), an independent research programme funded by the National Institute for Health Research (Programme Grants for Applied Research)

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## P1.23.2 Evaluating the clinical and cost effectiveness of an online support tool to help reduce antidepressant medication use where there is no longer a clinical need. The WiserAD Study

Presenter: Cath Kaylor-Hughes

Co-authors: Amy Coe, Maria Potiriadis, Susie Fletcher, Patty Chondros, Mary-Lou Chatterton, Cathy Mihalopoulos, Tony Kendrick, Malcolm Hopwood, Daniel Hoyer, Tim Chen, Chee Ng, Dee Mangin, Douglas Boyle, Jill Klein, Jane Gunn

Institutions: University of Melbourne,

**Abstract**

Problem

The use of antidepressants is increasing globally, and Australia is no exception, having one of the highest rates of prescribing in the world. Despite the clear benefits of antidepressants for many people, there is reason to believe that ongoing use of these medications are often not properly monitored or deprescribed when a person's mental health improves. This has led to potential personal and societal cost burdens. This single blind, 1-1, parallel-arm randomized controlled trial sets out to test the clinical and cost effectiveness of an online support tool to help patients and their general practitioner to manage the careful and appropriate tapering and cessation of antidepressants, in primary care.

Approach

312 patients with mild or no symptoms of depression and who have been taking antidepressants for longer than 12m will be recruited through GPs. Consenting patients will be randomized into either the active arm where they will be asked to reduce their medication with the aid of a digital, clinically guided support tool. Those allocated to comparison arm will be provided with information about antidepressants through the beyondblue website (a federal and state funded independent mental health organisation in Australia). Both groups will be followed up at 3,6,12,18 months in order to record ongoing levels of depression, anxiety and quality of life. Health economic information will also be collected.

Findings

Statistical analysis will be used to determine the clinical effectiveness of the online tool where the primary outcome will be measured through the successful cessation of medication at 6 months and levels of depression remain mild or absent. An economic evaluation will be conducted to determine the cost effectiveness of the intervention and its' impact on quality of life, compared to usual care.

Consequences

It is expected that the use of an online support tool to assist patients and their GP with the deprescribing will lead to the successful cessation of antidepressant medication, resulting in an enhanced quality of life and cost saving over the longer term, compared to treatment as usual.

**Funding acknowledgement**

NATIONAL HEALTH AND MEDICAL RESEARCH COUNCIL (NHMRC)

## P1.23.3 Grief in old age - Acceptability of a web-based self-management intervention from the perspective of persons affected and health care experts

Presenter: Franziska Foerster

Co-authors: Margrit Löbner, Franziska Welzel, Janine Stein, Steffi G. Riedel-Heller

Institutions: Institute of Social Medicine, Occupational Health and Public Health (ISAP), University of Leipzig, Medical Faculty

**Abstract**

Problem

Experiencing the death of a close relative or friend is a common life event in later life and has been associated with severe negative effects on mental health and role functioning. While eHealth interventions have received increased attention in the field of mental health within the last years, older adults with mental health problems and their specific needs seem to be underserved both in the non-digital and in the digital sector of primary health care. The objective of the pilot study was to assess usability and acceptability of an internet-based self-management intervention for older adults with prolonged grief symptoms.

Approach

The pilot study comprised a questionnaire survey with N=15 older adults (60+) with previous loss experiences. Participants were recruited through health care providers and peer support groups. All participants received login data to access a self-management eHealth intervention targeting on prolonged grief in later life. The eHealth intervention has been developed at the University of Leipzig by mental health care professionals. Data were collected at baseline (before access to the intervention). At two-month follow-up still N=12 participants filled out the survey (response rate 80%). Data collection included information on previous loss experiences, treatment of grief symptoms, severity of grief symptoms, symptoms of depression, internet usage behavior, as well as usage and acceptance of the eHealth intervention.

Findings

Participants were on average 66.5 years old and predominantly female (86.7%). Loss experiences perceived as most burdensome comprised the loss of a spouse (57%) or other relatives (28.5%). N=12 participants took part in the follow-up assessment. Out of those, nine participants (75%) accessed the eHealth intervention. All of the nine participants rated the intervention as satisfactory or very satisfactory. The intervention achieved a good/excellent usability with a usability score of 82.5% (USE-Questionnaire).

Consequences

First results show that older people can benefit from using an eHealth intervention for coping with grief. Study findings show good usability and high user acceptance. The pilot study precedes a randomized controlled trial that will assess the effectiveness of the intervention.

**Funding acknowledgement**

German Federal Ministry of Education and Research (BMBF grant number: 01GY1613))

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## P1.23.4 Living well with multimorbidity: a qualitative study exploring perspectives of emotional distress in men of south Asian origin

Presenter: Hassan Awan

Co-authors: Dr Tom Kingstone, Dr Nadia Corp, Professor Carolyn A. Chew-Graham,

Institutions: University of Keele

**Abstract**

Problem

People with long-term conditions (LTCs) are twice as likely to suffer from depression than the general population. People with physical-mental comorbidity have a poorer quality of life, worse clinical outcomes and increased mortality than those with physical conditions alone. People from some ethnic groups are less likely to recognise symptoms which may represent mental health problems and perceive a need for support. Furthermore, people from ethnic minorities are an under-served group within healthcare services. South Asians (SAs) are the largest minority group in the UK, and are more likely to have certain LTCs such as diabetes and heart disease. There is limited published research on the experiences of men of SA origin with comorbid physical and mental health problems in primary care. The term emotional distress has been chosen for this study as it encompasses distress which can cause significant suffering, yet may not be diagnosed. The qualitative study is informed by our systematic review, which synthesised existing qualitative research on understanding, experiencing and help-seeking for emotional distress in people of SA origin with LTCs.

Approach

A qualitative study is being undertaken to explore the perspectives of men of SA origin with LTCs, on the experiences and help-seeking, for emotional distress. Recruitment from community settings is ongoing. Semi-structured interviews are taking place by telephone or using an online platform, with concurrent coding of transcripts, thematic analysis and iterative modification of the topic guide. Topics explored include personal experiences of emotional distress, understanding of the nature, causes and cures of emotional distress, help-seeking behaviour and healthcare accessed, and support received for emotional distress and their long-term physical condition; impact of COVID-19 restrictions; gaps in services and what support is most wanted. An ethnically appropriate PPIE group has been convened and is working according to the INVOLVE principles. The PPIE group has reviewed and inputted throughout all stages of research, including the overall research question, recruitment ideas, public-facing documents and topic guides.

Findings

Initial analysis suggests the following themes are important: distress within physical illness, living between two cultures, concepts of black magic, and prejudice locally and globally. Participants reported strength in faith, a lack of trust of medical professionals and the need for culturally appropriate community-based services.

Consequences

This study will support greater awareness of emotional distress, which should inform the recognition and management of emotional distress in men of SA origin with LTCs, thus improving quality of live. The research has the potential to influence policy-makers and commissioners about service provision for this patient group. As well as academic routes of dissemination, learning will be shared with the SA community via a community event, written resources and an animation video.

**Funding acknowledgement**

Wellcome funded

## P1.23.5 Can machine learning be used to assess risk of suicide?

Presenter: James Bailey

Co-authors: James Bailey, Michael Naughton, Vibhore Prasad

Institutions: King's College London

**Abstract**

Problem

Suicide is the leading cause of death for those aged 20 to 34 in the UK. General practitioners play a central role in suicide risk assessment and management, with 91% of individuals consulting their GP on at least one occasion in the year before their death by suicide. Despite significant research in the area there is no clinical risk scoring tool for suicide approved by The National Institute for Health and Care Excellence. A validated clinical tool for risk assessment could be applied to enable earlier intervention in those at higher risk, but so far reliable methods have been lacking. The NHS Long Term Plan identifies machine learning as a key area for development in healthcare – can machine learning aid in assessing suicide risk?

Approach

The study protocol is available on PROSPERO. A search strategy was developed and searches made in Embase, Medline, PsycINFO, and Web of Science. Studies were included where machine learning methods were used to generate predictive models for suicide or suicide attempts in a population who were self or clinician-identified as being at risk of suicide or who were deemed to have died from suicide.

Findings

Four databases yielded 1306 records. After removal of duplicates there were 854 records. Screening of abstracts left 91 records. Full text screening left 40 for qualitative synthesis. The majority of studies used cross sectional data from electronic health records. Populations included both general community, emergency department, and patients engaged with both inpatient and outpatient psychiatric care. A significant number of studies used the US Veterans Health Administration data. The preliminary analysis from data extraction shows there have been significant advances in the accuracy of machine learning techniques for suicide risk assessment in recent years.

Consequences

Accurate clinical tools for suicide risk assessment based on machine learning could help with identification and early intervention for those most at risk. With the ongoing analysis of the data from this review we hope to identify the current strengths and weaknesses in the use of machine learning for suicide risk prediction.

**Funding acknowledgement**

James Bailey and Michael Naughton would like to thank the NIHR and HEE for funding their Academic Clinical Fellowships

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## P1.23.6 Understanding ethnic inequities in mental health care: A meta-ethnography exploring perspectives and experiences of service providers and ethnic minority groups

Presenter: Narinder Bansal

Co-authors: Alice Malpass, Rachel Cohen, Carolyn A Chew-Graham, Nicola Wiles, David Kessler, Sashi Sashidharan

Institutions: University of Bristol, Keele University, Glasgow University

**Abstract**

Problem

Ethnic inequalities in mental health care have been reported over the past forty years. Studies have consistently highlighted poorer access, experience and outcomes in ethnic minority groups compared to the majority white British population. In order to develop effective interventions, we need a better understanding of how these inequities are created, sustained and reproduced. This requires work that pulls together evidence on the experiences and perceptions of a wide range of stakeholders, including ethnic minority groups and service providers, and considers how knowledge on ethnic inequities is generated in research.

Approach

A comprehensive and systematic review of existing qualitative evidence on the experiences and perspectives of all studied ethnic minority groups and service providers in relation to help-seeking, service provision, utilisation and outcomes for emotional distress/mental ill-health. Our study sought to develop a new conceptual understanding of ethnic inequities in mental health care by taking an interpretative approach to synthesis (meta-ethnography). Our meta-ethnography was guided by this primary research question: - Is it possible to explain, using existing qualitative research, why people from ethnic minority groups are under-represented in primary care mental health service provision and over-represented in involuntary pathways? Our analysis focused on equity. We explored how disparate patterns of access, experience and outcomes can be best understood across ethnic groups, social-cultural and demographic intersections, and clinical settings. This included drawing out divergence and convergence between different types and sources of evidence (grey versus published). Research questions and objectives were shaped through a series of community consultation workshops with ethnic minority groups in Bristol. Final research questions and search terms were discussed and refined with our public, service user and practitioner advisory group. We carried out a comprehensive search of published and grey literature using relevant databases (PsycINFO, Medline, CINAHL, Social care online, OpenGrey, Kings Fund).

Findings

11,227 papers and reports (hereafter articles) were identified from the published and grey literature and screened by title. 566 titles were identified as relevant and screened at abstract level and 298 were excluded. The remaining 268 full-text articles were double-screened. We will present preliminary results of the separate reciprocal synthesis of the grey literature versus the published literature. We will report on emerging recommendations.

Consequences

Our study provides a new conceptual understanding of factors and processes driving ethnic inequities in mental health care. This includes consideration of convergence and divergence in experiences across ethnic groups and stakeholders and an assessment of the contextual nature of competing evidence. Our recommendations will provide

guidance for service-level and community interventions.

**Funding acknowledgement**

This study is funded by the National Institute for Health Research (NIHR) [Research for Patient Benefit grant]. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

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## P1.23.8 Assessing non-pharmacological interventions for perinatal anxiety (PNA) used in primary care: a systematic review of systematic reviews.

Presenter: Victoria Silverwood

Co-authors: Laurna Bullock, Carolyn A. Chew-Graham, Tom Kingstone, Katrina Turner, Joanne Jordan.

