ABSTRACTS
of the
42nd SAPC Annual Conference
3rd to 5th July 2013, Nottingham

Contents — Pages

Abstracts of oral presentations 3 - 105

Abstracts of poster presentations 106 - 244

Workshops 245 - 252

To view abstracts within themes please see the list of themes on the next page. Enter the reference before the theme to search for the start of the section for the given theme.

For example, for abstracts on cancer please search:

1A and 2B – for oral abstracts
P1.01 – for poster abstracts

For abstracts on Musculoskeletal health please search:

2E – for oral abstracts
P2.31 – for poster abstracts

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Summary of themes

Oral Session Themes

1A Cancer – early diagnosis
1B Epidemiology and public health
1C Long term conditions
1D Professional and policy issues
1E Patient and public involvement
1F Older people's health

2A Cancer
2B Blood pressure management
2C Children's and young people's health
2D Caring for people with multiple morbidities
2E Musculoskeletal health
2F Organisation and delivery of care

3A Experience of illness / user perspective
3B Exercise
3C Smoking and alcohol
3D Palliative care
3E Prescribing
3F Educational ideas and innovation

4A Managing long term conditions
4B Cardiovascular disease
4C Mental health
4D Sex, women's and children's health
4E Quality and safety
4FRespiratory

Papers of distinction
Prize 1 – page 103
Prize 2 – page 104
Prize 3 – page 105

Poster themes

P1.01 to 1.07	**Cancer**
P1.08 to 1.11	**Diabetes**
P1.12 to 1.18	**Education - undergraduate**
P1.19 to 1.27	**Epidemiology and public health**
P1.28 to 1.36	**Managing long term conditions: part 1**
P1.37 to 1.46	**Mental health**
P1.47	**Multimorbidity**
P1.48 to 1.55	**Older people's health**
P1.56 to 1.67	**Research methods: part 1**
P2.01 to 2.13	**Cardiovascular disease**
P2.14 to 2.23	**Children and young people's health**
P2.24 to 2.28	**Education and educational ideas**

cont/…

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Poster themes continued

P2.29 to 2.30	**Managing long term conditions: part 2**
P2.31 to 2.37	**Musculoskeletal health**
P2.38 to 2.56	**Organisation/delivery of primary health care**
P2.57 to 2.66	**Prescribing issues**
P2.67	**Quality and patient safety**
P2.68 to 2.72	**Research: part 2**
P2.73 to 2.75	**Sexual health**

ABSTRACTS OF ORAL PRESENTATIONS

1A Cancer – early diagnosis

1A.1

Comparing electronic and physical Risk Assessment Tools for cancer diagnosis: a qualitative evaluation

Trish Green, Lisa Dikomitis, Una Macleod
Hull York Medical School, Hull, UK

The problem: The UK has relatively poor cancer outcomes when compared with other European countries and diagnostic delay in primary care has been identified as part of the problem. Analysis of GP case records (the CAPER studies) identified symptoms predictive of cancer; and resulted in the development of Risk Assessment Tools (RATs) and electronic Risk Assessment Tools (eRATs) for colorectal and lung cancers.

The approach: We present data from two qualitative studies, which involved evaluation of the physical tools (RATs) and the electronic tools respectively. The RATs materials include a mousemat, audit sheet and flipchart. All of these materials display three tables containing the risk for each symptom in isolation, for repeat presentation of the same symptom, and in combination with one other symptom. The eRATs consist of three components: on-screen prompts; an interactive risk calculator and audit tables of patients with calculated PPVs. In order to evaluate the acceptability and usefulness to GPs, 34 telephone interviews were undertaken with RATs users and 23 telephone interviews with eRATs users. The purpose of these evaluations was to obtain GPs' views regarding the tools' acceptability and functionality and to identify facilitators and barriers to their more widespread use. Here we present a comparison of our findings, analysed using Normalisation Process Theory (NPT).

The findings: Both the RATs and eRATs assisted GPs in their decision-making around potential cancer symptoms and selection of patients for cancer investigation. The tools also helped to confirm a need for investigation as well as allowing reassurance when investigation was not needed. They were seen as helpful by users in assisting with the complex decisions around early cancer diagnosis, especially in cases of unusual presentations. However, the embedding of both RATs and eRATs into GP practices depended not only on the proven or perceived efficacy of the tools, but also on the implementation process of each study, which included training and support. The most significant difference between the physical and the electronic tools lies in the fact that the RATs do not alert the GP, the GP has to firstly think 'cancer' and then reach for the tool.

The consequences: Clinical decision support tools, both in physical or electronic format, appear to be useful additions to the resources GPs have available to assist them in the recognition of potential cancer

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

symptoms, and lessons have been learnt with respect to refinements required in order to assist integration of the eRATS in particular into UK general practice.

1A.2

Patient views on being referred for diagnostic testing for cancer - a vignette based survey

Jon Banks[1], Sandra Hollinghurst[1], Lin Bigwood[1], Tim Peters[1], Fiona Walter[2], Willie Hamilton[3]
[1]University of Bristol, Bristol, UK, [2]University of Cambridge, Cambridge, UK, [3]University of Exeter, Exeter, UK

The Problem Decision aids and risk assessment tools that help identify symptomatic patients at risk of cancer have been introduced into general practice. However, research on the patient perspective on being referred for diagnostic testing is limited. We present results from The Pivot Study which undertook an innovative survey to identify population based risk thresholds for cancer testing and referral**.**

The Approach: An electronic survey administered to GP attenders aged ≥40 using an iPad. Participants were presented with vignettes describing: possible cancer symptoms; risk of cancer; prognosis; and relevant diagnostic tests. Vignettes varied by risk (1%, 2%, 5% & 10%) and cancer (lung, colorectal and pancreas) and were generated randomly. Participants indicated whether they would choose to be tested and follow-up questions explored strength of preference and reasons for choice.

Findings: 3469 participants completed 6930 vignettes. Across all cancers and risk levels 89.5% expressed a preference to be investigated. Decision making was influenced by risk level for colorectal cancer (81% at 1% risk, 89% at 10%) but not for lung or pancreas. Age influenced the decision: fewer older respondents (≥70) chose to be tested across all cancers and this was particularly notable for pancreas at 10% level of risk (94% for age<70, 81% for age≥70).

Consequences: This survey demonstrates a clear preference for diagnostic testing when symptoms indicate a 1% to 10% risk of cancer. It also indicates that risk is more likely to influence preference when the diagnostic test demands more of the patient (colonoscopy) or prognosis is poor (pancreas in older people). GPs should take account of patient preferences in the decision to refer those at risk of cancer.

1A.3

Does seeing the same doctor effect how quickly breast, colorectal or lung cancer is diagnosed?

Matthew Ridd[1], Diana Santos Ferreira[1], Alan Montgomery[1], Christopher Salisbury[1], William Hamilton[2]
[1]University of Bristol, Bristol, UK, [2]Peninsula College of Medicine & Dentistry, Exeter, UK

The problem: General practitioners in the UK are involved in the diagnosis of >85% of all cancer cases but diagnoses may be delayed because early cancer symptoms are non-specific. Doctor's threshold for investigation and referral may be influenced by prior knowledge of the patient. We explored the effect of patient-doctor continuity on the diagnostic process of patients with breast, colorectal and lung cancer.

The approach: Using data from the General Practice Research Database, we identified the first presentation of cancer symptoms/signs (index consultation/doctor) up to 12 months and patient-doctor continuity up to 24 months before diagnosis. Patient-doctor continuity was calculated as the proportion of consultations with the index doctor, adjusted for number of consultations. The relationships between continuity and time to referral and diagnosis were explored using Accelerated Failure Time models, adjusted for potential confounders.

Findings: In the primary analysis, patient-doctor continuity was associated with a later diagnosis of colorectal (time ratio (TR) 1.01, 95% confidence interval (CI) 1.01 to 1.02) but not breast (TR 1.00, 95% CI 0.99 to 1.01) or lung cancer (1.00, 0.99 to 1.00). Secondary analyses suggested that continuity of doctor

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

after, but not before, the index consultation was associated with an earlier diagnosis of colorectal and lung cancer.

Consequences: Any effect for patient-doctor continuity appears to be small. Observed associations with earlier diagnosis after the index consultation may reflect safety-netting and later referral of patients that cause concern. Further studies are required comparing investigations, referrals and diagnoses in patients with and without cancer who present with possible cancer symptoms or signs.

1A.4

Early Cancer Diagnosis on Teesside - an example of local collaborative audit as an educational tool.

Cathy Williamson[1,2]
[1]*Durham University, Stockton-on-Tees, UK,* [2]*South Tees Practitioner's Group, Teesside, UK*

The problem: South Tees Practitioners Group (STPG) was founded in 1990 by a group of newly qualified GPs within Teesside, an ex-industrial urban area with high levels of deprivation. The Group has provided continuing professional development ever since through bimonthly meetings and valuable mutual support for members within their core roles as local GPs. The Group has survived many local, regional and national developments, and in 2010, in order to celebrate its 20th anniversary and reinvigorate its approach to CPD, decided to undertake its first collaborative audit.

The approach: The first collaborative audit topic of early cancer diagnosis was chosen by members in light of national and local priorities. Standards were derived by members from national guidance including NICE guidance (1); a timeline, audit protocol and data collection sheet were designed and agreed. Members collected data retrospectively on every new cancer diagnosis recorded in their practice during a 6 month period (excluding BCCs); participants then reflected on their individual data and identified potential learning points for group discussion. Anonymised data and learning points were collated by the audit coordinator and re-circulated.

Data was reviewed at an audit review meeting. Each participant presented their own data, reflections and learning points, followed by facilitated themed discussion within the group. A summary of resultant group learning and action points was circulated by the audit coordinator to each participant.

The findings: Data from eight practices serving a patient population of 69,400 identified 109 consecutive new cancer diagnoses over a 6-month period. Just over 50% of the new cancer diagnoses had involved 2wr referrals and 75% had followed NICE guidance. Most revealing however were potential missed opportunities for earlier cancer diagnosis; these identified doctor and HCP's educational needs, secondary care referral processes, patient education issues, patients declining screening, investigation or referral and multiple concurrent pathologies.

Consequences: Action points around missed opportunities were agreed and were subsequently presented at each of the eight participating practices and the Northern Cancer Network in order to improve local practice. Significant event recording systems were used to alert secondary care and other services of cases where inappropriate referral processes may have contributed.

This collaborative audit process was deemed very effective by participants as promoting learning and identifying local practice improvements; opportunities to benchmark own practice and discuss individual learning needs in a supportive environment with trusted colleagues such as that provided by a Practitioners Group were key.

The collaborative audit process is currently being reviewed in line with HQIP guidance (2) and a re-audit of early cancer diagnosis is planned later in 2013 to build on initial learning and action.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Reference

- 1. NICE Quick Reference guide CG27 "Referral Guidelines for Suspected Cancer"
- 2. HQIP. Best practice in clinical audit. 2010

1B Epidemiology and public health

1B.1

General Practitioner (GP) Engagement with the Scottish National Naloxone Programme: A Needs Assessment Project

Catriona Matheson[1], Christiane Pflanz[1], Lorna Aucott[1], Phil Wilson[1], Richard Watson[2]
[1]University of Aberdeen, Aberdeen, UK, [2]General Practitioner, Glasgow, UK

The Problem: Scotland has over 500 drug related deaths (DRDs) per year. The Scottish National Naloxone Programme aims to reduce Scotland's high number of drug related deaths caused by opiate overdose. The national programme is currently being implemented through specialist drug services. However, there may be drug users who are not using such services or have limited access to such services. General Practitioners (GPs) are likely to have direct contact with drug using patients who are on opiate replacement treatment or receiving general medical care. Thus, GPs are in an ideal position to direct these patients to naloxone schemes, or to provide this service themselves.

The Approach: This study aimed to identify how to enable GPs to engage effectively with the naloxone programme. In particular it sought to:

- determine current GP knowledge, awareness and attitudes in relation to DRD take-home naloxone;
- describe the needs of GPs in relation to take-home naloxone and their involvement in the national programme;
- identify enablers and barriers to the delivery of potential models of care.

To do this a mixed methods approach was used comprising a quantitative and qualitative component. A postal survey was sent to 10% of GPs across Scotland (n=500). It covered knowledge, awareness, attitudes, barriers and enablers to its delivery and workforce development requirements. Telephone interviews, conducted with a separate purposive sample of GPs (n=17), covered: experience with drug users and naloxone involvement, barriers and enablers to naloxone programme delivery.

Findings: The survey achieved a response rate of 55% (240/439): There was some awareness of the naloxone programme but very low levels of involvement by GPs sampled (3.3%), 9% currently provided routine overdose prevention, there was little involvement in distributing information (<20%). Knowledge of DRD risk was mixed. There was tentative willingness to be involved in naloxone prescribing with half of respondents willing to provide this to drug users or friends/family.

Factors which would enable naloxone distribution were: evidence of its effectiveness, appropriate training of practice staff, adding it to the local formulary and remuneration. GPs had limited awareness of what naloxone distribution in primary care may involve; many preferred specialist services delivery and consided naloxone supplyas a specialist service rather than a core GP role.

Consequences: There was a low level of knowledge around DRDs and the use of naloxone. Thus there was an identified need for training. Training should be evidence based, assuming a low level of knowledge, cover practical aspects of naloxone administration and risk factors. GPs should be made

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

aware that naloxone can be prescribed to any drug user at risk of overdose, on an opportunistic basis and is not a specialist service.

1B.2

Blood pressure variability and Chronic Kidney Disease (CKD): Identifying patients at high cardiovascular risk in primary care in a registered population of 200,000 people.

Daniel Lasserson[1], Vincent Van Gelder[2], Nynke Scherpbier de Haan[2], Marion Biermans[2], Chris Van Weel[2], Wim de Grauw[2], Jack Wetzels[3], Christopher O'Callaghan[4]
[1]Department of Primary Care Health Sciences, University of Oxford, Oxford, UK, [2]Department of Primary and Community Care, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, [3]Department of Nephrology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands, [4]Nuffield Department of Medicine, University of Oxford, Oxford, UK

The Problem: Visit to visit variability in office blood pressure (BP) measurements identifies patients at high risk of stroke and cardiac events in cohorts of patients with TIA and in large hypertension treatment trials. CKD is strongly associated with increased cardiovascular risk yet the known risk factors such as elevations in mean blood pressure do not fully account for this excess risk. We hypothesised that worsening CKD stage is associated with greater *variability* in visit to visit blood pressure, which might explain the excess cardiovascular risk associated with CKD, and could identify patients with increased cardiovascular risk in primary care.

The Approach: Data were analysed from a population of 207,468 patients registered at 47 GP practices participating in the CONTACT telenephrology study in Nijmegen, Netherlands. CKD stage was determined from the first serum creatinine taken between 1.1.2008 and 31.12.2011 via estimated glomerular filtration rate (eGFR) and BP measurements were taken as part of routine care during the same period. Measures of BP variability were analysed including standard deviation (SD) and the cardiovascular risk predictors of successive and absolute residual variability independent of mean (SRVIM, ARVIM), and SD independent of mean (SDIM) using at least seven BP measures. Trends in these indices of BP variability with age and renal function were tested for using analysis of variance; linear regression was used to determine the impact of renal function on BP variability after controlling for age and sex. Analyses were carried out with IBM SPSS version 20 and R software.

Findings: 63,073 patients were aged >18 and had at least one measure of renal function, with a CKD prevalence of 11.3%. Of these 19,175 patients (30%) had at least seven blood pressure measurements and had a higher mean age (65.5 years vs 51.9 years, $p<0.001$) and higher mean creatinine level (85.3 umol/l vs 80.7 umol/l, $p<0.001$) than patients with less than seven routinely taken BP measures. ANOVA tests for trend showed significant linear increases for SD, SDIM, ARVIM and SRVIM (all at $p<0.001$) with increasing CKD stage but this was not significant for mean systolic BP ($p=0.11$) or for maximum systolic BP ($p = 0.15$). Adjusting for age and sex in linear regressions showed that eGFR was a significant determinant of all variability measures (all at $p<0.001$).

Consequences: Worsening stage of CKD is associated with increased visit to visit BP variability, an effect which is independent of age and sex; in contrast mean BP did not increase with worsening CKD stage. This may be a mechanism whereby CKD raises the risk of cardiovascular events. Patients with high visit to visit BP variability can be identified from routine clinical data in primary care and should be identified for further prognostic and intervention trials.

1B.3

A DOUBLE-BLIND RANDOMIZED CONTROLLED TRIAL EVALUATING THE EFFICACY OF ATTENTIONAL RETRAINING ON ATTENTIONAL BIAS AND CRAVING IN SMOKERS ATTEMPTING CESSATION

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Rachna Begh[1], Marcus Munafò[2], Saul Shiffman[3], Stuart Ferguson[4], Linda Nichols[5], Mohammed Mohammed[5], Roger Holder[5], Stephen Sutton[6], Paul Aveyard[1]
[1]University of Oxford, Oxford, UK, [2]University of Bristol, Bristol, UK, [3]University of Pittsburgh, Pittsburgh, USA, [4]University of Tasmania, Tasmania, Australia, [5]University of Birmingham, Birmingham, UK, [6]University of Cambridge, Cambridge, UK

The problem: Smokers show attentional bias, meaning they attend preferentially to cigarettes and related cues. Attentional bias may contribute to craving and failure to stop smoking. Modified visual probe tasks have been used in laboratory studies to manipulate attentional biases for smoking cues, although these procedures have not been applied in smoking cessation programmes. We conducted the first trial to examine the efficacy of multiple sessions of attentional retraining (AR) on attentional bias, craving, and abstinence in smokers attempting cessation.

The approach: Adult cigarette smokers (N=118) attending NHS stop smoking clinics in the West Midlands were randomized to receive either a computerized modified visual probe task with AR or placebo training (PT). Training began 1 week prior to quit day and was delivered weekly for 5 sessions. Both groups received 21mg transdermal nicotine patches for 8-12 weeks and withdrawal-orientated behavioural support for 7 sessions. Primary outcomes included the difference in attentional bias reaction time measured at baseline and 4-weeks post-quit. Urge to smoke was measured weekly using the Mood and Physical Symptoms Scale (MPSS). The secondary outcome, prolonged abstinence, was measured and biochemically validated at each session.

Findings: The sample smoked a mean of 20.8 (SD=9.2) cigarettes/day and mean FTND=5.5 (SD=2.3). Post-training bias scores were lower in the intervention than control group (mean difference=-8.8ms), though this did not reach statistical significance (p=0.11). After adjusting for baseline bias scores, no significant main effects or interactions were found by group/abstinence status (ps>0.10). Mixed-effects linear regression analyses indicated that from quit-day to 4-weeks, craving was lower in abstinent smokers who received AR than PT but this was not statistically significant (b=-0.19, 95% CI=-1.30, 0.93, p=0.93). There was no significant difference in the proportion of smokers achieving prolonged abstinence at 4-weeks (RR=1.00, 95% CI=0.70, 1.43).

Consequences: Multiple sessions of AR using a modified visual probe task had no effect on attentional bias, craving and abstinence outcomes. The findings call into question the clinical value of AR procedures for treatment-seeking smokers and its generalisability from laboratory research to real-world settings.

1B.4

Undergraduate teaching in UK general practice: A complete national geographical picture

Eliot Rees, Helen Derbyshire, Simon Gay, Robert McKinley
Keele University School of Medicine, Keele, UK

The problem: Learning in general practice is an essential component of undergraduate medical education. Whether general practice can sustainably deliver more undergraduate placements is uncertain. We have undertaken a national survey to identify the geographical distribution and utilisation of teaching practices and their distance from the host medical school to determine the current pattern of utilisation of practices nationally.
The approach: We invited all UK medical school to provide their teaching practices' postcodes. These were collated, de-duplicated and mapped. The distances and journey times by car and public transport between each medical school and its teaching practices were estimated using 'transportdiret.info'. The postcodes of every practice in the UK were obtained from the UK Departments of Health (DH). The number and proportion of practices teaching in each postcode sector were mapped using spatial software (Microsoft MapPoint) although currently this facility is not available for N Ireland.
Findings: All 33 UK medical schools responded; 4,392 practices contributed to teaching with a median (min- max) of 143(17-385) practices per school. The median(min-max) distance between a school and a

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

teaching practice was 26(0-1421)KM requiring 40(0-1406) and 71(0 to 1049) minutes travel by car and public transport respectively. All teaching practices were accessible by public transport in one school and 90%-99% in four but over 20% of practices were inaccessible by public transport in 24 schools. The DHs hold 10,448 practice postcodes; nationally 42% of practices teach. There are teaching practices in 1,901(64.2%) of all 2,983 UK postcode sectors and 75.1% of the 2,530 sectors with practices. The maps show sectors with low proportions of teaching practices in all UK regions.
Consequences: Teaching general practices are widely distributed and potentially any practice, no matter how isolated, can contribute to undergraduate education. This is however at the price of a considerable burden of travel. There are many practices across the UK which do not teach undergraduates. We do not know whether such practices train postgraduates, whether they wish to teach or would be suitable teaching practices. Nevertheless there may be unused capacity which could be recruited to teach.

1C Long term conditions

1C.1

Effects of exenatide and liraglutide on heart rate, blood pressure and body weight: Systematic review and meta-analysis

Louise Robinson[1], Tim Holt[2], Karen Rees[1], Harpal Randeva[1], Paul O'Hare[1]
[1]University of Warwick, Coventry, UK, [2]Oxford University, Oxford, UK

The problem: The GLP-1 agonists exenatide and liraglutide are increasingly used in the management of type 2 diabetes, but their long term cardiovascular safety is not yet confirmed. These agents are known to reduce body weight and blood pressure, but are also associated with an elevation in heart rate that has not previously been quantified. Its mechanism is poorly understood.

The approach: We systematically identified randomised controlled trials of minimum 12 weeks follow up involving people with type 2 diabetes, comparing exenatide or liraglutide with placebo, active control drug or lifestyle intervention and reporting heart rate, blood pressure or body weight outcomes. We derived weighted mean differences and confidence intervals using a random effects model and the inverse variance technique.

Findings: Five hundred and twenty-one articles were screened and thirty-two studies were included in the meta-analysis. Overall, GLP-1 agonists increased heart rate by 1.86 beats per minute (bpm) [95% confidence interval (CI) 0.85, 2.87] versus placebo and 1.90 bpm [1.30, 2.50] versus active control. This effect was more evident for liraglutide and for exenatide long acting release than for exenatide twice daily. GLP-1 agonists decreased systolic blood pressure by -1.79mmHg [-2.94, -0.64] and -2.39mmHg [-3.35, -1.42] compared to placebo and active control respectively. Reduction in diastolic blood pressure failed to reach statistical significance (-0.54mmHg [-1.15, 0.07] vs placebo and -0.50mmHg [-1.24, 0.24] vs active control). Body weight decreased by -3.31kg [-4.05, -2.57] compared to active control but by only -1.22kg [-1.51, -0.93] compared to placebo.

Consequences: The GLP-1 agonists exenatide and liraglutide confer favourable effects on systolic blood pressure and body weight but are associated with a small but significant rise in heart rate. This effect might have implications for cardiovascular safety and further research is required into the underlying mechanism whilst the results of long term follow up studies are awaited.

1C.2

Effect of primary care case management on emergency hospital activity: cohort study

Helen Edwards[1], Max Bachmann[1], Bharathy Kumaravel[2,1], Nicholas Steel[1]
[1]University of East Anglia, Norwich, UK, [2]Norfolk County Council, Public Health Norfolk, Norwich, UK

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Problem Case management is a widely used primary care intervention for patients with multiple and long-term conditions who are frequent users of health services. However the evidence for case management is limited and mixed. The aim of this study was to evaluate the effect of case management on emergency hospital activity.

The approach We conducted a retrospective cohort study during actual roll-out of a case management programme into 25 general practices in the East of England between July 2010 and July 2011. Case management was provided by community matrons who coordinated multidisciplinary care. Two models of case management were used; a "virtual ward" based across several practices, and a practice-based model where each practice organised their own approach. We followed 598 adults who received case management over 16 months. We compared trends over time in rates of emergency hospital admissions and emergency department (ED) visits between those who had and had not yet started case management. Multilevel Poisson regression models estimated exposure-time interactions, adjusting for patients' prognostic characteristics and previous hospital emergency activity.

Findings During 5653 person-months without case management, there were 586 emergency admissions and 688 ED visits, compared with 591 emergency admissions and 697 ED visits during 4400 person-months with case management. Monthly incidence of emergency admissions and ED visits increased over time before case management and decreased over time after starting case management. Each extra month of case management was independently associated with a 14% (95% CI 11-17%) decrease in emergency admission rate, and with a 10% (7-13%) decrease in ED visit rate, compared to no case management.

Consequences Case management for patients with long-term conditions appeared to reverse trends of increasing emergency hospital activity, compared with no case management. These findings contribute to the evidence base for case management and support use of the intervention for this patient population. This study also demonstrates how academic analysis of routinely-collected, "real-world" data can be used to examine effectiveness of interventions.

1C.3

A new method to generate concordance and shared treatment decisions for patients with osteoarthritis (OA)

Basem Al-Omari, Carol Rhodes, Julius Sim, Martin Frisher, Research User Group Arthritis Research UK Primary Care Centre
Keele University, Keele, UK

The Problem How to reach concordance and shared treatment decisions between clinicians and patients with OA is undefined and unclear. In order to facilitate such shared agreements, it is important that the clinician has a clear understanding of an individual patient's preference for OA treatment. This process of eliciting individual patient preference can be time-consuming, and may be too easily influenced by the clinician's own perspective. An objective method for self-assessment of patient preferences without clinician involvement might be a helpful and efficient contribution to shared decision-making in a subsequent consultation.

The approach Aim: To investigate the practicality and validity of a newly developed Adaptive Choice Based Questionnaire (ACBC) questionnaire to determine OA patients' preference. Pilot: 11 participants who were over 50 years of age and suffering from OA in at least one of their joints were recruited from the Research User Group (RUG) at the Arthritis Research UK Primary Care Centre, Keele University. Participants completed a computerised interactive ACBC questionnaire involving 8 attributes using evidence-based information from published articles about the varying impact and risks of OA medication: medication availability, frequency, route of administration, expected benefit, risk of addiction, risk of stomach side effects, risk of kidney and liver side effects, and risk of heart attacks and strokes.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Participants then completed a pen and paper feedback form about the relevance, comprehensibility and practicality of the ACBC questionnaire. The relative importance of each of the 8 attributes, which sum to 100%, was calculated for each patient individually using monotone regression estimation. Finally, patients were shown the results and asked if these represented their preference.

Findings Although the ACBC monotone regression estimation differed between participants, 10 participants completely agreed and one partially agreed that the predicted results match their preferences. The average time for completing the questionnaire was 23 minutes and none of the participants reported the ACBC questionnaire to be difficult to read, understand or complete. Furthermore, all participants strongly supported the proposal to test the use and usefulness of the ACBC tool in general practitioners' clinics for eliciting patients' preference for OA treatment.

Consequences The results of this pilot suggest that a computerised questionnaire (ACBC) reveals precise information about individual patient preference. It also suggests that this tool is ready and practical for testing its usefulness in primary care for analysing individual patient preference prior to consultation, without consuming clinicians' time.

1D Professional and policy issues

1D.1

Impact of universal health insurance coverage on hypertension management: A cross-national study in the United States and England

Andrew Dalton[1], Eszter Vamos[2], Matthew Harris[2], Gopalakrishnan Netuveli[4], Robert Wachter[3], Azeem Majeed[2], Christopher Millett[2]
[1]University of Oxford, Oxford, UK, [2]Imperial College London, London, UK, [3]University of California, San Francisco, USA, [4]University of East London, London, UK

The problem The merits of universal health coverage have been discussed internationally. Notably, in the United States (US) the Patient Protection and Affordable Care Act (ACA) has galvanised debate over its merits. Similarly, debate continues in India, and has been has been revived in England since the recent changes to the NHS. Cross-national comparisons with health systems providing universal coverage may illustrate whether universal health coverage, notably the ACA or other US policies directed at achieving such coverage, is likely to improve health outcomes and reduce inequities. We aimed to compare overall quality and inequities in hypertension management, prevalent primary care sensitive condition, by socio-economic position in the US and England: The latter of which has universal health care, free at the point of access.

The approach We used cross-sectional data from the English Longitudinal Study for Aging, and the Health and Retirement Survey in the US. We compared blood pressure control to clinical guideline (140/90 mmHg) and audit (150/90 mmHg) targets; mean systolic and diastolic blood pressure and antihypertensive prescribing, and inequities in each by educational attainment, income and wealth. We included respondents aged 50 to 64 years (US market-based v NHS) and > 65 years (US Medicare v NHS), standardising outcomes using regression models.

Findings There were no significant differences in aggregate achievement of clinical guideline targets (US market-based vs. NHS - 63.7% vs. 61.6% [p= 0.418]; US Medicare vs. NHS - 54.6% vs. 56.7% [p= 0.131]). A significantly higher percentage of English respondents aged 50-64 years achieved the audit target (76.7% vs. 68.9% [p= 0.001]. England has no significant socioeconomic disparity in blood pressure control or prescribing (62.9% vs. 66.1% [p= 0.420] for high and low wealth). The United States has socioeconomic differences for all measures in the 50-64 years age group (72.0% vs. 56.9% [p= 0.001] for high and low wealth); these were attenuated but not abolished in Medicare beneficiaries.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences Moves towards universal health coverage in the US may reduce disparities in hypertension management. However, improving access to timely and appropriate primary care and addressing high co-payments may be required for complete elimination of disparities. The universal NHS may promote equitable and efficient management of hypertension in primary care.

1D.2

Less than full time training: A barrier to women GP's career progression? A feminist participatory action research study

Jessica Drinkwater[1], Heather Waterman[2]
[1]*Centre for Primary Care, University of Manchester, Manchester, UK,* [2]*School of Nursing, Midwifery, and Social Work, University of Manchester, Manchester, UK*

The Problem: The majority of GP trainees are women. Research suggests that due to family commitments, women GPs are less likely to be partners or have roles in research, teaching, or leadership. Less-than-full-time (LTFT) training is advocated as a solution to this, enabling women to balance family and work commitments. However, evidence shows LTFT trainees lack support and face attitudinal barriers suggesting "*part-time is part committed*". This has major implications for work-force planning.

This project aims to explore how to improve support for and change attitudes towards women LTFT GP trainees.

The Approach: A feminist participatory action research (FPAR) approach has been used to investigate the problem from the perspective of those involved and to develop realistic solutions. A co-operative inquiry group was established including 5 women LTFT GP trainees, 2 GP trainers, and 3 individuals involved in organising training. Four meetings have been held over 8 hours. Semi-structured interviews have also been conducted with 7 GP trainees (male and female, full-time and LTFT), 4 GP trainers, and 3 individuals involved with the organisation of training. Participants were recruited through purposive sampling. With consent, meetings and interviews were audio recorded and transcribed verbatim. Data analysed using feminist informed thematic analysis, refined within the co-operative inquiry group.

Findings: Themes emerging from the interviews mapped onto existing feminist theory regarding marriage, occupational attainment, and domestic responsibilities. Many of the trainees were in dual medical professional families, but women described being responsible for domestic work. Some women described positive decisions to move into LTFT training. Other women described themselves as failures, defaulting into LTFT training due to high domestic workloads. Those defaulting into LTFT described a vicious circle of more domestic responsibility and less career activity.

The theory has been developed within the co-operative inquiry group to find solutions including career-life advice and accessible information to frame LTFT training as a positive choice for men and women. Placement priority for LTFT trainees with children was also discussed. However, a barrier to this was the argument that preferential treatment is unfair, as women are making a 'choice' to have children.

Consequences Women GP trainees with children face dual pressures from both work and traditional domestic responsibilities, and this impact s on their career goals. LTFT training can help balance these pressures, but in some cases may lead to an increased domestic burden within dual career families. This approach illuminated the barriers to improving support for LTFT trainees due to long standing attitudes regarding a woman's 'choice' to have children. A LTFT training handbook is being developed, but ultimately radical solutions may be needed such as a career structure that values women and men spending time with children.

1D.3

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Practice responsiveness: elites' views on successes and difficulties in policy implementation

Emma Angell
University of Leicester, Leicester, UK

The problem: Alongside a NIHR-funded project to develop a patient questionnaire to measure how well primary care organisations respond to the needs and preferences of their patients, my doctoral work seeks to develop a picture of how the policy of 'practice responsiveness' came into being, and how it was (and is being) implemented into practice in primary care. Using responsiveness as an example of healthcare policy, I seek to produce an insight into the tensions of translating policies into practice.

The approach: I conducted interviews with 'elites' at strategic organisations such the Department of Health and the Cabinet Office who had been involved in writing or communicating policies about responsiveness in primary care. This paper focuses on interviewees' perspectives of how responsiveness can be successfully embedded in day-to-day practices, and the difficulties that are experienced by both policymakers and staff on the ground.

Findings: Elites described responsiveness in terms of finding flexible ways to consult with and listen to patients (including those who might be considered socially disadvantaged) who use a primary care organisation, and act upon the feedback in such a way as to improve services for everyone using those services.

Promoting responsiveness was viewed as an important 'job' for policymakers and clinical leaders, as policy documents can be ineffective in isolation. Partnership between policymakers and stakeholders was seen as vital, and enabled the development of effective tools for dissemination using varied media, such as DVDs, national conferences, and buddying. Elites also felt that the process of *developing* a policy was key to its success: by travelling the country to meet and engage with people, they could promote the development of a 'shared vision', and encourage staff to take responsibility for change.

However, elites expressed concerns about the reality on the ground. They felt that the 'target culture' in the NHS could hamper implementation as responsiveness is difficult to measure and therefore cannot be easily incentivised. Competing priorities (policy and political), resistance from staff, and staff lacking the appropriate skills were also cited as difficulties encountered in practice.

Consequences: Using responsiveness as an example of healthcare policy, this work has uncovered some of the issues that may hamper well-intentioned policies becoming a reality at the coalface. Whilst hearts and minds *can* be transformed through intensive work to communicate the essence of a policy, the reality of the wider NHS is likely to hamper improvement being made to practice. Interviewees emphasised that whilst policy on responsiveness aimed for fundamental changes in attitudes and practice, the target culture in which the NHS operates shifts attention to aspects of care that can be easily measured and incentivised, thus rendering responsiveness as aspirational rather than implementable.

1D.4

The College of Family Physicians of Canada Section of Researcher's 5 year strategic plan: making research a core component of family medicine training, scholarship and clinical practice

Cheryl Levitt[1,2], Alan Katz[2,3], Inese Grava-Gubins[0]
[1]McMaster University, Department of Family Medicine, Hamilton, Ontario, Canada, [2]College of Family Physicians of Canada, Missisauga, Ontario, Canada, [3]University of Manitoba, Department of Family Medicine, Winnipeg, Manitoba, Canada

The problem: In Canada, family medicine research has not been valued as part of the foundation supporting the discipline.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The approach: In 2012, the College of Family Physicians of Canada (CFPC) Section of Researchers (SoR) undertook a strategic planning process with over 50 leading family medicine researchers, clinicians, educators and teachers from across Canada. The group was tasked with developing a vision and plan for increasing research in family medicine which would be implemented over the following 5 years (2013-2017). The group developed a vision, mandate, 5 areas of strategic focus, each with an achievement indicator, 18 strategic objectives and 42 key activities that were specific, measureable, realistic and time-based. Each activity was tagged with a time frame for completion.

Findings: The research strategic plan was developed in collaboration with the CFPC's overall strategic planning process, thereby ensuring the broader adoption of the researchers' plan by the CFPC leadership.

The SoR Vision - "Research is a core component of family medicine training, scholarship and clinical practice".

The SoR Mandate - "To improve the health of Canadians by building the research capacity and capability of the family medicine community through leadership, education and advocacy".

The 5 areas of strategic focus are: 1) membership enhancement & growth; 2) capacity building; 3) advocacy & support; 4) external relations; and 5) integration. The strategic objectives and key activities cover a wide range of issues, including a set of core strategic priorities. The new priorities are to engage membership, develop career opportunities for new and mid-level researchers, expand the residency research education curriculum, support PBRN development, improve public recognition of the value of the research, develop sustained and effective relationships with academic institutions, professional organizations and funding agencies, and effectively integrating research into the core business of the CFPC including the patient's medical home model and providing more guidance as an internal resource.

Consequences: The new SOR strategic plan requires a carefully prioritized and detailed work plan, a set of new committees engaging members in carrying out the plan, articulated governance structures, adequate staffing, departmental reorganization and additional budgetary support. Our hope is to see research valued as a core component of family medicine and the CFPC within 5 years.

1E Patient and public involvement

1E.1

A Lay Partner's Experience of Patient and Public Involvement in Health Research

Antony Chuter
University of Edinburgh, Edinburgh, UK

The Problem: Patient and Public Involvement (PPI) is rising up the agenda in the National Health Service (NHS). [1,2] Commissioners of health-related research now routinely expect PPI to be included in funded programmes. Researchers comply, with different degrees of enthusiasm, yet even advocates recognise that in practice PPI varies widely and evidence-based benefits are scant.[3] Senior investigators' PPI experiences have been reported.[4] Here we extend the growing knowledge base by presenting the experiences of a lay partner in health research who is uniquely placed to compare and contrast three different programmes on which he is a co-applicant.

The approach: AC has built up a unique portfolio of contributing to health research. Years ago, when he was unwell and out of work, he volunteered for the Expert Patient Programme and subsequently became a staff member. This was followed by voluntary work for the Royal College of General Practitioners, and invitations to contribute to the independent steering committees of NHS Connecting for Health programmes. This led AC to suggest that closer lay-academic collaboration, where a PPI member was a co-

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

applicant and fully part of the research team, would offer more meaningful PPI; lay representation on a steering committee did not necessarily make a project 'patient-centred'. Now a co-applicant on three successful grants, AC draws on his personal experience to compare three different models of PPI, his own role in each, and how he sees the partnership benefiting team members and the work.

Findings: AC identifies marked differences within and across the teams in how researchers embrace working with a lay partner, as well as some similarities. Across projects, he sees his role primarily as a "critical friend" - asking questions, and asking more questions - and continually re-focussing team exchanges on the patient. Crucially, as a co-applicant he has input at the stage of writing the protocol. He also brings benefit by being able to suggest and recruit additional PPI volunteers, drawing on his personal networks developed over time. Funding, and the proportion of it budgeted for PPI, varies widely between the programmes, which is reflected in the scale of the work and in the extent of PPI. AC identifies how he himself has moved from being a PPI volunteer to becoming a "self-employed" member of research teams, with attendant financial costs for the programmes. Some aspects of his evolving role have surprised him. For example, using his "people skills" to support informally both academic and lay team members might require moving between being the 'questioner' and being a listener.

Consequences: This personal review of being a lay co-applicant on three different research programmes adds to a wider understanding of the evolving role of PPI in health-related research.

1E.2

Hearing Voices? The potential benefits and risks of local anonymous micro-blogging as a way of achieving Public Engagement in Primary Care (PEBL Project, Essex, UK)

Charlie Davison[1,2], Ewen Speed[2], Caroline Gunnell[1]
[1]NHS West Essex R&D, Essex, UK, [2]School of Health & Human Sciences, University of Essex, Essex, UK

THE PROBLEM: Integrating patient experience into Primary Care commissioning and delivery is central to the contemporary NHS. While statistical methods are widely applied both in the UK and around the world (Holzer and Minder 2011), the use of phenomenological approaches emphasizing first person story telling is relatively undeveloped (Coulter et al 2009). Outside the relatively restricted worlds of formal complaints and PALS investigations, the NHS struggles to collect and act upon stories/narratives of patients' journeys. Similarly, the on-going gathering and analysis of community opinions about NHS provision/commissioning is problematic in terms of generating input from a wide range of people. In both areas (patient experience and public engagement) there remains a lot to be done in the field of building a continuous dialogue between the NHS and the communities it serves.

THE APPROACH: Our local micro-blogging project in Essex has experimented with anonymous web-based feedback and dialogue as a method of permanent public engagement with local Primary Care providers and commissioners.

This paper reports thematic analysis carried out on 30 semi-structures interview scripts. The interviews were recorded with a random selection of patient/public bloggers and NHS managers/clinicians who had used the PEBL blogging website during 2011 and 2012. The blogs and responses appearing on the PEBL website (PEBL 2013) in 2011 and 2012 were also analysed.

FINDINGS: Based on a set of qualitative interviews and also the texts of the blogs themselves, this paper describes how both sides in the public/NHS dialogue identify, balance and manage a range of risks and benefits they see as inherent in the process. Here we discuss some of central issues emerging from the data, including: anonymity versus identity; the usefulness of 'generic' versus specific feedback, and the vexed question of 'who is listening?' and whether it is possible for listening/response to be perceived by the public and measured/demonstrated by the NHS.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

CONSEQUENCES: The NHS needs to embrace a wide variety of new communications technologies in its quest to form a genuine and continuous dialogue with patients, carers and the wider community. This work must address crucial issues of anonymity (on both the public and NHS sides) and free dialogue. The PEBL project has produced a workable system that addresses some of these issues.

National Institute for Health Research Grant Number:- PB-PG-0808-17254

East of England Research Ethics Committee reference:- 10/H0302/15

REFS

Holzer B and Minder C (2011) "A simple approach to fairer hospital benchmarking using patient experience data", International Journal for Quality in Health Care , Volume 23, Number 5, pp 524–530

Coulter A et al (2009) The Point of Care Measures of patients' experience in hospital: purpose, methods and uses. London, King's Fund.

PEBL (2013) http://www.peblfeedback.com/

1F Older people's health

1F.1

Ethical challenges of recruiting in care homes

David Ellard[1], Trial Team OPERA[1,2]
[1]*University of Warwick, Coventry, UK,* [2]*Queen Mary University of London, LONDON, UK*

The problem In developing a cluster randomised trial within care homes we identified several ethical issues:

1. The ethics of cluster randomisation and the role of care home managers as cluster guardians providing consent for participation in the study
2. Recruitment and consent of individuals for assessments and data gathering in an institutional setting, including the role of home staff as gatekeepers
3. Obtaining valid consent for individual participation in a population that will include a high number of cognitively impaired participants, including assessment of capacity to consent
4. The involvement of personal and nominated consultees in decisions about recruitment of residents who lacked capacity to consent

The approach We used a combination of the following research methods:

1. Observation of the recruitment and consent process.

2. Interviews with care home staff, residents and next of kin

3. Focus group with recruitment staff

4. Focus groups with older people not currently in a care home to elicit their views on research with people who are unable to consent.

5. Interviews with key professional informants.

The findings

1. Care home managers expressed no concerns about their role as consent giver for the home to take part in the study. They perceived themselves as decision-makers for the home, with a responsibility for improving resident well-being and staff training, and therefore a decision to participate in the study was not qualitatively different from other decisions about home activities.
2. There was a potential tension between recruiting staff's aims and managers' perceived gate-keeping role. In practice, recruiting staff learned through dialogue with managers to develop a shared understanding of a threshold level at which managers would predict a resident's lack of capacity to make a decision regarding participation,
3. Observation of the consent process confirmed that with careful explanation by the recruiting staff the participants were able to understand what was required of them and provided valid consent. Building a positive relationship between recruiter and resident could be seen as an important factor in facilitating recruitment.
4. Generally participants in the ethics study considered study paperwork as protection for the researchers rather than protection for participants. Verbal communication was valued over written and this was linked to the importance given to a trusted person providing the information and obtaining consent.

The consequences Our data suggest that older people participating in research may think and act in ways that are not necessarily congruent with the accepted model of individual autonomy underpinning the standard informed consent framework of provision of full information and explicit written consent uninfluenced by others. A reconsideration of what is considered best practice in studies including people with cognitive impairment may be needed.

1F.2

Tailored Educational Intervention for primary care to improve the diagnosis and management of Dementia: The EVIDEM-ED Pragmatic Cluster Randomised Controlled Trial

Steve Iliffe, Jane Wilcock, Mark Griffin, Priya Jain, Ingela Thune-Boyle, Frances Lefford, David Rapp
University College London, London, UK

The problem: Primary care has a pivotal role to play in dementia diagnosis and management but under-performance is common. Organisational changes and incentivisation appear to be important in changing clinical practice. The English National Health Service has provided a natural experiment, with powerful policy pressure and financial incentivisation of dementia care. This environment provides an ideal opportunity to test an educational intervention.

The approach: We tested a tailored educational intervention package for primary care designed to improve diagnosis and clinical management, based upon principles of adult learning, in an unblinded cluster randomised controlled trial of intervention versus normal care, with a pre-post design, which ran from 2008-2012. This took place in twenty-three urban, semi-urban and rural group practices in South East England. Eleven practices were randomly assigned to receive the educational intervention, and 12 to normal care. A search of electronic medical records identified 1072 people with dementia across the practices. A sub-set of 167 people with dementia permitted an in-depth review of their medical records. The intervention consisted of practice-based workshops, with their content derived from prior educational needs assessment and educational prescriptions, delivered by experienced tutors. Workshops typically lasted no longer than one hour and each practice elected to have up to three sessions, according to assessed educational need. The main outcome measures were **c**ase detection pre and post intervention, and rates of two or more documented annual management reviews of patients with dementia carried out by primary care practitioners. A secondary outcome was concordance with NICE guidelines on management of patients with dementia.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Findings: Case detection pre and post intervention was not significantly different between arms. The estimated Incidence Rate Ratio for the intervention versus the control group was 1.03, (95% CI (0.57, 1.86), p=0.93). The number of patients with dementia with two or more annual management reviews documented did not differ between the two arms. The odds ratio for two or more reviews in the intervention arm compared with normal care was 0.83 (95% CI (0.52, 1.33), p=0.44). Medical record analysis showed no difference between groups in concordance with NICE guidelines in management of patients with dementia.

Consequences: The English NHS is a potentially receptive environment for a tailored educational intervention about dementia. Despite high face-validity and positive feedback from practitioners this study suggests that a tailored intervention does not improve case identification or documentation of clinical reviews. Nor does it improve concordance with management guidelines. This may have implications for the implementation of the National Dementia Strategy.

1F.3

A Cochrane review of case management approaches to home support for people with dementia

Siobhan Reilly[1], Claudia Miranda-Castillo[2], Reem Malouf[3], Juanita Hoe[4], Sandeep Toot[5], David Challis[1], Martin Orrell[4]
[1]University of Manchester, Manchester, UK, [2]Universidad de Valparaiso, Valparaiso, Chile, [3]University of Oxford, Oxford, UK, [4]University College London, London, UK, [5]Goodmayes Hospital, London, UK

The problem: Worldwide, most people with dementia live in the community. Most developed countries emphasise the importance of caring for highly dependent older people for as long as possible at home and case management is integral to this strategy. Case management can be defined as a strategy for organising and coordinating care services at the level of the individual patient with the aim of providing long-term care for people with dementia as an alternative to admission to a care home or hospital. No previous systematic reviews have comprehensively reviewed the evidence for case management for people with dementia.

The approach: This Cochrane review aimed to evaluate the effectiveness of case management approaches to home support for people with dementia from the point of view of the different people involved (patients, carers, and staff).

All randomised controlled trials of case management interventions for people with dementia who lived in the community and their carers were included. We searched the Specialized Register of the Cochrane Dementia and Cognitive Improvement Group. Data was extracted and checked by two reviewers. Data was extracted and checked by two reviewers.

Findings: 13 trials were identified (1 ongoing study). 9615 participants with dementia are included from 13 trials (4 US, 3 Hong Kong, 2 Finland, 1 UK, 1 India, 1 Canada, 1 Netherlands)

The review indicates that there is some evidence to suggest that case management may be beneficial for both the person with dementia and their carer in terms of: reduced hospital length of stay at 12 months; reduced behaviour disturbance at 12 (5 trials) & 18 months (3 trials), reduced carer burden (3 trials) and improved carer wellbeing (only 1 trial) and social support (3 trials). There are signs that although case management, as intended, involves higher use of community services this may be offset by a lower use of acute services and hospitalisations, but on the evidence available it is not clear how it may affect overall healthcare costs. In most of the studies, case management was just one aspect of a broader complex programme of care making it difficult to study the specific effects in detail. There was considerable heterogeneity of the interventions, outcomes measured and time points across the 13 included trials.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences: Further work is needed to identify what aspects of case management are associated with most improved outcomes. Increased consistency in choice of outcomes and outcome measures would help future meta analysis. Primary care and specialist services need to integrate care more effectively and case managers are likely to be able to facilitate this. This review maximises the impact of existing research and informs policy, commissioning and practice for case management and will help to shape future dementia research agendas.

1F.4

Warfarin versus aspirin for prevention of cognitive decline in an elderly community population with atrial fibrillation (the Birmingham Atrial Fibrillation Treatment of the Aged Study, BAFTA): a randomised controlled trial

Andrea Roalfe[1], Nahal Mavaddat[2], Kate Fletcher[1], Gregory Lip[4], Richard Hobbs[3], David Fitzmaurice[1], Jonathan Mant[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Cambridge, Cambridge, UK, [3]University of Oxford, Oxford, UK, [4]City Hospital, Birmingham, UK

The Problem: Atrial fibrillation is associated with decline of cognitive function. Observational evidence suggests that anticoagulation might protect against this decline. We report the first randomised controlled trial evidence on the impact of anticoagulation on cognitive function in elderly patients with atrial fibrillation.

The approach: 973 patients aged 75 years or over with atrial fibrillation were recruited from primary care and randomly assigned to warfarin (n = 488, target international normalised ratio 2-3) or aspirin (n = 485, 75 mg per day). Neither participants nor investigators were masked to group assignment. Follow-up was for a mean of 2·7 years (SD 1·2). Cognitive outcome was assessed using the Mini Mental State Examination (MMSE) at 9, 21, and 33 month follow-up. Participants who had a stroke were censored from the analysis, which was by intention to treat with imputation for missing data.

Findings: There was no difference between mean mini-mental state examination scores in people assigned to warfarin or aspirin at 9 months or 21 months. At 33 month follow up, there was a non-significant difference of 0.56 units in favour of warfarin that decreased to 0.49 units (95% CI -0.01 to 0.98) after imputation.

Consequences: We found no evidence that anticoagulation confers clinically important protection against cognitive decline in atrial fibrillation in the first 33 months of treatment other than that provided by preventing clinical stroke.

2A Cancer

2A.1

Exposure to bisphosphonates and risk of common non-gastrointestinal cancers: series of nested case-control studies using QResearch and CPRD data

Yana Vinogradova, Carol Coupland, Julia Hippisley-Cox
University of Nottingham, Nottingham, UK

Problem: Bisphosphonates are now the most commonly prescribed osteoporosis drugs but long-term effects have not been established, although antitumor properties have been demonstrated in preclinical studies. Epidemiological studies have consistently reported a reduced risk of breast cancer in bisphosphonate users but the effects of bisphosphonates on other common non-gastrointestinal cancers are still uncertain.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Approach: A series of nested case-control studies were conducted using 660 UK general practices registered with the QResearch primary care database and 613 with Clinical Practice Research Datalink (CPRD). Cases were patients 50 years and older, diagnosed with primary cancers between 1997 and 2011, each matched with up to five controls by age, sex, practice and calendar year. Odds ratios for risk of common non-gastrointestinal incident cancers (breast, prostate, lung, bladder, melanoma, ovarian, pancreas, uterus and cervical) associated with bisphosphonate exposure were obtained adjusted for smoking status, socio-economic status, ethnicity, cancer-specific co-morbidities and use of other medications.

Findings: 91556 and 88843 cases of primary cancer of interest were identified from QResearch and CPRD respectively. Bisphosphonate use was associated with a reduced risk of breast cancer (odds ratio 0.89, 95% confidence interval 0.82 to 0.97, P=0.005) in the QResearch analysis but without duration-dependency. Analyses combining the results from the two databases demonstrated that bisphosphonate use was associated with a reduced risk of breast cancer (0.92, 0.87 to 0.97, P=0.004), prostate cancer (0.87, 0.79 to 0.96, P=0.003; P-value for trend 0.005) and pancreatic cancer (0.80, 0.69 to 0.93, P=0.005). Additional analyses demonstrated a reduced risk of prostate cancer associated with alendronate prescriptions in both the QResearch (0.81, 0.70 to 0.93, P=0.004) and the combined analyses (0.84, 0.75 to 0.93, P=0.001), which were also both duration-dependent (P-values for trend 0.009 and 0.001). No other cancer risks were associated with bisphosphonate use.

Consequences: In this series of large population-based case-control studies from two primary care databases, exposure to bisphosphonates was not associated with increased risks for any common non-gastrointestinal cancers. There was, rather, some indication of reduced risks for breast cancer, prostate cancer and pancreatic cancer. Our study provides an extra reassurance to physicians prescribing bisphosphonates for the treatment or prevention of osteoporosis.

2A.2

The effectiveness of GP endorsement of bowel screening in increasing participation in the NHS Bowel Cancer Screening Programme: results of a feasibility trial

Sarah Damery[1], Alison Clements[2], Roger Holder[1], Linda Nichols[1], Heather Draper[1], Sue Clifford[1], Laura Ocansey[1], Steve Smith[3]
[1]University of Birmingham, Birmingham, West Midlands, UK, [2]University of Oxford, Oxford, Oxfordshire, UK, [3]Midlands and North West Bowel Cancer Screening Hub, Coventry, West Midlands, UK

The problem: Bowel screening has the potential to facilitate the early diagnosis of cancer and thus improve patient prognosis and survival. Population based screening was introduced in England in 2006 via the NHS Bowel Cancer Screening Programme (BCSP), which invites all individuals aged between 60-74 to complete a faecal occult blood test (FOBt) every two years. The success of bowel cancer screening relies on the BCSP consistently achieving uptake rates above 60%, but uptake is currently relatively low, and effective strategies to improve uptake are required. Research has shown the important role of health professionals in supporting screening, and the involvement of GPs has been found to improve patient compliance with both breast and cervical screening. This study aimed to assess the effect of GP endorsement of bowel screening on screening participation amongst non-responders to screening invitations.

The approach: We undertook a two-armed RCT in which patients aged 60-74, registered at 22 general practices in the West Midlands with screening uptake rates <50%, who did not respond to their most recent invitation to participate in bowel screening were randomised to either the intervention (GP letter endorsing bowel screening and duplicate FOBt kit) or control (no additional contact) arms of the trial. The primary outcome measure was the difference in screening uptake rates between arms, with secondary outcomes including sub-group analyses of uptake according to patient gender, age, screening history and socioeconomic deprivation. Semi-structured interviews with patients in the intervention arm who

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

returned a screening kit following the GP reminder were also undertaken to investigate the impact of the intervention on decision-making.

Findings: 4,737 patients were randomised (intervention: n=2,371; control: n=2,366). 119 FOBt kits were returned by patients in the intervention arm (5.0%) compared with 15 kits returned by patients in the control group (0.6%). Screening participation was thus significantly higher in patients who received the intervention (OR=8.28; p=<0.0001). Other factors significantly associated with screening uptake were increasing affluence (OR=3.68; p=0.015), female gender (OR=1.61; p=0.08), being in the 65-69 age group (OR=1.81; p=0.026) and prior participation in bowel screening (OR=5.06; p=<0.0001).

Consequences: Feasible, acceptable and cost-effective strategies to encourage bowel screening uptake amongst non-responders to screening invitations are fundamentally important to the success of the BCSP, and although bowel screening is not administered through primary care, GPs may nevertheless have a key role to play. If the trial intervention was rolled out nationally and similar rates of screening uptake were observed, an estimated 350 additional bowel cancers would be detected in England annually. However, a number of cost-related and logistical factors associated with routinely including personalised GP screening endorsements in bowel cancer screening invitations would need to be overcome before such an intervention becomes viable.

2A.3

Clinical features of myeloma in primary care

Elizabeth Shephard[1], Richard Neal[2], Peter Rose[3], Fiona Walter[4], Willie Hamilton[1]
[1]Peninsula College of Medicine and Dentistry, Exeter, Devon, UK, [2]Bangor University, Bangor, UK, [3]Unviersity of Oxford, Oxford, UK, [4]University of Cambridge, Cambridge, UK

The Problem: Myeloma accounts for over 70,000 deaths annually worldwide. Approximately 5000 cases are diagnosed in the UK yearly. It is a classic cancer with delay: nearly 2 in 5 patients are diagnosed by emergency presentation. We aimed to identify and quantify the clinical features of myeloma in UK primary care for the first time.

The approach: 2,703 patients aged ≥40 years, diagnosed with myeloma between January 2000 and December 2009, and 12,157 age, sex and practice matched controls, were selected from the General Practice Research Database, UK. A list of potential clinical features was compiled and prevalence of these features identified in the year preceding diagnosis. Positive predictive values were estimated for myeloma for single, combined and repeated clinical features in patients aged ≥60 years.

Findings: Cases consulted their GP more frequently than controls in the year before diagnosis: median 16 consultations (interquartile range 10-25) vs. 8(4-14): p<0.001. Multivariable analysis identified sixteen features independently associated with myeloma, including: weight loss, odds ratio 3.0 (95% confidence interval 2.0-4.5), nosebleeds 3.0(1.9-4.7), rib pain 2.5(1.5-4.4), and back pain 2.2 per GP attendance up to six attendances, raised calcium 11(7-18), low full blood count 5.4(4.6-6.4), raised inflammatory markers 4.9(4.2-5.8):all p<0.001.

Consequences: The symptoms in secondary care were also identified in primary care, particularly so for back pain, over the 'classical' rib pain. Given that there is an easy primary care test for myeloma (immunoglobulins), our results could guide GPs in expediting the diagnosis of myeloma - particularly with recurrent back pain in older adults.

2A.4

Why do some patients present with thicker melanomas? A qualitative exploration of patients' symptom detection and help-seeking decisions.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Linda Birt[1], Debbie Cavers[2], Christine Campbell[2], Suzanne Scott[3], Fiona Walter[1]
[1]University of Cambridge, Cambridge, UK, [2]University of Edinburgh, Edinburgh, UK, [3]Kings College, London, London, UK

The Problem: Malignant melanoma thickness at diagnosis is an important prognostic feature. Delays in the pathway to treatment may lead to people being diagnosed with thicker lesions, contributing to poorer outcomes and potentially avoidable deaths. This qualitative study investigated symptom detection and help-seeking decisions among patients newly diagnosed with melanoma in order to understand and compare experiences of the pathways between patients diagnosed with thicker and thinner melanomas.

The approach: A purposive sample of patients was recruited over 12 months from dermatology clinics in Cambridge and Edinburgh. In-depth face to face interviews, undertaken within 10 weeks of diagnosis, explored multi-dimensional factors which impacted on the pathway to diagnosis. Patient recall was aided by using a calendar landmarking instrument and drawing the development of the lesion. A Framework analytic approach, underpinned by the 'pathways to treatment' model[1], was used to explore data with particular focus on patient attributes, disease factors and healthcare provider influences.

Findings: 63 patients were interviewed; the sample were aged 29-93 years, included 31 females, and 30 had thicker lesions (Breslow thickness ≥2mm). The melanoma was first detected by a healthcare professional in four cases. Among the others, many patients reported that lesion appraisal and help-seeking decisions were prolonged because they 'normalised' skin changes and attributed changes to a cause other than melanoma, such as ageing. Patients described their lesions using rich lay vocabulary, particularly related to the colour. Early changes in size, shape and colour of thicker melanomas were enhanced by descriptions such as: 'starting as a red spot', 'changing texture', 'growing out from skin'. Several factors influenced patients' decisions of when to present to the GP including their previous experience of skin cancer, and whether the lesion 'matched' expectations of a melanoma gained from family, friends, colleagues and existing information. Eleven patients (7 thicker, 4 thinner melanomas) reported that they had been previously reassured by a healthcare professional that their lesion did not need further investigation; furthermore, they felt they had not been advised about either monitoring change or when it would be appropriate to re-consult their healthcare professional.

Consequences: People used a rich vocabulary to describe their lesions, but those with thicker melanomas at diagnosis may not have recognised or interpreted their skin changes as warning signs or prompts to seek timely medical attention. These findings will inform the development of more meaningful descriptions of early skin changes for future melanoma awareness materials, and could guide new approaches to improving population awareness and appraisal of skin changes for possible melanoma. The findings also highlight the importance of appropriate advice, monitoring and safety-netting procedures by GPs for people presenting with pigmented skin lesions.

[1] Walter FM et al. *J Health Services Research & Policy* 2012.

2A.5

A pragmatic randomised controlled trial of response to an invitation to self-collected sampling for human papillomavirus (HPV) versus repeat invitation for cervical cytology screening in persistent non-responders in Newcastle upon Tyne (SHINE).

Louise Cadman[1], Scott Wilkes[2], Diana Mansour[3], Janet Austin[1], Anne Szarewski[1]
[1]Centre for Cancer Prevention, Wolfson Institute of Preventive Medicine, Queen Mary University of London, London, UK, [2]Institute of Health and Society, Newcastle University, Newcastle upon Tyne, UK, [3]Newcastle Hospitals Community Health, Newcastle upon Tyne, UK

The Problem: The success of a screening programme depends on high coverage of the eligible population. The NHSCSP has a stated target of 80% but there has been a relative decline in the last 5

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

years. 5 yearly coverage has been consistently below 80% and 3.5 yearly coverage of women aged 25 to 49 even lower.

Reasons cited for non-attendance include greater emphasis on patient choice, practical issues such as needing time off work or accessing childcare and emotional barriers including fear of pain, and embarrassment.

Self-collected samples for high risk HPV testing may allay some of these barriers providing a simple alternative to attending in person. HPV self-collected tests have similar sensitivity and specificity to samples taken by clinicians, are always more sensitive, but less specific, than cytology and broadly acceptable to women.

The only UK trial on self-collected samples in non-responders to date was carried out in London. This showed a very low response rate of 6.4% in contrast to 27-39% in other European studies and 9 -20% in an Italian study, depending on the level of intervention. The London trial uptake was surprisingly low and it is unclear whether this is typical of England as a whole or an anomaly. The repetition of the trial in a second English population aims to determine whether this is the case.

The approach: This was a pragmatic randomised (1:1) controlled trial of 6000 women identified by the North East Primary Care Services Agency as not having responded to a first invitation, a first reminder letter, plus the first non-responder card sent to their GP. The Intervention group was sent an invitation to collect their own sample for HPV testing and the comparator group was sent a further invitation for cervical cytology. Women were given 90 days to respond to the invitations.