Institutions: VS, LB, JJ, TK, CC-G – School of Medicine, Keele University KT – Centre of Academic Primary Health Care, Bristol University TK, CC-G – Midlands Partnership NHS Foundation Trust CC-G - WM ARC

**Abstract**

Problem

Perinatal anxiety (PNA) occurs during pregnancy and up to 12 months post-partum. Global prevalence of PNA is estimated to be >15% of women, making it as common as perinatal depression. PNA may impact negatively on pregnancy and neonatal outcomes, parenting behaviours and childhood development. There is limited evidence to inform the management of women with PNA in primary care. Studies that consider anxiety occurring outside of the perinatal period support the use of non-pharmacological interventions, in particular psychological therapies. There is limited evidence focusing on non-pharmacological interventions, such as peer or family support, for the management of PNA and the 2014 NICE antenatal and postnatal mental health guidance recommended that further research is required in this area. This study will therefore review the current evidence for non-pharmacological interventions for PNA and will highlight gaps in the current literature in the management of women with PNA.

Approach

A systematic review and narrative synthesis is currently being undertaken. It has been registered on PROSPERO (ID: CRD42021202611) and it will be reported in line with PRISMA guidelines. Systematic searches are being conducted in twelve health-related databases. All titles and abstracts are being independently screened by the first author (VS); with 20% being screened by a second independent reviewer (LB) according to pre-defined eligibility criteria. Discrepancies are being resolved through discussion or a third reviewer. Both VS and LB are undertaking full paper screening and data extraction. Systematic reviews that report results from randomised control trials, controlled clinical trials, cohort studies, case-control studies and qualitative studies are included. Data are being extracted about study participants, methodology, and intervention design and context. Quality assessment is being performed alongside data extraction using the AMSTAR2 and GRADE tools. A grey literature scoping review is also being conducted to identify reports from organisations involved in the care of women with PNA such as third sector organisations. A narrative synthesis will be performed following the Popay guidelines, to identify patterns across the data in order to draw informative conclusions. An established maternal mental health patient and public involvement group was involved in the concept and development of this systematic review and will be involved throughout.

Findings

Initial systematic literature searches are underway and results will be available for presentation at the conference in July. Initial searches have found 4074 titles to be screened.

Consequences

This review will identify and summarise evidence on the effectiveness of current non-pharmacological interventions used in primary care to manage PNA. Insights gained will be used to make recommendations for future research, clinical implications and policy changes. This systematic review forms the first part of a PhD looking at optimal interventions for PNA, and will support the co-production of an intervention for PNA.

**Funding acknowledgement**

VS is a Wellcome Trust PhD Clinical Fellow – this systematic review forms part of a PhD

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## P1.24.02 Implementing medication review for patients with multimorbidity in primary care: a pilot cluster-randomised controlled trial across two different health care systems on the Island of Ireland

Presenter: Prof Andrew Murphy

Co-authors: Lisa Hynes1, Collette Kirwan1, Andrew W Murphy1, Nigel Hart2, , Sarah Mulligan3, Claire Leathem4, Laura McQuillan2, Marina Maxwell4, Emma Carr1, Scott Walkin3, Caroline McCarthy5, Colin Bradley6, Molly Byrne7, Susan M Smith5, Carmel Hughes8, Maura Corry9,

Institutions: 1Health Research Board Primary Care Clinical Trials Network Ireland, National University of Ireland, Galway, Ireland; 2School of Medicine, Dentistry & Biomedical Sciences, Queen's University, Belfast, Northern Ireland; 3Sligo Medical Academy, National Uni

**Abstract**

Problem

While international guidelines recommend regular medication reviews in the management of patients with multimorbidity, evidence on how to implement reviews in primary care is limited. The MyComrade intervention is an evidence-based, theoretically-informed novel intervention which aims to support the conduct of medication reviews for patients with multimorbidity in primary care. This pilot study aimed to evaluate the feasibility of a definitive trial of the intervention across contextual variations in two neighbouring health systems (Republic of Ireland (ROI) and Northern Ireland (NI)).

Approach

A pilot cluster-randomised controlled trial was conducted (clustered at general practice), utilizing pre-specified progression criteria ('traffic-light system') for recruitment of practices and patients, retention of practices and patients and intervention implementation. The intervention involved pairs of GPs in ROI, and a GP and Practice-Based Pharmacist in NI conducting joint medication reviews guided by a predetermined prescribing tool. Control practices delivered usual care. Eligible patients were aged over 18 years and prescribed at least 10 regular medications. Data on the number of medication reviews conducted, prescribing outcomes, patient-related outcomes and healthcare utilisation were collected at baseline, 4 and 8 months. Qualitative interviews were conducted with a maximum variation sample of 21 practice staff and 20 patient participants to assess the acceptability and implementation of the intervention.

Findings

Of the 283 practices (44 in ROI, 239 in NI) invited to participate, n=38 (13%) (20 in ROI,

18 in NI) expressed interest and 15 (39%)(8 in ROI, 7 in NI) were eligible and consented to participate. Of 83,364 (33,414 in ROI, 49950 in NI) patients registered at the 15 practices, 1,115 (1.3%) (545 in ROI, 570 in NI) were deemed eligible and invited to participate, from which 121 patients (11%)(76 in ROI, 45 in NI) consented to participate. Seven practices (4 ROI, 3 NI) were randomised to, received and implemented the MyComrade intervention. At the time of submission, progression criteria were met for practice and patient retention (>80% remained in study 'green'). Practice recruitment required a longer timeframe (>3months, 'orange') and patient recruitment numbers were <50% ('red') than stated progression criteria. All sites implemented the intervention as specified and without undue difficulty, indicating fidelity. Additionally, preliminary qualitative analysis demonstrates acceptability and appropriateness of the intervention, indicating feasibility (orange).

Consequences

Despite challenges with practice and patient recruitment, the pilot demonstrated that a definitive trial of the MyComrade intervention is practicable with amendments. When recruited, practices and patients did not find participation unduly burdensome, which is creditable considering caseload vulnerability and the context of the Covid-19 pandemic. The intervention was found to be feasible and acceptable to implement, and promises to be a novel contribution to evidence-based care for patients living with multimorbidity and polypharmacy.

**Funding acknowledgement**

Cross-border Healthcare Intervention Trials in Ireland Network (CHITIN), UK and Ireland. CHITIN is a unique partnership between the Public Health Agency in Northern Ireland and the Health Research Board in Ireland. CHITIN is funded by EU INTERREG VA progr

## P1.24.03 Family, faith and health: How do older Pakistanis living in East London self-manage multimorbidity?

Presenter: Najia Sultan

Co-authors: Deborah Swinglehurst

Institutions: Queen Mary University of London

**Abstract**

Problem

Self-management is the 'lifetime task' of managing a long-term condition. It is made more complex in the context of multimorbidity. Formal self-management programmes form part of a larger policy discourse directed at containing the escalating burden of multimorbidity. Critics have raised concerns that the self-management discourse often fails to consider the socio-cultural and biographical concerns of some patients, and that self-management programmes can instead become an additional burden. London's South Asian population, including those of Pakistani origin experience higher prevalence of multimorbidity compared to other ethnicities. Urdu-speaking Pakistani patients form a significant ethnic group in London. Most existing research on self-management in this community focuses on single diseases and is centered on compliance with medical recommendations. The aims of this study were to explore how older Pakistani people experience multimorbidity and to illuminate how they 'manage' their selves and their health in the context of their daily lives.

Approach

This was a narrative interview study. 15 patients were recruited from GP practices in East London. The inclusion criteria were: people aged over 50 with multimorbidity, of Pakistani ethnicity who spoke Urdu or were Urdu & English speakers. Participants completed an in-depth narrative interview

with a bilingual researcher at home. Interviews were conducted using the Biographical Narrative Interview Method, enabling the elicitation of a rich narrative of patients experiences of multimorbidity in the context of their life stories.

Findings

Our analysis showed that participants experienced, understood and articulated 'multimorbidity' with reference to family, faith and health. They understood their 'self' and their health to be affected by - and in turn, to affect - their relationship with family and with God, in a deeply connected recursive triadic interrelationship. The relationship between family and health was accounted for in two ways. Firstly, emotional family events, particularly deaths and losses, were frequently identified as being a cause of personal ill health. Secondly, family was seen as a source of emotional and practical support in managing ill health. Furthermore participants identified the importance of their Muslim faith in making sense of, and managing, their ill health. Beyond the central triad of family, faith and health lay a wider circle of concern, comprising the participants' community to whom participants performed moral work to present themselves as good people and citizens.

Consequences

Our findings have implications for existing public health strategies of self-management, underpinned by neoliberal discourses that focus on individual responsibility and agency. Healthcare provision needs to better integrate the importance of relationships between family, faith and health when developing services for these patients.

**Funding acknowledgement**

Barts Charity, NIHR

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## P1.24.04 Prevalence and predictors of medication non-adherence among people living with multimorbidity: a systematic review and meta-analysis

Presenter: Louise Foley

Co-authors: James Larkin (2), Richard Lombard-Vance (3), Andrew W Murphy (4), Lisa Hynes (5), Emer Galvin (2), Gerard J Molloy (1)

Institutions: (1) School of Psychology, National University of Ireland Galway, Ireland, (2) Department of General Practice, RCSI University of Medicine and Health Sciences, Ireland (3) Department of Psychology, Maynooth University, Ireland (4) Discipline of General Pra

**Abstract**

Problem

Risk of non-adherence to treatments increases as people are prescribed more medications. This may have important implications for people living with multimorbidity – the presence of two or more chronic conditions – which is closely associated with polypharmacy. The extent of non-adherence in multimorbidity is poorly understood, attributable to challenges in measuring multiple medication adherence. However, it is recognised that non-adherence can exacerbate the burden experienced by people with multimorbidity through increased morbidity and mortality. Medication adherence can be influenced by many factors, including treatment characteristics, condition-related factors, and illness and medication beliefs. To our knowledge, reported correlates of non-adherence in multimorbidity have not been synthesised. We aimed to determine the prevalence and predictors of medication non-adherence among people living with multimorbidity by conducting a systematic review of the existing literature.

Approach

Four databases were systematically searched for articles published in English between January 2009 and April 2019. Quantitative studies reporting medication non-adherence and/or predictors of non-adherence among people with two or more chronic conditions were included. One reviewer screened all titles and abstracts, with 20% screened by a second reviewer. Full-texts were screened independently by two reviewers. Study quality was appraised using a tool for observational studies previously adapted for the medication adherence literature. Meta-analysis was conducted with a sub-group of studies that used an inclusive definition of multimorbidity to recruit participants, rather than seeking people with specific conditions. Remaining studies were narratively synthesised.

Findings

A total of 11,073 records were identified. Following full-text screening, 177 were included. The range of reported non-adherence differed by measurement method; 76.5% for self-report, 65.6% for pharmacy data and 44.1% for electronic monitoring. A meta-analysis was conducted with 8 studies (n = 8949) that used an inclusive definition of multimorbidity to recruit participants. The pooled prevalence of non-adherence was 42.6% (95% CI = 34.0-51.3%, k = 8, I2 = 97%, p < 0.01). Among studies reporting adherence separately for two or more conditions, the difference in non-adherence between conditions ranged from 0.8% to 33.6%. Eleven studies reported predictors of non-adherence; frequent predictors included previous non-adherence and treatment-related beliefs. Number of chronic conditions was not a consistent predictor of non-adherence.

Consequences

We identified a heterogeneous literature reporting medication non-adherence among people living with multimorbidity. Variation in study design, population, and measurement and definitions of both multimorbidity and non-adherence was observed between studies. Disparities in non-adherence between conditions might be explained by factors such as prioritisation among conditions, regimen complexity, or differences in the expected efficacy of medications. Methods to measure multiple medication adherence are needed to determine the true extent of within-individual differences in non-adherence among people with multimorbidity. Attempts by healthcare providers to improve adherence in this population should involve determining which conditions and medications require most support.

**Funding acknowledgement**

Funding: Health Research Board Ireland Collaborative Doctoral Award (2018-CDA-003) held by Prof Susan Smith at RCSI University of Medicine and Health Sciences, Dublin, Ireland.