Findings: The median age of women in the intervention group was 39 and 40 in the comparator group. Of the 3000 women in the intervention group, 256 returned samples. 246 samples were taken within the 90 day window. A further 8 samples were received outside this timeframe and another two were unusable (one incorrectly taken, the other did not include a consent form). This the response rate was 8.2% within 90 days; 13% of these tested positive for high risk HPV. The response rate of the comparator group and the further rate of attendance for follow-up cytology in the intervention group is not yet available.

Consequences: These data appear similar to those found in London, suggesting that this strategy may be less effective in England than in other European countries.

2B Blood pressure management

2B.1

Targets and self-management for the control of blood pressure in stroke and at risk groups (TASMIN-SR): a randomised controlled trial - Late Breaking Main Results

Richard McManus[1], Jonathan Mant[2], Emma Bray[3], Sheila Greenfield[3], M Sayeed Haque[3], Miren Jones[3], Sue Jowett[3], Paul Little[4], Claire O'Brien[3], Cristina Penaloza[3], Claire Schwartz[3], Helen Shackleford[3], Jinu Varghese[3], Bryan Williams[5], FD Richard Hobbs[1]
[1]University of Oxford, Oxford, UK, [2]University of Cambridge, Cambridge, UK, [3]University of Birmingham, Birmingham, UK, [4]University of Southampton, Southampton, UK, [5]UCL, London, UK

The Problem: Our previous trial (TASMINH2) showed that, in people with hypertension, self-monitoring of blood pressure with self-titration of antihypertensives (self-management) resulted in lower systolic blood pressure for at least one year. However, the trial included few people in high risk groups such as those with pre-existing cardiovascular disease and subgroup analysis suggested a smaller effect size in these groups. This trial therefore aimed to assess the added value of self-management in high risk groups over and above usual care.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Approach: The targets and self-management for the control of blood pressure in stroke and at risk groups (TASMIN-SR) trial was a pragmatic primary care based, unblinded, randomised controlled trial of self-management of blood pressure (BP) compared to usual care. Eligible patients had a history of stroke, coronary heart disease, diabetes or chronic kidney disease and were recruited from primary care. Participants were individually randomised to either usual care or self-management. Self-management comprised self-monitoring of blood pressure combined with an individualised self-titration algorithm agreed at baseline with each patients' GP and mediated through a "traffic light" system. Patients were taught to categorise readings into those requiring immediate attention (very high and very low), those requiring titration if persistent (moderately raised) and those where blood pressure was controlled. The primary outcome of the trial was the difference in the change of office SBP between intervention and control from baseline to 12 months. The power calculation suggested that randomising 540 patients would be sufficient to detect a difference in SBP between self-management and usual care of 5 mmHg with 90% power assuming a 10% drop out rate. Secondary outcomes included self-efficacy, lifestyle behaviours, health-related quality of life and adverse events.

Findings: 552 patients were randomised from 59 practices in the West Midlands and East of England. After 12 months, primary outcome data were available from 449 patients (82%). This is a late breaking trial: double data entry and final data checking are now under way and results for the primary outcome and selected secondary outcomes will be presented at the conference.

Consequences: The results of the trial will be directly applicable to primary care in the UK. If successful, self-management of blood pressure in people with stroke and other high risk conditions would be applicable to many hundreds of thousands of individuals in the UK and beyond.

2B.2

Missed opportunities to prevent myocardial infarctions in hypertensive patients

Benjamin Brown, Richard Williams, John Ainsworth, Iain Buchan
Centre for Health Informatics, Institute of Population Health, University of Manchester, Manchester, UK

The problem:

Background

Ischaemic heart disease (IHD) is the worldwide leading cause of death. However, the majority is avoidable through adequate control of risk factors such as blood pressure (BP). Despite widespread guidance on risk factor management, it is often not implemented in real-life clinical practice.

Research question

Can analysing instances where adverse IHD outcomes have occurred and preceding BP control has been sub-optimal provide useful information on how to improve healthcare services?

Relevance

This is a new approach to healthcare service improvement in an important clinical area that has not yet been reported. Additionally, it enables in-depth analysis of patient groups to help address health inequalities.

The approach: We developed a computational model for contrasting observed and ideal BP control in electronic health records (EHR). In addition to using the most recent measurement, BP was summarised as the integral of serial measurements to more accurately reflect control over time. Controlled BP was

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

defined by the NICE and QOF targets <140/90 and ≤150/90 mmHg respectively. The model was applied to the integrated primary and secondary care EHR in Salford, UK (population 0.22 million). All hypertensive patients who suffered their first myocardial infarction (MI) between April 2007 and 2012 were eligible. Patients in whom reducing BP was inappropriate were discounted including those with palliative illnesses, recurrent falls, orthostatic hypotension or on maximal therapy.

Findings: 1363 patients suffered an MI. Prior to this, 420 (31%) and 561 (41%; P<0.0001) had uncontrolled BP according to their most recent measurement and integral of serial measurements respectively. Significantly fewer patients had uncontrolled BP according to the higher QOF target of ≤150/90 mmHg (177 [13%] and 285 [21%] respectively; P<0.0001). Advancing age was significantly associated with having uncontrolled BP. Deprivation, sex and co-morbidity were unrelated. Ethnicity was difficult to interpret due to missing data.

Consequences: Our study has provided directly useful information to help improve healthcare services in Salford. Up to 41% of patients suffered missed opportunities to adequately control their BP prior to MI. This could most effectively be avoided in future by targeting the elderly. Fewer patients had uncontrolled BP when QOF targets and the most recent BP reading were used. This suggests the more sensitive alternative parameters should be employed in clinical practice. The effect of co-morbidity, sex and deprivation were insignificant, indicating the healthcare service was already equitable in these respects.

Our methodology demonstrates a new approach to healthcare service improvement applied to MI prevention in hypertensive patients. This could be used in other diseases areas, including different risk factors or alternative health outcomes. At a patient level it could help avoid missed opportunities before they have adverse consequences. At a population level it could help inform health policy and commissioning.

2B.3

Cutting out the white coat: Can we predict out of office blood pressure levels using multiple clinic measurements?

James Sheppard[1], Roger Holder[1], Richard McManus[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Oxford, Oxford, UK

The Problem: Detecting white coat and masked effects in blood pressure (BP) normally requires out-of-clinic measurement. We tested the hypothesis that changes in repeatedly measured clinic BP could predict the presence of a white coat or masked effect.

The approach: This was a post-hoc analysis of data from the TASMINH2 trial. All patients were hypertensive, on treatment and had both clinic (6 measurements) and home BP measurements (over 1 week). Polynomial regression modelling was used to characterise the shape of the change in clinic systolic BP measured repeatedly (slope and curve coefficients). The home-clinic difference was calculated from the mean home systolic BP and initial clinic systolic BP. The relationship between the slope and curve coefficients and the home-clinic difference was assessed using Pearson's Correlation. The predictive abilities of these coefficients for white coat and masked effects were estimated using binary logistic regression and ROC curve analysis.

Findings: 220 patients were included in this analysis. Both slope and curve coefficients were significantly correlated to the home-clinic difference (Pearson's correlation 0.512 [$P < 0.001$] and -0.443 [$P < 0.001$] respectively). The slope coefficient was predictive of a white coat effect with a sensitivity of 92%, specificity of 29% and positive/negative predictive values of 48/84%. Predictive values for the masked effect and those of the curve coefficient were similar but when coefficients were combined, the sensitivity, specificity, positive and negative predictive values for both effects were improved to 90%,

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

48%, 56% and 87% for the white coat effect and 91%, 48%, 24% and 97% for the masked effect (respectively).

Consequences: These preliminary data suggest that the characteristics of repeated clinic systolic BP measurements reflect differences between home and clinic BP in hypertensive patients. More research is needed to establish whether these characteristics are sufficiently predictive in a typical primary care population to be used by general practitioners when considering treatment intensification or referring patients for out-of-clinic monitoring.

2B.4

Monitoring the monitors: Calibration drift of blood pressure monitors in a retail pharmacy environment

James Hodgkinson[1], Roger Holder[1], Una Martin[1], Jonathan Mant[3], Carl Heneghan[2], Richard Hobbs[2], Richard McManus[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Oxford, Oxford, UK, [3]University of Cambridge, Cambridge, UK

The Problem: An accurate blood pressure (BP) monitoring device is fundamental to all BP measurements in the diagnosis and control of hypertension. Publicly available blood pressure monitors could be an attractive option for people who do not own their own monitor, thus potentially reducing some health inequalities, or for those who wish to monitor their BP outside formal health care visits. Some community pharmacies provide free access to BP monitors, but whilst such monitors may be validated, evidence of how well they maintain their accuracy over time is limited. We therefore assessed the calibration drift of two models of a validated automatic BP monitor in a retail pharmacy chain, where current policy is to use monitors for two years and then to discard them.

The Approach: The accuracy of 61 digital sphygmomanometers in 47 pharmacies was evaluated through comparison to a reference monitor, at 50 mmHg intervals across the range 50-300 mmHg as recommended by the British Hypertension Society. Following manufacturers' protocol, a difference from the reference monitor of +/- 3 mmHg was considered a failure. We also tested deflation, air leakage, and all cuffs in use. We assessed the relationship of monitor accuracy to length of time in use and number of recorded uses.

Findings: The difference in blood pressure between monitors and reference device increased with level of blood pressure in a linear fashion to a mean 2 mmHg difference at 300 mmHg. Eight (13%) monitors failed, all underestimating blood pressure by at least 3mmHg. The largest disparity found was 8.3 mmHg. Four monitors failed at 200 mmHg and two at 150 mmHg. Monitor failure rate varied by model (20% vs. 10%), length of time in use (5% before 18 months) and to some extent by usage rates (17% in monitors used twice daily or more). Analysis of precise test-reference monitor differences by usage rate and service duration using stepwise regression will be presented.

Consequences: Community pharmacy BP checks present an excellent opportunity to improve hypertension diagnosis and management, but require accurate equipment. Underestimation of BP potentially falsely reassures clients who may not otherwise present to primary care. This research suggests that an annual calibration check is required, at least of this equipment.

2B.5

How low should the systolic blood pressure target be in people who have had a stroke or TIA? Results of the PAST-BP Randomised Controlled Trial.

Jonathan Mant[1], Andrea Roalfe[2], Kate Fletcher[2], Richard J McManus[3], Clare J Taylor[2], Satnam Virdee[2], Una Martin[2], Sheila Greenfield[2], FD Richard Hobbs[3]

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

[1]University of Cambridge, Cambridge, UK, [2]University of Birmingham, Birmingham, UK, [3]University of Oxford, Oxford, UK

The Problem: Lowering blood pressure in stroke survivors lowers risk of a further stroke regardless of whether or not traditional criteria for hypertension are met. It is difficult to translate this evidence to a blood pressure target, but some have advocated that the target should be as low as can be achieved without causing undue adverse effects. The aim of this trial was to determine whether an intensive blood pressure target can be achieved in primary care, and if so, whether it is associated with adverse patient consequences.

The Approach: 529 people (mean age 72) with a past history of stroke/TIA were recruited from 99 general practices and randomised to a target systolic pressure of 130mmHg (or lower by 10mmHg if baseline systolic pressure was less than 140mmHg) or to a target of 140mmHg. People were excluded if baseline systolic blood pressure was less than 125mmHg or if they were already taking more than two antihypertensive drugs. Participants were followed up for one year. The primary outcome was systolic blood pressure measured by a research nurse. Management of blood pressure in both groups was at the discretion of their general practitioner supported by a NICE compliant algorithm, but aiming for the assigned target blood pressure.

Findings: Mean baseline systolic blood pressure was 143mmHg in both groups. After six months, this dropped to 121mmHg in the intensive group and 126mmHg in the standard care group, (mean difference 5.3mmHg, 95% CI 0.9 to 9.7, p = 0.02) and after a year to 127mmHg (intensive group) and 131mmHg (standard care group) (mean difference 3.9mmHg, 95% CI 0.5 to 7.3, p value 0.03). By one year, there had been 1 major vascular event (stroke) and 1 death in the intensive target arm compared with 5 major vascular events (3 strokes, 2 myocardial infarctions) and 3 deaths in the standard care group. 27 (10%) of the intensive arm and 5 (2%) of the standard care arm had dropped out because they did not want to increase their antihypertensive therapy. 57 participants (26 intensive arm; 31 standard care arm) dropped out for other reasons. Blood pressure was obtained from 381 (88%) of 431 participants who had not withdrawn or had an event at twelve months. Secondary outcome measures - quality of life, side effects, adverse events, and use of antihypertensive drugs will be presented at the conference. 645 (55%) of people who attended the baseline study clinic were excluded, most commonly 463/645 (72%) because their blood pressure was below 125mmHg.

Consequences: Systolic blood pressures lower than 130mmHg can be safely targeted in primary care in people who have had a stroke but may not be tolerated by about 1:10.

2B.6

Does ethnicity affect the acceptability of different methods of blood pressure monitoring?

Sally Wood[1], M. Sayeed Haque[2], Paramjit Gill[2], Sheila Greenfield[2], Jonathan Mant[3], Una Martin[2], Mohammed Mohammed[2], Gurdip Heer[2], Ramandeep Kaur[2], Claire Schwartz[2], Richard McManus[1]
[1]University of Oxford, Oxford, UK, [2]University of Birmingham, Birmingham, UK, [3]University of Cambridge, Cambridge, UK

The Problem: Recent UK guidelines recommend the use of out-of-office blood pressure (BP) measurement techniques, namely ambulatory (ABPM) and self-monitoring, to diagnose hypertension and prevent inappropriate treatment for normotensive individuals with white coat effect. However, little evidence is available regarding the acceptability of these methods to patients of different ethnic groups. This is important as cardiovascular outcomes are often worse in ethnic minorities and hypertension is a key risk factor. In this study we aimed to compare the acceptability of three modalities of BP monitoring in three different ethnic groups.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Approach: People of White British, South Asian and African Caribbean ethnic groups were recruited via primary care practices to take part in an acceptability study comparing BP measurement by different methods. Each participant underwent clinic, ambulatory (24 hours) and self-monitoring (1 week) before completing a validated acceptability questionnaire and ranking the methods. Analysis used a hierarchical model which took into account age, sex, ethnicity, deprivation, marital status, BMI, smoking status, diabetes or cardiovascular disease.

Findings: 822 patients from 28 practices took part in the acceptability study of whom 63% had known hypertension. Mean acceptability scores for all participants ranged from (low most acceptable) 2.1 (self-monitoring) to 2.4 (clinic) and 2.9 (ABPM), all mean differences $p<0.01$. ABPM scored worse on domains concerning sleep, work and usual activities. South Asian and African Caribbean participants rated each type of monitoring less favourably than white British ($p<0.02$ for each comparison). Ranking data revealed similar preferences: self-monitoring was most favoured followed by clinic and ambulatory. This was consistent between different ethnicities.

Consequences: In this large primary care sample, self-monitoring was significantly more favoured than either ambulatory or clinic monitoring. ABPM was reported as significantly affecting sleep, work and activities of daily living. People from minority ethnic groups found blood pressure monitoring less acceptable in general. When ordering out-of-office blood pressure monitoring, physicians should consider acceptability as well as efficacy.

2C Children's and young people's health

2C.1

Diagnosis, management and clinical outcomes of children with UTI: prospective study with systematic urine sampling and 6 month follow-up

Kathryn O'Brien, Adrian Edwards, Kerenza Hood, Christopher Butler
Cardiff University, Wales, UK

The Problem: Childhood UTI can only be diagnosed if a urine sample is obtained as symptoms and signs are non-specific and unreliable for predicting UTI. There is evidence that GPs sample urine infrequently in children and that many UTIs are missed. In order to detect the majority of childhood UTIs, large increases in urine sampling would be needed. It is difficult to obtain urine samples from children, and the culture result often takes several days. We do not know what the initial management or clinical outcomes are for children with UTI who are not initially diagnosed with UTI when they present to the GP.

The approach: Children under five presenting with an acute illness were recruited and urine samples obtained. Examination findings, global assessment, working diagnosis, and initial management were recorded. UTI status was determined by laboratory culture. Infecting organism and antibiotic susceptibility was recorded. A notes review at 6 months was used to determine re-consultation and admission rates, subsequent courses of antibiotics and any renal tract investigations.

Findings: A total of 1003 children were recruited from 13 general practices across Wales. Urine samples were obtained within 2 days in 597 (60%). UTI was diagnosed in 35 (5.9%).

GP suspicion of UTI was associated with UTI ($p<0.01$). However, UTI was not suspected in 80% of UTI cases. GPs diagnosed URTI or tonsillitis in 46%. Neither presence of fever nor GP global assessment of illness severity were associated with UTI ($p=0.64$; $p=0.33$). No examination findings were associated with UTI.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Antibiotics were prescribed at the initial consultation in 37% of children with UTI and 28% without (p=0.23). Children were more likely to be prescribed antibiotics if GPs suspected UTI (p<0.01).

54% of UTI were caused by *E.coli* with a further 23% reported as 'coliform'. 58% of *E.coli* were resistant to at least one antibiotic and 32% were resistant to two or more antibiotics. Appropriate antibiotics were more likely to have been prescribed if GPs suspected UTI (86% vs. 7%).

Follow-up data was available in 515 (86%). There was no difference in re-consultation or admission rates between those with UTI and those without. Children with UTI received more courses of antibiotics in the subsequent six months than those without (p=0.02).

Only 1/16 (6%) children recommended to have had an USS according to NICE guidelines received one and 0/13 recommended to have had a DMSA scan, received one.

Consequences: The sample size is small. However, it seems unlikely that an appropriate antibiotic will be prescribed initially if UTI is not suspected by the GP. If a urine sample is not obtained the UTI may go untreated. There appears to be poor adherence to NICE guidelines for follow-up investigations in children with UTI.

2C.2

Development of a model to better understand GP engagement with young people presenting with emotional distress in primary care

Jane H Roberts, Ann Crosland, John Fulton
University of Sunderland, Sunderland, UK

The Problem: Emotional distress is common amongst young people who consult in primary care yet GPs are rarely involved in the identification and response to distress, which may indicate a mental health problem. Fear of medicalising normal emotional lability has been expressed.

Low levels of involvement with young people is in contrast to the increasing responsibility of GPs in the management of adult mental health. There is increasing understanding of young people's views of effective primary health care yet confusion surrounds the roles and expectations of GPs in youth mental health. There is a paucity of data examining GPs' views and experiences of consulting with young people who present with emotional distress.

The approach A qualitative study was designed to examine GPs' perspectives. Grounded theory (Charmaz, 2006) was used to develop a theoretical sample of 19 GPs who were interviewed in –depth using an interview schedule which was modified during the iterative analysis . The practices represented were located in the North East of England incorporating rural, urban and mixed practices serving largely socio-economically deprived communities. Situational analysis augmented the data generation and offered cartographic tools allowing the data to be interrogated from multiple perspectives (Clarke, 2005). Recruitment ceased at theoretical saturation.

Findings The first level of analysis (the Open Coding stage) showed that anxiety and uncertainty were dominant emotions inhibiting the majority of participating GPs from greater involvement with young people . The second level of analysis (The Axial Coding stage) identified three domains which shape the degree of engagement :

1) a GP's performance in the consultation,

2) how young people and their health needs are perceived

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

3) a GP's preferred knowledge framework (from biomedical to biographical –biological to interpretive perspectives).

The over-arching concept found to explain the data set was the Enactment of Role, with three archetypes articulated. These are described as 'Fixer's, 'Future Planners' and 'Collaborators'. GPs move along a spectrum and may oscillate in 'the grey areas' in between the archetypes but gravitate to a favoured position.

Consequences The absence of adolescent mental health and youth-friendly practice in undergraduate and CPD curricula underpins anxiety and uncertainty about practice. Ill-quipped and unconfident ,many GPs are missing a window of opportunity to respond early to signs of emotional distress. Challenges managing the triadic consult, seeing young people as 'different' and 'difficult' and adopting a biomedical perspective to distress inhibit good engagement. In contrast, using naturalistic language and a biographical –biological perspective facilitates interaction; and a collaborative approach further recognises the wider context and empowers young people.

The model proposed here provides a conceptual framework for education and CPD in a complex area of clinical practice where many young people's needs are not being met.

2C.3

Preventing falls in pre-school children: findings from 2 multi-centre case-control studies

Denise Kendrick[1], Asiya Maula[1], Penny Benford[1], Ben Young[1], Gosia Majsak-Newman[2], Adrian Hawkins[3], Trudy Goodenough[4], Carol Coupland[1], Isabel Allwood[5], Mike Hayes[6]
[1]Division of Primary Care, University of Nottingham, Nottingham, UK, [2]NHS Clinical Research and Trials Unit, University of East Anglia, Norwich, UK, [3]Great North Children's Hospital, Royal Victoria Infirmary, Newcastle-upon-Tyne, UK, [4]Centre for Child & Adolescent Health, University of the West of England, Bristol, UK, [5]Emergency Department, Queens Medical Centre, Nottingham, UK, [6]Child Accident Prevention Trust, London, UK

The problem: Falls are the most common type of injury in pre-school children. They result in more than 200,000 emergency department attendances each year and account for 60% of traumatic brain injuries in the under 5's. In high income countries they are responsible for approximately one quarter of all child injury-related health care costs. Falls from furniture are one of the most common types of fall occurring in this age group. However, little evidence exists on how to prevent falls in this age group.

The approach: We undertook 2 case-control studies set in 7 hospitals across England. Cases were children aged under 5 years attending emergency departments or admitted to hospital following a fall at home from furniture or other raised surface. The first study used community controls that were matched on age and sex recruited from the case's general practice or another practice within the PCT. The second study used unmatched hospital controls that were children aged under 5 years attending emergency departments or admitted to hospital with a different type of injury. Safety practices, safety equipment use and potential confounders were measured using parent-completed questionnaires, validated, where possible, by home observations. Multivariable analyses adjusted for confounders identified using directed acyclic graphs, plus deprivation and distance from hospital for matched analyses and age, sex, deprivation and distance from hospital for unmatched analyses.

Findings: 675 cases, 2669 community controls and 1353 hospital controls participated. Comparing cases to community controls, cases were significantly more likely to not use safety gates (OR 1.58, 95%CI 1.16, 2.15) and not to have taught their children safety rules about climbing in the kitchen (OR 1.57, 95%CI 1.15, 2.14). Parents of cases aged under one were significantly more likely to leave their children on raised surfaces (OR 5.65, 95%CI 3.64, 8.77), change nappies on raised surfaces (OR 1.88, 95%CI 1.24, 2.87) and put children in car seats or bouncing seats on raised surfaces (OR 2.10, 95%CI 1.32, 3.34). Parents of cases

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

aged 3-4 years were significantly more likely to let their children s play or climb on furniture (OR 9.49, 95%CI 1.25, 71.76). Findings were similar in the study using hospital controls.

Consequences: We have identified a range of safety behaviours that significantly increase the risk of falls from furniture and other raised surfaces, providing guidance on messages that should be conveyed to parents. Primary care practitioners and others should advise parents to use safety gates, teach their children not to climb or play on furniture and other raised surfaces, and not leave babies, change nappies nor place car or bouncing seats on raised surfaces.

2C.3

Clinician and parent views of prescribing for acute illness in children: a systematic review and meta-ethnographic synthesis of the qualitative data

Christie Cabral, Jeremy Horwood, Alastair Hay, Patricia Lucas
University of Bristol, Bristol, UK

The Problem: There is a strong interest in prescribing behaviours in primary care driven largely by concern about over-prescription of antibiotics for self-limiting illnesses. In this study, which is part of the NIHR funded TARGET programme, we sought to review and synthesise the existing qualitative evidence in relation to clinician and parent views of prescribing for minor illness in children in order to better understand the context within which prescribing decisions are made. The review was not limited to antibiotic prescribing in order to capture more general views about prescribing for children and to allow a comparison between prescribing for antibiotics and other prescriptions.

The approach: A search of medical, social and economic databases and of relevant journals was conducted. Inclusion criteria were: studies which reported qualitative data in relation to views of prescribing for children; populations which included parents and/or clinicians; in PHC settings in OECD high income countries. Titles were screened, studies which met inclusion criteria identified, data were extracted and quality assessed by two researchers independently. Primary and second order data were synthesised using a meta-ethnographic approach.

Findings: 7046 records were identified and 6931 were excluded by screening of titles and abstracts. Of the remaining 114 studies, 15 met the inclusion criteria. Populations ranged from 1-52 clinicians and 3-29 parents from locations in Europe, US and New Zealand. Of the 15 studies, 13 specifically concerned prescribing of antibiotics and it was key context for another 1 study. We can say little about beliefs and preferences for medication other than antibiotics. For parents, a common theme across these studies was that most parents did not seek antibiotics. Although a minority of parents viewed antibiotic treatment as a preferred option, most wanted to avoid them if possible due to concerns about side effects. For parents, a desire for a medical assessment was compatible with a ‘no treatment' preference; some parents preferred that children got better without intervention. The most common clinician-reported influences in favour of prescribing antibiotics were parental anxiety, the clinician's desire to avoid negative consequences of not prescribing (including serious illness and socio-legal problems) and clinicians' desire to support and preserve a good relationship with the parent. In only two studies clinicians identified explicit parental pressure as an important influence on antibiotic prescription. Clinical uncertainty and the desire for a rapid resolution of the consultation also influenced clinicians in favour of prescribing.

Consequences: There is a paucity of literature understanding views of prescribing other than for antibiotics. Both clinicians and researchers focus on antibiotics as the key treatment decision, while parents wish to receive medical advice but this doesn't always mean receiving a script.

2C.5

The changing patterns of injury incidence and health inequalities in children under 5 from 1990 to 2009

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Elizabeth Orton, Denise Kendrick, Joe West, Laila Tata
University of Nottingham, Nottingham, UK

The problem: Childhood injury is a major cause of preventable ill-health, disability and death and affects disproportionately more socioeconomically deprived families. Despite its importance, in the UK there are no population-based surveillance systems in place to monitor all medically-attended injuries (i.e. those resulting in hospital admission, A&E attendance and/or consultation in primary care). As a result, we have little information about injury incidence rates over time, making it difficult to assess the impact of preventative strategies.

The approach: We used prospectively-collected health data from the UK 'The Health Improvement Network' (THIN) primary care database to investigate fractures, burns and poisonings in children under 5 between 1990-2009.

For each injury type we estimated the incidence rates/10,000 person-years by age, sex, socioeconomic status and 5-year calendar periods and assessed changes in health inequality gaps by calculating the incidence rate ratios for the most deprived quintile of children compared to the least deprived at the beginning and at the end of the study period.

Findings: From the cohort of 985,697 children we detected 20,804 fractures, 15,880 burns and 10,207 poisonings recorded in primary care over the 20 year study period. This equated to incidence rates of 75.7/10,000 person-years (95% Confidence Interval 74.7-76.7) for fractures, 57.8 (56.9-58.7) for burns and 37.1 (36.4-37.9) for poisonings.

Incidence rates varied by age, sex, socioeconomic status and over time. Both burn and poisoning rates decreased between 1990/4 and 2005/9 from 90.2 (86.3-94.3) to 51.0 (49.6-52.6) for burns and 55.5 (52.4-58.7) to 30.1 (29.0-31.2) for poisonings. The incidence of fractures increased from 67.5 (64.0-71.0) to 79.4 (77.7-81.2).

For each injury type we found that rates increased with socioeconomic deprivation and that these gradients persisted over time. For burn injury the gap in health inequality did decrease significantly from the beginning to the end of the study period (incidence rate ratio (IRR) 2.2 (1.90-2.57) in 1990/4 to1.84 (1.68-2.01) in 2005/9 but remained statistically unchanged for fracture and poisoning injury. For fractures the IRR was 1.19 (1.00-1.42) in 1990/4, reducing to 1.10 (1.03-1.19) in 2005/9 and for poisoning the IRR was 1.52 (1.26-1.83) in 1990/4, increasing to 1.77 (1.56-2.00) in 2005/9.

Consequences: We have shown that primary care data can be used to provide population-based incidence estimates of the full range of medically-attended injury in children under 5. We found a reduction over time in the incidence of burn and poisoning injury but a slight increase in fractures. We also found higher incidence rates in those most socioeconomically deprived and that this gradient persisted over time. Whilst the health inequality gap narrowed over the study period for burns it remained unchanged for fractures and poisonings, indicating that more needs to be done to address health inequalities related to childhood injury.

2C.6

Maternal perceptions of supervision in pre-school age children: A qualitative approach to understanding differences between families living in affluent and disadvantaged areas

Joanne Ablewhite, Denise Kendrick, Ian Shaw, Michael Watson
University of Nottingham, Nottingham, UK

The Problem Childhood unintentional injury is a leading cause of death and disability in the UK and shows steep social gradients. Few qualitative studies have explored potential explanations for the inequality

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

amongst parents living in advantaged and disadvantaged areas. One of the aims of this study was to gain an understanding of maternal perceptions of supervision and child unintentional injury risks, within the home, and to explore possible differences between families living in affluent and disadvantaged areas.

The approach Qualitative interviews with thirty seven mothers with a child aged less than five years of age; 16 were mothers living in an area of socio-economic disadvantage (with a high rate of childhood unintentional injury) and 21 were mothers living in an area of relative affluence (with a low rate of childhood unintentional injury). Thematic analysis was used to analyse the data.

Findings Parents in both areas described the importance of parental supervision in reducing child unintentional injury risks. Parents in both areas used listening as a supervision strategy. Parents in both areas described how 'when the child goes quiet' that is a cue for them to visually check on the child when listening is being used as a supervision strategy. Listening was used more for boys than girls in both areas, but parents in the affluent area used listening as a supervision strategy more frequently than those in the disadvantaged area. Parents described supervision strategies as being shaped by child character and age rather than child gender. Parents in both areas describe similar strategies for managing distractions. An important difference exists with regard to older siblings; parents living in the affluent area described older siblings as an injury risk for younger children. Parents in the disadvantaged area described older siblings as providing some supervision for younger children.

Consequences Parents in both areas are aware of the importance of supervision to reduce child unintentional injury risks. Parents living in disadvantaged circumstances may face greater challenges with regard to supervision than parents living in advantaged circumstances and this may partly explain differences in injury risk. Further research is required to explore when, why and how parents use different supervision strategies and differential supervision between boys and girls this may further explain injury rates.

2D Caring for people with multiple morbidities

2D.1

Challenges in Managing Multimorbid Patients: A Meta-Ethnography of the GPs perspective

Carol Sinnott
University College Cork, Cork, Ireland

The Problem: Multi-morbidity refers to the co-existence of two or more long-term conditions in an individual patient, and is the norm amongst patients attending primary care for chronic disease management. Qualitative research shows that GPs' experience challenges in the management of patients with multimorbidity, which are not experienced in the management of single chronic diseases. However, it is unclear how the challenges revealed by individual studies relate to each other and the overall problem of managing multimorbidity. The aim of this study was to establish the overarching challenges faced by GPs in the management of multimorbid patients, by systematically reviewing and synthesizing the published literature in this field.

The approach: A systematic literature search and synthesis was performed using the meta-ethnographic approach described by Noblit and Hare. This 7 step model involves a process of comparison and cross-interpretation between studies but allows the context of the primary data to be preserved.

Findings: The initial search yielded 1805 potential papers. Following screening, 10 papers were included in the review. Four overarching concepts emerged from these papers: 1) Organization & Fragmentation of Health Care, 2) Conflict with evidence based medicine 3) Delivering patient centred care 4) Challenges in Shared Decision Making. Subthemes developed within the core concepts, and many cases of contradictory

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

opinions were seen. By translating individual studies to the key concepts higher order interpretations were developed and a 'line of argument' was drawn. The line of argument pointed to GPs' sense of isolation in decision making for patients with multimorbidity.

Consequences: This systematic review and qualitative synthesis has generated a fuller understanding of the difficulties in managing multimorbidity than would be possible from a single study. It has generated novel findings, most strikingly that GPs feel professionally isolated when making decisions for multimorbid patients. Further research is required to explore the reasons for this in order to design interventions that may help GPs in this regard.

2D.2

Patient and professional experiences of collaborative care for the management of depression and chronic heart disease/diabetes; a qualitative study.

Nia Coupe[1], Sarah Knowles[1], Carolyn Chew-Graham[2], Isabel Adeyemi[1], Peter Coventry[1]
[1]University of Manchester, Manchester, UK, [2]Keele University, Keele, UK

The Problem: Collaborative care models encourage multi-professional working to improve outcomes for patients with multi-morbidities, such as depression and long term conditions (LTCs). Though US based evidence exists for the effectiveness of collaborative care for managing depression alongside LTCs, little is known about how collaborative care in the UK is experienced by patients and health professionals, particularly in the case of physical-mental multimorbidity. The aim of the study was to explore the extent to which collaborative care was implemented in participating practices, as well as understand patient and professional experiences of collaborative care, as part of the COINCIDE (Collaborative Interventions for Circulation and Depression) trial.

The approach: Ongoing semi structured interviews with:

· patients with diabetes/heart diseases and depression who received collaborative care and either withdrew from (disengagers) or completed treatment (completers)

· psychological wellbeing practitioners (PWPs) and practice nurses (PNs) who delivered the intervention

Interviews were analysed using thematic analysis.

Findings: Preliminary analysis of 15 patient interviews (7 disengagers, 8 completers) and 5 professional interviews revealed that patients varied in their perceptions of their physical and mental health being related. Patients who completed treatment appreciated the opportunity to address their mental health separately from their physical health, even when they viewed the conditions as linked. In contrast, those who disengaged from treatment felt their depression was not severe enough to warrant treatment, viewing 'low mood' as an expected consequence of their condition. Some patients felt the intervention would be more useful immediately after diagnosis of their physical health condition to provide information and support when it is most needed. Patients and professionals felt constrained by the trial's focus on CHD/diabetes in some cases where patients had other health conditions or social problems which were deemed more problematic. Some patients appreciated having joint consultations with both professionals together, but others perceived the benefit to be for professionals rather than themselves. These meetings were valued by professionals, but they identified logistical difficulty in arranging them, particularly in the absence of professional co-location.

Consequences: Our results suggest patients may vary in their willingness to engage with collaborative care for mental-physical multi-morbidity dependant on health beliefs, understanding of conditions and current health needs. Understanding patient perspectives is necessary to identify barriers to successful

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

engagement, such as the normalisation of depression in physically ill patients, and targeting patients soon after diagnosis of their physical condition. The opportunity to address mental health needs in primary care may prove valuable to patients who are reluctant to discuss depression with other clinicians, and consequently collaborative care may help address mental health needs that would otherwise remain unmet. Lack of co-location of professionals, and patients' difficulties in acknowledging depression are potential barriers to implementing collaborative care.

2D.3

The Economic Cost and Health Outcomes of Long-term Frequently Attending Patients in Primary Care

Richard Morriss, Sam Malins, Sara Bayes, Michelle Stubley, Shireen Patel, Chris Atha
University of Nottingham, Nottingham, UK

The Problem The top 3% of frequent attendance in primary care is associated with 15% of all appointments in primary care, a fivefold increase in hospital expenditure, and more mental disorder and functional somatic symptoms. Attendance of this kind has usually been studied over the course of one year, but most frequent attendance remits after 12 months. However, when patients frequently consult their General Practitioner (GP) for more than two years (referred to here as regular attendance) it is more likely to be part of a long-term problem in which health service interventions may not be helping with some problems and can contribute to their maintenance. Despite this, there is no long-term study of the economic impact or clinical characteristics of regular attending patients in primary care.

This study aims to explore the health outcomes and economic costs of regular attenders.

The Approach A case control design was employed in which regular attenders (patients attending 30 or more GP appointments over the last two years) were selected via electronic searches of medical records from five GP practices across the East Midlands. Eighty-seven patients who met the criteria consented to a baseline interview consisting of The European Quality of Life five Dimensions (EQ5D), Health Anxiety Inventory Short Week Adapted (HAI), Structured Clinical Interview for DSM-IV diagnoses (SCID) and the Client Service Receipt Inventory (CSRI). Consultation, prescription and health use costs were calculated using primary care medical records over the preceding six years. Case comparisons were made with 87 normal attenders (6-22 appointments over the last two years) matched by practice, gender and age.

Findings Initial findings suggest that the total cost of GP consultations for a regular attender nearly doubled over six years, whilst the average cost remained relatively constant. Over one third of regularly attending patients met the criteria for four or more DSM-IV diagnoses on the SCID, with 42% meeting the criteria for major depressive episode. The average EQ5D health utility value for regular attenders was nearly half that of the normal population. Sixty-eight percent of regular attenders patients met the clinical threshold for significant health anxiety.

Consequences Despite the cost of regular attenders' care increasing much faster than average, their health outcomes remain significantly worse. The rapidly increasing rate of consultation amongst regular attenders' suggests that current primary care input may not be remediating the problems with which they present. Interaction styles may contribute to attendance rates, given the high rates of health anxiety. For example, giving health anxious patients medical reassurances may lead to further reassurance seeking. Regular attenders' poor physical and mental health suggests that an integrated package of care is required. Recommendations are made as to how integrated care may be implemented.

2D.4

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Exploring Strategies for the management of multiple problems in primary care consultations in the UK: a qualitative study.

Kate Stewart[1], Leah Bowen[2], Sunita Procter[2], Sarah Purdy[2], Matthew Ridd[2], Chris Salisbury[2]
[1]University of Nottingham, Nottingham, UK, [2]University of Bristol, Bristol, UK

The Problem Primary care appointments are planned and based around the traditional bio-medical model of a single health condition per consultation. When faced with patients with multiple problems (broadly defined as more than one problem requiring action from the clinician), general practitioners (GP) are required to employ methods to prioritise conditions whilst operating within narrow time constraints and often, against conflicting priorities.

The Approach This paper reports a study of 30 semi-structured interviews with GPs following participation in a larger mixed methods study in which consultations with 229 patients were video-recorded. The study explores decision making in primary care relating to the management of complex consultations by general practitioners, examining their interpretations, behaviours, experiences and perspectives of these complex encounters.

Findings In this paper, we describe particular behavioural approaches and management strategies employed during complicated, routine consultations. The GPs described how the dynamics of the consultation are often transient, shifting between patient defined agendas, typically early in the appointment, and GP led priorities as management plans are formulated. This fluidity between consultation approaches is dependent on complexity, which has the potential to be generated or emerge at every stage of the encounter, from the earliest opportunity at the pre-consultation phase, to the final stage of the encounter. Emphasis is placed on pre-consultation factors, as an important information gathering stage, allowing clinicians to prepare and adapt their strategies to navigate through these sometimes apparently chaotic encounters, balancing the demands of time and (un)certainty to identify ways forward for each consultation. Consultations wheel to and fro in apparently non-sequential ways, adding to the difficulty in managing these complexities. The GPs we interviewed conceded that almost all of their appointments were complex if this is defined as more than one problem, and very few of the encounters contained the consideration of a single problem, even if only single problems were explicitly addressed. Many more were complicated by social and psychological issues.

Consequences The study addresses the particular impact of multimorbidity and its associated complexity on the processes of the consultation, and this paper shows how GPs interpret the concept of complexity more broadly that it has conventionally been framed. This project included a diverse sample of GPs in terms of level of experience and communities served, looking at real and typical scenarios from general practice, suggesting the transferability of the findings reported, and its value for those involved in training doctors, organising appointments, and shaping policy. Aside from its practical usefulness in these regards, the study also clearly shows how GPs interpret the concept of complexity more broadly than it has conventionally been framed: not only the presence of multiple health factors, but also to include the range of other factors described here.

2D.5

The CARE Plus Trial: A primary care-based complex intervention for patients with multimorbidity in deprived areas of Scotland

Stewart Mercer[1], Bridie Fitzpatrick[1], Sally Wyke[1], Rosaleen O'Brien[1], Bruce Guthrie[2], Graham Watt[1], Liz Fenwick[1]
[1]University of Glasgow, Glasgow, UK, [2]University of Dundee, Dundee, UK

The Problem Multimorbidity is the norm rather than the exception for patients with long-term conditions, and is more common and occurs at a younger age in high deprivation areas. Interventions to improve outcomes in patients with multimorbidity are rare, especially in deprived areas. The CARE Plus trial is the

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

final phase of a 4 year programme of work in Scotland called 'Living Well with Multimorbidity'(see O'Brien et al 2011)

The Approach The CARE Plus study is a cluster exploratory RCT, the main aim of which is to test the feasibility of carrying out such a study in general practices serving very high deprivation patients. The intervention is complex, taking a 'whole-system' approach which includes longer consultations with targeted multimorbid patients, a holistic patient-centred approach, support for practitioners, and additional self-management support for patients. Process and outcome measures were measured at baseline, 6 months and 12 months.Qualitative interviews were also carried out at the end of the study with practitioners in the intervention group, and with selected patients.

Findings 8 practices in Greater Glasgow and Clyde serving patients of very high deprivation ('Deep End practices') participated and selected suitable patients aged 30-65. 152 patients were recruited and completed baseline information. Practices were then randomized to intervention group or usual care (treatment as usual). Practitioners in the intervention group received a training day at the start of the study, and two further meetings as a group during the study. Follow-up at 6 months achieved a 90% response rate from patients and 88% at 12 month. Analysis is ongoing but will be presented, with preliminary analysis.

Consequences Our results indicate it is feasible to conduct a cluster RCT of a complex whole-system intervention in primary care in areas of extreme deprivation in terms of recruitment and retention of practices and patients.

2D.6

The effect of multimorbidity on blood pressure control.

Chandra Sarkar[1], Hiten Dodhia[2], James Crompton[2], Peter Schofield[1], Mark Ashworth[1]
[1]Kings' College London, London, UK, [2]Lambeth PCT, London, UK

The Problem: The majority of patients who present in primary care have more than one chronic disease. Most research evidence is based on the study of single conditions.

With hypertension being the most important risk factor in the development of cardiovascular disease (CVD), and CVD being the commonest cause of mortality and morbidity in the developed world, we wanted to explore the relationship between multimorbidity and hypertension. Hypertension usually co-exists with other conditions: 78% of hypertensive patients suffer from multimorbidity (Barnett et al, 2012).

Two studies have reported improved BP control in patients with multimorbidity (Millet et al, 2008 and Mathur et al, 2012). However, both only reported on related cardiovascular morbidities ('concordant multimorbidity'). We propose investigating the effect of a wide range of multimorbidities including 'discordant multimorbidity', on blood pressure control.

The Approach: Data extraction from the Lambeth DataNet (a primary care database of 340,000 patients) was performed yielding 32,183 patients with a diagnosis of hypertension. We identified the 12 most common comorbidities: : 6 cardiovascular diseases, 3 mental health disorders, 2 respiratory diseases and epilepsy. 51.5% of patients with hypertension had one or more of these comorbidities. Systolic BP values were obtained for patients with each multimorbidity combination. Regression analysis was used to investigate confounding by age, sex and ethnicity.

Findings: For both concordant and discordant morbidities, the mean systolic BP was lower when compared to patients with hypertension alone.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The higher the number of morbidities, the lower the mean systolic BP. In patients with hypertension alone the mean systolic BP was 139.3mmHg (95% CI's: 139.1, 139.5); with one additional co-morbidity, 136.9mmHg (136.6, 137.2); 2 comorbidities 135.8mmHg (135.2, 136.4); 3 comorbidities 134.0 mmHg (133.1, 135.0). Patient numbers were too small to derive significant values for those with four or more comorbidities .

The strongest determinant of BP control was the presence of a comorbidity: β = -0.11; other determinants were age (β = 0.05), female gender (β = 0.05), Afro-Caribbean ethnicity (β = 0.06) and South Asian ethnicity (β = -0.02). Deprivation was not significant.

Consequences: We have found that BP control is improved in patients with multimorbidity. The greater the number of multimorbidities, the better the control. The presence of a comorbidity has a stronger effect on BP control than age, gender, and ethnicity. We found that both concordant and discordant multimorbidity resulted in improved BP control.

Possible explanations include increased monitoring and interaction with health care professionals, greater target driven therapy and polypharmacy.

2E Musculoskeletal health

2E.1

Increased cardiovascular mortality associated with gout: A systematic review and meta-analysis

Lorna Clarson[1], Priyanka Chandratre[1], Samantha Hider[1], John Belcher[1], Carl Heneghan[2], Edward Roddy[1], Christian Mallen[1]
[1]Research Institute of Primary Care & Health Sciences, Keele University, Keele, UK, [2]Department of Primary Care Health Sciences, Oxford University, Oxford, UK

The problem Hyperuricaemia has been shown to be an independent risk factor for cardiovascular disease and stroke mortality. Results from epidemiological studies linking gout with an excess risk of cardiovascular disease mortality are conflicting. To date, only one previous narrative review has examined the results of these studies, and no pooled estimate of the excess risk of cardiovascular mortality associated with gout has been available to inform practice. The purpose of this review is to build on the previously published work, by conducting the first meta-analysis determining the excess risk of cardiovascular mortality associated with gout.

The approach Electronic bibliographic databases (MEDLINE, EMBASE, CINAHL and The Cochrane Library) were searched from inception to November 2012, with results reviewed by two independent reviewers. Cohort studies were included if they reported data on cardiovascular disease mortality in adults with gout, compared to those without, who were free of cardiovascular disease at time of entry into the study. Data on mean age, gender distribution and mean follow-up time of participants, definition of gout and cardiovascular outcomes, potentially explanatory covariates adjusted for in statistical models, and results were extracted by two authors independently.

Findings Six papers, including 223,448 patients, were eligible for inclusion (all cardiovascular mortality n=4, coronary heart disease (CHD) mortality n= 3 and myocardial infarction (MI) mortality n=3). Gout was associated with an excess risk of cardiovascular disease mortality (unadjusted HR 1.51(95% confidence interval (CI) 1.17-1.84) and increased mortality from CHD (unadjusted HR 1.59; 95%CI 1.25-1.94). After adjusting for traditional vascular risk factors, the pooled HR for both cardiovascular disease mortality (HR 1.29 (95%CI 1.14-1.44)), and CHD mortality remained statistically significant (HR 1.42 (95%CI 1.22-1.63) but none of the studies reported a significant association with MI.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences Gout increases the risk of mortality from cardiovascular and CHD, but not MI, independently of traditional vascular risk factors. Whilst observational studies cannot demonstrate causation, this meta-analysis of large, high quality cohort studies puts the presence and strength of the association beyond doubt. The clinical implications of this review are the need to promote identification and management of cardiovascular risk factors in patients with gout, but also to identify and optimally manage gout in patients at risk of cardiovascular disease, which may be encouraged by the incorporation of gout into existing cardiovascular risk scoring tools. Further research will be required to establish whether the optimal management of gout, or the aggressive management of cardiovascular risk factors reduces negative outcomes for these patients.

2E.2

Developing Agreed Clinical Criteria for the Diagnosis of Carpal Tunnel Syndrome in Primary Care - A Clinical Consensus Exercise

Claire Burton, Linda Chesterton, Graham Davenport, Krysia Dziedzic, Danielle Van der Windt
Keele University, Staffordshire, UK

The Problem Carpal Tunnel Syndrome (CTS) is the most common compressive neuropathy presenting in primary care, with prevalence rates of up to 9.2%. CTS is an important patient problem with considerable economic and social impact.

There is no 'Gold Standard' approach to diagnosing CTS. It is however recognised that early detection and management are important. Although standardised criteria have been produced to guide diagnosis, these have been developed in secondary care settings and may not be valid or as applicable in primary care, where symptoms may often be less severe and clinical decisions less likely to be made without the aid of electro-diagnosis.

The development of clinical criteria for diagnosing CTS is also important to support the design of randomised clinical trials in primary care, in order to optimise recruitment of appropriately selected populations.

The Approach A literature review was conducted to identify clinical features of CTS (patient history and examination) that could be elicited within a consultation with a patient with self-reported hand or wrist symptoms. Clinical consensus was then sought from the opinions and current practice of general practitioners with an interest in musculoskeletal medicine. 45 participants were identified as co-investigators from the attendance register of the hand pain workshop organised during the National meeting of the Primary Care Rheumatology Society in 2011. Three rounds of questionnaires were distributed anonymously using an online survey between October 2011 and January 2012.

In round one (21 questions) participants were asked to score the importance of each item on a five-point Likert scale, and suggest additional possible diagnostic indicators. In round two (20 questions) the importance of all items was scored again with the aim of achieving consensus on the most important diagnostic indicators. In round three (12 questions) participants were asked to score which indicators they considered to be essential in making a confident clinical diagnosis, and if not essential, how many indicators should be present to make a diagnosis.

Findings There were 31 responders in round one, 18 in round two and 23 in in round three. Seven indicators pertaining to history and one indicator pertaining to examination (Phalen's test) emerged from the final round. In round three, suggestions were also made regarding the precise wording of the items. The findings were discussed with a subset of clinicians and the study team to produce an algorithm for diagnosing CTS based on the eight clinical indicators. The criteria were then redistributed for any further comments, none were received.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences Consensus of a panel of GPs with interests in musculoskeletal medicine resulted in the design of agreed clinical criteria that can be used to standardise the diagnosis of CTS for both trial purposes and in routine primary care clinical practice.

2E.3

Transcutaneous Electrical Nerve Stimulation for the management of Tennis Elbow: a pragmatic randomized controlled trial in primary care

Linda Chesterton, Martyn Lewis, Julius Sim, Christian Mallen, Elizabeth Mason, Elaine Hay, Danielle van der Windt
Keele University, Satffordshire, UK

The problem Tennis elbow is a common painful condition which has considerable impact on people's daily activities, in particular work. Evidence from trials indicates that there is a clear need for an intervention that is acceptable to patients and provides effective short-term pain relief. Corticosteroid injections have shown to be effective in the short term, but are associated with an increased risk of recurrences. Transcutaneous electrical nerve stimulation (TENS) is an inexpensive and patient managed device that is commonly used in the treatment of pain. The aim of this trial was to investigate the effectiveness of TENS when used in addition to primary care management alone.

The Approach In this pragmatic randomised controlled trial, adults with tennis elbow presenting to their GP were randomly allocated to receive primary care management alone or primary care management plus TENS. Primary care consisted of information regarding the possible causes and course of tennis elbow, plus advice regarding pain medication and home exercises. Participants in the TENS group additionally received instructions on how to apply TENS to achieve optimal pain relief. Outcomes (pain, function, use of pain medication, work absence, general health) were measured by postal questionnaire after 6 weeks, 6 and 12 months. The required sample size (n=120 per group) was based on the ability to detect a 20% difference in improvement of pain between the two intervention groups.

Findings Out of 241 participants 121 were randomized to primary care management plus TENS and 120 to primary care alone. Both intervention groups showed large improvements in pain and other outcomes, especially during the first 6 weeks of treatment. However, the intention-to-treat analysis showed no statistically significant differences between the groups at any point in time. The difference in improvement of pain (0-10 rating scale) at the primary end point of 6 weeks was -0.30 (95%CI -0.94, 0.34; p=0.36), adjusted for age, sex, and baseline pain score. There was a significant difference in overall satisfaction with care in favour of TENS (p=0.005), although participants in the TENS group were not more satisfied with the outcome of care compared to primary care management only. A minority of participants strictly adhered to treatment advice (n=39 in the TENS group, n=24 in the primary care management only group) and in this subgroup the per-protocol sensitivity analysis showed a significant difference in the improvement of pain in favour of TENS, but only at 12 months follow-up: 0.99 (95%CI 1.00, 1.88).

Consequences Patients with tennis elbow receiving a primary care consultation with good information and advice regarding the use of pain medication and exercise show large improvements in pain and other health outcomes. The use of TENS as a self-management intervention does not provide additional pain relieving benefit.

2E.4

Under-recognition of chronic widespread pain in primary care: identifying patients recurrently consulting with single-site musculoskeletal problems

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Kate Mansfield, Kelvin Jordan, Julius Sim
Keele University, Keele, Staffordshire, UK

The problem Chronic widespread pain (CWP) affects 11% of the population and is associated with poor health outcomes. In general practice there is no specific morbidity code for CWP. By identifying patients in medical records consulting regularly over five years with multiple individual regional (axial, upper limb, lower limb) problems, Rohrbeck (2007) identified patients in one practice with features consistent with CWP. These long-term recurrent regional consulters (RRC) had worse self-reported general health, more sleep problems and higher levels of fatigue. This suggests there are patients regularly consulting for regional pains who are not being recognised, or managed, as having a generalised pain condition.

The original Rohrbeck RRC criteria had limitations, however, including using a restricted set of musculoskeletal morbidity codes, and were applied to only one practice. This study aimed to further develop the existing RRC definition, determine characteristics of RRCs and assess the extent of unrecognised CWP in primary care.

The approach The study was undertaken using medical records for five years of 79,796 patients in 12 general practices. RRCs were identified i) using Rohrbeck's criteria (RRC-Rohrbeck) and ii) refined criteria using all regional musculoskeletal codes (RRC-all). A control group consulted for musculoskeletal problems in one region only (axial, upper limb or lower limb) over the five years.

Cases and controls were compared on age, gender, number of recorded symptoms and comorbidity. To establish a measure of the degree of 'recognised' generalised pain within the two groups of cases, the proportion recorded with non-specific generalised pain conditions (e.g. fibromyalgia) was determined.

Findings 3,523 patients (3.9%; 95% CI 3.7%, 4.0%) fulfilled the RRC-Rohrbeck criteria and 9,172 patients (10.4%; 95% CI 10.2%, 10.6%) fulfilled the RRC-all criteria. Prevalence increased with age and was higher in women for both groups of cases. Prevalence of controls was 25.7% (n=20,499), peaking in those aged 25-44 and in men. Cases had higher rates of non-musculoskeletal consultation, somatic symptoms and comorbidity than controls.

A quarter of both groups of cases had recorded non-specific generalised pain. 8% of cases had been recorded with a recognised differential diagnosis (e.g. rheumatoid arthritis).

Consequences There is a group of patients regularly consulting for multiple regional pain complaints that are not recognised as having generalised pain conditions. These patients have increased somatic complaints and comorbidity. The new approach to identifying RRCs increased the number of patients identified but returned a similar group of patients with features consistent with CWP. Identifying and offering appropriate management for currently unrecognised generalised pain conditions has the potential to improve patient outcomes and reduce consultation rates.

References

Rohrbeck, J., Jordan, K., Croft, P., 2007. The frequency and characteristics of chronic widespread pain in general practice: a case-control study. British Journal of General Practice, 57 (535), 109-115.

2E.5

DEVELOPMENT OF A MODEL CONSULTATION AND TRAINING PACKAGE FOR PRACTICE NURSES TO SUPPORT SELF-MANAGEMENT OF PATIENTS CONSULTING WITH OSTEOARTHRITIS IN PRIMARY CARE

Emma L Healey[1], Sarah Ryan[2], Gretl A McHugh[3], Chris J Main[1], Mark Porcheret[1], Bie Nio Ong[1], Angela Pushpa-Rajah[1], Krysia S Dziedzic[1]
[1]Research Institute for Primary Care & Health Sciences, Keele University, Staffordshire, UK, [2]Staffordshire

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Rheumatology Centre, The Haywood Hospital, Stoke-on-Trent, UK, [3]The School of Nursing, Midwifery and Social Work, The University of Manchester, Manchester, UK

The problem: In the UK osteoarthritis (OA) is predominately managed in general practice. Practice nurses do not routinely consult with individuals with OA as most OA care is provided by general practitioners. Evidence suggests practice nurses are most likely to provide self-management support for patients with long-term conditions, therefore they may be best placed to offer core treatments recommended in the NICE OA guidelines. The MOSAICS study is the first to develop a system for delivering these core treatments through a linked GP-nurse model OA consultation (MOAC). The aim of this work was to develop the nurse-led element of the model OA consultation and a training package that provides practice nurses with the skill set needed to support and enable patients to self-manage OA in line with the NICE guidelines.

The approach: A literature search and mapping exercise of OA and chronic disease self-management programs was conducted. Common elements were identified and along with the NICE OA guidelines the content of a model nurse-led consultation was developed. Initial feedback on content was obtained from a practice nurse advisory group and an OA research user group. Once the model consultation was agreed, a training package was developed to provide the nurses with the knowledge and skill set needed. The training package was piloted with 5 nurses; it was then refined and delivered to 9 practice nurses. The training was evaluated via i) trainer reflections ii) “real-time” observations from trainers and trainees and iii) formal daily evaluation by trainees.

Findings: A 4 day training package was developed to enable practice nurses to deliver the model OA consultation (up to 4 x 20-30 minute appointments over three months). The model consultation and training focussed on encouraging a patient centred approach and used a specially developed OA guidebook, goal setting, pain management and the core NICE recommendations (information and advice, exercise and physical activity and weight management) to support self-management. Evaluation of the pilot training resulted in theoretical material being reduced significantly; allowing more time to be dedicated to experiential elements (role play and simulated patient sessions) and having an experienced facilitator lead the training. Evaluation of the refined package demonstrated that the OA guidebook needs to be better integrated with the consultation and more time dedicated to practising joint examination and demonstration of exercise.

Consequences: Traditionally, OA management is not seen as a high priority for primary care and patients believe that little can be done. The NICE guidelines highlight the therapeutic gains of positive self-management and the development of a nurse-led model consultation and training package goes some way to develop a system in primary care for delivering positive messages about what can be done for OA and the recommended core treatments.

2E.6

Development of the Fibromyalgia Age and Self reported Symptom Total Score (FASST score).

Kieran McGlade, Moya McAleavy
Queen's University, Belfast, UK

The Problem Fibromyalgia syndrome (FMS) is a common condition with a prevalence between 0.5 and 5% and represents a high proportion of new patients at secondary care rheumatology clinics.

Studies have shown that, following a diagnosis of fibromyalgia, there is a reduction in healthcare costs (e.g. referrals and investigations), and a decrease in quantity of symptoms. Reliable identification of FMS in primary care could allow more appropriate management strategies than referral.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Approach A previous pilot questionnaire study of new patients attending rheumatology clinics suggested certain variables strongly predictive of a diagnosis of FMS. This study sought to develop the questionnaire for use as a diagnostic aid in the primary care.

The design was a case control study sending the questionnaire to patients with a known diagnosis of fibromyalgia (the cases) and also to patients with rheumatoid arthritis (the controls) to determine whether the questionnaire could distinguish between these conditions.

Sixteen general practices were recruited and patients identified by practice staff from the computerised morbidity records.

Chi squared tests and odds ratios were used to establish those questionnaire items associated with a diagnosis of FMS. This exercise produced four different domains: the 'Symptom Count', 'Severity/frequency score', 'Number of painful areas' and the Hospital Anxiety and Depression Score. Logistic regression was used to eliminate confounding and resulted in a two factor model ('symptom count' and 'number of painful areas') which was used to formulate a refined version of the questionnaire. This was then assessed to establish the sensitivity and specificity if used as diagnostic test.

Findings Four hundred and forty three of 1416 questionnaires were returned (332 FMS and 112 RA). No significant associations were found with respect to educational attainment, employment status or other socio-demographic parameters. Fibromyalgia respondents had higher mean scores on the Hospital Anxiety and Depression scales.

A simple formula was constructed from the data, weighting those over 50 years of age and combining total number of symptoms experienced and total number of painful areas. Plotting the range of possible scores against specificity and sensitivity gave an optimal cut-off score of 45 (specificity 94.5% and sensitivity 44.8%). The area under the corresponding ROC curve was 0.837.

Consequences Since the intention was to develop a tool that would allow patients with fibromyalgia not to be referred, high specificity rather than a high sensitivity was important. It would be better to continue to refer some patients with Fibromyalgia than fail to refer a patient with rheumatoid arthritis.

It is intended to use these findings along with inputs from blood tests and clinical assessment to produce a robust computerised diagnostic aid. Further trials would then be needed to explore the utility of this for patient and general practitioner.

2F Organisation and delivery of care

2F.1

Organisational and contractual options for the future of coordinated primary care

Rachael Addicott
The King's Fund, London, UK

The Problem: Given GPs' emergent role as commissioners, there is a growing pressure to consider the complexity of workload demands on primary care in the short term whilst in the longer term also addressing organisational options that build on traditional GP partnership and small practice models. There is considerable interest in identifying alternative models of primary care provision that ensure sustainable GP leadership, organisational capacity and high quality services, complimenting the new role of clinical commissioning groups.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The aim of this project was to identify the organisational forms that would best support a coordinated approach to primary care delivery. Specifically, this project focused on the following dimensions:

- Organisational models, with a focus on risk allocation, contracting and institutional leadership
- Governance structures and mechanisms for strategic oversight
- Mechanisms of organisational accountability

The approach: This project utilised evidence from international literature, expert stakeholder interviews (eg. NHS Commissioning Board, Royal College of General Practitioners and National Association of Primary Care) and four in-depth case studies of primary care organisations to establish a matrix of different organisational options, particularly relating to the above dimensions.

The four case study sites were chosen as exemplars of good practice, representing variety in structural configuration - eg. super partnership, joint ventures, GP federations. The case study sites were chosen through consultation with expert stakeholders. Given the early stage of organisational development, the intention was to provide a descriptive overview of the pros and cons of different organisational options as experienced by primary care providers and national stakeholders, rather than an evaluation of their long-term success.

Findings: This project assesses the pros and cons of the different options highlighting the governance and organisational issues; including how these have, or are likely to, support better integrated services.

We also set out how the policy framework, commissioning and contracting arrangements need to change in order to enable and support the development of new models of general practice and more integrated primary care.

Consequences: Clinical commissioning groups have responsibility for ensuring quality with their member practices. New organisational forms will need to develop, to ensure that the established governance structures and mechanisms of accountability allow GPs (as commissioners and providers) to hold their peers to account for service quality and organisational performance. Clinical commissioning groups will benefit from an awareness of new models of primary care when working to develop their vision, constitution and development plans with member practices.

Whilst these findings are of particular relevance to primary care providers, they also present a challenge for national bodies involved in structural reconfiguration and contracting, such as the NHS Commissioning Board, professional associations and the Department of Health.

2F.2

ETSEEM: A Study of Telephone Triage in General Practice - Trial Outcomes

John Campbell
Peninsula Medical School, Exeter, UK

The problem Telephone triage in general practice has been widely explored as one approach to manage ever burgeoning demand for primary healthcare. Practices may offer a variety of GP- or nurse-led systems as a means of offering patients rapid access to primary care whilst managing workload. A small number of UK based trials of primary care triage have been undertaken, but methodological limitations have left uncertainties regarding the benefits and costs of a triage management system. Despite the lack of a robust evidence base, the NHS has promoted a GP-led triage model in primary care. It is clear, therefore, that a large-scale experimental study is required to determine the effectiveness and cost-effectivenes of both GP-led and nurse-led triage models in primary care.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Approach A multi-centred, pragmatic cluster randomised controlled trial funded by the NIHR HTA was undertaken to assess the clinical and cost effectiveness of GP-led telephone triage and nurse-led computer-decision-supported telephone triage compared to usual care for patients requesting same day consultations in general practice. Across four participating sites, practices were recruited and randomly assigned to one of the three trial arms (GP-led triage, computer decision supported nurse-led triage, or usual care), with randomisation stratified by site (Exeter, Bristol, Warwick, Norwich), practice size (small, medium and large), and level of deprivation (deprived vs. not deprived). The primary outcome was the number of patients' primary care contacts made during a four week window following their initial same day consultation request. A parallel qualitative process evaluation and health economic assessment was undertaken as part of the trial.