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## P1.24.05 Patient centred care in an evidence based world? A meta-ethnography of multimorbidity interventions

Presenter: Marianne McCallum

Co-authors: Dr Sara MacDonald, Professor Frances Mair, Dr Neave Corcoran, Dr Oscar Ponce, Dr Guy Rughani, Dr Tiffany Keep

Institutions: Institute of Health and Wellbeing University of Glasgow, Mayo Clinic (Knowledge and Evaluation Research Unit, Division of Endocrinology, Diabetes, Metabolism and Nutrition Department of Medicine Mayo Clinic, Rochester

**Abstract**

Problem

Multimorbidity is a major challenge to global healthcare systems. Multimorbidity is socially patterned: it is more prevalent and begins up to 15 years earlier in communities

experiencing socioeconomic deprivation. In recent years there has been an increase in multimorbidity interventions but there is a dearth of evidence on how best to improve outcomes and quality of life. Treatment burden (the work done by patients to manage conditions) increases in the context of both multimorbidity and socioeconomic deprivation. In addition, factors known to impact on patients' capacity (eg. low health literacy, environment) to manage multimorbidity cluster in communities experiencing socioeconomic deprivation. When an individual's treatment burden exceeds their capacity to carry out that work it results in poorer adherence, access, and outcomes. Despite recognition that treatment burden, patient capacity and social context significantly impact the experience of multimorbidity, the extent to which (if at all) current multimorbidity interventions consider treatment burden, patient capacity or social context remains unknown. This meta-ethnography aims to address this gap and explore experience of primary care multimorbidity interventions.

Approach

A search of Medline, Embase, CINAHL, AMED and Cochrane databases identified 3806 qualitative papers exploring experience of primary care multimorbidity interventions that have been evaluated by a randomised trial. Screening of potential articles was carried out by two reviewers, disagreements resolved by a third independent reviewer. COREQ used to quality appraise. An analysis drawing on principles of meta-ethnography explores participant experience, and eMERGe reporting guidelines followed. We have assessed whether existing interventions address: • Treatment burden: analysing whether interventions increase or decrease patient workload; the nature of identified work will be categorised using Normalisation Process Theory. • Patient capacity: analysing whether the interventions enhance or diminish patient capacity; capacity will be categorised using Burden of Treatment Theory. • Self-management: analysing the role of self-management in interventions; self-management will be categorised according to the PRISMS taxonomy. • Social context: analysing whether interventions consider, explicitly target, or support, patient's social context; contexts will be narratively described.

Findings

17 articles included for full-text screening. Analysis is ongoing; interim analysis of patient experience suggests patients' value: • Good practitioner-patient relationship • Patient rather than practitioner driven interventions • Building and encouraging patient capacity and autonomy Interventions perceived as holistic were highly valued, however, patients and practitioners articulated intangible benefits, which are potentially hard to measure. Ongoing analysis will examine how the important components of treatment burden, patient capacity and social context were considered.

Consequences

Patient experience of multimorbidity interventions is important. Interventions that fail to adequately account for the impact of treatment burden, capacity and social context are less likely to offer tangible solutions. Our findings will inform the design of future patient-centred multimorbidity interventions that enhance patient experience and quality of life, improving outcomes in this critical area.

**Funding acknowledgement**

This work is funded by a Chief Scientist's Office Clinical Academic Fellowship (CAF/19/05)

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## P1.24.06 Multimorbidity in the context of socioeconomic deprivation: a study protocol

Presenter: Marianne McCallum

Co-authors: Dr Sara MacDonald, Professor Jim Lewsey, Professor Frances Mair,

Institutions: Institute of Health and Wellbeing, University of Glasgow

**Abstract**

Problem

In the UK, health inequalities continue to worsen and are especially stark in relation to multimorbidity, which is more common, and begins up to 15 years earlier, in communities experiencing socioeconomic deprivation. Treatment burden (the work done by patients to manage conditions) is increased in this context, and several individual factors that impact on patients' capacity (such as health literacy, environment) to manage multimorbidity cluster in communities experiencing socioeconomic deprivation. Community is important; an individual's capacity to manage multimorbidity may be enhanced, or diminished, by the community they live in. Yet the influence of community level factors (particularly at the level of the individual) in this context is poorly understood. Understanding these factors is critical if we are to design interventions and services that narrow rather than widen health inequalities. This project aims to explore, and quantify, the impact of factors influencing capacity to self-manage multimorbidity in the context of socio-economic deprivation, and how individual and community level factors interact to influence self-management decisions.

Approach

A mixed methods study consisting of three separate work packages. Work Package 1: Meta-ethnography of patient experience of current multimorbidity interventions, and exploration of whether and how self-management, treatment burden, capacity and socio-economic deprivation feature. Work Package 2: Using data from the West of Scotland Twenty-07 cohort a secondary quantitative analysis to build models for capacity (individual and community) and treatment burden and examine the associations between the models and mortality and hospital admissions. Work Package 3: An ethnographic study to explore individual and community influences on patient capacity. Engagement with a range of community organisations and service users in one area experiencing high levels of socio-economic deprivation (in Scotland) will explore the interaction between individual and community influences on health. This work will also consider how the coronavirus, and lockdown, have impacted community resource and capacity.

Findings

This poster presents the protocol for this planned study. Work packages 1 and 2 are currently underway; efforts to progress work package 3 in the context of COVID-19 are on-going.

Consequences

We will gain an in-depth understanding of how individual and community level factors interact to influence patients' ability to self-manage multimorbidity. Moreover, we will characterise how wider community beliefs and resources enhance, or limit, individual level capacity. We will synthesise participant experience of current multimorbidity interventions, and we will begin to quantify the impact of patient capacity and treatment burden on mortality and hospital admissions. Together these findings will permit the design of services and interventions that simultaneously enhance individual capacity, harness community assets and ultimately narrow, rather than widen, existing health inequalities.

**Funding acknowledgement**

This work is funded by a Chief Scientists Office Clinical Academic Fellowship (CAF/19/05)

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## P1.24.07 What is the relationship between chronic kidney disease, multiple long-term conditions and the risk of hospitalisation?

Presenter: Michael Sullivan

Co-authors: Bhautesh Jani, Alex McConnachie, Frances Mair, Patrick Mark

Institutions: All University of Glasgow

**Abstract**

Problem

Chronic Kidney Disease typically co-exists with multiple long-term conditions. The associations between Chronic Kidney Disease, multiple long-term conditions and hospitalisation rates are not known. We aimed to examine hospitalisation rates in people with multiple long-term conditions with and without Chronic Kidney Disease. We also aimed to identify high risk patterns of long-term conditions amongst people with Chronic Kidney Disease.

Approach

Two cohorts were studied in parallel: UK Biobank (2006-2019) and Secure Anonymised Information Linkage Databank (SAIL: 2011-2018). UK Biobank is a prospective research study. SAIL is a Welsh routine care database. Nine categories of participants were used: zero long-term conditions; one, two, three and four or more long-term conditions excluding Chronic Kidney Disease; and one, two, three and four or more long-term conditions including Chronic Kidney Disease. Hospitalisation events were obtained from linked hospital records.

Findings

Among 469,344 UK Biobank participants, 10,767 (2.3%) had Chronic Kidney Disease. Among 2,611,238 SAIL participants, 173,388 (6.6%) had Chronic Kidney Disease. Compared to those with zero long-term conditions, participants with four or more long-term conditions (excluding Chronic Kidney Disease) had high event rates (Rate Ratios 5.35 (95% confidence interval 5.20-5.51)/4.88 (4.64-5.14)) with higher rates if Chronic Kidney Disease was one of the long-term conditions (Rate Ratios 8.99 (8.47-9.54)/21.20 (20.87-21.50)). The type of long-term condition was important: those with Chronic Kidney Disease plus multiple cardiometabolic conditions, Chronic Kidney Disease plus complex long-term conditions (three or more long-term conditions affecting three or more body systems) and Chronic Kidney Disease plus physical and mental long-term conditions were at heightened risk of hospitalisation.

Consequences

People with multiple long-term conditions have high rates of hospitalisation. Importantly, the rates are two to four times higher when Chronic Kidney Disease is one of the long-term conditions. Further research is needed to explore the mechanisms behind this and to inform strategies to prevent hospitalisation in high-risk groups.

**Funding acknowledgement**

This work was supported by the Medical Research Council (Grant number MR/V001671/1 to Michael Sullivan).

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## P1.24.08 The risk of major adverse kidney events in people with multiple long-term conditions: findings from the UK Biobank cohort

Presenter: Michael Sullivan

Co-authors: Bhautesh Jani, Alex McConnachie, Frances Mair, Patrick Mark

Institutions: All University of Glasgow

**Abstract**

Problem

People with multiple long-term conditions are at increased risk of mortality, but little is known about their risk of kidney events.

Approach

Associations between multiple long-term conditions and major adverse kidney events (MAKE: the need for long-term kidney replacement therapy, doubling of serum creatinine, fall of estimated glomerular filtration rate (eGFR) to <15 ml/min/1.73m2 or 30% decline in eGFR) were studied in 68,505 participants from the UK Biobank cohort. Participants were enrolled in the study between 2006 and 2010. Associations between long-term condition counts and MAKE were tested using survival analyses accounting for the competing risk of death.

Findings

Over a median follow-up period of 12.0 years, 2,963 participants had MAKE. There were associations between long-term condition count categories and the risk of MAKE (one long-term condition adjusted subhazard ratio (sHR) 1.29 (95% Confidence Interval 1.15-1.45), 2 long-term conditions sHR 1.74 (1.55-1.96), three or more long-term conditions sHR 2.41 (2.14-2.71)). This finding was more pronounced when only cardiometabolic long-term conditions were considered (one long-term condition sHR 1.58 (1.45-1.73), two long-term conditions sHR 3.17 (2.80-3.59), three or more long-term conditions sHR 5.24 (4.34-6.33)). Combinations of long-term conditions associated with MAKE were identified. Diabetes, hypertension and coronary heart disease featured most commonly in high-risk combinations.

Consequences

The presence of multiple long-term conditions, and in particular cardiometabolic conditions, is a risk factor for MAKE. Future research should study groups of patients who are at high risk of progressive kidney disease based on the number and type of long-term conditions.

**Funding acknowledgement**

This work was supported by the Medical Research Council (Grant number MR/V001671/1 to MS)

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## P1.24.09 Understanding the experiences of, and preferences for, virtual patient and public involvement and engagement and patient empowerment during the COVID-19 pandemic: lessons and solutions for meaningful involvement from an original research study.

Presenter: Dr Nicola Small

Co-authors: EMPOWER - Establishing new Methods to utilise Patient reported feedback for Older people With multiple long-term conditions to increase EmpoweRment - Patient, carer and public involvement and engagement group, Prof Carolyn Chew-Graham, Prof Joanne Prother

Institutions: University of Manchester, Keele University

**Abstract**

Problem

The COVID-19 pandemic has changed how people approach their lives and healthcare. To understand meaningful person-based care, the role of patient and public involvement and engagement (PPIE) and co-production methods are essential now more than ever. Managing three or more long-term conditions remains a challenge primary care faces in terms of how best to support older people (65+ years) with complex needs. We also know that patient empowerment can be difficult to measure and we still don't know how this might look in practice. The EMPOWER study (Establishing new Methods to utilise Patient reported feedback for Older people With multiple long-term conditions to increase EmpoweRment) aims to establish the use and acceptability of digital methods in patient reported outcome measures (PROMS) feedback, to co-produce a patient empowerment person-based feedback intervention. The study has significant virtual patient and carer and public involvement and engagement embedded throughout to ensure the early intervention results in meaningful impactful outcomes.

Approach

Eleven older patient, carer and public partners (age range, 65 - 93 years), invited from an established PPIE group and a local older people's PPIE network, formed a virtual, diverse and inclusive, patient, carer and public group to EMPOWER. Following the co-production method, we are exploring with the group, the use of digital methods in PROMS measurement and feedback, to understand what supports or prevents their use in primary care, to inform the components of a person-based empowerment feedback intervention.

Findings

Individuals' perspectives and PPIE experience ('professional patients', 'fresh contributors'), digital experience (new to relatively experienced to using computers and non-digital users), digital restrictions (use of new visual aids), accessibility (digital, non-digital methods) and COVID-19 experiences (shielding) enabled us to collate crucial insights on understanding the experiences of, and preferences for, virtual PPIE and patient empowerment. We found out what matters to each contributor living and/ or affected by multiple long-term health conditions, and how this impacts on levels of virtual involvement and impact.

Consequences

We are currently working on a number of case studies to EMPOWER, which will showcase practical aspects to our co-produced work, such as, what meaningful PROM and proxy-PROM feedback might look like for an older patient and carer, living and/ or affected by, multiple long-term health conditions, including visual impairments and rare conditions (Arnold Chiari syndrome). A checklist of 'Top Tips' for researchers and primary care practitioners to use, such as offering choice to people about how they get involved, to ensure meaningful involvement within the delivery of person-based primary care, will be available to attendees.

**Funding acknowledgement**

This study/project is funded by the National Institute for Health Research (NIHR) School for Primary Care Research (project reference: SPCR-159). The views expressed are those of the author(s) and not necessarily those of the funders

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## P1.24.10 Keeping in balance - managing the multimorbidity tightrope. A narrative analysis of older patients' experiences of managing multimorbidity.

Presenter: Nina Fudge

Co-authors: Deborah Swinglehurst

Institutions: Queen Mary University of London

**Abstract**

Problem

The management of people with multimorbidity in the UK sits squarely with primary care. It is often guided by quality indicators (or targets) involving a range of measurable endpoints, designed to support patients in achieving balance across disease attributes and risk factors. The aim of this study is to explore how older people manage, flourish and achieve 'balance' in their lives in the context of multimorbidity.

Approach

Situated within an ethnographic study of multimorbidity and polypharmacy, we conducted 24 in-depth interviews, using the Biographical Narrative Interpretive Method. Participants were recruited from three GP practices in England, were aged between 65 and 94 years, and had been diagnosed with two or more chronic conditions for which they were prescribed ten or more medicines. We analysed the narratives using the Listening Guide – an established, voice centred, relational method for analysing qualitative data. Analysis involved three steps, or listenings: listening for narrative plot; listening for a participant's subjective voice by creating I-poems based on the participant's words; listening for the participant's multiple voices and identifying where these voices interact and tussle. Our analysis was further informed by the work of Heath and Toon, on General Practitioners' roles in witnessing and interpreting patient stories to facilitate a patient's flourishing.

Findings

'Keeping in balance' was a recurring theme throughout our fieldwork in the wider project. General Practitioners talked about a reluctance to 'upset the status quo' and change a patient's medication regimen if test results indicated that the patient was 'in balance'. Through the Listening Guide analyses, we also heard our participants using the concept of balance to describe the work they had to do to manage their multimorbidity. The focus of this balancing act was more far-reaching. Participants understood the importance of their GP's input into their care, but had to balance a 'deontic voice' (doing as they were told and living by the rules) with an 'agentic voice' (a desire for their own agency to live their life and manage their multimorbidity the way they wanted to). We draw on the metaphor of walking a tightrope to illustrate how patients negotiate a balance between resisting and accepting multimorbidity as they seek to live a flourishing life.

Consequences

Our research surfaces some of the ways in which patients with multiple long-term conditions both co-opt and resist biomedical framings of multimorbidity. Our analysis foregrounds the complex ways in which patients' voices and values may be at odds with what is captured in chronic disease guidelines underpinning health care. This has implications for the organisation of primary care and the role of GPs in providing person-centred care to patients with multiple long-term conditions.

**Funding acknowledgement**

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Applied Health Research and Care (CLAHRC) North Thames.

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## P1.24.11 Cost Outcomes of Potentially Inappropriate Prescribing (PIP) in Middle-Aged Adults: A Cross-Sectional Database Study

Presenter: Ryan Jayesinghe

Co-authors: Frank Moriarty, Amandeep Khatter, Stevo Durbaba, Mark Ashworth, Patrick Redmond

Institutions: School of Population Health and Environmental Sciences King's College London Guy's Campus King's College London London UK, School of Pharmacy and Biomolecular Sciences RCSI Dublin Ireland

**Abstract**

Problem

Potentially inappropriate prescribing (PIP) refers to non-evidence-based prescriptions that cause more harm than benefit. PIP commonly affects older adults (aged >65 years), within this age group, multimorbidity and polypharmacy are key drivers of PIP. Consequently, the link between PIP and adverse drug events (ADE) are well-known in older adults. Research suggests that polypharmacy and multimorbidity are also prevalent in middle-aged adults (45-64 years old). Studies have used the PRescribing Optimally in Middle-aged People's Treatments (PROMPT) criteria, estimate the prevalence of PIP in middle-aged adults (45-64 years old) to be around 18%, in this understudied age group. In older adults, PIP has been shown to increase financial costs to the patient and healthcare system; due to PIP and ADEs (e.g. Hospital admission). There is limited research on PIP costs in middle-aged adults. Aims and Objectives This study aims to investigate the medication costs of PIP in middle-aged adults in South London general practices. The primary objective is to calculate the drug cost for each of the 22 PROMPT criteria. The secondary objectives are to: Determine adequate alternative prescribing regimes for each of the 22 criteria and calculate each alternative's medication cost. Compare the medication costs of PIP vs adequate alternative prescribing.

Approach

This study is a retrospective cross-sectional study using primary data from Lambeth DataNet in South London. The population includes patients aged 45 to 64 years issued at least one prescription in each of the years 2014-2019 inclusive. National Institute for Health and Care Excellence (NICE) guidance was used to create adequate alternative prescribing regimes for each of the PROMPT criteria. The proposed alternative regimes will be validated by a panel of pharmacists, GPs and patients. The NHS Drug Tariff was used to cost PIP and adequate alternative prescribing. Ethical approval has been provided for both this study and the use of a clinician and patient review panel.

Findings

At present, the adequate alternative regimes have been created and are awaiting review panel approval. Once this has been attained, data analysis will begin.

Consequences

Findings from this study will advocate for future research investigating a link between PIP and ADEs in middle-aged adults and the cost of ADEs. Moreover, it will provide critical information for a cost-benefit analysis of improved prescribing intervention design specific to middle-aged adults. Implications for patients would be a reduction of PIP through improved clinician prescribing guidance; therefore, patients may be less at risk of ADE and increased hospital admissions, bettering their quality of life.

## P1.24.12 Predictors of Resilience and Vulnerability to Chronic Pain Syndromes and Chronic Fatigue – The Cheshire Oro-facial Pain Prospective Population Study

Presenter: Vishal Aggarwal

Co-authors: 1. Elspeth Guthrie, 2. Gary Macfarlane, 3. John McBeth

Institutions: 1. Faculty of Medicine and Health, University of Leeds; 2. Epidemiology Group, School of Medicine, Medical Sciences and Nutrition, University of Aberdeen; 3. Arthritis Research UK Centre for Epidemiology, University of Manchester

**Abstract**

Problem

Our previously published population based cross-sectional study showed, for the first time, that frequently unexplained chronic pain syndromes including chronic fatigue co-occur in the general population. However, it remains unclear what factors predict persistence of these co-morbid conditions and also factors that predict resilience to the same. Understanding protective factors for resilience and risk factors for vulnerability can help tailor interventions for these common co-morbid conditions.

Approach

We conducted a prospective population based study. A total of 1735 subjects who had completed a baseline questionnaire and had consented to further follow-up were eligible to participate in the follow-up phase. All subjects were randomly selected from a general medical practice in North West England and were assessed at baseline and 24 month follow-up for the presence of chronic widespread pain, chronic orofacial pain, irritable bowel syndrome and chronic fatigue. Subjects completed validated scales assessing levels of anxiety and depression (Hospital Anxiety and Depression Scale), illness behaviour (Illness Behaviour Scale), life stressors (life events inventory), reporting of somatic symptoms (Somatic Symptom Checklist) and sleep disturbance. Logistic regression was used to determine relative risks with 95% confidence intervals for each of these factors in predicting persistence of co-morbid syndromes (vulnerability) and also risks associated with absence of co-mobidities (resilience). Multivariate analyses was used to determine the strongest predictors for resilience and vulnerability whilst taking into account confounding factors (demographic and psychosocial).

Findings

1315 subjects returned completed questionnaires (response rate 84% after adjusting for those who had migrated, deceased, had moved house or were not on the electoral register, n = 177). 232 (21%) had 2 or more syndromes at baselines and follow-up and were defined as vulnerable. 592 (73%) had no symptoms at baseline or follow-up and were defined as resilient. Multivariate analyses using logistic regression showed that the strongest predictors of vulnerability to multiple syndromes were depression (Relative Risk (RR) 8.2, 95% CI 4.0-17.0) and sleep disturbance (RR 3.4, 95% CI 2.0-5.9). Other predictors included being female, having high levels of health anxiety and reporting of somatic symptoms and adverse life events all of which had a 2 fold increased risk.The strongest protective factor for being resilient to multiple syndromes was having low levels of depression (RR 0.1, 95% CI 0.03-0.3). Other protective factors included being male, having low levels of sleep disturbance and health anxiety, fewer adverse life events and somatic symptoms.

Consequences

The findings from this prospective population-based study have identified high levels of depression and sleep disturbance as key predictors for vulnerability to continued

persistence of multiple co-morbid pain disorders including chronic fatigue. Low levels of the same factors were protective towards absence of these syndromes. Future interventions targeted towards management of these syndromes need to incorporate components that target both depression and sleep disturbance to determine whether they improve outcomes for patients presenting with these syndromes.

**Funding acknowledgement**

Arthritis Research Campaign, Wellcome Trust

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## P1.25.1 Radiographic Validation of Self Reported Line Drawings for Hallux Valgus: A Valid Virtual Self Reporting Tool in General Practise?

Presenter: Aranghan Lingham

Co-authors: V Gupta, M Marshall M, T Rathod-Mistry, H Menz, E Roddy

Institutions: East Sussex Hospital NHS Trust, University Hospital of Coventry and Warwickshire, School of Medicine, Keele University, School of Allied Health Human Services and Sport La Trobe University Australia, Haywood Academic Rheumatology Centre Midlands Partnersh

**Abstract**

Problem

Hallux valgus (HV) is a common condition in general practice. Clinical and radiographic assessment is the gold standard, however during the current COVID pandemic and as part of a general move to virtual consultations, this is not always possible. HV line-drawings, consisting of five drawings for each foot depicting a sequential increase in HV angle of 15 degrees, have been developed and clinically validated for self-reporting severity . We aimed to undertake radiographic validation of the self-report HV line-drawing instrument.

Approach

Adults aged ≥50 from four GP practices in North Staffordshire were sent a health survey. Responders self-reported HV by selecting the line-drawing that best represented the angulation of the great toe whilst standing. Those reporting foot pain in the last year were invited to attend a research clinic where foot radiographs were taken from which intermetatarsal, hallux abductus and hallux interphalangeal abductus angles were calculated. Ten feet were randomly selected for each HV line-drawing grade for left and right feet. Associations between self-reported HV line drawings and radiographic measurements were assessed using Spearman's p correlation coefficients, mean radiographic angle measurement (95% Confidence Interval) and one-way analysis of variance (ANOVA).

Findings

Self-reported HV line drawing severity of 0, 15, 30, 45, and 60 degrees showed an associated radiographic hallux abductus angle mean and (95% CI) of 7.7 (8.8, 10.2), 12.6 (9.8, 15.8), 20.7 (16.9, 24.5), 28.4 (23.9, 32.9), 43.1 (33.2, 53). Differences in radiographic measures between the HV line drawing grades were significant for intermetatarsal angle ($F= 13.98$, $p<0.001$) and hallux abductus angle ($F= 38.895$, $p<0.001$) but not hallux interphalangeal abductus angle ($F=2.205$, $p=0.075$). Increasing self-reported HV line-drawing grade was positively correlated with radiographic measurements for intermetatarsal angle and hallux abductus angle (Spearman's Rho=0.602, $p<0.000$; 0.821, $p<0.001$ respectively). Hallux interphalangeal abductus angle showed an inverse correlation with increasing HV angle severity (-0.204, $p=0.053$).

Consequences

Self-report of HV severity by line-drawings provides a valid representation of the deformity determined from radiographic measurements, suggesting that line-drawings could be used for virtual self-report of HV to GPs to guide treatment and referral .