Findings We recruited 21,500 patients from 42 participating practices, meeting our pre-defined power estimates for this study. Recruitment completed on 31 December 2012, and we will, for the first time, be able to present the main findings of the trial. Particular focus will be placed upon reporting the primary outcome, safety data, and patient reported levels of satisfaction with the triage models.

Consequences The ESTEEM trial data should provide definitive guide informing the use of two models of telephone triage for UK primary care.

2F.3

Exploring associations between socio-economic status in the health care access and quality of life in patients with COPD

Sofia Georgopoulou, Alison J. Wright, John Weinman, Helen Booth, Hannah Thornton, Patrick White
King's College London, London, UK

The problem: Socioeconomic deprivation is a determinant of health care access and quality of life in many diseases. In COPD the disease is more prevalent and more severe in people from deprived backgrounds. It is not known whether deprivation is also associated with worse health care access and worse quality of life for a given severity of disease. Our aim was to establish whether socio-economic deprivation was associated with the quality of health care access and quality of life in patients with COPD and to examine the extent of the association.

The approach: Cross-sectional, interview-based survey in London that involved COPD patients >40 years recruited in primary care. Measures: socio-economic status (SES) indicators (weekly household income, educational attainment, occupational class and Indices of Multiple Deprivation (IMD) scores), quality of life (QoL) (Chronic Respiratory Disease Questionnaire Self-Administered Standardised), Medical Research Council (MRC) dyspnoea scale, Hospital Anxiety and Depression Scale (HADS), and lung function assessment (spirometry). Information on health care access (HCA) (smoking cessation and pulmonary rehabilitation referrals and attendance and prescription patterns) was collected using a modified version of the Client Service Receipt Inventory (CSRI).

Findings: COPD was confirmed in 176 (85%) participants. 38.6% female, mean age 69 years (range: 42-94) and distribution of disease severity based on GOLD classification criteria was: Grade 1 (mild) = 15%; Grade 2 (moderate) = 51%; Grade 3 (severe) = 30%; Grade 4 (very severe) = 5%. Low SES was not associated with worse HCA. In some instances, lower SES was associated with better HCA. Higher rates of smoking referral were associated with lower SES as expressed by income level (income levels: 1 most deprived – 5 least deprived) (income levels 2 & 3: OR: 0.23; CI: 0.10-0.51; $p< 0.001$; income levels 4 & 5: OR: 0.33; CI: 0.13-0.85; $p= 0.02$) and IMD scores (OR: 1.05; 95%CI: 1.01-1.08; $p=0.006$). Higher education attainment was associated with less frequent spirometry assessment (OR: 0.43; CI: 0.23-0.79; $p=0.006$). Low SES (as low income level) was associated with poorer QoL: (a) dyspnea (r=0.22; $p=0.003$; N=176), (b) fatigue (r=0.24; $p=0.002$; N=176), (c) emotional function (r=0.23; $p=0.002$; N=176), (e) mastery (r=0.25; $p=0.001$; N=176) and (f) depression (r= -0.25; $p=0.001$; N=176).

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences: More deprived COPD patients had HCA that was at least as good as that of affluent patients. In some respects greater deprivation was associated with better HCA in COPD. In contrast, higher deprivation in terms of income level was significantly associated with poorer QoL in COPD. SES measures varied markedly in their relation to HCA and QoL in COPD.

2F.4

Frequent attenders and a power law distribution of healthcare demand.

Christopher Burton[1], Tom Love[2], Anne McAteer[1], Alison Elliott[1]
[1]University of Aberdeen, Aberdeen, UK, [2]University of Otago, Wellington, New Zealand

The Problem Frequent attending patients are widely recognised, particularly in directly-accessed services such as General Practice (GP), GP Out of Hours (GPOOH), and Emergency Departments (ED). While severe or multiple illnesses make patients more likely to be high users of care, these are not always present. Frequent attendance is usually seen as a specific phenomenon to be characterised and intervened upon to improve the efficiency of health services.

Approach We considered the complex system comprising directly-accessed healthcare and the patients who use it as possessing reciprocity between individual actions (from which the system's behaviour emerges) and the system's overall behaviour (which constrains individuals' actions). Systems with this complexity often display the statistical property of a heavy-tailed continuous distribution of events, approximating to an inverse power law.

We tested the hypothesis that GPOOH and ED attendance patterns would fit an inverse power law by examining data on the number of contacts with services per individual over a year from 3 different healthcare systems: NHS24 - the GPOOH telephone contact system for Scotland; an urban ED in New Zealand; and a GPOOH service in the Netherlands.

Data were visualised using plots with conventional and logarithmic axes; power law fitting was performed by maximum likelihood estimation using the poweRlaw package in R.

Findings We included data from 791000, 68000 and 49000 patients from Scotland, New Zealand & Holland respectively. Visual inspection of data from each set showed a heavy tailed distribution in keeping with an inverse power law. Model fitting suggested optimal fit to a power law above a cut-off point between 5 and 10 contacts, however power law exponents were broadly similar using lower cut-offs. In summary, the data support the hypothesis, with similar power law exponents in the 3 datasets.

Consequences The system comprising patients and directly- accessed healthcare shows remarkably coherent fit to an inverse power law distribution across the range from 1 to almost 800 contacts in the year. In interpreting this continuity, we draw on recent work which suggests that the inverse power law represents a particularly efficient way of maximising diversity within a population[1]. From this we argue that in order to accommodate the most complex cases, efficient healthcare systems must include the capacity to have extremely high access for a very small number of people. Furthermore, as the "rules" for access are embedded in the individual and collective behaviour of the citizens / patients who comprise and use the system; apparently inappropriate access becomes an inevitable price of this flexibility.

1. Baek S, Bernhardsson S, Minnhagen P. Zipf's law unzipped. *New Journal of Physics* 2011;13(4):043004.

2F.5

What do practices do to maximise QOF achievement? Two qualitative case studies using Normalisation Process Theory

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Liz Glidewell[1], Robbie Foy[1], Julia Hackett[1], Robert West[1], Paul Carder[2], Tim Doran[3]
[1]Leeds Institute of Health Sciences, Leeds, UK, [2]NHS Airedale, Bradford and Leeds, Bradford, UK, [3]Department of Health Sciences, York, UK

The Problem: Financial incentives have variable effects on changing practice and patient outcomes. We do not understand why implementation falters or the contextual factors that promote/inhibit their effectiveness. Normalisation Process Theory guides exploration of how innovations become embedded in routine practice or not. It focuses on how people think, act and organise these innovations. Two case studies explored how a local and national incentive scheme was implemented in primary care to understand the contextual factors that enabled practice teams to maximise achievement.

The approach: In-depth semi-structured interviews were conducted with practice staff from two purposively selected practices based on equivalent high performance in both the local and national Quality and Outcomes Framework, level of deprivation (IMD 29 & 26 range 5.6-62.3), list size (11,047 & 10,192 range 1055-21,374) and number of GPs (12 & 9 range 1-20) in one former Primary Care Trust. Data were coded to explore: what the 'work' is (sense making); who does the work (engagement); how the work was done (action); and why the work happened like that (monitoring). Data were plotted to NPT constructs to create a model for each case study with participant language used to illustrate differences in implementation.

Findings: In Case A two partners, two nurses and the practice manager were interviewed. They adopted a team approach, perceived some targets as local priorities, created distinct administrator roles to capture/code data, and added longer nurse consultations to achieve targets that may induce ill health ("come with one problem and leave with two more"). In Case B two partners, one nurse and the practice manager were interviewed. Targets were perceived as national public health priorities soon to be introduced as national targets, to be recorded by GPs/nurse practitioners in routine consultations sometimes at the expense of the patient agenda ("Consultation is a transaction with consumers not an interaction"). Both cases utilised ongoing benchmarking to identify individuals not contributing ("identifying missed opportunities is not gaming"). Practices invested resources (building templates, administrators coding data, GPs checking coding accuracy, auditing data capture, reviewing performance, and dedicated training) to achieve targets. Neither practice distinguished the work of implementing local from national targets; both engaged and implemented the work in different ways that affected how targets became embedded or not in routine practice. The removal of reminder systems and ongoing performance feedback at both practices reduced sustainability of changes to practice.

Conclusions: Practices vary in how they operationalise the work involved in implementing incentives. Whilst both practices achieved targets, implementation was still sub-optimal. Data capture templates and feedback systems should be piloted to ensure feasibility and acceptability in practice. Intervention developers should consider how targets are perceived, interpreted and operationalised by practice teams to embed sustainable changes to practice.

2F.6

Do ethnic disparities in patient reported GP-patient communication vary by age and gender? Evidence from a national patient survey

Jenni Burt[1], Gary Abel[1], Faraz Ahmed[1], Cathy Lloyd[2], John Campbell[3], Martin Roland[1]
[1]University of Cambridge, Cambridge, UK, [2]Open University, Milton Keynes, UK, [3]University of Exeter, Exeter, UK

The Problem Patient experience surveys are a key component in assessing quality of care. Evidence shows that ethnic minorities consistently report lower scores in such surveys. Variations in care are always of concern to policy makers; the equitable provision of high quality care for all is a central tenet of the NHS. Action to reduce variation requires a detailed understanding of that variation. Whilst we know ethnic

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

minorities regularly report more negative experiences of care than White British patients, we know little of how experiences vary within ethnic groups. Examining how ethnic group disparities vary by factors including age and gender is particularly important: ethnic groups are not necessarily homogenous, and continue to evolve with time. In this work, our aim was to examine how patient reported GP-patient communication varied between patients from different ethnic groups by age and gender.

The approach We analysed data from the 2010/2011 English General Practice Patient Surveys (1,994,410 respondents across 8,387 general practices). We used seven sub-items from the survey to construct a composite measure of doctor-patient communication (with possible values between 0 and 100). Mixed effect linear regression models including age, gender, ethnic group (16 categories), deprivation, self-rated health, presence of a mental health condition, and a random effect for practice were used. Interaction terms between ethnic group and age and gender allowed the effect of ethnic group to vary with both age and gender. From the models we estimate the average differences in communication scores between White British patients and those of ethnic minority patients for different ages and genders.

Findings There was strong evidence ($p<0.001$) that the ethnic disparities in doctor-patient communication score varied by both age and gender. Differences between White patients and Black patients or those of Mixed White/Black ethnicities were small. Patients from Asian ethnic groups consistently reported worse experience than White patients, with the largest differences seen for Bangladeshi and Chinese patients. Comparing Asian patients to White patients of the same age and gender, larger differences were observed for older and female patients. However, a different pattern was seen for patients describing themselves as "Any Other White Background": young patients reported substantially worse scores than White British patients, but differences were small for older patients.

Consequences There are important differences in primary care experiences both between and within ethnic groups. Lower patient experience scores are particularly marked in older, female, Asian patients, and in younger "Any Other White" patients, predominantly representing migrants from other European countries. The range in reported scores highlights that such differences are not inevitable. Action to reduce disparities will be most efficiently targeted at understanding and addressing the particular barriers to quality care experienced by these groups.

3A Experience of illness / user perspective

3A.1

My GP practice scores well on doctors' consultation skills - so why doesn't my doctor listen to me?

Martin Roberts[1], John Campbell[1], Cito Maramba[1], Antoinette Davey[1], Martin Roland[2], Jenni Burt[2], Gary Abel[2], Natasha Baron[2], Marc Elliott[3]
[1]University of Exeter Medical School, Primary Care Research Group, Devon, UK, [2]University of Cambridge Centre for Health Services Research, Cambridge, UK, [3]RAND Corporation, Boston, USA

The Problem: Every year the General Practice Patient Survey (GPPS) sends out questionnaires to around 2.6 million NHS patients in England and Wales to garner patient's views of access to and quality of care provided by the nations' 8362 GP practices. Summary outcome measures for each practice are published nationally, enabling the public to compare user ratings of the performance of their local practices. Although these ratings encompass feedback on the interpersonal consultation skills of the doctors within each practice, the GPPS does not attempt to provide feedback on the skills of particular GPs. Patients are invited to rate (anonymously) whichever GP they saw on their most recent visit to the practice. Our study aims to find out the extent to which these ratings, aggregated at practice level, mask variation in the consultation skills of individual doctors within the practice.

The approach: We mailed a slightly modified version of the GPPS questionnaire to over 12000 patients in 25 practices, sampled to encompass practices with a wide range of ratings for consultation skills. We

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

identified, in an accompanying letter, the date and time of a particular consultation that the patient had recently had with a named GP. The questionnaire was modified by asking the patient to rate eight domains covering the interpersonal skills displayed by, and their confidence and trust in, the doctor seen in that consultation.

We used hierarchical multilevel linear models to estimate the proportions of variance in ratings that could be attributed to the practices, the doctors and the patients. We also calculated, for each of the eight domains rated, the minimum number of patient ratings per doctor required to estimate the doctors' mean rating with a reliability of 0.7 or greater.

Findings: We undertook a preliminary analysis of data to date from 6431 patients relating to 79 doctors in 19 practices. Variance due to practices accounted for 2.8% to 4.1% of the total variance in patients' ratings, but was less than the variance due to doctors within practices which accounted for 3.4% to 5.7% of the total variance. 36 patient ratings per doctor were sufficient to achieve reliability of 0.7 or greater on all domains assessed.

Consequences: Variation in ratings of consultation skills between doctors within practices is expected to be greater than variation between practices. Patients and other survey users need to be aware therefore, that such ratings, when aggregated at the practice level, may mask considerable variation between GPs within a practice. The results also demonstrate the feasibility of using this modified GPPS survey method to collect reliable patient feedback on the performance of GPs for possible use in appraisal and revalidation processes.

3A.2

Why do patients with multimorbidity report worse primary care experiences? In patients with multimorbidity, quality of life is a more important predictor of patient experience than number of conditions

Charlotte Paddison, Catherine Saunders, Gary Abel, Rupert Payne, Martin Roland
Cambridge Centre for Health Services Research, University of Cambridge, Cambridgeshire, UK

The problem: Patients' views are central to improving health services according to UK government policy. Few studies to date have examined how patients with multiple long-term conditions experience primary care, or how best to improve care for the 6.75 million patients with multimorbidity in the UK. We aim to examine how patient reported primary care experience in England varies by multimorbidity. Furthermore, we consider to what extent this variation is driven by the number of long-term conditions patients have or by the impact of those conditions on quality of life.

The approach: We use data from 1,037,946 responders to the 2012 General Practice Patient Survey (England). New to the 2012 survey is a question asking patients to identify which of 16 long-term conditions they have, and the measurement of health related quality of life using the EQ5D. There are 282,324 respondents who self-report more than one long-term condition. Using logistic regressions we analysed data on 11 items covering five primary care domains (access; continuity; trust and confidence; communication with doctor; communication with nurse). Initial models included number of long-term conditions and socio-demographic variables (age, gender, ethnicity and deprivation). The models were subsequently augmented with EQ5D to evaluate the contribution of quality of life.

Findings: Patients with multiple long-term conditions, on average, report worse primary care experiences than those with single or no long-term conditions, for 10 out of 11 items (OR between 0.57 and 0.83 for four or more conditions vs. none, $p<0.001$ for all). The relationship between increasing number of long-term conditions and poorer patient experience attenuates substantially when additionally adjusting for quality of life (OR between 0.92 and 1.29 for four or more conditions vs. none, $p<0.001$ for all). The item

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

for which patients with multiple long-term conditions report better primary care experiences concerns continuity of care.

Consequences: In comparison to patients with no or a single long-term condition, those with multimorbidity report worse experiences on four out of five primary care domains. However, this is largely explained by differences in quality of life among people with multiple long-term conditions, and not the number of long-term conditions. Improvements in primary care for people with multimorbidity should take into account the important impact of multimorbidity on quality of life, and could focus on improving access and shared-decision-making.

3A.3

Living with and beyond cancer: using people's experiences to develop a resource as part of www.healthtalkonline.org

Julie Evans, Nada Khan, Sue Ziebland
Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

The problem: As more people are surviving cancer than ever before, and survivors are living longer, the long-term effects of cancer and its treatments have become more relevant. Half of survivors have unmet physical or psychological needs relating to the disease and its treatment. While most research has focussed on the diagnosis and initial treatment phases of cancer, there has been less on experiences of living with cancer once active treatment has been completed.

Method: We undertook a secondary thematic analysis of existing qualitative interviews about people's experiences of long-term (more than 5 years) cancer survivorship. We used data from a study of the unmet needs and use of primary care services of survivors of 3 adult cancers, and from 13 studies of people's experiences of cancer for healthtalkonline. All used a two stage interview format: a narrative section in which participants were invited to talk about their experience of cancer focussing on the issues important to them, then a semi-structured section.

Findings: 149 interviews with adults surviving 13 different types of cancer were included in the analysis. 27 thematic topic summaries on physical impacts (e.g. sexual functioning and intimate relationships), psychological impacts (e.g. changed attitudes or personal growth), practical issues (e.g. changes to working life), and other topics (e.g. living with recurrent or advanced cancer), were published on a new section of www.healthtalkonline.org. We will illustrate the findings using clips from 262 extracts from the interviews in video, audio or written format.

Consequences: We have produced a unique resource based on rigorous social science research into real life experiences that aims to improve public and professional understanding of people's experiences of living with and beyond cancer. It can be used not just to provide support and information to cancer survivors, their family and friends, but also to educate the professionals involved in their care and improve services.

3A.4

How stroke patients describe their treatment burden, a qualitative study.

Katie Gallacher[1], Carl R May[2], Peter Langhorne[1], Frances S Mair[1]
[1]University of Glasgow, Glasgow, UK, [2]University of Southampton, Glasgow, UK

The Problem: People who have experienced a stroke undergo complicated management strategies initiated by health services. They interact with multiple therapists during their rehabilitation and are expected to conduct a significant amount of self care. We are interested in understanding the patient

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

experience of stroke management. 'Treatment burden' is a novel concept describing the practices that people with chronic disease such as stroke must perform to respond to the requirements of their healthcare providers. These practices may have a marked impact on functioning and well-being and may lead to poor adherence and negative outcomes for patients. Understanding the patient experience of treatment burden can inform changes to clinical practice and health policy with the goal of improving outcomes for patients.

The Approach: We conducted interviews with 30 people who have previously had a stroke. Participants were purposively recruited from the Greater Glasgow and Clyde area to reflect variation in age, gender, time since stroke, disability, and deprivation. Recruitment was conducted in primary and secondary care. Interviews were fully transcribed and analysed using framework analysis. The coding frame was underpinned by Normalization Process Theory, informed by a prior systematic review, and iteratively adapted and refined during analysis. Coding was independently verified by a second senior qualitative researcher and discussed at coding clinics. A taxonomy of stroke treatment burden was created.

Findings: People that have experienced a stroke describe 4 broad categories of treatment burden: 1) making sense of treatments; 2) interacting with others; 3) enacting work and 4) reflecting work. Information provision is generally poor, resulting in patients feeling ill equipped to conduct self care and make lifestyle changes to prevent a further stroke. Communication between health care providers and patients requires improvement, particularly at time of diagnosis. Patients feel particularly vulnerable during discharge from secondary care services, with access to primary care during this time being suboptimal. Discontinuity of care is the norm, and communication between services is poor, resulting in fragmented care for patients. Medication regimes can be difficult to follow, with particular issues including frequent changes of manufacturer and varying instructions between medications. Information from health services or pharmacists about changes to medication regimes is frequently lacking.

Consequences: The management of stroke requires significant personal investment on behalf of the patient and this is made more arduous by inadequate health service organisation and delivery. Information provision and communication from health services is poor; primary care access is inadequate following discharge; care is fragmented; and medication regimes are overly complicated. We have created a taxonomy of treatment burden as experienced by stroke patients. This work aims to contribute to the future development of a patient reported outcome measure reflecting treatment burden in patients with chronic disease.

3A.5

Service user experiences of health care services for Multiple Sclerosis: A qualitative study

Abigail Methley[1], Sudeh Cheraghi-Sohi[1,2], Stephen Campbell[1], Carolyn Chew-Graham[2]
[1]*University of Manchester, Manchester, UK,* [2]*Keele University, Keele, UK*

The problem: Multiple Sclerosis (MS) is a chronic degenerative condition of the Central Nervous System. Patients present with a variety of symptoms including impairments in mobility, fatigue, continence, cognition and pain. People with MS experience both physical symptoms and associated psychological and cognitive symptoms, and require long-term contact with health care services, for both relapse management and management of daily symptoms. People with MS' experiences of health care services are currently under-researched, despite the increased NHS focus on using patient experiences to improve care. The aim of this qualitative study was to investigate the experiences and perceptions of people with MS of both primary care and broader healthcare services.

The approach: People with MS were recruited from the community (by posters in public places and networking with MS support groups) and primary care settings (via GPs) to participate in a semi-structured interview. Purposive sampling was used to obtain a mixed group varying by age, gender,

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

ethnicity, and level of disability. The topic guide covered care received and experienced as well as factors that believed to improve their care. Interviews lasted about one hour and were digitally-recorded with consent. Transcripts formed the data which were analysed by the authors, using constant comparative analysis.

Findings: Initial analysis suggests patients experience difficulties accessing services and experience communication difficulties with health professionals, particularly due to misattribution or ignorance of symptoms of MS by the health professional; although participants were generally favourable of care from specialist MS nurses. Difficulties in the experience of social care, including poor continuity of social carers were commonly described; as were deficiencies in accessing services, especially MS nurses. Patients disclosed a number of self-management and coping strategies for symptom management, which they used in place of accessing primary care.

Consequences: People with MS report varied experiences of health and social care and describe differences in the health care services they utilise to manage their MS based on their, and their health care professionals', perceptions of their MS symptoms. Although MS nurses were viewed as a knowledgeable and trusted source of care, difficulties with timely access lessened the effectiveness of this service. Improving the continuity of social care professionals, and increasing the provision of services relevant to MS disabilities would improve the service experience of people with MS. The presentation will suggest opportunities to increase the role of primary care in the management of people with MS. We will suggest ways in which health and social care services may improve the MS care provided by recognising patient's self-management and coping strategies, improving physical and organisational access barriers, and improving professional-patient communication.

3A.6

What service users value in their experience of emergency ambulance use?

Fiona Togher[1], Viet-Hai Phung[1], Janette Turner[2], Alicia O'Cathain[2], A.Niroshan Siriwardena[1,3]
[1]University of Lincoln, Lincoln, UK, [2]University of Sheffield, Sheffield, UK, [3]East Midlands Ambulance Service, Lincoln, UK

The problem: Response times have been used as a key quality indicator for measuring the quality of ambulance services but are criticised for their narrow focus. As outcomes become the focus of commissioning of emergency services, better measures of quality need to be considered including those that reflect the patient perspective. The aim of this study was to investigate patients' experiences of emergency ambulance use and identify the processes and outcomes important to service users.

The approach: We employed a qualitative design, using semi-structured interviews with a purposive sample of people who had recently used a 999 ambulance in the East Midlands. We recruited patients of different age, sex, geographical location, and ambulance service response including patients that received telephone advice only, those that were treated by clinicians at home and others that were transported to hospital.

Our topic guide included questions on what users perceived worked well or needed to be improved, before identifying what was particularly important to them.

Findings: We interviewed 22 service users. Eleven men and eleven women with a range of different clinical conditions participated;13 were aged 65 years and over. Four issues were valued: a timely response, information giving, a professional relationship and smooth transition along the prehospital care pathway (from call handling to transfer to acute care).

Patients valued a short waiting time for help. Perceptions of timeliness were affected; by expectations, explanation about when a response would arrive and what to do while waiting. Patients welcomed

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

information about their condition, the assessment and treatment being given, and what was going to happen to them. The efficient execution of technical skills and smooth transition through the prehospital pathway from call handler to hospital were also appreciated. These aspects of care offered reassurance which was highly valued by patients who were anxious and in a stressful situation.

Consequences: Timeliness of response was important but other aspects of care, such as information giving and an efficient transition, were also important to service users. The results will be used in combination with other related studies to identify candidates for new outcome measures for prehospital emergency care which will help inform future commissioning of ambulance services. The findings have implications for the delivery of urgent and emergency primary care services.

3B Exercise

3B.1

What does the mixed methods process evaluation of the Older People's Exercise Intervention in Residential and Nursing Accommodation (OPERA, ISRCTN43769277) suggest about the intervention and about care homes in the UK?

Steph Taylor[1], David Ellard[2], Margaret Thorogood[2], Martin Underwood[2]
[1]Barts and The London School of Medicine and Dentistry, London, UK, [2]Warwick Medical School, Coventry, UK

The problem OPERA was a large cluster randomised trial which evaluated the impact of a 'whole home' intervention, consisting of training for care home staff and a twice-weekly, physiotherapist-led exercise class, on depressive symptoms in care home residents. To better understand the study's findings, and to inform policy development and implementation (if successful), we conducted a process evaluation in parallel with the main evaluation. We report our approach and main conclusions.

The approach We followed the key components of the framework for process evaluations for public health interventions proposed by Steckler and Linnan; i.e. context, reach, dose delivered, dose received, fidelity, and recruitment, (omitting the composite score for implementation). In addition, we sought the views of participants, including residents, their families, care workers and members of the intervention team.

We adopted a mixed methods approach combining quantitative data from all the study homes and quantitative and qualitative data from a purposive sample of eight case study homes (two control and six intervention) which were studied in depth. For the qualitative work we adopted a phenomenological, ethnographic approach and conducted participant observation, one to one interviews and focus groups.

Findings Only around 39% of staff in intervention homes in Coventry and Warwickshire and 54% in North East London attended the staff training. Feedback suggested that there was some increase in care staff's awareness of depression and how to deal with it and that intervention home staff were more confident in promoting physical activity. We delivered 3,191 exercise classes with 31,705 person attendances. Just over one third of participants attended 51 or more classes, the pre-defined estimate of an effective dose; 9% attended no classes. The commonest reason for non attendance at classes (60%) was "unwillingness". There was little evidence of fall off in the numbers attending the classes across time. Residents with who were depressed on baseline screening attended fewer exercise classes on average than those who were

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

not depressed. Observation and interviews suggested that care staff often had to work very hard with little spare resource. Structured quantitative activity sweeps in the case study homes revealed patterns of activity which were stable across time within homes but varied greatly between homes.

Conclusions The OPERA intervention was successfully implemented and delivering and an ongoing, exercise class based intervention in care home settings is viable. However, residents were often reported as unwilling to attend the exercise classes and were less likely to attend if they were depressed at baseline. Delivery of the whole home aspects of the intervention appears to have been less successful. Some resource stretched homes had little spare capacity to engage in cultural shifts. There appeared to be large, unexplained variations between patterns of physical activity in care homes.

3B.2

PACE-Lift primary care physical activity trial with older people. An evaluation of implementation fidelity.

Annabel Kesterton[1], Rebecca Holmes[1], Tess Harris[1], Derek Cook[1], Elizabeth Limb[1], Annabelle Rogers[1], Sally Kerry[2], Christina Victor[3], Peter Whincup[1], Steve Iliffe[4], Michael Ussher[1]
[1]St George's University, London, UK, [2]Queen Mary's University, London, UK, [3]Brunel University, London, UK, [4]University College, London, UK

The problem: Implementation fidelity refers to 'the degree to which providers implement programs as they were intended' and can tell us whether an intervention shows lack of impact due to implementation failure or genuine ineffectiveness. Such evaluations are particularly valuable in complex interventions such as the one used in the PACE-Lift trial and yet are often not well described in the literature.

PACE-Lift is a randomised controlled trial which aims to increase physical activity in people aged 60-74 years. 310 people were recruited from 3 practices in the Reading area and practice nurses used behaviour change techniques with a pedometer and accelerometer based intervention, to increase walking in 4 sessions delivered over 3 months. Patients were asked to wear a pedometer and accelerometer for 7 days before each physical activity session.

The approach: This work aims to evaluate implementation fidelity in the PACE-Lift trial, focussing on adherence to the intervention protocol and patient responsiveness (how engaged and satisfied the patients were).

To assess adherence to the intervention protocol, we analysed the number of physical activity consultations attended by patients, the number who wore the accelerometer before each session and the average wear time for the monitors.

To assess patient responsiveness, we analysed data from complementary 'Consultation Experience Forms', completed independently at 3 months. Patients and nurses were asked to rate their level of agreement with 11 statements linked to different aspects of the intervention including: communication skills, confidence and the number of sessions. The rating scale used ranged between 1 (Strongly disagree) and 5 (Strongly agree).

Findings: 157 patients were randomised to the intervention group. Complete data was available for 155 patients. 85% (132/155) attended all four nurse-led physical activity consultations. Session 4 was least well attended (88%, 136/155). 99% (153/155) wore their accelerometer before each session. The monitors were worn for a mean of 6.9 days (δ 0.53). The mean time spent in at least moderate intensity activity, increased by 7.6 minutes per day.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Patients rated all 11 aspects of the intervention highly, shown by the percentage of patients who Agreed or Strongly Agreed with each statement (ranging from 79% (103/130) in Statement 9, to 96% (128/134) in Statement 4). 96% (130/135) of patients felt that the number of appointments was just right. Nurses rated lower than patients in 3 statements relating to the nurse's role in the consultation and for use of equipment.

Consequences: High levels of adherence to intervention protocol and patient responsiveness suggest good implementation fidelity in the PACE-Lift trial. This evaluation increases the reliability and validity of the physical activity data presented in the PACE-Lift Trial, and presents a model for assessing fidelity in other primary care physical activity trials.

3B.3

Multi-centre cluster randomised trial comparing a community group exercise programme with home based exercise with usual care for people aged 65 and over in primary care: ProAct65+

Steve Iliffe[1], Denise Kendrick[2], Richard Morris[1], Mark Griffin[1], Tahir Masud[3], Dawn Skelton[4], Susie Dinan[1], Ann Bowling[5], Heather Gage[6]
[1]University College London, London, UK, [2]Nottingham University, Nottingham, UK, [3]Nottingham University Hospitals NHS Trust, Nottingham, UK, [4]Glasgow Caledonian University, Glasgow, UK, [5]Southampton University, Southampton, UK, [6]University of Surrey, Guildford, UK

The problem: Physical activity protects against cardiovascular disease, type 2 diabetes, osteoporosis and some cancers, but the older population is largely inactive. Community-based intervention studies have had limited success in changing physical activity behaviour in older people. The ProAct65+ trial applied exercise interventions to a population recruited through general practice, and replicates a general practice-based trial in New Zealand which showed lasting changes in physical activity levels.