**Funding acknowledgement**

This work was funded by an Arthritis Research UK Programme Grant (18174), and service support through West Midlands North CLRN. HBM is currently a National Health and Medical Research Council of Australia Senior Research Fellow (ID: 1135995 ).

## P1.25.2 'Are culturally relevant measures of pain coping strategies needed in African primary care? Findings from the cross-cultural adaptation and validation of the Coping Strategies Questionnaire among people living with chronic low back pain in Nigeria

Presenter: Chinonso Igwesi-Chidobe

Co-authors:

Institutions: Department of Medical Rehabilitation, Faculty of Health Sciences and Technology, College of Medicine, University of Nigeria, Enugu Campus.

**Abstract**

Problem

Globally, chronic low back pain (LBP) is the leading cause of disability; and most patients report first to primary care centres. Pain coping strategies are important in the persistence of disabling symptoms. However, the exact influence of these coping strategies is unknown in non-English speaking African contexts including Nigeria due to lack of relevant outcome instruments. Qualitative research evidence in rural Nigeria suggests coping strategies such as 'escaping from the self', 'escaping from others', increased spirituality or religiosity, drug dependence, increased conventional or alternative health care use. The extent to which these strategies facilitate positive or negative adjustment to pain is unclear. Globally, the Coping Strategies Questionnaire (CSQ) is the most commonly used measure of pain coping strategies. This study aimed to cross-culturally adapt and psychometrically test the CSQ for non-English speaking Igbo populations in Nigeria.

Approach

Translation, cultural adaptation, test-retest measurements and cross-sectional study of psychometric properties were conducted. The CSQ was forward and back translated by clinical and non-clinical translators. The translations were evaluated by an expert review committee. The translated measure was piloted amongst 12 rural Nigerian dwellers with chronic LBP using the think-aloud cognitive interviewing style. Internal consistency (Cronbach's alpha), test–retest reliability (intra-class correlation coefficient – ICC, and Bland–Altman plot), and minimal detectable change were examined amongst 50 people with chronic LBP in rural and urban Nigerian populations. Construct validity was determined by assessing the correlations between the adapted CSQ and measures of disability, pain intensity, fear avoidance beliefs, and illness perceptions using Spearman's correlation analyses and performing an exploratory factor analysis with 200 adults living with chronic LBP in rural Nigeria.

Findings

The cross-cultural adaptation sample were all rural dwellers with seven men and five women. The test-retest reliability sample were 40% rural dwellers with 32 women and 18 men. The construct validity sample were all rural dwellers with 112 men and 88 women. Only 14 out of 42 items were reportedly adopted in this population including all items

of catastrophising subscale, and all but one item of praying and hoping subscale. Catastrophising (0.85) and praying and hoping (0.86) subscales had the highest Cronbach's alpha. All subscales had high ICCs (0.77 to 0.91) with Bland-Altman plots that showed good agreement. All coping strategies were positively correlated with self-reported disability, pain intensity, fear avoidance beliefs and illness perceptions. Catastrophising subscale had the highest values (0.589-0.614; 0.469). A seven-factor structure was produced with different items from the original CSQ except for the catastrophising subscale.

Consequences

Catastrophising, and praying and hoping may be the relevant pain coping strategies in this population. More culturally relevant measures of pain coping strategies that include adaptive coping strategies may need to be developed for African contexts such as Nigeria.

**Funding acknowledgement**

Schlumberger foundation, The Netherlands.

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## P1.25.3 A systematic review of the quality and consistency of UK national and international diagnostic imaging recommendations for osteoarthritis

Presenter: Connor Henry-Blake

Co-authors: Connor Henry-Blake, Simran Parmar, Kane Treadwell, Jordan Higgs, John Edwards, George Peat, Michelle Marshall

Institutions: School of Medicine, Keele University, Keele, Staffordshire, ST5 5BG, UK

**Abstract**

Problem

Audits and observational studies suggest that X-rays are requested for a significant proportion of patients consulting with osteoarthritis (OA), despite mounting evidence against their utility. We sought to identify national and international guideline recommendations on the role of plain radiographs in the diagnosis of OA, and the quality and consistency of these recommendations.

Approach

We undertook a systematic search of eleven electronic databases (including EMBASE, MEDLINE CINAHL, Epistemonikos and Guideline Central) and websites of nine professional organisations (including NICE, Royal College of Radiology (RCR), EULAR and American College of Radiology (ACR)) for the most recent evidence-based guidelines produced by professional organisations on the diagnosis of OA. Non-English and spinal OA guidelines were excluded. Each abstract and full text underwent dual screening. Data extraction was undertaken by a single reviewer using a standard proforma. Two independent reviewers critically appraised each guideline using the AGREE II tool. Narrative synthesis focussed on the nature and consistency of recommendations on the use of radiographs in the diagnosis of OA.

Findings

We included the most recent edition of 18 guidelines published between 1998 and 2019 (any joint (8), knee OA (3), hip OA (2), hand OA (2), wrist (1), foot (1), ankle (1)). Seven guidelines were produced by European organisations, two of which were UK-based (NICE, RCR). Eleven guidelines were produced by organisations representing general practitioners and seven guidelines by organisations representing radiologists. Guidelines scored on average 69% in the AGREE II rigour of development domain but scored poorly on the AGREE II applicability domain (32%). The eleven guidelines targeted predominantly at general practitioners recommended a clinical diagnosis of OA without radiographic confirmation in patients

with typical clinical features. Seven guidelines suggested a poor correlation between radiographic features and clinical symptoms but only three explicitly discouraged the routine use of radiography for OA. Guidelines produced by organisations representing radiologists were more supportive of radiography. The ACR guidelines recommended plain radiographs to confirm a clinical diagnosis of OA at the hand, wrist, hip, knee, ankle, and foot. The RCR guideline recommended radiography to confirm clinical OA at the hand, feet, and hip, but not the knee.

Consequences

European guidelines do not recommend radiography to confirm a clinical diagnosis of knee OA. The role of radiography at other joint sites is less clear. The lack of clear, explicit, and consistent recommendations on the role of radiography may provide some explanation as to why radiographs continue to be over-used. Furthermore, guideline recommendations were rarely supported by tools to improve implementation. Research into patient and practitioner factors which determine the use of radiographs could identify targets to reduce the inappropriate use of X-rays in the diagnosis of OA.

**Funding acknowledgement**

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## P1.25.4 Perspectives of flares in people with knee OA: a qualitative study

Presenter: Emma Parry

Co-authors: Emma Parry, Lisa Dikomitis, George Peat, Carolyn A. Chew-Graham

Institutions: Keele University, School of Medicine, Keele

**Abstract**

Problem

Acute flares in osteoarthritis (OA) are important but poorly understood. There is uncertainty around their nature, impact and how they are managed. This qualitative study explored understanding and experiences of flares in people with knee OA, and self-management and help-seeking strategies.

Approach

Ethics approvals obtained. Semi-structured interviews conducted with 15 participants from two general practices in the West Midlands. Participants were aged over 45 years, had consulted in the previous 2 years for knee OA, and reported experiencing at least one flare in the previous 12 months. Interviews were conducted by EP and participants were invited to draw a diagram of their pain experience over the previous 6 months to aid discussion. Thematic analysis using constant comparison methods was conducted using an iterative approach. Data generation continued until data saturation was achieved.

Findings

Four main themes were identified: experiencing pain, consequences of acute pain, predicting and avoiding acute pain, and response to acute pain. Participants described minor episodes of pain which tended to be fleeting, frequent, had minimal impact, and generally occurred during everyday activity

such as walking or stair climbing. This contrasted with more severe episodes which were infrequent, had greater impact, were less likely to be predictable and led to emotional exhaustion. These severe pain episodes generally led to feelings of low confidence, vulnerability and feelings of being a burden. The term 'flare' was often used to describe the more severe events, but was applied inconsistently. Several participants described the guilt they felt after perceiving to have 'overdone' things. Participants reported avoiding or adapting activities, sometimes resentfully, and used a range of self-management strategies including non-pharmacological methods and over-the-counter analgesia. They tended to seek help when these strategies had been exhausted or their symptoms led to emotional distress, disturbed sleep, or pain experience worse than usual. Previous experiences shaped whether people sought help.

Consequences

From the perspective of people with OA there appears to be no fixed clear understanding of a flare. Severe episodes of pain in OA, however, are likely to be synonymous with flares. These episodes are important as they can lead to productivity loss and impact on valued activities. Minor episodes of pain tended to occur with activity and were short-lived, and it is unclear whether these episodes represent a spectrum of flare severity or variability of OA symptoms. It is uncertain if differentiating between these episodes of different severities is useful to people with OA, clinicians or researchers. Developing a shared common language about flares will allow a shared understanding of these events, early identification and appropriate management.

**Funding acknowledgement**

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## P1.25.5 "Multimorbidity will tie one arm behind your back" – The challenges of healthcare provision for people with rheumatoid arthritis/persistent musculoskeletal pain and multiple chronic conditions

Presenter: Guy Rughani

Co-authors: Susan Browne, Guy Rughani, Yvonne Cunningham, Richard Brunner, Bhautesh D Jani, Stefan Siebert, Frances S Mair, Barbara I Nicholl, Sara Macdonald

Institutions: General Practice & Primary Care, The University of Glasgow

**Abstract**

Problem

The challenges faced by healthcare professionals (HCPs) in managing patients with either rheumatoid arthritis (RA) or persistent musculoskeletal (MSK) pain and multimorbidity - 2 or more long term conditions (LTCs)-remain unexplored. This study addresses this knowledge gap.

Approach

As part of the Multimorbidity in Arthritis and persistent musculoskeletal Pain (MAP) study we have undertaken interviews with a maximum variation sample of 40 HCPs (primary/secondary care) in two Health Boards in Scotland to explore the challenges faced in managing persistent MSK pain or RA in the context of multimorbidity. Our participants included: GPs, Rheumatology Consultants, Pain Consultants, Practice Nurses, Psychologists and Specialist Pain Nurses. Interviews were transcribed and analysed using a conceptual framework underpinned by Burden of Treatment Theory (BOTT). BOTT has been used in patients to

explore the balance between 'work' e.g. tasks of self-care or given to patients by HCPs, and 'capacity' e.g. ability to perform these tasks. It is particularly relevant in multimorbidity, where multiple conditions can create a mismatch between 'work' and 'capacity.' Here we present preliminary findings from this work. Interviews were coded independently to BOTT and reviewed as a group in coding clinics to check for coding discrepancies. Any discrepancies were resolved by discussion.

Findings

Key findings include:

• A multidisciplinary approach in secondary care improved the management of patients from a secondary care HCP viewpoint with multimorbidity and RA/persistent MSK pain, allowing frictionless intra-secondary care referrals and providing the network to obtain informal advice from colleagues

• Referral pathways were clear for primary care, but in acute situations GPs often relied on informal routes of communication to get specialist support e.g. phoning consultant secretaries, e-mail or personal connections

• Unlike the more integrated service in secondary care, GPs struggled to obtain timely support from physiotherapy and occupational therapy

• Medication options in primary and secondary care were limited by the presence of multimorbidity and polypharmacy, especially for those with persistent MSK pain and cardiovascular or renal disease, or in those with a history of substance abuse and mental health problems

• Multimorbidity increased complexity such that generic physiotherapy was unhelpful, and individualised, resource-intensive programmes were required

• Multimorbidity limited a patient's ability to attend appointments (reduced patient capacity), reducing a HCP's ability to deliver treatments that may otherwise have been of benefit e.g. psychological interventions.

Consequences

The work highlights how multiple interacting conditions and medications further restrict already limited treatment options, and how system design impacts HCP's ability to manage these vulnerable patients. These findings will be combined with parallel work with patients to provide clear recommendations for research, practice and policy.

**Funding acknowledgement**

Versus Arthritis (Formerly Arthritis Research UK & Arthritis Care) Grant number: 21970

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## P1.26.1 Time trends in incidence and survival rate for developing dementia of people presenting with reported memory concern and cognitive decline in UK primary care

Presenter: Brendan Hallam

Co-authors: Prof. Irene Petersen, Prof. Claudia Cooper, Dr Christina Avgerinou, Prof. Kate Walters

Institutions: University College London, UCL Research Department of Primary Care & Population Health

**Abstract**

Problem

Dementia is the leading cause of death, having recently exceeded Ischaemic heart disease. People with subjective memory complaints affects approximately 25-50% of people aged 65 and over and are twice as likely to develop dementia within 5 years, compared to cognitively healthy older adults. People with mild cognitive impairment affects approximately 5-20% and are also at increased risk of developing dementia. While

there is some understanding of the incidence of people with memory complaints and cognitive decline (not dementia) in the community, there has been limited research in relation to those who present to primary care. The study will report the time trends of people with reported memory concern and cognitive decline in UK primary care between 2009-2018. Secondly, the study will examine the survival time to dementia.

Approach

Individuals who contributed to data within IQVIA medical research database from 1st January 2009 to 31st December 2018 and aged 65-99 years will be included for a retrospective cohort study. IQVIA medical research database collects longitudinal data on over 18 million anonymised patient records across 790 UK general practices. A panel of 4 professionals consulted on suitable Read codes to form case definitions of memory concern, cognitive decline and Dementia. Crude incidence was calculated and differences of incidence rate ratios between groups was examined with a Negative Binomial regression. Survival analysis of time to incident dementia from recorded memory concern and cognitive decline was calculated using a Fine and Grey model, with competing risk of death.

Findings

Incidence rate of recorded memory concern remained stable but with a slight decline from 2009 (HR 8.47, 95% CI 8.26 to 8.69) to 2018 (HR 7.63, 95% CI 7.36 to 7.92). In contrast, the incidence rate of recorded cognitive decline increased with each passing year from 2009 (HR 1.32, 95% CI 1.24 to 1.41) to 2018 (HR 3.50, 95% CI 3.32 to 3.69). Between ages 65-79, people with cognitive decline are at a increased risk of incident dementia compared to people with memory concern. However, by ages 80-99, people with cognitive decline became a lower risk of incident dementia compared to memory concern.

Consequences

Incidence rates of memory concern and cognitive decline are lower than community-based studies suggesting that either not enough people are presenting to primary care with memory problems or are not being recorded in GP notes. There is still a need to increase the identification of memory concern and cognitive decline and improve the use of Read codes in primary care for this high-risk group in order to deliver earlier dementia prevention advice.

**Funding acknowledgement**

Brendan Hallam is a PhD student funded by the Economic & Social Research Council's London (UBEL) Doctoral Training Partnership, embedded within the APPLE-TREE programme (Project reference: ES/S010408/1).

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## P1.26.2 Development of a shared decision-making intervention 'VOLITION' for older people with multimorbidity: An Intervention Mapping approach.

Presenter: Jo Butterworth

Co-authors: Professor Suzanne Richards, Dr Emma Pitchforth, Professor John Campbell

Institutions: University of Exeter Medical School, University of Leeds Faculty of Medicine and Health

**Abstract**

Problem

The population is ageing and two thirds of those in the UK have multimorbidity. These patients consult frequently and live with a heavy burden of illness, associated with poor quality of life and increased mortality, along with a high treatment burden and associated healthcare costs. Ensuring the provision of high quality person-centred care for these

patients poses a real challenge for primary care clinicians, researchers and policy-makers alike. There are few existing interventions in this emerging field. Recently, the potential benefits to older patients with multimorbidity, from participating in decision-making about their healthcare, have been acknowledged in UK health policy. The aim of VOLITION is to facilitate the involvement of older people with multimorbidity in decision-making about their healthcare during general practice consultations.

Approach

An Intervention Mapping (IM) framework was followed as a means of systematically applying existing literature, new data and relevant theory to six iterative steps in the development, refinement and planning for the evaluation of VOLITION. Patient and public involvement (PPI) was central. We also sought expert stakeholder opinion e.g. through the international symposium on multimorbidity and the RCGP's Network of Champions for patient centred care. We published a Cochrane systematic review of similar interventions. A qualitative focus group study validated our proposed 'performance' and 'change' objectives e.g. by asking patients whether objectives matched their preferences for GP consultations, and asking GPs how they might perform changed behaviours. A mixed-methods exploratory-explanatory study informed plans to implement VOLITION in the context of remote vs. face-to-face GP consultations.

Findings

Whilst patient involvement is advocated by experts and recent guidelines on multimorbidity, few studies exist that evaluate interventions to facilitate the involvement of older patients with multimorbidity in primary care. Additionally, potential barriers are perceived by GPs and patients when considering patient involvement in the current context of GP consultations. Our IM approach to development ensured that VOLITION took into account all of the above. VOLITION consists of a handout to prompt patients to express their preference for involvement; and a GP training workshop in shared decision-making, tackling the perceived challenges of applying these skills when consulting with this patient group.

Consequences

VOLITION adheres to core components of NHS England's current universal personalised care plan; to empower patients in the management of their own healthcare and to train more clinicians in patient-centred skills. The stakeholder involvement, established through our IM approach, provides a platform for dissemination of our findings. A full, definitive trial of VOLITION is planned. An effective intervention in this area, designed and refined using end-user perspectives, has the potential to influence policy makers as well as clinicians, towards ensuring high quality patient-centred care for older people with multimorbidity.

**Funding acknowledgement**

NIHR doctoral research fellowship award

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## P1.26.3 How does an individual with dementia experience communication and interaction with healthcare professionals (HCPs)? A narrative analysis of an online blog of a person with dementia.

Presenter: Luckshi Jegatheeswaran

Co-authors:

Institutions: King's College London

**Abstract**

Problem

Effective communication between HCPs and service users is integral to assure high-quality, patient-centred healthcare, facilitating insight into the improvements to services and communication required. A patient-centred approach to communication can support and empower people living with dementia to make fitting care related decisions to augment their quality of life, whilst cognitive function is preserved. Despite systematic reviews on communication in dementia care, and research on the experiences of HCPs in communication in dementia, there is little available narrative research on the experiences of an individual with dementia when communicating with HCPs. This is key to understanding how a narrator interprets their experiences and moulds their identity, by analysing a story's structure and essence. Therefore, narrative analysis of a blogpost written by an individual with Alzheimer's dementia was undertaken, to explore and understand in depth the author's experiences of communicating with HCPs.

Approach

Blog posts following a defined narrative structure, were selected from five pages of three targeted internet searches. Based on inclusion and exclusion criteria, a two-part blogpost was selected for analysis. It encompassed the experiences and feelings of the author and the impact of communication with HCPs. Polkinghorne's model of narrative analysis was combined with Mishler's model of Textual Coherence and Structure for the analysis of this narrative in its entirety.

Findings

The lack of availability of video consultations, combined with the rapid speed of conversation during telephone consultations impeded the narrator's involvement in communicating with HCPs on multiple occasions. This resulted in second-hand delivery of information via family members, despite her expressed desire to converse via videocall. She appears to construct feelings of exasperation and despondency in her narration, by being unable to actively partake in consultations. Additionally, she experienced numerous changes, to appointment bookings, without explanation, prompting confusion and frustration. The narrator's attempts to directly communicate with HCPs including her General Practitioner were unsuccessful, resulting in a challenging and unfavourable experience overall. She wrote: "Once again the patient has to fit into services the way they want to deliver them and not offer a choice that might be more beneficial to the patient."

Consequences

The narrative depicts the importance of involving a person with dementia in their own care and the possible emotional consequences created by the hurdles to clear communication with HCPs. Further research would focus on narrative analysis of successful, positive HCP communication experiences. Additionally, the experiences of individuals with dementia and their relatives, of virtual communication (through video consultations) and in person interactions with HCPs, during the COVID-19 pandemic would be included. This will enable a richer understanding of the impacts of the mode of communication on the experiences and perceptions in these settings.

## P1.26.4 From early detection to end-of-life care: a qualitative exploration of the South Asian family carers' experiences of the journey with dementia

Presenter: Muhammad Hossain

Co-authors: Suhail Tarafdar, Tom Kingstone, Paul Campbell, Carolyn A. Chew-Graham

Institutions: University of Liverpool, General Practitioner, Keele University, St George's Hospital, Midlands Partnership NHS Foundation Trust,

**Abstract**

Problem

People of South Asian origin have a greater risk of developing dementia compared with the United Kingdom (UK) population as a whole. Despite this, little is known about how members of this population perceive dementia, how family carers access dementia services and how they plan and prepare for the end-of-life of their loved ones with dementia.

Approach

This qualitative study aimed to explore the experiences of family carers of people with dementia of South Asian origin in the UK, with particular focus on the experiences of the person with dementia and their families throughout the dementia journey, from the time around a diagnosis of dementia to end-of-life care. Recruitment was through community and religious groups in the West Midlands. Thematic analysis with constant comparison was conducted. NVivo was used to manage the data. University ethics approval obtained. Patient and Public involvement contributed to all stages of the study.

Findings

Sixteen family carers participated in face-to-face, semi-structured interviews (one interview included two carers). Four key themes will be presented i) awareness that there is a problem; ii) dealing with the problem; iii) preparing for end-of-life iv) barriers to accessing end-of-life care services. Carers described difficulties in making sense of early symptoms and the behaviour changes they observed among their relatives with dementia. There was a perceived lack of cultural and religious understanding regarding intimate care from paid-carers including washing, bathing and clothing. Family carers described the difficulties they encountered in trying to meet the expressed wishes and preferences of their loved ones around end-of-life care and burial rituals. They described the tensions in trying to follow their religious and cultural identities of honouring the dignity and choices of the person with dementia.

Consequences

This is the first study to report perspectives of South Asian family carers of people with dementia to explore the end-of-life care and wishes of people with dementia in the UK. Family carers may benefit from accessing more culturally sensitive support when dementia is diagnosed, including preparation for end-of-life care. This study suggests that planning and preparing to provide end-of-life care for people with dementia should recognise and respect family and cultural contexts and religious beliefs.

**Funding acknowledgement**

The Royal College of General Practitioners (RCGP) Practitioner's Allowance Grants (PAGs) has supported to conduct of this current study.

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## P1.26.5 A qualitative study to identify factors influencing the perceived acceptability, appropriateness and feasibility of implementing a falls risk assessment service in primary care

Presenter: Susan Calnan

Co-authors: Sheena McHugh

Institutions: School of Public Health, University College Cork

**Abstract**

Problem

A new integrated falls prevention pathway for community-dwelling older adults was introduced in southwest Ireland in 2015, including new multidisciplinary falls risk assessment clinics in primary care delivered by existing staff. The aim of this study is to identify the factors that influenced the acceptability, appropriateness and feasibility of implementation among primary healthcare professionals delivering these clinics.

Approach

Methods involved one-to-one interviews with healthcare professionals (physiotherapists, occupational therapists, nurses) delivering the clinics across four sites. Interviews were conducted prior to implementation and six months after implementation had commenced, in 2016 and 2017. Data were analysed using two implementation frameworks – one focused on barriers and facilitators to implementation and the other on implementation outcomes.

Findings

A total of 15 healthcare professionals took part in the study. Availability of resources in primary care, particularly personnel, strongly influenced the perceived acceptability and feasibility of implementation. Lack of engagement with key stakeholders undermined acceptability and feasibility, particularly non-attendance by service users and lack of engagement by GPs referring to the service. Complexity of the intervention influenced all three outcomes: while the multifactorial assessment was deemed comprehensive and concise, the multi-disciplinary scope of the assessment proved challenging for some healthcare professionals.

Consequences

The study highlights the importance of greater planning of resources at the pre-implementation stage, particularly in terms of adequate staffing, appropriate physical infrastructure and ongoing training for primary healthcare professionals. Issues regarding engagement with key stakeholders highlights the need to foster greater understanding and awareness of the service among both service users and potential referrers.

**Funding acknowledgement**

Research funded by the Health Research Board (HRB) Ireland

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## P1.26.6 A study to assess the scalability of an integrated falls prevention service for community-dwelling older people

Presenter: Susan Calnan

Co-authors: Sheena McHugh - on behalf of the Cork Integrated Falls Prevention Pathway management group

Institutions: School of Public Health, University College Cork

**Abstract**

Problem

The scaling up of interventions delivered in healthcare settings is a growing area in implementation research. Increasingly, the

need for a phased approach is acknowledged, beginning with an assessment of 'scalability', defined as the capacity of an individual intervention to be scaled up. This study aims to assess the scalability of an integrated falls prevention service across primary and secondary care in southwest Ireland and to examine the applicability of the Intervention Scalability Assessment Tool (ISAT).