The approach: The study's objective was to determine the effect on continuation of PA of two evidence based exercise programmes designed for older people, compared with usual care. A multicentre cluster randomised controlled trial design was used in 43 group practices in north London, Nottingham and Derby, and 1256 people aged 65 and over recruited**.** The interventions were : 1) the Otago exercise programme (OEP) - 24 week home-based programme of leg muscle strength and balance exercises plus a walking plan; 2) the Falls Management Exercise programme (FaME) **-** weekly community classes plus home exercises and a walking plan, for 24 weeks; 3) Treatment as usual: those in this arm were given advice to be more active. The primary outcome measure was the number of minutes spent in moderate or vigorous physical activity (MVPA) at baseline, end of intervention and 6 and 12 months after intervention, measured using a validated instrument, CHAMPS .

Findings: Mean MVPA time per week in the OEP arm increased from a baseline of 51 minutes to 64 minutes at the end of the intervention, and 72 minutes at 6 months post intervention. Mean MVPA time per week in the FAME arm rose from a baseline of 35 minutes to 67 minutes at the end of intervention, but declined to 54 minutes 6 months later. The TAU arm showed a rise from a baseline of 39 minutes to 49 minutes at the end of the intervention period, but declined to 41 minutes six months later. After adjusting for baseline levels, differences been the FaME arm and TAU were significant ($p<0.01$ for both post-intervention and 6 month time points), while differences between OEP and TAU were significant only at 6 months post intervention ($p<0.01$) However, at 12 months post-intervention there was no evidence of benefit from OEP. For FAME there was lingering evidence of benefit at 12 months but the difference in effect size was no longer statistically significant ($p=0.10$).

Consequences: The trial did recruit people who were inactive, and did increase their activity, even if this increase fell short of the recommended level of 150 minutes of MVPA/week and was not sustained beyond 6 months post-intervention. The lasting effects reported in the New Zealand trial have not been confirmed in this UK study.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

3B.4

Predictors of attrition in a physical activity intervention for community dwelling older adults

Hannah Carpenter[1], Arun Kumar[1], Steve Iliffe[2], Richard Morris[2], Denise Kendrick[1]
[1]University of Nottingham, Nottingham, UK, [2]University College London, London, UK

The Problem: Exercise can reduce the risk of cardiovascular disease, type 2 diabetes, osteoporosis and certain cancers. However, only 19% of those aged 65 - 74 and 8% of those aged over 75 reach the recommended target of 30 minutes physical activity of moderate intensity on 5 days of the week. A large number of trials are now focused on increasing and maintaining physical activity in the growing older population. However, such trials often struggle to retain participants and have reported attrition rates from 6% - 34% within the first year. Loss of participants can potentially bias results, and can make a trial less representative over time. In order to minimise attrition, those factors predicting it must be identified.

The approach: Cross-sectional study in 1,170 community dwelling older people aged ≥65 participating in a randomised controlled trial of two exercise interventions. Baseline data were collected from participants on socio-demographic and psychosocial characteristics, risk factors for falling, levels of physical activity and functional measures. Multivariate logistic regression was used to identify factors independently associated with attrition in those participants who voluntarily withdrew from the trial before their 12 month follow-up assessment. Participants who died or who were ineligible due to meeting exclusion criteria were omitted from the analysis.

Findings: 340 (29%) of participants voluntarily withdrew before their 12 month follow-up assessment. There were significantly raised odds of attrition in those who were older (OR per year 1.04 (95% CI 1.01-1.08)), had full or part time jobs (OR 1.85 (95% CI 1.09-3.14)), had an annual household income of over £20,000 per year (OR 1.58 (95% CI 1.14-2.18)) and who were ex-smokers compared to non-smokers (OR 1.90 (95% CI 1.30-2.78)). There were significantly lower odds of attrition in those who were more active (OR 0.54 (95% CI 0.34-0.87)) and had a better quality of life (OR per point 0.98 (95% CI 0.96-0.99)).

Consequences: A range of factors which are independently associated with attrition have been identified in community dwelling older people taking part in an exercise trial. Most of these factors are simple to determine during a baseline assessment, and early identification of participants most likely to drop out could lead to specific retention efforts to minimise attrition. This randomised controlled trial lost some of the participants who would have benefited most from an exercise intervention; older, less active people with a poorer quality of life. Knowledge of potential bias introduced as a result of attrition will aid interpretation of trial findings.

3B.5

Physical activity assessment in practice: a mixed methods study of GPPAQ use in primary care

Neil Heron, Mark A Tully, Michelle C McKinley, Margaret E Cupples
Queen's University Belfast, Belfast, UK

The Problem: Insufficient physical activity levels which increase the risk of chronic disease are reported by almost two-thirds of the UK population. More evidence is needed about how physical activity promotion can be effectively implemented in general practice, particularly in socio-economically disadvantaged communities. One tool which has been recommended for the assessment of physical activity in primary care is The General Practice Physical Activity Questionnaire(GPPAQ) but details of how it may be used and of its acceptability to practitioners and patients are limited. This study aims to examine aspects of GPPAQ administration in non-urgent patient contacts using different primary care electronic recording systems and to explore health professionals' views regarding its use.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The Approach: 4 general practices, selected because of their location within socio-economically disadvantaged areas (defined by a Multiple Deprivation Measure(MDM)), were invited to administer GPPAQs to patients, aged 35-75, attending non-urgent consultations, over a two-week period in each practice. They used different electronic medical record systems (EMIS, Premiere, Vision). Participants' (doctors'; nurses'; receptionists') views regarding GPPAQ use were explored via questionnaires and focus groups and analysed using a thematic framework.

Findings: Of 2,154 eligible consultations over 8 weeks, 192 (8.9%) completed GPPAQs; of these 83 (43%) were categorised as physically inactive. Physical inactivity rates varied between practices (23% to 73%). Participants' postcodes confirmed that the majority lived in areas which were categorized within the most socio-economically deprived quintile of MDM ranks in Northern Ireland. Practices' methods of GPPAQ administration varied. In 2 practices GPPAQs were completed during consultations; in the other 2 practices receptionists gave patients a paper copy to complete prior to the consultation. One practice used a computerised GPPAQ version; 3 used paper copies. Higher rates of completion (highest: 26.9%) were found in practices using a receptionist-led approach and paper copy.

Eleven GPs, 3 nurses and 2 receptionists completed end-of-study questionnaires. Two focus groups were conducted with GPs (n=8) and nurses (n=4) from 2 practices. Two main themes related to GPPAQ's administration and perceived usefulness. Practitioners considered it easy to administer and useful in facilitating health promotion but its use extended consultation time, particularly for patients with complex problems. Practitioners' knowledge of current UK physical activity guidelines was limited.

Consequences: Physical activity assessment using GPPAQ can be integrated into day-to-day general practice and with different electronic recording systems yet it was used in relatively few consultations. Although health professionals viewed it as easy to use and a helpful tool for generating discussion with patients, time constraints, medical complexity and health professionals' poor knowledge of the current UK physical activity guidelines were the main barriers which limited its use. Further exploration of ways to facilitate translation of physical activity promotion into practice is needed.

3B.6

The Home-Based Older People's Exercise (HOPE) trial: a pilot randomised controlled trial of a home-based exercise intervention for frail older people

Andrew Clegg[1], Steve Iliffe[2], John Young[1], Sally Barber[3], Anne Forster[1]
[1]Academic Unit of Elderly Care & Rehabilitation, University of Leeds, Leeds, West Yorkshire, UK, [2]Department of Primary Care & Population Health, UCL, London, UK, [3]Bradford Institute for Health Research, Bradford, West Yorkshire, UK

The problem: Frailty is the most problematic expression of population ageing. Preliminary evidence indicates that exercise may modify the biology of frailty and improve outcomes but it is uncertain whether benefit is achieved across the spectrum of frailty. Notably, previous trials have not used validated measures of frailty to select participants or stratify results. We tested the feasibility of the Home-Based Older People's Exercise (HOPE) programme, a 12 week exercise programme delivered to older people at home, in a pilot randomised controlled trial that included a validated measure of frailty.

The approach: Those eligible for inclusion were frail older people living at home. Multiple recruitment sources were used to identify frail older people, including: housebound older people, identified through GP registers of NIHR Research Ready GP practices; older people living at home and under the care of a case manager; attendees at day centre and respite care facilities; residents of assisted living facilities; at discharge from intermediate care and following attendance at elderly medicine outpatient clinics. Participants were stratified by the baseline timed-up-and-go-test (TUGT) and underwent concealed random allocation to intervention or usual care. Baseline frailty was recorded using the Edmonton Frail Scale (EFS), a valid and reliable measure of frailty. Primary outcome was mobility, measured using the

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

TUGT at 14 weeks post-randomisation. Secondary outcomes included function (Barthel Index), quality of life (EQ5D) and depression (GDS). Adverse outcomes included falls and hospitalisations.

Findings: 474 potential participants were assessed for eligibility and 84 (18%) were recruited. Baseline characteristics were similar in the intervention and control groups. Mean age was 79 years; mean baseline EFS was 8.1, indicating that participants were generally frail. Follow-up data was available for 70 participants (83%). There was a non-significant trend towards a clinically meaningful improved outcome in the intervention group (mean between group TUGT difference 28.6s, 95% CI -8.5, 65.9). Subgroup analysis identified that the trend was maintained in the more frail participants (mean adjusted between group TUGT difference in those with EFS > 8; 41.7s, 95% CI -16.2, 99.5s). There were no differences in the secondary outcomes or adverse outcomes. Compliance diaries were returned by 96% of participants and moderate intervention compliance was achieved (67%).

Consequences: The pilot HOPE trial has demonstrated that a home-based exercise intervention for frail older people is feasible, acceptable and safe. The trial has provided preliminary evidence that the deterioration in mobility experienced by frail older people can potentially be diminished through exercise, even for those with more advanced frailty. These findings require confirmation and the pilot HOPE trial has provided the necessary data to design a definitive, adequately powered RCT that incorporates long-term follow-up of important outcomes including disability, quality of life, hospitalisation and care home admission.

3C Smoking and alcohol

3C.1

SHOULD REDUCING SMOKING TO QUIT BE USED AS AN ALTERNATIVE TO ABRUPT QUITTING BY SMOKING CESSATION SERVICES? RESULTS FROM A RANDOMISED CONTROLLED NON-INFERIORITY TRIAL

Nicola Lindson-Hawley[1], Miriam Banting[1], Robert West[2], Susan Michie[2], Paul Aveyard[1,3]
[1]University of Birmingham, Birmingham, UK, [2]University College London, London, UK, [3]University of Oxford, Oxford, UK

The Problem The approach to quitting smoking advised by many smoking cessation services is to stop abruptly. However, evidence suggests that some smokers would prefer to quit by reducing the amount they smoke before their quit day. Therefore, it may be useful to offer smoking reduction alongside abrupt quitting, to increase the number of smokers accessing treatment services. It is important to first ascertain whether reduction is as successful a quitting method. The few studies which have compared the approaches typically had small sample sizes and only measured the superiority of the effect.

The Approach The Rapid Reduction Trial (RRT) aimed to establish whether the efficacy of reducing smoking to quit is non-inferior to that of abrupt quitting. RRT is a randomised controlled, non- inferiority trial (N=697), with a non-inferiority margin of 9.*5% difference in efficacy between arms*. Patients wishing to quit smoking were recruited through their GP practice, and randomised to quit abruptly after a two week period or to reduce their smoking by 75% over a two week period, before quitting completely. Both arms received weekly face-to-face behavioural support, and used nicotine replacement therapy in the run up to, and following their quit day. The primary outcome of the trial was abstinence at four weeks, calculated using intention to treat analysis. Secondary outcomes included abstinence six months post-quit.

Findings At baseline the median age of participants was 49 years (IQR= 17), median cigarettes per day= 20 (IQR= 10), median Fagerstrom Test for Nicotine Dependence =6 (IQR= 3) and 50.2% of participants were male. 49.0% of participants quitting abruptly were CO validated prolonged abstinent at 4 week follow-up, compared with 39.2% of participants who reduced their smoking to quit; producing a risk ratio of 0.80 (95% CI= 0.67, 0.95). Abrupt cessation was significantly more effective than reducing smoking to quit

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

(p=0.01) but the difference was not significantly greater than our pre-specified non-inferiority margin. Analysis of drop-out rates suggest that more reduction participants dropped out pre-quit, and of those participants who made a quit attempt abstinence rates did not differ between arms.

Consequences In line with population level data, this trial found that quitting smoking by gradual reduction was less effective than quitting abruptly, but the difference was relatively modest and so quitting gradually may be a suitable option for smokers who otherwise would not try to quit at all. The extra people that it may bring into services could still lead to an increase in overall quit rates. However, work is needed to investigate whether offering gradual cessation would cause more smokers to seek help to quit. Ways to reduce the pre-quit drop-out rate of smoking reduction interventions should also be investigated with an aim to maximise quit rates.

3C.2

Two year infant and maternal outcomes from the SNAP trial: a randomised controlled trial investigating nicotine replacement therapy for cessation in pregnancy.

Sue Cooper[1], Jaspal Taggar[1], Sarah Lewis[1], Neil Marlow[2], Tim Coleman[1]
[1]University of Nottingham, Nottingham, UK, [2]UCL, London, UK

The problem Nicotine replacement therapy (NRT) is widely prescribed for smoking cessation in pregnancy, despite little evidence for its effectiveness and safety; the expert consensus is that NRT should be safer than smoking for the unborn infant. The SNAP trial, a randomised controlled trial comparing nicotine patches with placebo in 1050 pregnant smokers found, at delivery, no evidence of either harm or benefit from using NRT. The study also investigated effects of NRT on infants' development and respiratory problems and on maternal smoking abstinence rates at 2 years after delivery. No previous trials have investigated the impact of NRT used in pregnancy on infant outcomes.

The approach All randomised women, apart from those with documented fetal deaths (n=14), were eligible for follow up until their infants were aged two. Outcomes were collected by questionnaire sent to participants (PQ2). This asked about maternal smoking and infant health and included items from the 'Ages and Stages' questionnaire (ASQ-3) evaluating infants' development. If participants did not respond, their general practitioner was sent a short questionnaire to assess child's development and general health (HPQ). The primary outcome was 'survival with no impairment'; a composite of normal scores for all ASQ-3 domains plus no reported problems amongst either remaining PQ2 items or HPQ responses. Only singleton live births plus those with missing birth outcomes were used in the analysis of infant outcomes. At the time of abstract submission, only preliminary findings were available for infant outcomes as for a few infants (n<30) outcomes still required allocating.

Findings From 1036 trial participants, we obtained outcome data for 87% (900; 448 NRT, 452 placebo). 12 of these women had twins, leaving 1024 singleton infants; within this group 323/507 (63.7%) of NRT group infants survived with 'no impairment' compared to 291/517 (56.3%) in the placebo group (OR 1.41, 95% CI 1.06-1.88). In NRT and placebo groups, infants' respiratory symptoms were reported in 118/507 (23.3%) and 94/517 (18.2%) of infants respectively, and, amongst all 1050 women randomised (i.e. including pregnancies which did not end in live births), 15/521 (2.9%) allocated NRT and 9/529 (1.7%) allocated placebo were abstinent from smoking since a quit date set in pregnancy (OR 1.71, 95% CI 0.83-3.78).

Consequences Preliminary findings suggest that more infants of mothers allocated to NRT may have survived to 2 years with 'no impairment' although this observation should be treated with caution as the complete, final analysis will include slightly more cases. No association was found between NRT and prolonged maternal smoking abstinence. These findings provide further support for the instigation of a higher dose trial of NRT in pregnancy.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

3C.3

Prescribing of Nicotine Replacement Therapy in and around pregnancy in the UK - A population based study using Primary Care data

Nafeesa Dhalwani[1,2], Laila Tata[2], Tim Coleman[1], Lisa Szatkowski[0]
[1]Division of Primary Care, University of Nottingham, Nottingham, UK, [2]Division of Epidemiology and Public Health, University of Nottingham, Nottingham, UK

The Problem Smoking in pregnancy increases the risk of foetal and maternal problems, therefore reducing smoking during pregnancy is a public health priority. In 2005, licensing arrangements for nicotine replacement therapy(NRT) in the United Kingdom were broadened such that NRT could be prescribed to pregnant smokers. However, little is known about the trends and uptake of NRT by pregnant women. We aimed to quantify annual trends of NRT uptake in and around pregnancy and variation in prescribing by maternal characteristics.

The approach In The Health Improvement Network (THIN) primary care database we identified all pregnancies from 2000 to 2010 in women aged 15-49 years and used READ codes to determine women's smoking status. NRT prescriptions were identified in all women during three time periods: up to 9 months before conception, during pregnancy and up to 9 months after delivery. Annual proportions of pregnancies where NRT was prescribed were calculated and variations by age and socio-economic deprivation were assessed using logistic regression.

Findings Women were classified as smokers in 19% of 227,552 pregnancies identified in 215,703 women. NRT was prescribed in 4,827 of all pregnancies which represented a prescribing prevalence of 9% of pregnancies in smokers and 2% of pregnancies overall. The rate of NRT prescribing was approximately 50% lower 9 months before and after pregnancy as compared to during pregnancy. There was a gradual increase in the annual rate of prescribing until 2005, after which the rate became stable. The rate of prescribing during pregnancy in smokers was higher in older age groups such that the rate in 30-35 years age group was 17% higher (95% CI: 1.05-1.31) and the rate in 15-20 years age group was 4% lower (95% CI: 0.85-1.08) than the rate of prescribing in 25-30 years age group. The rate of prescribing during pregnancy in smokers also increased with deprivation such that it was 34$ (95% CI 1.16-1.54) higher in the most deprived group than in the least deprived group. Pregnant smokers with asthma and mental illness were 22% (95% CI 1.11-1.34) and 47% (95% CI 1.38-1.58) more likely to receive a prescription for NRT respectively as compared to pregnant smokers without these morbidities.

Consequences Uptake of NRT is higher during pregnancy compared to time periods outside pregnancy and is higher in smokers from older and more socio-economically deprived groups.

Acknowledgements

The article presents independent research funded by the NIHR under its Programme Grants for Applied Research Programme (RP-PG0109-10020). The views expressed in this article are those of the authors and not necessarily those of the NHS, the NIHR or the department of Health.

3C.4

Coronary heart disease, co-morbidity, and smoking cessation in primary care

David Blane, Daniel Mackay, Stewart Mercer
Institute of Health & Wellbeing, University of Glasgow, Glasgow, UK

The Problem: A recent epidemiological study showed that co-morbidity is the norm not the exception for people with CHD and other chronic conditions (Barnett et al, 2012). Smoking cessation is a key part of

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

secondary prevention in CHD, but it is not clear how the quality of smoking cessation practice delivered by GPs might vary in CHD patients with different patterns of co-morbidity.

The approach: This study involved secondary analysis of GP data from a large, nationally representative cross-sectional sample of individuals with CHD (n=81,456). Descriptive statistics and logistic regression analyses were performed using SPSS software. The three outcome variables of interest were: 1) recording of smoking status; 2) recording of smoking cessation advice and; 3) prescribing of nicotine-replacement therapy (NRT). The different patterns of co-morbidity used were: 1) simple count; 2) additional mental health conditions; 3) additional concordant physical conditions and; 4) additional discordant physical conditions. Analyses included adjustment for age, sex and deprivation.

Findings: Approximately 20% of people with CHD were current smokers. After adjusting for demographic variables, individuals with CHD and one or more mental health co-morbidity were more than twice as likely to be smokers as those with CHD alone (adjusted OR 2.05 [1.81 - 2.31], p<0.001). Individuals with CHD and one or more concordant physical co-morbidity were 17% less likely to be smokers than those with CHD alone (adjusted OR 0.83 [0.77 - 0.89], p<0.001). Quality standards for recording of smoking status (recorded for 99.6% of total sample) and smoking cessation advice (recorded for 96.9% of smokers in sample) were comfortably achieved. Approximately one third of current smokers (n=5680, 33.9%) received a prescription for NRT. Those in the most deprived quintile are most likely to be smokers, least likely to receive smoking cessation advice, but most likely to receive NRT. Possible reasons for these findings are explored.

Consequences: This study draws attention to the high prevalence of smoking in a high risk population (individuals with coronary heart disease). In particular, those with co-morbid mental health conditions and those from the most deprived quintile are likely to require most support to facilitate smoking cessation.

Reference

Barnett, K., Mercer, S.W., Norbury, M., Watt, G., Wyke, S., Guthrie, B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. *Lancet*; 380(9836):37-43

3C.5

Assessing the accuracy of personal breathalysers: a diagnostic accuracy study

Helen Ashdown, Susannah Fleming, Elizabeth Spencer, Matthew Thompson, Richard Stevens
Department of Primary Care Health Sciences, University of Oxford, Oxford, UK

The problem Alcohol-related driving incidents cause over 250 deaths in the UK annually. Alcohol breathalysers are medical devices which measure breath alcohol and can determine whether someone is over the legal driving limit. Some breathalysers are freely available for sale to the public, some for under £10. In order to guide decisions about driving after drinking alcohol, some countries, including France, have recently introduced a requirement that all drivers should carry breathalysers. However, consequences of inaccurate readings (either false positive or false negative) are potentially considerable. We aimed to determine the accuracy of breathalysers available to the public in the UK.

The approach We conducted a diagnostic accuracy study comparing three personal breathalysers (two single-use and one digital multi-use) with a police breathalyser. We recruited participants who had consumed alcohol from licensed establishments in Oxford. Participants were asked to estimate their alcohol intake then used three breathalysers in a randomised order. All participants used the police

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

breathalyser and the digital multi-use personal breathalyser, and were randomised to use one of the two single-use personal breathalysers.

We calculated the diagnostic accuracy of the personal breathalysers for detection of alcohol levels at or over the UK driving limit (35 µg/100ml breath or 80 mg/100ml blood alcohol concentration), using the police breathalyser as the reference standard.

Findings 208 participants took part in our study. Participants reported having consumed between 1 and 25 units of alcohol (median 6 units). 38/208 (18.3%) of participants were at or over the UK driving limit of 35 µg/100ml according to the police breathalyser, with breath alcohol levels ranging from 0 to 69 (median 14) µg/100ml. The digital multi-use and one of the two single-use devices had a sensitivity of 89.5% (95% CI 75.9-95.8%) and 94.7% (95% CI 75.4-99.1%) respectively. Specificity for these devices was 64.1% (95% CI 56.6-71.0%) and 50.6% (95% CI 40.4-60.7%). The other single-use device showed a sensitivity of 26.3% (95% CI 11.8-48.8%) and a specificity of 97.5% (95% CI 91.4-99.3%).

Consequences A growing number of medical devices are now available to the public and will increasingly be used to guide decision-making. We found that two of three personal breathalysers available in the UK have good sensitivity but poor specificity for detection of being at or over the driving limit, with a tendency to over-read. However, our results suggest that approximately 1 in 20 people who are at or over the limit may be falsely reassured by these tests. One of the single-use breathalysers had very poor sensitivity: use of this device to guide driving decisions could have potentially catastrophic consequences. Our findings may be able to provide guidance on the potential role of these devices in informing decisions to drive among people who have consumed alcohol.

3C.6

I was looking for some action, but all I found was cigarettes and alcohol: 20 years in the management of lifestyle risk factors for Stroke

Kelley Rosborough[1], James Sheppard[1], Ruth Mellor[1], Roger Shinton[3], Richard McManus[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Oxford, Oxford, UK, [3]Heartlands Bimingham Hospital, Birmingham, UK

The Problem: The potential for stroke prevention by avoidance of lifestyle related hazards is an important strategic objective for General Practitioners and the NHS. Smoking and alcohol consumption are two key contributing factors to this objective. Insufficient data are available regarding such behaviours in people that have suffered stroke. The West Birmingham Stroke Project collected such data 20 years ago and provided an opportunity for a comparative study. This study sought to establish what changes - if any - had occurred in lifestyle factors of people presenting to hospital with stroke over a 20 year time period.

The Approach: The prevalence of smoking and alcohol consumption was compared between cohorts of patients who attended hospital in Birmingham, UK with stroke in 1988-90 and 2010-11. Data from two studies were included- a community case controlled study conducted in West Birmingham and an observational cohort study conducted in two foundation NHS hospital trusts. Descriptive statistics were used to describe the population demographics and prevalence of lifestyle risk factors. Smoking behaviour was defined as smoking tobacco at least once per day. Consumption of alcohol was defined as drinking at least one alcoholic beverage in the last year. This behaviour was then subdivided into moderate or heavy consumption based on current government guidelines. Moderate consumption was defined as drinking from 1-28 units per week for men and from 1-21 units for women. Alcohol consumption in excess of these amounts was defined as heavy.

Findings: A total of 226 patients with a final diagnosis of stroke were included in this analysis. The West Birmingham case control study contributed 125 patients. The remaining 101 patients were recruited by the observational cohort study. Patients ranged in age from 35-74 years (61.4 ± 8.7). There were 90

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

(39.8%) female patients. Preliminary results do not show a significant change in the prevalence of smoking. Baseline data showed a prevalence of 39% compared to the current figure of 36% (X^2 p=0.6). At the same time the prevalence of alcohol consumption increased from 42% to 62% (X^2 =0.003). Data did not show a significant change in the prevalence of moderate or heavy alcohol consumption (X^2 p=0.10).

Consequences: People presenting with stroke in Birmingham have changed their lifestyles considerably over the last 20 years. Smoking has not seen a significant decline and remains more prevalent amongst those with stroke than in the general population. Efforts at smoking cessation as secondary prevention need to be continued. Alcohol consumption has increased and brings with it a different set of problems. Given the multi ethnic population of Birmingham, this may be more of a problem elsewhere in the UK. Further data regarding lifestyle will be presented at the conference.

3D Palliative care

3D.1

How can we tailor health care interventions to individual patients with advanced heart failure at the end-of-life?

Greg Irving, Joanne Reeve, Christopher Dowrick, Mari Lloyd-Williams
University of Liverpool, Liverpool, Merseyside, UK

The problem Advanced heart failure is receiving increasing attention from clinicians and policy makers as a major chronic condition associated with poor quality of life, and recurrent hospitalisations in an ageing population. Whilst the natural history of the disease is well defined, the individual experiences of living with advanced heart failure are complex. This may explain why clinicians often find it difficult to apply disease focused health care guidelines to meet the individual needs of patients living with advanced heart failure. An alternative approach would be to develop guidelines based on needs revealed by narrative experience of living with heart failure. This study aims to explore those experiences.

The approach In a community based prospective longitudinal qualitative study, 15 patients with New York Heart Association grade IV were recruited through a Liverpool-based NHS co-ordinated heart failure service. Participants were purposively sampled on age, sex, ethnicity, ejection fraction, socio-economic status and the presence or absence of carers. Semi-structured interviews were conducted with patients and informal carers at 3 monthly intervals for 1 year (n= 52 interviews). The interviews explored the experience of living advanced heart failure using a topic guide. The longitudinal analysis draws on Griffiths et al's concept of the "emergent present." This involves understanding individuals as dynamic, changing systems, subject to internal and external influences with potential for transformation.

The findings We identified four distinct patterns of adjustment and adaptation in the emergent present. The dominant pattern was that of *stability,* with participants perceived to be held in place by a complex network of support. Such stability was often view by the participants to be tenuous and in danger being lost at any time. Some participants were *stuck,* unable to adjust and adapt in a productive manner, often resulting in considerable frustration for the participant. Others demonstrated a *shifting* pattern of adjustment and adaptation; this was often chaotic and unproductive for the participant. A small group of participants were able to *integrate* following a disruptive event resulting in productive adversity; a situation where the participants found themselves in a "better place" following a disruptive event.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences Attending to emergent present and patterns of adjustment offers clinicians and patients the opportunity to tailor health care interventions to the individual needs of patients with advanced heart failure, for example, by supporting but not disrupting those who are *stable* or by targeting interventions that positively disrupt those who are *stuck*. The next step will be to evaluate these categorizations and determine whether they are useful in the clinical setting.

3D.2

Experiences of prognostication and the transition point from active to palliative and end of life care in heart failure: A grounded theory study.

Rachel Stocker, Helen Close, Pali Hungin
Durham University, Stockton-on-Tees, UK

The Problem: Heart failure (HF) is a progressive, life-limiting illness with a mortality rate of 50% within four years. There are around one million adults in the UK suffering from HF, with this number set to rise as the population ages. It is increasingly argued that HF is a chronic, yet essentially terminal condition which requires the provision of an interdisciplinary palliative care plan. Symptom profiles are often broadly similar to cancer and thus service developments increasingly draw upon cancer-specific models including anticipatory care plans such as the Liverpool Care Pathway. These may ease physical symptoms in the final days and hours of life, but appear to do little to address the longer term burden of a disease characterised by unpredictable peaks and troughs, which can be interspersed by long periods of relatively good health. These challenges mean that many patients and carers report little/no prior communication about the terminal nature of the illness. Investment has been made in multi-disciplinary palliative care (PC) teams, combining pathway and communication skills development. However, little is known about their impact on end-of-life care in non-cancerous illnesses, particularly HF. It is becoming ever more apparent that the experience of palliative and end of life care for heart failure is often inadequate for patients, carers and clinicians alike. To explore further, we studied perceptions and experiences of communicating prognostic and palliative/end of life care information from the perspective of clinicians, HF patients, and carers.

The approach: A qualitative, longitudinal, grounded theory methodology combining observations of clinic appointments and interview data from 7 cardiology specialists, 4 GPs, 3 HF nurses, 14 HF patients, and 9 HF carers.

Findings: Analysis revealed strong clinician ambivalence surrounding prognostication and resulting PC needs. Many clinicians found it ‘cruel' to disclose prognostic information, preferring instead to maintain hope throughout the disease trajectory, and delaying PC discussions until very near the end of life. Most patients and carers felt PC/end of life considerations did not apply to them, focusing more on negotiating restrictions in everyday life. The vast majority of patients reported that they had never been spoken to about their prognosis, including end-stage patients, other than the incurable nature of the illness. Some expressed distrust of their clinicians.

Consequences: The topic of palliative and end-of-life care remains the elephant in the consultant room. Societal knowledge of HF is poor and this reflects in the way in which patients think and feel about their prognosis, especially the taboo of death. The unsophisticated "one-size-fits-all" application of cancer-based palliative care tenets fails to adequately account for the specific challenges of heart failure and may simply be an inappropriate foundation for care of a condition that might, more accurately, be regarded as life-limiting, not terminal.

3D.3

Community Care Pathways at the End of Life (CAPE) study- findings from the pilot study

Sue Boase, Emily Moran, Stephen Barclay
The Primary Care Unit, University of Cambridge, Cambridge, UK

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The problem: Current NHS End of Life Care policy favours raising the proportion of deaths that occur at home. Currently this only occurs in 18% of the total. Although most people would like to die at home, research has shown that people's preferences are influenced by the progression of their illness, how much support is available and their social circumstances.

The problem the CAPE Study hope to address is whether the focus on place of death is helpful. The aim of the study is to clarify for whom home death is "good" and for whom it is not, and to characterise what is needed to optimise both of these options to provide best care.

The Approach: A multi-method study in which data on 400 deceased patients, the perceptions of their GPs, community nurses and bereaved carers are brought together to generate an understanding of patterns of care need and pathways of care provision at the end of life. There are three phases, each feeding into the next and generating outputs with outcomes for patient benefit. Phase 1 collects validated summaries of the GP and Community Nursing notes of the 20 most recently diseased patients in each of 20 GP practices. In 10 of the 20 practices, Phase 2 purposively selects 5 of the 20 sets of notes to explore the care further in a multi-disciplinary case discussion group. In the remaining 10 practices, 2 of the 20 cases are purposively selected, and interviews undertaken with the carer, GP and Community Nurse responsible for their care. A fourth phase uses data from all phases to develop a toolkit to improve patient care.