Approach

A variety of methods was used sequentially, in line with the ISAT guidance: a review of existing service data on implementation and of falls-related literature and policy documents; one-to-one interviews with key stakeholders (n=11) involved in managing the service; and an online questionnaire with stakeholders to rate scalability and provide further feedback.

Findings

Most participants believed that the issue of falls among older people was of sufficient priority to warrant scale up of the service and that the service aligned with the health policy context in terms of prioritising falls prevention. However, considerable barriers to scale up were cited, including insufficient resources, particularly personnel, and the need for an integrated electronic patient management system linking primary and secondary care.

Consequences

Notwithstanding senior management support for scaling up this service, the current scalability is questionable given the barriers that need to be addressed. Improved resourcing and ensuring that the service is more fully embedded into primary care are among the recommendations to enable future scale up of this falls prevention service to other regions in the country.

**Funding acknowledgement**

Research funded by the Health Research Board (HRB) Ireland

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## P1.27.1 Remote asthma reviews: Developing practical resources for the IMP2ART trial to meet the challenges of remote asthma reviews in a COVID-19 pandemic.

Presenter: Mrs B Delaney

Co-authors: Barat A, Taylor S, Marsh V, McClatchey K; Kinley E, Pinnock H for the IMP2ART group

Institutions: University of Sheffield, University of Edinburgh, Queen Mary University of London

**Abstract**

Problem

COVID-19 changed how we deliver care. Remote consultations (e.g. telephone, videocalls, and on-line) became the norm, and are likely to be an option in primary care beyond the pandemic. The IMP2ART cluster-randomised controlled trial aims to embed supported self-management for asthma in routine practice, and resources required updating to reflect the pandemic context.

Approach

Web-based guidance, in both documentary and video format, was identified from NHS sources, GMC, BMA, MDU and Royal Colleges, using a combination of the search terms 'remote consultations', 'health care professional', 'general practitioners' and 'nursing'. Themes from these sources were discussed with the IMP2ART Professional Advisory Group (PAG) and Patient and Public Involvement (PPI) group to explore their perceptions of the benefits/challenges of carrying out remote asthma reviews in

primary care. Discussions were recorded with consent, and key points documented.

Findings

Identified themes included practical advice using technology; ethical/legal issues; communication strategies; planning and patient selection, but typically focussing on acute consultations. In-depth discussion with PAG and PPI groups, provided insight into the perceived challenges and benefits of remote reviews for asthma. The PPI group felt remote consultations were effective if participants were well-prepared, but were cautious about potential disruption to continuity of care, 'digital inequity' and they highlighted the need to respect patient preference for mode of consultation. The PAG were generally confident about technological issues, but identified future training needs for practice staff to carry out remote asthma reviews. Suggestions for remote delivery of asthma-specific tasks (e.g. checking inhaler technique, completing action plans) were discussed.

Consequences

With advice from the two groups, we were able to adapt current guidance to the specific context of an asthma review and developed 'how to' resources, including infographics and podcasts, which will be available to the intervention arm of the trial.

**Funding acknowledgement**

Funding: NIHR PGfAR (RP-PG-1016-20008).

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## P1.27.2 Association Between Asthma Exacerbations and daily NOx Concentrations in East London: A time Series Regression Model

Presenter: Hajar Hajmohammadi

Co-authors: Anna De Simoni, Paul Pfeffer, Chris Griffiths, Jim Cole, Sally Hull

Institutions: Clinical Effectiveness Group (CEG), , Institute of Population Health Sciences, Queen Mary University of London

**Abstract**

Problem

Based on surveys by Asthma UK, about two thirds of people with asthma believe that poor air quality makes their asthma worse and puts them at risk of an asthma attack. Although several policies and regulations have improved air quality in London, studies show that 34 of the 86 comparable sites still exceeded the annual legal limit for NOx (30 µgm-3) in 2019. In this research, time series analysis is used to understand the relationship between daily NOx concentrations and the pattern of exacerbations in people with asthma. Because asthma-related A&E attendance information is not available, this study uses the number of oral corticosteroid courses prescribed in general practice for patients with asthma as a marker for asthma exacerbation.

Approach

Dataset NOx daily concentration measurements were extracted from all available monitoring stations in east London for two years from February 2018 to January 2020. Anonymised prescribing data from all registered patients (5-80 yrs) with asthma in 83 practices in the London boroughs of Tower Hamlets and Newham was used. The number of oral steroid courses and the daily prescribed dose of oral corticosteroids in mg were extracted for the study period for all patients registered at least one year prior to the initial search date (01/02/2018). - De-seasonalization Time series analysis of oral corticosteroid courses/daily prescribed corticosteroid dose in mg shows evidence of two seasonal trends in the data. The most likely causes being respiratory infection/flu in winter and hay fever in spring. Before introducing this time series into the regression model, these seasonal cycles were

removed to provide a clearer view of non-seasonal variations in prescribed corticosteroids. - Multivariate time series regression model The dynamic relationship between total prescribed oral steroid tablets in milligram and NOx concentrations at monitoring stations, is described by a lagged regression model. The components of this model include NOx concentrations at each station, lag of these variables up to 21 days (3 weeks), a constant, and a random error term with normal distribution (this model is presented in the appendix with details).

Findings

The results of fitting the lagged regression to the prescribing dataset shows that NOx concentration at the background monitoring stations is statistically significant in predicting prescribed corticosteroids 8 days in the future. This means it takes just over a week to see the negative impacts of NOx concentrations on patients with asthma. As expected, same day air pollution observations are not statistically significant in this model.

Consequences

This time series regression model estimates changes in oral corticosteroid prescriptions based on the daily NOx concentrations. This could be used to develop an early warning system for patients/GPs and AEDs that predicts asthma exacerbations, based on air pollution measurements.

**Funding acknowledgement**

Barts Charity reference MGU0419. REAL-Health: REsearch Actionable Learning Health Systems Asthma programme. All CEG supported practices in east London which have agreed to allow use of anonymised data for research for patient benefit.

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## P1.27.3 Oral health and COPD: a qualitative study exploring the knowledge, attitudes and practices of patients and primary healthcare professionals in São Paulo, Brazil

Presenter: Matthew Riley

Co-authors: Matthew Riley, Amber Swann, Alexander J. Morris, Sonia M. Martins, Rachel Adams, Rachel E. Jordan

Institutions: College of Medical and Dental Sciences University of Birmingham, School of Dentistry University of Birmingham, Department of Community Health of the Faculty of Medicine of ABC, Respiratory Group Brazilian Society of Family and Community Medicine, Institut

**Abstract**

Problem

Poor oral health is associated with worse clinical outcomes in Chronic Obstructive Pulmonary Disease (COPD). This is of particular relevance to Brazil, where COPD is the third leading cause of death among adults and over 50% of 65-74-year-olds are edentulous, with the remainder having some degree of periodontal disease. To date, evidence exploring the attitudes of healthcare professionals (HCPs) towards delivering oral healthcare to COPD patients and the oral health views and practices of COPD patients is sparse. Therefore, this qualitative study aimed to investigate the knowledge, attitudes and practices of COPD patients and primary HCPs in Brazil, to provide information to design future care.

Approach

Semi-structured interviews with COPD patients (n=9) and three semi-structured focus groups with primary HCPs (n=25) were conducted in five primary care practices in São Paulo, Brazil, with the aid of a local interpreter. Convenience sampling was used

to recruit participants. Interviews were audio recorded, transcribed and analysed using an inductive approach with the Framework Method. Patient and HCP transcripts were coded separately by the lead researchers and circulated within the wider team. Differences of opinion in the analysis were discussed and resolved to limit any personal biases the researchers might have, and a final coding framework agreed for indexing the remaining transcripts. Data were then summarised and charted, with separate themes identified for each participant group. The patient and HCP themes were found to be very similar, after detailed comparison and discussion within the team, the themes for the two sets of data were then merged.

Findings

Despite a high prevalence of edentulism, patients viewed tooth loss and decay as a norm and neglected preventative oral health practices. Knowledge of the relationship between oral health and COPD was lacking among HCPs and patients, but all participants were receptive to oral health education. HCPs blamed patients for avoiding preventative opportunities, whilst patients discussed significant barriers to oral healthcare – including poor past experiences, cost and limited access to services. Practitioners identified the need for a COPD primary care pathway that integrates oral health protocols.

Consequences

This study emphasises that as part of COPD management, better information should be available to patients about oral health and its importance. For this to be accomplished, Brazil needs to expand the coverage of public dental services and allocate more public resources to fund facilities. Additionally, practitioners in the study requested training around COPD and oral health alongside new protocols that integrated medical and dental services. As suggested by the World Health Organisation, such inter-professional education should begin with students in training to develop a collaborative, practice-ready health workforce. Such education initiatives need support from a new national policy in Brazil, to help incorporate preventative oral health into COPD management.

**Funding acknowledgement**

This study was aided by Amber Swann receiving the Topham intercalating bursary and Matthew Riley receiving the Arthur Thompson Trust intercalating bursary from the University of Birmingham College of Medical and Dental Science.

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## P1.28.2 Knowledge and concerns about pre-exposure prophylaxis, sexual transmitted infections and antibiotic resistance amongst gay and bisexual men in Wales: a qualitative study

Presenter: Adam Williams

Co-authors: Dr David Gillespie1, Dr Fiona Wood2, Dr Kathryn Hughes2, Zoë Couzens3, Prof Kerenza1 Hood

Institutions: 1.Centre for Trials Research, Cardiff University., 2.Division of Population Medicine, Cardiff University., 3.Public Health Wales NHS Trust

**Abstract**

Problem

Since the introduction of HIV pre-exposure prophylaxis (PrEP) in 2012 there have been concerns raised around the potential impact of risk compensation. Some fear that the provision of PrEP would result in an elevation in sexually transmitted infections (STIs) through reduced condom use. With the rising number of resistant strains of STIs it is concerned that PrEP may contribute to its growth. There is no conclusive evidence supporting the increase of STIs due to PrEP,

with identifying and measuring risk compensation complex. PrEP has been available through the NHS in Wales since 2017 and largely been targeted at men who have sex with men. This work aims to understand the knowledge around PrEP, STIs and antibiotic resistance amongst men who have sex with men as well as their views about the relationships that may exist between the variables.

Approach

Semi-structured interviews were carried out via video calls (initially intended to be face to face but changed in response to the pandemic). Participants included a mix of current PrEP users, individuals who had started but recently stopped using PrEP and those who had never used PrEP. Interview questions were developed with input from academics and stakeholders. Questions were focused around gaining insight of knowledge and personal experiences related to focus points (PrEP, STIs, antibiotic resistance). Question probes related to the condom use behaviours and suggestions for interventions. All interviews ended with questions related to the impact of COVID-19 and lockdown measures on behaviour. Interviews were professionally transcribed to be thematically analysed. Coding for all interviews was completed by the lead author with 10% double coded to assess validity and reliability.

Findings

Twenty interviews were conducted between 15th June 2020 and 11th February 2021. Participants were located across Wales with the majority being from Cardiff and ages ranged from 19 to 53 years. Half of participants were current PrEP users, the other 10 contained a mix of those who had stopped and those who had never used PrEP. [Analysis ongoing] Themes include……key experiences were…. The impact of the COVID-19 pandemic on behaviour will also be described.

Consequences

These findings will provide a detailed account of the perceived impact of PrEP on condom use behaviours and STIs, along with knowledge of the variables amongst MSM in Wales. Along with providing suggested interventions to improve sexual health among this cohort.