Findings: The pilot phase has recently been completed. Initial findings indicate the importance of trust and communication among the team. The health professionals felt that non-cancer patients are more difficult to care for than those with cancer, who have a clearer trajectory. Not all admissions to hospital at the end of life were seen as negative, and it may be the preferred place of care and death for some patients. Different agencies being on different electronic systems can cause communication difficulties making it hard to keep everyone up to date. The different End of Life Care initiatives can be time-consuming and confusing.

Consequences: Although the findings are preliminary at present it is hoped that this study will shed light on the investment of time and resources and the logistics of providing care at the end of life in the community whether the place of death is at home, in a care home, hospice or hospital. In turn this aims to address the question of whether the focus on place is the best measure of a "good" death.

3D.4

Improving care and reducing hospital utilisation at the end of life: Results of a mixed methods evaluation of Marie Curie's Delivering Choice Programme

Sarah Purdy, Lesley Wye, Gemma Lasseter, John Percival, Lorna Duncan, Bethany Simmonds, Thomas Griffin
University of Bristol, Bristol, UK

The Problem: In 2008 the Department of Health in the UK published an End of Life Care Strategy which put increasing emphasis on supporting people to die in their own homes. However, it has been very challenging to deliver this goal, particularly for those people who have non-cancer diagnoses.

The Marie Curie Cancer Care Delivering Choice Programme (DCP) aims to help palliative patients die in their place of choice. In this DCP project, new services were delivered across two counties and included: end of life care coordination centres, out of hours telephone line and discharge in-reach nurses.

The challenge was to evaluate the programme as robustly as possible, without undertaking a randomised controlled trial. The evaluation aimed to investigate the impact on hospital deaths and usage (emergency admissions and A&E), NHS costs, care coordination and family carer satisfaction.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The approach We took an approach based on realistic evaluation methodology looking at mechanism, context and outcomes to explore 'what works, for whom and why?'. Using a retrospective cohort design, service, hospital and death data were collected for those who did and did not use DCP services and who died over a six month period in the two counties in southwest England (n=3594). Quantitative data were analysed using descriptive statistics and logistic regression. Qualitative data, which were analysed using framework analysis, included 43 face-to-face interviews with patients and family carers and 29 professionals, 15 observations of the services and 105 telephone interviews with professionals.

Findings Family carers appreciated the end of life services and reported high levels of care coordination, as did professionals. Those using Delivering Choice were at least 30% less likely to die in hospital or have an emergency hospital admission or A&E visit in the last 30 or 7 days of life than those who did not use DCP after adjusting for confounding variables such as condition, age, gender and deprivation. DCP patients had higher Charlson scores than non DCP patients. All services contributed to the reduction in secondary care useage. However, the care coordination centres appeared to be the most effective component of the packages offered. The indicative costs saved were £440,000 across the two counties.

Consequences Delivering Choice provided high quality palliative services whose users were less likely to die in hospital or use hospital services. Future efforts should concentrate on the expansion of Delivering Choice to all palliative care patients earlier, regardless of condition or health and social care funding status.

In the current climate of cuts in health and social care costs, there is a substantial risk that services like these are de-commissioned, despite positive evaluation reports and evidence of economic savings. Given their success and the growing elderly population, every effort should be made to maintain and even expand funding.

3D.5

Could We Improve the Anticipatory Management of Cancer Pain? Lessons from an Audit of Out of Hours Primary Care Contacts for Patients with Cancer in Grampian, Scotland.

Rosalind Adam, Peter Murchie
University of Aberdeen, Aberdeen, Aberdeenshire, UK

The Problem Out of hours primary care has changed dramatically since the introduction of the new General Medical Services contract in 2004. In Scotland, NHS Boards have assumed responsibility for providing out of hours primary care cover. Most primary care out of hours services exist to deal with urgent matters that cannot wait until the patient's registered practice re-opens. Poorly controlled cancer symptoms in the out of hours period might highlight deficiencies in routine anticipatory cancer care. This study aims to characterise the reasons why cancer patients contact the out of hours primary care department in Grampian (GMED).

The Approach All primary care out of hours contacts in Grampian are recorded using ADASTRA computer software. The nature of each consultation is Read coded by a medical practitioner. Cancer contacts were identified between 1st January 2010 and 31st December 2011 by interrogating the ADASTRA database using the Read code filters "neoplasm", "terminal care", and "terminal illness". Repeated consultations by the same patient were excluded using community health index numbers, a unique patient identifier. Consultations which did not include the specific mention of a cancer diagnosis were excluded. Data was gathered on patient demographics, reason for GMED contact, and the nature of any symptom that had prompted the contact. Admission status was recorded. For pain consultations, details of individual management strategies were recorded. All patient identifiable information were removed from the data prior to analysis.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Findings 950 individuals with established cancer were identified who had made contact with GMED over a two year period. 853 (89.8%) contacts were because of a symptom of whom pain was the main presenting symptom in 258 cases (30.2%). Of these, 54.5% were already on strong opiate medications. Other frequent symptoms were nausea or vomiting (12.3%), and agitation (6.2%). Of 867 who were not inpatients in community hospitals, 80.3% were managed in the community without hospital or hospice admission. Of those who presented with pain, 43.6% had their analgesic regime altered, 26 % were given a one off injection for pain relief, and 14.4% were managed with advice or education only.

Consequences Pain was the single most frequent reason for patients with established cancer to make contact with the out of hours primary care service in Grampian. The majority of patients who presented with pain were already on strong opiate medication, suggesting that they had pre-existing pain. Pain should specifically be addressed in routine cancer reviews. Around one sixth of patients presenting with pain in the out of hours period were given simple advice or education. There may be a place for an educational intervention to promote self management skills and appropriate use of breakthrough analgesia in patients with cancer.

3D.6

Investigating the Sustainability of Academic Careers in Primary Care: Findings from a UK-wide Survey

Ann Adams[1], Helen Atherton[2], Joanne Reeve[3], Jane Roberts[4], Andrew Wilson[5]
[1]University of Warwick, Warwick, UK, [2]University of Oxford, Oxford, UK, [3]University of Liverpool, Liverpool, UK, [4]University of Sunderland, Sunderland, UK, [5]University of Leicester, Leicester, UK

The Problem: SAPC is re-examining the sustainability of careers in academic primary care (APC). The motivation is a number of significant changes within the APC context since the last such investigation (SAPC 2003). In Phase 1, interviews were undertaken with 15 SAPC members from different disciplines and career stages. Findings showed that lack of clarity about APC career pathways persist, but important factors linked with sustainability were identified at individual and organisational levels.

The Approach: Phase 2 involves an on-line survey of a UK-wide sample of PC academics - not just SAPC members - to understand the bigger picture. The survey investigates career pathways and APC work environments across the UK, and what SAPC can do to support its members and the wider APC community. The survey link was emailed to the Heads of Departments (HoDs) of current SAPC members (n=60), thirty two of whom are not represented in the SAPC HoDs group. HoDs were asked to forward the link to all PC academics in their university.

Findings: The survey is still open, but findings from the first 173 respondents reflect themes identified in the earlier qualitative work. Sixty two percent tell us that APC career pathways are either ‘completely' or ‘somewhat' unclear, with 40% feeling either ‘completely' or ‘somewhat unclear' about their own next career step. Not surprisingly this is reflected in 41% of respondents reporting that job security is something which they experience ‘seldom' or ‘not at all'. Notwithstanding, 82% of respondents report experiencing job satisfaction either ‘often' or ‘all the time'. This paradox was identified in the qualitative work, where respondents spoke about the intrinsic value of APC work, which allows PC academics to make a real difference to care provision and patients' care experiences. The other important career sustainer identified in the qualitative work was having a mentor, which 59% of survey respondents lack: 59% of whom indicated they would like one. These early findings are based on a balanced sample comprising 52% of respondents with a medical background and 48% primary health care scientists. Of these, 60% are SAPC members, while 40% are not. Results from a fuller data set will be presented at the ASM, comprising both quantitative and explanatory, qualitative data.

Consequences: Ten years on, organisational problems with APC career pathways remain. In spite of that, people continue to value a role which ‘advances primary care through education and research'. People describe the value of existing support e.g. our mentorship scheme and highlight additional areas of work

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

for us all - in raising the profile of APC, and expanding the work of APC/SAPC through wider engagement. Findings will be used to inform the SAPC executive's strategic planning and initiatives aimed at enhancing career sustainability.

3E Prescribing

3E.1

Polypharmacy is not always hazardous: retrospective cohort analysis using linked electronic health records from primary and secondary care

Rupert Payne[1], Gary Abel[1], Anthony Avery[2], Stewart Mercer[3], Martin Roland[1]
[1]Cambridge Centre for Health Services Research, University of Cambridge, Cambridge, UK, [2]Division of Primary Care, University of Nottingham, Nottingham, UK, [3]General Practice and Primary Care, University of Glasgow, Glasgow, UK

The problem Prescribing multiple medications is associated with a range of adverse outcomes, and polypharmacy is commonly considered a surrogate measure of prescribing quality. Polypharmacy might thus be associated with unplanned hospitalisation. However, previous studies have not examined how any such association is influenced by the interplay between polypharmacy and multimorbidity. We therefore sought to better describe the association between polypharmacy, multimorbidity and hospital use using linked routine clinical primary care and hospital data.

The approach Data on long-term clinical conditions and numbers of medications available for regular prescription were extracted from Scottish primary care electronic records for 180,815 patients aged ≥20 years, and linked to national hospital admissions data for the following year. Multivariable logistic regression (adjusted for age, gender and deprivation) was used to model the association of prescribing with unplanned admission for patients with different numbers of long-term conditions.

Findings Admissions were commoner in patients on multiple medications. For patients with one long-term condition, the odds ratio (OR) for unplanned admission was 1.27 (95% confidence interval 1.12-1.44) for those on 4-6 regular medications compared to those on no regular medications, and 3.45 (95% CI, 2.75-4.34) for those on ≥10 regular medications. However, the effect of polypharmacy was greatly reduced for patients with multiple long-term conditions. For example, patients with ≥6 conditions on 4-6 regular medications were less likely to have an unplanned admission than those taking no regular medications (OR 0.65 (95% CI 0.54-0.77)), and patients with ≥6 conditions taking ≥10 regular medications were no more likely to be admitted than those receiving none (OR 0.97 (95% CI 0.81-1.17)).

Consequences Rates of unplanned hospital admission are strongly associated with the number of regular medication items. However, the effect is much reduced in patients with multiple conditions, in whom we found no evidence that polypharmacy was associated with an increased risk of unplanned hospital admission. Assumptions that polypharmacy is hazardous and represents poor care need to be tempered by clinical assessment of the conditions for which those drugs are being prescribed.

3E.2

Clinicians' experiences and perceptions of benzodiazepine prescribing in Western primary care settings: systematic review and meta-synthesis

Coral Sirdifield[1], Sibyl Anthierens[2], Hanne Creupelandt[3], Susan Chipchase[1], Thierry Christiaens[3], A. Niroshan Siriwardena[1]
[1]University of Lincoln, Lincoln, UK, [2]University of Antwerp, Antwerp, Belgium, [3]University of Ghent, Ghent, Belgium

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The problem: Benzodiazepines are known to have limited long-term therapeutic benefits, and to have adverse effects including addiction. Consequently, clinical guidelines advocate strictly short-term use. However, benzodiazepines continue to be prescribed for extended periods for conditions such as insomnia, anxiety and chronic back pain. Whilst research suggests that this may be due to factors such as patient demographics, GP attributes and general practice structures, clinicians' experiences, beliefs and attitudes have also been shown to impact on their prescribing practices. Qualitative studies have the potential to better understand this clinical area by revealing the processes underlying prescribing practices.

The approach: We conducted a systematic review and meta-synthesis of qualitative research exploring GPs' experiences and perceptions of benzodiazepine prescribing. Included studies needed to use both qualitative data and analysis, contain GP or nurse generated data on their experiences of prescribing benzodiazepines in Western primary care settings, and have been published between January 1990 and August 2011 in a European language. Findings from included studies were synthesised using the thematic synthesis approach in order to build an explanatory model of processes underlying prescribing practice.

Findings: Eight studies were included in the review. Prescribing decisions were complex, uncomfortable and demanding, particularly within the constraints of daily practice. Overall, GPs showed ambivalent attitudes towards benzodiazepine prescribing, and inconsistently applied management strategies for their use. Variation in prescribing practice was attributed to: the changing context within which GPs work; the role and responsibility of the GP; their attitudes towards benzodiazepines and other interventions; the perceived lack of alternative treatments; and GPs' relationships with their patients and perceptions of their patients' expectations. Different challenges are faced in managing initiation, continuation and withdrawal of benzodiazepines.

Consequences: The explanatory model produced from the themes identified within the metasynthesis can be used to propose ways to improve adherence to clinical guidelines which recommend short-term use of benzodiazepines only. Recommendations include: increasing education and training to change clinicians' understanding and perceptions of both benzodiazepines and alternative treatments; increasing the availability of alternative treatments; encouraging clinicians to directly explore patients' expectations with them to meet their expectations for clinical improvements.

3E.3

Incidence and management of Bell's palsy in the UK: segmented time series regression analysis of treatment from 2001 to 2012

Daniel Morales[1], Fergus Daly[1], Peter Donnan[1], Tjeerd van Staa[2], Frank Sullivan[1]
[1]University of Dundee, Dundee, UK, [2]Clinical Practice Research Datalink, Medicines and Healthcare products Regulatory Agency, London, UK

The Problem: Bell's palsy is an acute idiopathic facial paralysis which can lead to permanent facial disfigurement and pain. Until recently the most effective treatment for Bell's palsy remained uncertain. In 2007 the Scottish Bell's palsy study (SBPS) made a clear recommendation that prednisolone therapy alone is most effective for Bell's palsy. The objective of the study is to measure the incidence of Bell's palsy, trends in primary care treatment from 2001 to 2012 and the impact of several key publications on the management of Bell's palsy.

: The incidence of Bell's palsy remained constant throughout the study period. The 2004 Cochrane reviews and the 2007 Scottish Bell's palsy study were both associated with changes in the management of Bell's palsy with differences appearing to be related to their strength of recommendation.

The approach: The UK Clinical Practice Research Datalink (CPRD) was used to identify incident cases of Bell's palsy in patients aged ≥16 years between 2001 and 2012. Rates per 100,000 were calculated by

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

gender standardised to the European standard population. Treatment trends for the following therapy groups were plotted by quarter: oral prednisolone alone; oral antivirals alone; combination therapy with oral prednisolone and antivirals; or untreated. Segmented time-series regression analysis was used to evaluate the impact of the 2007 Scottish Bell's palsy study and of the 2004 Cochrane reviews on the use of corticosteroids and antivirals for Bell's palsy.

Findings: A total of 14,460 patients with Bell's palsy were identified. The overall incidence of Bell's palsy for the study period was 36.7 per 100,000 for men and 37.8 per 100,000 for women. The 2004 Cochrane publications were associated with an immediate fall in the use of prednisolone alone (-6.3% [95%CI -11.1 to -1.5]), a rising trend in combination therapy (1.1% per quarter [95%CI 0.5 to 1.7]) and a falling trend for untreated cases (-0.8% per quarter [95%CI -1.4 to -0.3]). In contrast, the 2007 Scottish Bell's Palsy study was associated with an immediate increase in prednisolone alone (5.1% [95%CI0.9 to 9.3]) with a rising trend in prednisolone alone (0.7% per quarter [95%CI 0.4 to 1.2]), a falling trend in combination therapy (-1.7% per quarter [95%CI-2.2 to -1.3]) and change to a rising trend for untreated cases (1.2% per quarter [95%CI 0.8 to 1.6]).

Consequences: The incidence of Bell's palsy remained constant throughout the study period. The 2004 Cochrane reviews and the 2007 Scottish Bell's palsy study were both associated with changes in the management of Bell's palsy with differences appearing to be related to their strength of recommendation.

3E.4

Focus Group Study to explore potential interventions for reducing prescribing errors in general practice

Kate Marsden[1], Tony Avery[1], Richard Knox[1], Gill Gookery[2], Ndeshi Salema[2], Mindy Bassi[3]
[1]University of Nottingham, Nottingham, UK, [2]NHS Rushcliffe CCG, Nottinghamshire, UK, [3]NHS Nottingham City CCG, Nottingham, UK

The Problem Prescribing errors are known to occur in all branches of medicine, including General Practice. Whilst most studies have been undertaken in hospitals, the General Medical Council has recently funded the largest and most comprehensive study to date on prescribing errors in general practice in the UK: the PRACtICe Study(Avery, Barber et al. 2012). The results showed that one in twenty prescription items contained a prescribing error: potentially life-threatening errors were found in one in 550 prescription items. We have now undertaken a qualitative research study to explore the views of GPs and other relevant stakeholders on our findings and to explore their ideas for safer prescribing in light of the PRACtICe study.

The Approach Following ethics approval we undertook twelve focus groups comprising GP practice staff, GP Trainers, GP trainees, Pharmacists, locality pharmacy advisors and members of the public. These focus groups were recorded with consent and were professionally transcribed. An iterative data analysis process following an adapted grounded theory approach is currently being undertaken on all the transcriptions. The full report will be available for the conference.

Findings Although the analysis is still in its initial stages the following issues for safer prescribing are emerging:

- GP computer systems should be improved to provide better support for prescribers without over alerting them.
- Effective methods should be devised for minimising interruptions to clinicians when prescribing.
- General practices need to find more effective ways of undertaking medication reviews for complex patients taking multiple medications
- Greater attention is needed to prescribing in GP training: a number of suggestions have been made including e-learning packages, analysis and personalised feedback on prescriptions,

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

improved induction to local prescribing procedures and giving greater prominence to prescribing in the GP curriculum.

- There is considerable potential for pharmacists to expand their roles in general practices in order to help improve the safety of prescribing.
- The need to increase GPs' awareness of patients' perceptions of their drugs.
- The need for transparent shared decision-making between patient and prescriber
- The importance for patients of continuity with their GPs and local pharmacists.

Consequences The findings so far demonstrate that the focus groups have been useful in identifying interventions that might be undertaken to reduce prescribing errors in general practice. Prescribing is key to the role of the general practitioner and to providing quality patient care at a time when the GP's role is becoming more complex. This study paves the way for the development of more robust systems to minimise potential error and for GP training to include more prescribing support.

References

Avery, T., N. Barber, et al. (2012). Investigating the prevalence and causes of prescribing errors in general practice: The PRACtICe Study, GMC.

3E.5

Randomised controlled trial of clinical scores and streptococcal rapid antigen detection testing for acute sore throat.

Paul Little[1], Richard Hobbs[2], Michael Moore[1], David Mant[2], Ian Williamson[1], Cliodna McNulty[3], Edith Cheng[1], Geraldine Leydon[1], Paul Glasziou[4], Mark Mullee[1]
[1]University of Southampton, Southampton, UK, [2]University of Oxford, Oxford, UK, [3]HPA, Gloucester, UK, [4]Bond University, Queensland, Australia

The problem. NICE advocates the used of clinical scores for acute sore throat – the commonest upper respiratory infection managed in primary care. Internationally Rapid antigen detection tests are very widely used, but there has been no trial to date documenting the impact of either of these strategies on antibiotic use and symptom control.

The approach. Adaptive randomised controlled trial. An initial streptococcal clinical score (Score1) was replaced by a modified score (Score2; acronym FeverPAIN: Fever, Pus, Attendance rapid (3 days or less), very Inflamed pharynx, and No cough or coryza (i.e.. a purely pharyngeal illness). 1760 patients aged 5 or over presenting with acute sore throat in primary care were randomised to one of three groups: empirical delayed antibiotic prescription, antibiotic targeting using a clinical score, and targeting using the combination of rapid antigen tests with clinical score. **Main outcomes:** Mean of severity of sore throat and difficulty swallowing on days 2-4 after seeing the doctor, duration of symptoms rated moderately bad or worse, and the use of antibiotics.

Findings: For Score1 there were no significant differences between groups. For Score2 symptom severity was documented in 80% (delayed 168/207 (81%); clinical score 168/211 (80%); RADT 166/213 (78%)). Severity was lower in the clinical score group (-0.33 ;95% CI -0.64, to -0.02; p=0.039) equivalent to 1 in 3 rating sore throat a slight versus moderate problem, with a similar reduction for the RADT group (-0.30;-0.61 to -0.00;p=0.053). Symptoms rated moderately bad or worse resolved significantly faster in the clinical score group (hazard ratio 1.30;1.03 to 1.63) but not the RADT group (1.11;0.88 to 1.40). In the delayed group 75/164 (46%) used antibiotics, with 29% fewer for the clinical score group (risk ratio 0.71;0.50 to 0.95;p=0.018) and 27% fewer for the RADT group (0.73;0.52 to 0.98;p=0.033). No significant differences in complications or reconsultations were found.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences. Targeting antibiotics for acute sore throat using a clinical score improves symptoms and reduces antibiotic use. RADTs used according to a clinical score provide similar benefits but no clear advantages to a clinical score alone.

3E.6

NSAID Prescribing in patients with Chronic Kidney Disease (CKD).

Sally Hull[1], Rohini Mathur[1], Gavin Dreyer[2]
[1]Queen Mary, University of London, London, UK, [2]Renal Department, Barts and the London NHS Trust, London, UK

The Problem: The public health burden of CKD and end-stage kidney disease (ESKD) is a matter of national priority and is the subject of recent guidelines. In the UK ethnic minority groups are over-represented in the renal replacement population compared to the whole population (17.8% vs 11%). Non-steroidal anti-inflammatory drugs (NSAIDs) are a preventable cause of renal damage. Previous studies suggest a prescribing prevalence between 9%-36% among those with CKD, but have not examined differences by ethnicity.

The Approach: Using data from 12,000 adult patients with eGFR <60 ml/min/1.73m2 in east London we examine the prevalence of NSAID prescribing by ethnicity age, gender and multimorbidity. Analysis of prescribing rates using descriptive and multivariate statistics was undertaken.

Findings: Among those with CKD, NSAIDs (excluding low dose aspirin) were prescribed to 11.1% in the previous year. Prescribing rates did not vary by ethnicity. Men were less likely to receive prescriptions (OR 0.71 95% CI 0.63-0.78), as were older people, and those with cardiovascular disease and diabetes. The odds of receiving high dose NSAID (top 90th percentile according to defined daily dose) were significantly reduced for non-White ethnic groups compared to White (OR 0.44 95%CI 0.25-0.75 for south Asian, OR 0.27 95%CI 0.12-0.61 for Black African/Caribbean) after adjustment for age, gender, co-morbidities, and the presence of proteinuria.

Further analyses to be presented will examine ethnic differences in co-prescribing with other drugs such as ACE/ARB and diuretics, which are known risk factors for acute kidney injury.

Consequences: National rates of NSAID prescribing continue to rise. Prescribing rates remain high among those with CKD, inspite of longstanding concerns about renal outcomes. Ethnic differences in prescribing load are apparent. High risk co-prescribing may yield further insight into why ethnic minority groups are over-represented in renal-replacement populations.

3F Educational ideas and innovation

3F.1

Investigating success and failure in multimorbidity: implications and challenges for delivering workplace-based education

Sarah Yardley, Elizabeth Cottrell
Keele University, Keele, UK

The Challenge: An aging population means that more people are living longer while symptomatic from multiple chronic diseases for which there are no cures. Professionals and patients may have differing priorities and conceptualisations of risk-benefit balance in the context of multimorbidity. How professionals and patients define success and failure will influence their interactions and understanding of what constitutes ‘good medical practice'.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Primary care education: Patients with multimorbidity generally reside in community settings, albeit with intermittent hospital admissions. General Practitioners providing undergraduate placements and postgraduate vocational training schemes must reconcile two different goals in their daily work: provision of appropriate healthcare for patients with multimorbidity and provision of constructive workplace-based learning to equip future generations of professionals. Achievement of both goals depends on social and cultural mechanisms. For example, patients may reasonably request experienced professionals to deliver their care but development of experience and expertise is dependent on recognition and acceptance of medical students and postgraduate trainees as legitimate participants in healthcare activities, including holding appropriate responsibilities for patient care.

Current work: To date, focussed work on delivering *concurrent* patient-centred care and learner-centred education in the context of primary care (or elsewhere) is lacking. However, evidence suggests that learning about multimorbidity and its management is challenging. A collaborative research team with cross-disciplinary and experience-based expertise including clinical academic researchers, patient and public involvement members and undergraduate/postgraduate trainees has been built to consider interactions between models of experience-based workplace education and models for patient-centred/integrated care. Using realist literature synthesis we are asking 'What is known about how and why concurrent health service delivery and medical education function with respect to multimorbidity in primary care?' During this session we will consider reactions of current undergraduate students and GP trainees to our work in order to stimulate discussion about implications for educating for sustainable delivery of multimorbidity care.

Why it matters: The mechanisms by which people interact with and adapt to healthcare policies and initiatives (including guidelines, pathways and protocols) must be understood in order to optimise 'real world practice'. Patients and professionals make meaning and construct knowledge during the trajectories of the patients' multimorbidity. Theoretical frameworks are needed to inform interventions driving attainment of concurrent clinical and educational goals in order to develop high quality, individualised care for people with multimorbidity. We are developing a conceptual map of existing knowledge including an understanding of what 'counts' as success or failure from different perspectives. We are also building a realist programme theory of how different conceptualisations come about. Together these will be disseminated to increase awareness of 'multimorbidity challenges' in order to further improve educational and clinical practices.

3F.2

Narrative based conversational skills as teaching tool to address the challenges of contemporary medicine: complexity, multimorbidities, fragmented care

Jens Foell
Queen Mary University London, London, UK

The Challenge Multimorbidities, increasing fragmentation of medical and social care and diverse populations are the setting in which contemporary healthcare gets delivered.(1-3) There is very little preparation for this complex situation in undergraduate medical training. Within postgraduate education there are varying degrees of supervision available for trainees and practitioners to support professionalism in a situation characterised by a high amount of uncertainty, ambiguity and complexity.

What am I doing? Narrative based clinical supervision provides a theoretical framework supported by process-driven experiential learning. It promotes reflective practice and helps practitioners to act confidently in situations with high uncertainty and complexity. In contrast to commonly administered strategies which aim to eliminate uncertainty by providing algorithms narrative based strategies actively encourage exploring the complexity. Carefully crafted dialogue strategies establish shared ownership of difficult decisions.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

In undergraduate teaching we decided to differ from the conventional ways of teaching communication skills which introduce simulated situations with actors and standardised scenarios. Instead we use the authentic self in the present moment to explore interpersonal strategies, such as "sculpting a character" or developing teaching situations together with patients. The patients' experiences identify the difficulties healthcare systems have in dealing with complexity. Our teaching with patients involved careful negotiation of shared aims and the use of reflecting teams.

In situations where the learners are already actively involved in service delivery we use other methods which were developed in the "community of practice" of narrative based supervision. Courses teaching narrative based supervision are run under the label "conversations inviting change" at the London Deanery.(4) In practical terms these methods have in common that they operate with the "here and now" of learners, with current dilemmas. There are rules, such as use of the clients' language, reflective pauses such as a freeze-frame-format and most important of all the ethical posture of care, curiosity and caution paired with the absence of the need of having to give advice. This fosters ownership.

How will it make a difference? This educational method fosters independent reflective decision-making-skills in situations characterised by ambiguity and uncertainty. The feedback from postgraduate courses was positive. Qualitative work investigating the method with audiodiaries of learners documented that behavioural shifts do happen.(5) The transferability of the method makes it an ideal tool to be used in work-placed supervision and educational settings.

3F.3

The use of 'mapping and microanalysis' to understand clinical diagnostic decision-making and reduce diagnostic error among GP registrars

Rakesh Patel[1], John Sandars[2]
[1]University of Leicester, Leicester, UK, [2]University of Leeds, Leeds, UK

How does this challenge impact primary care education? Diagnostic error contributes to 20-40% of adverse events in primary care. The challenge to all primary care educators is how to develop effective educational approaches that can reduce the likelihood of diagnostic errors being made in the future. This requires an in-depth understanding of the process of clinical diagnostic decision-making (CDDM) in real-life consultations so that focused feedback can be provided on the key processes (affective, cognitive and metacognitive self-regulation). Previous research on effective feedback that improves performance highlights the importance of providing feedback on all of these processes. Current educational approaches often lack an authentic focus, as in paper-based exercises, or do not identify the range of key processes, as in generalized retrospective feedback.

Addressing the challenge: what you are doing or needing to do now? We present an innovative bimodal approach ('mapping and microanalysis') that can be used to gather 'real-time' information about the key processes (affective, cognitive and metacognitive self-regulation) used during authentic CDDM tasks so that effective structured feedback can be provided. Our approach can be integrated with existing debriefing approaches that are used for consultation analysis.

Mapping explores the GP registrar's key thought processes associated with their problem-solving and decision-making with microanalysis used to identify their affective and self-regulatory behaviours that coordinate key thought processes around these tasks. Trainers can triangulate information from mapping and microanalysis with their inferences about the quality of the consultation to structure feedback that has the enhanced potential to change behaviour and improve performance.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Why it matters: Why is (was) it necessary? How will it make a difference? Our approach provides an essential opportunity to identify and provide structured feedback that can expose common cognitive biases and raise awareness about the limitations of certain CDDM strategies (e.g. intuition) which may be error-prone if used exclusively during consultations. In addition, identifying and providing structured feedback on key self-regulation processes (including goal-setting, strategic planning and self-monitoring) by microanalysis can reduce the disorganized consultations that are commonly associated with diagnostic errors, especially among GP registrars.

3F.4

Student engagement in narrative research as a means of developing the teaching of professionalism

Kieran McGlade
Queens University, Belfast, UK

The Challenge: Teaching professionalism is highly complex and challenging. There is evidence to suggest that medical students are increasingly exposed to unprofessional behaviour as they progress through the curriculum[1].. The resulting cognitive dissonance with what they are taught in class may at least partially account for the growing cynicism and lack of sensitivity to professional issues observed in senior medical students, which contrasts sharply with the idealism of junior students. What can be done to effectively address this aspect of the "hidden curriculum"?

Impact on primary care education: Primary care is often at the front line of curricular offerings in areas such as communication skills, holistic care and vocational skills. With the renewed interest and emphasis on professionalism it is likely that primary care will be asked to play a major part in the development of courses to address issues of professionalism.

Addressing the challenge: The development of a professional identity is central to becoming a doctor and it is known that narratives can be powerful social tools in identity formation[2]. We therefore took the approach of involving students as researchers to examine this hidden process. Six first year and five fourth year students were recruited to interview and record video narratives of their peers' journeys through medical school as a way of exploring professional identity formation.

We will present the results of the project to-date. Interviews have been conducted with 42 fellow students and the student researchers have kept reflective diaries and field notes. This student engagement has resulted in a group of students particularly well informed in student culture and attitudes and who are able to contribute ideas about how curricular innovations might enhance the efficient and reliable acquisition of professional values and behaviours.

The group are also using their videos to create innovative student-centred online teaching and learning resources and will also incorporate interviews with role models to augment this resource.

Discussion will involve how to make best use of this resource. Student ideas have included a Game Board metaphor for the website and have emphasised the role senior students' stories play as a source of support and information for junior students.