**Funding acknowledgement**

Knowledge Economy Skills Scholarships (KESS 2) is a pan Wales higher level skills initiative led by Bangor University on behalf of the HE sector in Wales. It is part funded by the Welsh Government's European Social Fund (ESF) convergence programme

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## P1.28.3 Patterns of HIV pre-exposure prophylaxis use and sexual risk behaviours amongst men who have sex with men attending sexual health clinics in Wales

Presenter: David GIllespie

Co-authors: Marijn de Bruin, Dyfrig Hughes, Richard Ma, Adam Williams, Fiona Wood, Zoe Couzens, Adam Jones, Kerenza Hood

Institutions: Cardiff University, Radboud University Medical Center, Bangor University, Imperial College London, PRIME Centre Wales, Public Health Wales

**Abstract**

Problem

HIV pre-exposure prophylaxis (PrEP) has been available through the NHS in Wales since July 2017. In the UK, detailed longitudinal data are lacking on medication use and sexual behaviour within the same individual. Without these, it is difficult to gain an accurate understanding of whether PrEP is being used to its fullest potential, and this could have an impact on HIV-prevention policies and

interventions to support the use of PrEP. We aimed to determine the patterns of PrEP use and sexual risk behaviours amongst men who have sex with men (MSM) attending sexual health clinics in Wales.

Approach

We conducted an ecological momentary assessment study of individuals in receipt of PrEP across four health boards offering PrEP in Wales. Participants were provided with an electronic medication cap which recorded the date and time of each cap opening and completed brief weekly sexual behaviour surveys capturing daily data on condomless sex. At four time points, data were collected capturing health beliefs and behaviours around PrEP use, symptoms/side effects, STI diagnoses/treatments, and health service resource use.

Findings

Sixty participants were recruited between September 2019 and January 2020. Last follow-up was December 2020. Data on PrEP use covered 13,322 days and sexual behaviour 12,913 days (85% and 82% of potential study days respectively). Analysis is ongoing. We will describe trends in PrEP use and sexual behaviour over time, as well as examine the treatment, individual, and social factors that are associated with PrEP use and sexual risk behaviour over time. Whether these factors operate differently pre- and intra-pandemic will also be examined.

Consequences

Our findings will provide an understanding of the ways in which PrEP is used in Wales and inform the development of an intervention to support PrEP users in optimising its use.

**Funding acknowledgement**

The DO-PrEP study was funded by the Welsh Government through Health and Care Research Wales (project ref HF-17-1411).

## P1.29.2 Prevalence of polypharmacy in pregnancy

Presenter: Astha Anand

Co-authors: Astha Anand, Siang Lee, Anuradhaa Subramanian, Zhaonan Wang, Krishnarajah Niranthakumar, Peter Brocklehurst, Catherine Nelson-Piercy, Amaya Azcoaga-Lorenzo, on behalf of MuM-PreDiCT consortium

Institutions: Institute of Applied Health Research University of Birmingham, University of St. Andrews, Queen's University Belfast, University of Aberdeen, University of Keele, University of Manchester, University of Swansea, Aberdeen Maternity Hospital, NHS Grampian,

**Abstract**

Problem

The use of medications amongst pregnant women has been rising over the past few decades. Whilst several studies have assessed overall medication use amongst pregnant women, the reporting of polypharmacy has been sporadic. Medications can be used to manage pregnancy symptoms (such as nausea and vomiting), pre-existing maternal morbidities or pregnancy related morbidities. Primary care physicians are involved in prescribing and monitoring of medications in pregnant women. However, little is known about the effect of combining medications – whether these combinations worsen known side effects, result in novel adverse events or have a synergistic or beneficial effect.

Approach

A systematic review was performed in order to identify the published literature reporting on the prevalence of polypharmacy or the use of multiple medications amongst pregnant women and the common combinations of medications used. Protocol for this systematic review has been published on Prospero (Protocol ID CRD42021223966). Randomised

trials, observational trials (cohort studies and case control studies) and systematic reviews reporting the prevalence of polypharmacy in pregnant women were included. MEDLINE and Embase were searched for all relevant articles till 3rd January 2021. The study authors' definition of polypharmacy was used; where this was not available, we defined polypharmacy to mean use of two or more medications. Two independent reviewers extracted the data.

Findings

Of the 2136 records identified, fourteen met the review criteria. Polypharmacy prevalence is very heterogenous, due to the varied definitions of polypharmacy, whether over-the-counter medications were included and whether prenatal vitamins and minerals were included. The definition of polypharmacy ranged from the use of 2 or more medications to the use of 9 or more medications. Prevalence of women taking two or more medications during pregnancy ranged from 5% to 62%. Majority of the studies were not representative of all pregnancies and excluded pregnancies resulting in miscarriages and terminations. None of the studies report the common combinations of medications taken nor the outcomes for the pregnant women using multiple medications.

Consequences

There isn't a consensus on the definition of polypharmacy. However, this systematic review shows a relatively large burden of polypharmacy amongst pregnant women. It shows a clear need to assess the combinations of medications used amongst pregnant women and the outcomes for the women and for their offspring, in order to inform both clinicians and patients.

**Funding acknowledgement**

I am a locally funded academic clinical fellow.

## P1.29.3 What is the impact of a pay-for-performance scheme to give long acting reversible contraception (LARC) advice in general practice on individual women in terms of contraceptive prescriptions and abortions?

Presenter: Richard Ma

Co-authors: Hanna Creese, Alex Bottle, Sonia Saxena

Institutions: Imperial College London

**Abstract**

Problem

The UK government introduced a pay-for-performance (P4P) scheme which linked GP income to performance targets in 2004. Targets were introduced in 2009/10 that remunerated GPs to give LARC advice to women aged 13 to 54 years, with the aim of offering the best choice of contraception to reduce unplanned and unwanted pregnancies. Our published study using interrupted time series analysis reported the P4P scheme was associated with 13% more LARC prescriptions and 38% fewer abortions than expected. This impact was greater in younger women and those from more disadvantaged backgrounds. Ecological studies cannot infer association at the individual level. Our aim is to examine the impact of LARC advice given to individual women on LARC prescription and abortion.

Approach

We constructed a cohort of women using Clinical Practice Research Datalink (CPRD) who were aged at least 13 and no older than 54 years from financial year 2009/10, the year in which the P4P was introduced. This includes a population of over 3 million women from over 600 practices across the UK. There were two eligible groups of women for LARC advice: those prescribed non-LARC hormonal

contraception (NLHC), and emergency hormonal contraception (EHC). Comparison groups included women who were eligible for but did not receive LARC advice, women not eligible for LARC advice, and women who were ineligible but given LARC advice. We used documented LARC advice as the intervention. Our outcome measures were LARC prescriptions and abortion events within 18 months after a woman became eligible for LARC advice. Our study period spanned five financial years from 2009/10 to 2013/14. We stratified the groups by age and deprivation. We assigned women to one of 4 age groups: 13 to 19, 20 to 24, 25 to 34, and 35 to 54 years. Women were assigned to one of 5 deprivation groups based on their residential postcode using English Indices of Multiple Deprivation (IMD) quintiles that range from IMD 1 (least deprived) to IMD 5 (most deprived); IMD data are available for English populations only

Findings

Using multinomial logistic regression, we will report the odds of categorial events (prescription of LARC and abortion) among the four groups of women stratified by age group and IMD. We will use model fit statistics to check the outputs. To look for outliers or influential data points, we will run separate logit models and use the diagnostics tools on each model.

Consequences

If the results confirm the findings from our earlier study, this will strengthen evidence base that P4P scheme to give LARC advice increased LARC prescriptions and reduced abortions, and had greater impact in younger women and those from more disadvantaged backgrounds, and suggests potential to reduce health inequalities by improved awareness of options for effective fertility control.

**Funding acknowledgement**

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## P1.29.4 How do women experience the UK cervical screening programme, from receiving an invitation to attending their first smear test? A narrative analysis of blog posts.

Presenter: Sarah Chitson

Co-authors:

Institutions: King's College London

**Abstract**

Problem

In 2019, the number of women attending cervical screening in the United Kingdom fell to its lowest in 20 years. During the COVID-19 pandemic, numbers accessing screening have fallen further. This study aimed to understand patient experience of the UK cervical screening programme, particularly factors influencing first attendance for screening. Existing qualitative literature on patient experience of the screening programme is limited, and no study has followed the narrative arc of the individual patient. Online narratives have also not been studied before in cervical screening, and these are especially relevant since during the pandemic, the public are accessing more health information online and through social media, with current estimates showing that the average UK adult spends an extra hour online compared with before the pandemic.

Approach

Pre-pandemic, a Google search for Blogspot and WordPress blogs, the two most widely used blog hosting sites, found twenty-nine relevant blog posts once inclusion / exclusion criteria were applied, of which three were analysed. Further searches were performed to identify experiences during the pandemic and two relevant blog posts were found; one was analysed. The four blog posts were configured using an emplotment approach adapted from Polkinghorne (1995). This allowed each person's narrative to be kept whole and analysed sequentially from start to finish.

Findings

Four plots were identified: 1. the smear test as a rite-of-passage: the author began to take ownership of her health as an adult, and even offer support to others 2. the discrepancy between expectations and real-life: the author repeatedly expressed surprise that the smear test was not as bad as the horror stories in her mind 3. a collaborative approach to preparing for and attending screening: key players supported the author throughout the experience of the screening programme 4. many unknowns: the author's anxiety around screening was magnified by the unknowns of the pandemic and she wrote to inform the reader of what to expect

Consequences

Whilst narrative analysis does not produce generalisable findings, it does provide unique insight into individual patient stories. Understanding the patient narrative arc will enable primary care professionals to think holistically about their patients, their complex fears and motivations, and improve their conversations with patients concerned about screening. As patients are spending more time online during the pandemic, it is important for clinicians to understand the type of health promotion material their patients will encounter from peer-to-peer sources such as blogs and social media, and how this influences their health behaviour. Further research is needed into negative experiences and minority groups who face more barriers to screening. In addition, there was a paucity of blog posts found during the pandemic; further research could identify other pandemic-specific narratives.

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## P1.29.5 How do Women in a Same-Sex Relationship Experience Miscarriage? A Narrative Analysis

Presenter: Yasmin Djouadi

Co-authors:

Institutions: King's College London

**Abstract**

Problem

The experience of miscarriage within a same-sex relationship is complicated by a unique journey to parenthood. Women in same-sex relationships are generally underrepresented in literature which primarily discusses pregnancy loss concerning birth mothers in heterosexual relationships. Narrative analysis can explore a more complete picture of miscarriage within same-sex relationships, how it is different from the experience of heterosexual couples and expand upon existing literature.

Approach

An oral narrative from the podcast of two women about their conception through to their miscarriage was analysed identifying three themes: control and medicalisation, developing maternal identity, and disenfranchised grief and memorialisation. Two searches were conducted identifying 24 narratives. The chosen narrative was unique as it was recorded comparatively recently shortly after their miscarriage and was told from the perspective of both the birth mother and non-birth mother. The narrative was

defined through Labov's model. A dialogic narrative approach was used to explore the co-current storytelling from the perspective of the birth mother and the non-birth mother, and the participation of their audience.

Findings

The first theme explores the increased medicalisation of lesbian conception and feeling of lack of control. This is compounded by the reduced access to information about fertility treatment for women in same-sex relationships. These factors amplify the grief of miscarriage. The second theme looks at the development of maternal identity as a birth mother and a non-birth mother. For birth mothers, developing maternal identity is intrinsically linked with being pregnant physically and therefore pregnancy loss. For non-birth mothers, their role is defined through supporting but is equal to their pregnant partner. In both circumstances, lesbian motherhood is seen as contradictory but is viewed as more valid in birth mothers. Finally, the third theme examines disenfranchised grief as a result of both the ambiguous loss of miscarriage and the silence of LGBT+ mourning. This experience is then memorialised, within this narrative, through publicly announcing the miscarriage and their audience witnessing their grief. Subsequently, through the episode the couple makes meaning from their experience.

Consequences

The experience of miscarriage in lesbian relationships is different to heterosexual couples. Firstly, a more medicalised conception can amplify grief if miscarriage occurs. Secondly, forming maternal identity differently reduces external understanding of loss. Thirdly, healing from loss may look different due to the context of a more silent loss and LGBT+ ritualisation of death. These differences should be acknowledged and understood particularly by healthcare professionals. The wider research and this narrative have not represented those who are non-white, gender variant, less educated, less affluent, or outside of the western hemisphere. Further research could explore how people part of these demographics experience lesbian miscarriage.

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