How it will make a difference: A shared database of student stories is proposed as a means of disseminating experience between medical schools. Student engagement and greater awareness of the effects of the hidden curriculum may serve to immunise students against the development of cynicism.

4A Managing long term conditions

4A.1

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

COPD admissions and inhaled medications: escalating prescription costs but no evidence of effect. A national primary care study.

Timothy Harries[1], Paul Seed[1], Simon Jones[0,2], Peter Schofield[1], Patrick White[1]
[1]King's College, London, UK, [2]University of Surrey, Guildford, UK

The Problem: Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of death worldwide, and is the second largest cause of emergency hospital admissions within the UK. Inhaled long-acting anti-muscarinic (LAMA) and combined inhaled long-acting beta-agonist and corticosteroid (LABA+ICS) drugs reduce the risk of exacerbations in COPD, and have led to hopes of fewer COPD hospital admissions. Between January 2007 and January 2011 in England annual spending on LAMA rose from £78 million to £130 million, an increase of 65% and on LABA + ICS rose from £385 million to £498 million, an increase of 29%. The objective of the present study was to investigate the impact of rising primary care prescribing of LAMA and LABA+ICS on COPD admissions.

The approach: This was a retrospective analysis of COPD admission and prescribing data routinely collected between 2001 and 2010. A representative group of 806 English general practices (population 5,264,506) was obtained. The participants were all patients from these practices admitted to hospital with a COPD exacerbation (2001 - 2010). Correlations were sought between general practices' prescription costs per practice patient for LAMA and their prescription costs per practice patient for LABA+ICS between 2007 & 2010. Multiple linear regression was used to examine the relationship in each year between the prescription costs of each drug per practice patient and the rate of COPD patients admitted per 10,000 practice patients when controlling for the prevalence of diagnosed COPD, deprivation score, and practice performance indicators obtained from Quality and Outcomes Framework (QOF).

The Findings: Rates of COPD admissions remained stable from 2001 to 2010. Practice prescribing volumes of LAMA and LABA+ICS increased by 61% and 26% respectively between 2007 and 2010. Correlation between costs of LAMA and those of LABA+ICS rose year on year, highest in 2010 (Pearson's r=0.68; 95% CI 0.64-0.72). Practice COPD admission rates were positively predicted by practice prescribing volumes of LAMA (2010: B = 1.23, 95% CI 0.61-1.85) and of LABA+ICS (2010: B = 0.32, 95% CI 0.12-0.52) when controlling for practice list size, COPD prevalence, deprivation, and QOF score.

Consequences: Rising prescribing of LAMA and LABA+ICS inhalers was not associated with a fall in hospital admission rates for COPD patients. The positive correlation between high practice COPD prescribing and high practice COPD admissions was not explained.

4A.2

COPD admissions in London: what PCT and practice characteristics are associated?

Lucy Jamieson, Hannah Thornton, Peter Schofield, Tim Harries, Katherine Jackson, Patrick White
Kings College London, London, UK

The Problem: Chronic obstructive pulmonary disease (COPD) is a major challenge to healthcare systems internationally and is the most common cause of emergency admissions in London.

Hospital admissions constitute a large proportion of the financial cost of managing COPD. There exists much conflict in the literature about medical care factors that influence admissions, and these factors are likely to be complex and multi-factorial. Calderon-Larranaga et al (Thorax 2010) suggested that deprivation explained 59.3% of the variance in admissions in COPD and smoking prevalence explained 51.4%, with GP supply explaining 14.4%. Purdy et al (Journal of Health Services Research and Policy 2011) in contrast found little evidence that modifiable GP factors are important in decreasing admission rates for COPD.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The aim of this study, therefore, was to examine associations between COPD admissions and PCT and practice characteristics in London.

The approach: This study focussed on all 31 Primary Care Trusts (PCTs) and their practices across London. A retrospective analysis of routinely collected COPD admission data between 2006 - 2009 relating to general practices in all 31 London Primary Care Trusts was performed. Practice characteristics and quality performance data were also collected. Admissions data were obtained from Hospital Episode statistics (HES) and performance data were supplied by the NHS Information Centre (Quality and Outcomes Framework - QOF).

Negative binomial regression was used to assess the influence of service level characteristics on admission rates at practice and PCT level.

Findings: Data were obtained on 1,530 practices from 31 PCTs, with respect to 51,352 COPD admissions between 1/1/2006 and 31/12/2009. Mean COPD admissions per 10,000 patients on the practice list remained stable between 2006 (17.5; 95% CI 16.9-18.1) and 2009 (16.8; 95% CI 16.2-17.3).

There was a large variation in practice characteristics such as the median practice list size (4,807; IQR 3,079 - 7,143), the diagnosed prevalence (0.89; IQR 0.61 - 1.25), and the deprivation rank (10,060.5; IQR 5,266.8-17,154.5). In contrast, there was less discrepancy between the performance quality of the practices for example with the QOF total points achieved/ total points available (0.9549; IQR 0.9307-0.9735) and QOF smoking points achieved/points available (1.0004; IQR 1.0003-1.0005).

In London, COPD prevalence (exponent of B= 1.006; 95%CI 1.005-1.007) and deprivation (exponent of B=1.0003; 95% CI 1.0002-1.0004) were shown to be the only significant factors influencing COPD admissions.

Consequences: A wide range of COPD admissions per practice were seen across London practices. No PCT or practice characteristics were identified which explained admission rate variance.

The results suggest that PCT or practice characteristics are unlikely to be influential in determining COPD admissions rates. These findings support the work of Purdy et al. in emphasising the importance of smoking and socio-economic deprivation in determining the rate of COPD admissions.

4A.3

The SuPPoRT Trial: An exploratory randomised controlled trial of guided self-care for women with chronic pelvic pain (CPP) in primary care.

Linda McGowan[1], Diane Escott[1], Karina Lovell[1], Stephen Roberts[1], Eleanor Roaf[2], Gerry Richardson[3], Samantha Elliott[4], Carolyn Chew-Graham[5]
[1]University of Manchester, Manchester, UK, [2]NHS Manchester, Manchester, UK, [3]University of York, York, UK, [4]Patient and Public Involvement, Manchester, UK, [5]Keele University, Staffordshire, UK

The Problem: Chronic pelvic pain (CPP) is a disabling condition which affects women who are mainly in their reproductive years. It has a negative impact on their quality of life, personal and sexual relationships. Despite the reported prevalence of CPP (similar to low back pain/asthma), there is limited research in the primary care setting. Evidence suggests that general practitioners (GPs) consider this group of women to be difficult to manage and treat. Many women enter into a cycle of re-investigation and re-referral, particularly if no explanation can be found to account for their symptoms. There is limited evidence on effective management strategies, and many women are simply prescribed analgesics. We have developed a self-care guide which aims to modify a woman's experience of symptoms and reduce psychological

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

distress. The aim of this study was to test the facilitated self-care guide for women with chronic pelvic pain, in the primary care setting.

The Approach: An exploratory randomised controlled trial of a self-care guide for women with CPP facilitated by their GP. Eleven practices in NW England were recruited to the trial. Participating GPs (N=23) received training in the use of the self-care guide within consultations. N=138 women with CPP were either referred to the trial by their GP or self-referred into the study. Patients were randomised to either receive the facilitated self-care guide (N=66) or usual care (N=72). We conducted a nested qualitative study to explore the acceptability of the self-care guide from the perspectives of patients and GPs.

Findings and Consequences: The findings of this trial will be presented for the first time at SAPC. We will report the results of recruitment to this trial, retention at six month follow-up, the efficacy of the intervention, its acceptability and change in resources use. This study will provide evidence for the value and effectiveness of an evidence-based self-care resource to help support women in the self-management of chronic pelvic pain.

*This research was funded by the **NIHR Research for Patient Benefit Programme.***

4A.4

PRISMS: A RAPID SYSTEMATIC META-REVIEW OF THE EVIDENCE ON INTERVENTIONS SUPPORTING SELF-MANAGEMENT FOR PEOPLE WITH INFLAMMATORY ARTHROPATHIES

Neetha Purushotham, Eleni Epiphaniou, Gemma Pearce, Hanna Parker, Hillary Pinnock, Stephanie Taylor
Queen Mary university, London, UK

The Problem: Inflammatory Arthropathies are a group of autoimmune, chronic disabling conditions like Rheumatoid Arthritis and SLE that affects sufferers - physically causing pain and disability, psychologically causing anxiety and depression and economically by reducing their ability to work. The burden of disease effects society in terms of high healthcare costs and lost productivity.

Self-management is what the individual does to manage his own illness; Including healthy lifestyle choices, informed decisions regarding ongoing treatment options that fit within the person's broader social context, actively monitoring and managing symptoms and working in partnership with the healthcare team. Cochrane reviews on self-management strategies for COPD and diabetes show improvement in hospital admissions, clinical indicators of disease, self-efficacy and well being.

The approach: A rapid, systematic meta-review of the published evidence for self-management support interventions was conducted. We searched the Cochrane Database of Systematic Reviews, MEDLINE, EMBASE, CINAHL, PsycINFO, AMED and BNI from 1993 onwards. A PICOS search strategy was used to identify systematic reviews of RCTs reporting interventions promoting aspects of self-management in any healthcare setting.

Findings: The total number of citations retrieved was 4395. After excluding duplicates and screening the title and abstract (10% checked by a second researcher) 89 papers were included. The full texts were screened again by systematically applying exclusion criteria. We plan to explore the impact of self-management interventions on broad outcome measures elicited from the papers so far, such as Pain, Disability, Psychosocial function and Self efficacy.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Consequences: By 2018 nearly 3 million of the older generation will have at least 3 chronic conditions together. With increasing health care costs it is set to become a significant burden on the future NHS.

The government published a mandate recently to the commissioning groups outlining our responsibilities towards long-term condition sufferers. Empowering patients to understand and manage their own health is a major aspect of this mandate.

The evidence from this review will advice commissioners, policy makers and researchers in what is a very significant aspect of managing these conditions.

HS&DR Funding acknowledgement:

Funded by National Institue For Health Services And Delivery Research Programme (Project no:11/1014/04).

4A.5

A pain in the neck: the association between chronic health conditions and frequent consultation in primary care.

Jonathan Broad, Ross Wilkie, Joanne Protheroe
Institute of Primary Care and Health Sciences, Arthritis Research UK Primary Care Centre, Keele University, Staffordshire, UK

The problem: A significant proportion of primary care consultations are taken up by a minority of patients (i.e. frequent consulters). Gender, age, socioeconomic status and mental health problems are associated with frequent consultation but there has been comparatively little work done examining the link with other common chronic conditions. The aim of this study was to examine the association between ten common chronic conditions and frequent consultation in primary care.

The approach: A prospective cohort study of adults aged 50 years and over who consented to medical record review registered with six GP practices in North Staffordshire (n=6489) was conducted. The number of consultations during a six month period was obtained from medical record data. Frequent consultation was defined as the top 10%. The ten chronic conditions were identified in a previous latent class analysis as being chronic, progressive and having significant impact on patients and healthcare use. These were hypertension (HTN), osteoarthritis (OA), diabetes (DM), hypercholesterolaemia, ischaemic heart disease (IHD), chronic obstructive pulmonary disease (COPD), cervical spondylosis, atrial fibrillation (AF), hypothyroidism and congestive cardiac failure (CCF). For each condition the prevalence of frequent consultation was identified. Logistic regression estimated the association between frequent consultation and each chronic condition. This was then adjusted for confounders (age, gender and comorbidity (two or more additional chronic conditions)). Results were expressed as an Odds Ratio (OR) with 95% confidence interval (CI).

Findings: The mean age of the sample population was 64.6 years (SD 9.3); 54.6% were female. All conditions were associated with frequent consultation. The strongest associations were for CCF (OR 3.11 (CI 1.91-5.06)), AF (2.95 (1.92-2.94)) and diabetes (2.38 (1.81-3.14)). The associations attenuated for CCF (OR 2.5 (1.52-4.12)), AF (OR 2.62 (1.69-4.06)) and DM (OR 2.38 (1.81-3.14)) when adjusted for age and gender. With further adjustment for comorbidity the associations with all chronic conditions, other than cervical spondylosis, were no longer significant (e.g. adjusted OR for CCF 1.40 (0.83-2.36), AF 1.53 (0.96-2.41), DM 1.31 (0.98-1.77). The odds of association between frequent consultation and cervical spondylosis after adjustment for age, gender and comorbidity was 2.04 (1.47-2.85).

Consequences: Whilst all chronic conditions carry an increased risk of frequent attendance, for 9 of the 10 chronic conditions examined in this study, comorbidity may explain this relationship. However, the

frequent consultation associated with cervical spondylosis was independent of age, gender and comorbidity. Further work will explore potential mechanisms and the trends in consultation frequency for these conditions over time. This study has provided further evidence for the impact of multiple chronic conditions on the patient and use of health services. It has also highlighted the need to review the management of cervical spondylosis in primary care; particularly given it's prevalence, chronicity and impact on healthcare use.

4A.6

Does having a long-term condition and pain affect patient enablement in primary care?

Barbara Nicholl, Stewart Mercer
University of Glasgow, Glasgow, UK

The problem: Patient enablement represents the extent to which a patient is empowered to cope with, understand and manage their illness, and is a desirable outcome in GP consultations. Chronic pain is a common comorbidity for individuals living with one or more long term conditions, and it is has a major impact on an individual's quality of life. However, it is unclear whether patients with chronic pain have a lower level of enablement than those who are pain free. The aim of this study was to explore the pattern of chronic pain reporting in a group of primary care consulters and to investigate the effect of chronic pain on patient enablement.

The approach: This analysis utilised data collected for a wider study investigating aspects of the organisation and quality of care, and patients' needs in primary care consultations; full ethical approval was attained. 26 GPs from 26 GP practices in the most (n=16) and least (n=10) deprived areas of the west of Scotland participated. Patients were invited to complete a questionnaire pre and post consultation. Patients were classified as having pain if they reported at least one long-term illness, problem or disability that limited their daily activities and that also caused physical pain. The 6-item Patient Enablement Instrument (PEI) was used to assess enablement following their consultation; mean item score was used (range = 0-12), higher PEI scores reflect higher enablement. The reason for consultation was not restricted. Multi-level models, which took into account the 26 participating GPs, assessed the relationship between pain group and PEI score. Deprivation group and number of morbidities were considered as potential confounders.

Findings: 3044 patients completed a questionnaire pre and post consultation. 2778 (91.3%) provided data on pain, of whom 36.9% (n=1025) reported pain. Compared to the pain free group, the pain group was older (mean age 40.4 Vs 50.8 years), had a smaller proportion of females (67.1% Vs 58.4%), a greater proportion from the most deprived group (59.0% Vs 71.4%) and a higher mean number of morbidities (1.3 Vs 2.8). PEI score was significantly lower in the pain group (3.3 (SD 3.5)) compared to the pain free group (4.2 (SD 3.7)) (referent category); $p<0.001$. In a multi-level model this difference remained after the number of morbidities and deprivation group were taken into account: -0.73; 95%CI -1.07, -0.40; $p<0.001$.

Consequences: This study has shown that patient enablement following a primary care consultation is lower in patients with pain than those free of pain and that this relationship is not fully explained by levels of deprivation or multimorbidity. Attempts by GPs to increase patient enablement may lead to improved symptom management for patients with long term conditions and pain.

4B Cardiovascular disease

4B.1

Effect of tailored practice and patient care plans on secondary prevention of heart disease: six year follow up of a cluster randomised controlled trial in primary care

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Andrew W Murphy[1], Margaret E Cupples[3], Akke Vellinga[1], Edel Murphy[1], Paddy Gillespie[1], Molly Byrne[1], John Newell[1], Carl Scarrott[4], Susan M Smith[2]
[1]National University of Ireland Galway, Galway, Ireland, [2]Royal College of Surgeons, Dublin, Ireland, [3]Queen's University Belfast, Belfast, UK, [4]University of Canterbury, Christchurch, New Zealand

The Problem: Secondary prevention of coronary heart disease (CHD), which aims to prevent acute coronary events and optimize well-being amongst those with established CHD, is widely advocated and considered an important aspect of healthcare provision in countries with a high prevalence of CHD. In a cluster randomised trial in general practice, we found admissions to hospital were significantly reduced after an intensive 18 month intervention designed to improve outcomes for patients with CHD. We followed up participants again at 6 years to determine if the positive changes persisted.

The Approach:

Design: Follow up of a cluster randomised multicentre trial by practice record review and postal questionnaire.
Participants and setting: 903 patients with established coronary heart disease registered with one of 48 general practices in either Northern Ireland or the Republic of Ireland, regions with different healthcare systems.
Intervention: Tailored care plans for practices (practice-based training in prescribing and in facilitating behaviour change, administrative support, quarterly newsletter) and tailored care plans for patients (motivational interviewing, goal identification and target setting for lifestyle change) with reviews every four months at the practices, for 18 months. Control practices provided usual care.

Findings: Mean follow-up was 6 years, 98% of the 903 participants were traced. Overall, 15% of participants died, with the deceased equally divided across the two arms. The primary cause of death for 44% of the deceased was cardiovascular and we will present detailed survival analyses. Preliminary analysis suggests that the difference in hospital admissions between control and intervention groups identified at the end of the intervention has persisted over 6 years. Interesting patterns of admissions emerge over time, which is further analysed controlling for clustering, randomization stratifiers and prespecified baseline variables and exploring the length of stay, the cardiovascular versus non-cardiovascular nature of admissions and day case versus inpatient admissions. In addition, we will report on adherence to risk factor modification guidelines.

Consequences: It is feasible to perform long term community follow up studies in two different healthcare systems on the island of Ireland. The benefits of an 18 month CHD secondary prevention programme on admission rates appear to be sustained in the long term. Further elucidation of this possible association and potential implications will be discussed.

4B.2

Influenza vaccination and risk of stroke: self-controlled case-series study

Zahid Asghar[1], Carol Coupland[2], Niroshan Siriwardena[1]
[1]University of Lincoln, Lincoln, UK, [2]University of Nottingham, Nottingham, UK

The problem: There is evidence that stroke including transient ischaemic attack (TIA) may be triggered by respiratory infections, including influenza. Influenza vaccination could therefore reduce risk of stroke. Previous studies of this association have shown conflicting results. We aimed to investigate whether influenza vaccination was associated with a reduced risk of stroke.

The approach: We used a self controlled case series design. The General Practice Research Database (GPRD) was used to extract records of patients aged 18 years or over (living or dead) recorded with stroke (fatal or non-fatal) from September 2001 to May 2009. Statistical modelling with conditional Poisson

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

regression in Stata12 was employed to compute incidence rate ratios (IRR). The incidence rate of stroke in fixed time periods after vaccination was compared with the incidence rate during a baseline period.

Findings: We identified 40,003 first cases of stroke/TIA within the observation period; 1329 cases that either did not receive influenza vaccination or had a stroke diagnosis on or before the vaccination date were excluded: of these 214 had stroke/TIA dates identical to influenza vaccination dates, 476 did not receive influenza vaccination during the observation period and 639 had stroke/TIA before their first influenza vaccination during the observational period. For the final analysis therefore 38,674 cases of stroke/TIA were included comprising 51·2% (20000) females and 48·3% (18674) males. The median age at first stroke/TIA diagnosis was 72 years (interquartile range 63-79 years).

The incidence of stroke was significantly reduced in the first 120 days following influenza vaccination compared with the baseline period. We found a reduction of 12% (IRR 0.88; 95% CI 0.82-0.94) in the first 14 days after vaccination, and 14% (0.86; 0.82-0.90) reducing to 8% (0.92, 0.87-0.96) and 6% (0.94, 0.89-0.98) at 29-59 days, 60-90 days and 91-120 days after vaccination respectively. Early vaccination between 1 September and 15 November showed a greater reduction in IRR compared to later vaccination given after mid-November.

Consequences: Influenza vaccination in the preceding season is associated with a reduction in incidence of stroke. This study supports previous studies which have shown a beneficial association of influenza vaccination in stroke prevention. If a causative link between influenza vaccination and reduction in stroke risk is confirmed by experimental studies and leads to higher vaccinations rates there would be significant benefits for patient and population health.

4B.3

An econometric analysis of the effect of CHD QOF targets on adverse cardiac complications

Neil Hewitt, Nadeem Qureshi, Murray Smith
University of Nottingham, Nottingham, Nottinghamshire, UK

The problem: When the QOF has been analysed the focus has been on intermediate process outcomes and clinical endpoints in secondary care have tended to be neglected. When these have been linked they have been done so indirectly and not at the individual patient level. This work sought to address this omission to determine if there is evidence at the patient level of better care correlating with fewer relevant complications in Secondary care

The approach: The clinical guidelines were reviewed to find which QOF targets had the highest level of clinical evidence. Those which did were then measured against the following criteria: longevity of the QOF target; its stability in terms of changes over that period; and the ability to capture relevant outcomes in secondary care. This was to ensure that the existing clinical evidence and data at my disposal would enable me to pick up the effects of the QOF targets. On these criteria CHD targets were clear winners.

CHD patients were extracted from CPRD using QOF Read codes and their performance in relation to QOF targets measured. To compensate for the lack of a control four years of pre QOF data were extracted in addition to six years of post QOF data. From these those with HES linkages were selected and ICD 10 codes for cardiac complications (I20-I25), which formed the primary diagnosis at admission or emergency admission, were collected. The relationship between performance on the QOF targets and those admissions were then analysed using Poisson panel data models

Findings: The relationship between the outcome, QOF targets and other included variables was consistent with prior expectations with a few exceptions. For all the prescription targets the improvements were evident when lags were placed on the variables meaning the benefits of complying with the QOF targets occurred in the following year and years. Having a prior adverse cardiac event increased the likelihood of

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

having a subsequent event. Co-morbidities increased the chances of an adverse event with the exception of Hypertension

Consequences: The QOF was introduced without piloting and has cost considerably more than first anticipated. While the policy can be judged a reasonable success in relation to attainment on the QOF targets themselves, the secondary care implications of the policy haven't been fully explored. This study matters as it the first to use large patient datasets to link individual patients across primary and secondary care to determine the effectiveness of QOF targets on secondary care events. It shows that QOF CHD targets have had an impact on subsequent cardiac complications but that there is a build in period before improved care has a positive clinical effect.

4B.4

Influence of socio-economic deprivation on comorbidity in heart failure patients

Bosaco Baron[1], Frances Mair[1], Gary McLean[1], Bruce Guthrie[2], Stewart Mercer[1]
[1]University of Glasgow, Glasgow, UK, [2]University of Dundee, Dundee, UK

The Problems Changing population demographics and clinical characteristics mean that the issue of multimorbidity and Heart failure (HF) is attracting growing attention. However, little is known about the effects of socioeconomic status, if any, on the pattern and distribution of comorbidity in heart failure.

The approach The aim was to assess the pattern and distribution of comorbidity (defined as presence one or more disorders in addition to the indec condition) in HF in a nationally representative population of primary care patients. A cross-sectional analysis of anonymised, routinely collected data from 314 general practices in Scotland in 2007, including 1,424,378 adults. We extracted data on those with a recorded diagnosis of heart failure and then analysed the data according to the number and type of comorbidities, sex, age and socioeconomic status (Carstairs score from postcodes).

Findings 18,899 HF patients were identified giving an overall prevalence of 1.3%. The mean age of HF patients was 73.6 years and prevalence increased with age to 10.3% in those over 85 years. HF was slightly more common in males (1.4% in men vs. 1.2% in females). Patients with HF had a mean of 5.2 conditions and comorbidity was present in 97.4% of HF patients, compared to 27.3% of those without HF ($p<0.001$). Comorbidity was more common among the most deprived HF patients (98.8%, vs. 87.9% for most and least deprived deciles, respectively; $p<0.001$). HF patients in the most deprived decile were also more likely to have five or more conditions compared to the least deprived (61.4% vs. 42.6%;$p<0.001$) and to have at least one physical condition (excluding HF) and one mental health condition (93.1% vs. 76.4%;$p<0.001$). The most common comorbidities in HF were: CHD 59.4% (most deprived decile 67.2% vs. least deprived decile 43.7%;$p<0.001$), Hypertension 57% (most deprived 54.7% vs. least deprived 48.6%;$p<0.001$), Atrial Fibrillation 26% (most deprived 24.4% vs. least deprived 20.8%; $p<0.001$),and Diabetes 23.3% (most deprived 25.1% vs. least deprived 15.9%; $p<0.001$), and Depression 16.9% (most deprived 18.3% vs least deprived 12.2%;$p<0.001$).

Consequences Comorbidity is the norm in HF, with most patients having 5 or more chronic conditions suggesting that the use of disease specific clinical guidelines are insufficient to support provision of optimal, comprehensive care for HF patients, especially those from socioeconomically deprived backgrounds.

4B.5

Is there a better screening tool for identifying atrial fibrillation in primary care than pulse palpation?

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Karen Kearley[1], Mary Selwood[1], Ann Van Den Bruel[1], Matthew Thompson[1], David Mant[1], Richard Hobbs[1], David Fitzmaurice[2], Carl Heneghan[1]
[1]University of Oxford, Oxford, UK, [2]University of Birmingham, Birmingham, UK

The Problem: Atrial fibrillation (AF) is present in more than 10% of patients aged 75 years or over and treatment with anticoagulation reduces the associated risk of stroke by two thirds. AF may be asymptomatic but can be identified by detecting a characteristic irregularity in pulse rhythm. Despite this, it was found to be undiagnosed in 3.8% of patients aged over 75 years in a large UK screening study. Indeed, undiagnosed AF is associated with 3.8-6.1% of all strokes. As stroke is the third leading cause of global disease burden, improved identification and treatment of AF would have substantial economic and patient benefits worldwide.

Several new electronic devices potentially offer solutions to screening for AF and initial studies suggest these are more accurate than pulse palpation but none have been evaluated in a primary care settings.

The approach: An observational study comparing the accuracy of nurse pulse palpation, a modified BP monitor (WatchBP), and two single lead ECG devices - one with an auto-analysis function(Omron) and one without (Merlin), with the reference standard of cardiologist diagnosis of atrial fibrillation from a 12-lead ECG.We recruited 1000 participants age 75 years or over, living at home, from six general practices in the UK.

Findings: Atrial fibrillation was confirmed by 12-lead ECG in 79 participants. All the devices assessed had high sensitivity for identifying these patients and thus are useful for ruling out AF. WatchBP outperformed pulse palpation and Omron autoanalysis because it is more specific - 89.7% (95% CI 87.5-91.6) compared to 76.2% (95% CI 73.3-78.9) and 78.3% (95% CI 73.0-82.9) respectively. This higher specificity of WatchBP translates to a follow-on ECG rate in the clinical setting of 17% compared to 29.7% with Omron autoanalysis. Without autoanalysis, the specificity of single-lead ECGs analysed by a cardiologist was comparable with WatchBP - 94.6% (95%CI 85.4-98.1) for Omron and 90.1% (95% CI 82.3-94.6) for Merlin.

Consequences: WatchBP, Omron and Merlin monitors are more accurate screening tools for AF identification than nurse pulse assessment. WatchBP may be used in elderly patients having a BP check to opportunistically identify undiagnosed AF. Its accuracy is comparable with the single-lead ECG monitors and the flashing AF indicator does not require specialist interpretation, keeping screening straightforward and costs low. However, as some patients have their blood pressure measured frequently, there is potential for recurrent false-positive results and unmeetable demand for 12-lead ECGs. These issues will need to be addressed for clinical implementation to be sustainable.

4B.6

Does gender impact the use of antithrombotic therapy in patients with atrial fibrillation? An analysis of a UK cohort of the global GARFIELD Registry

David Fitzmaurice[1], Patricia Apenteng[1], Ellen Murray[1], Richard Hobbs[2], Ajay Kakkar[3]
[1]University of Birmingham, Birmingham, UK, [2]University of Oxford, Oxford, UK, [3]Thrombosis Research Institute, London, UK

The problem Several epidemiological studies have shown that women are generally at higher risk than men for atrial fibrillation-related, cardio embolic stroke. Also, women experience higher stroke severity and the case fatality is 1.25 times higher among women. Stroke prophylaxis with antithrombotic therapy has been proven as an effective therapy for suitable patients with atrial fibrillation (AF); however there is little evidence on gender patterns in the use of antithrombotic therapy in AF. Using UK data from a global AF registry we investigated the use of antithrombotic therapy for stroke prevention among men and women.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

The approach GARFIELD is an on-going, observational, international registry of newly diagnosed AF patients with at least one additional risk factor for stroke. The registry aims to enrol 50,000 prospective patients and 5000 retrospective patients in five independent, sequential cohorts. The study is designed to enrol consecutive eligible patients, and participants are followed up for 2 years. The University of Birmingham is the recruiting centre for the UK and UK participants are recruited from the primary care setting.

Findings Out of 10,627 cohort one participants, 397 were enrolled in the UK. These results relate to the UK cohort one population.

178 were women (45%); women had a higher stroke risk with 65% having $CHADS_2$ score of ≥ 2 compared to 41% men. In all risk groups women were less likely than men to receive both VKA and antiplatelet therapy (Table). Women with $CHADS_2$ score of ≥ 2 were as likely as men to be prescribed VKA (55% men and 56% women). Conversely women at low risk with $CHADS_2$ score 0 were less likely to be prescribed VKA (20%) compared to men (63%).

Consequences This UK dataset suggests a high rate of anticoagulation of men at low risk of stroke, leaving this group at unnecessary risk of bleeding complications. Women at moderate to high risk of stroke received oral anticoagulation therapy as often as men; however there was underutilization of oral anticoagulation in both genders. More must be done to improve stroke prevention with appropriate antithrombotic therapy, and particular attention must be paid to women classified as high risk as they are left at a relatively higher risk of stroke with potentially worse outcomes.

Table. Gender differences in antithrombotic therapy by $CHADS_2$ score

	$CHADS_2$ score 0		$CHADS_2$ score 1		$CHADS_2$ score ≥ 2	
	Men (n=8)	Women (n=5)	Men (n=79)	Women (n=58)	Men (n=132)	Women (n=115)
VKA only	37.5%	20.0%	35.4%	46.6%	40.2%	46.1%
Antiplatelets (AP) only	12.5%	40.0%	36.7%	29.3%	28.8%	31.3%
Both VKA and AP	25.0%	0	17.7%	10.3%	15.2%	9.6%
Neither VKA nor AP	25.0%	40%	10.1%	13.8%	15.9%	13.0%

4C Mental health

4C.1

Mental health in detention removal centres: Findings from a qualitative and quantitative study

Blerina Kellezi[1,2], Mary Bosworth[1]
[1]Unversity of Nottingham, Nottingham, UK, [2]University of Oxford, Oxford, UK

The Problem: Each year around 28,000 men and women, foreign nationals, are detained in 10 UK Immigration Removal Centres (IRCs). Detention for most part is used to facilitate deportation or removal, but also to ascertain identity and process asylum cases. Unlike most other EU countries, the UK has no upper-limit on length of detention, which can be years long. Uncertainty of the length of detention and outcome of legal status can make the experience difficult to manage. Retrospective studies conducted with refugees and asylum seekers in the UK and Australia have shown that detention can have a strong impact on mental health. However, little is known about the impact of detention on mental health in other categories of detainees (e.g. undocumented migrants and ex-prisoners), and no study has investigated these issues within the detention environment. This study, funded by the British Academy,

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

and with the permission of UKBA, investigated the impact of detention on health concerns as experienced during detention.

The approach: A qualitative and quantitative study was undertaken in three IRCs: Yarl's Wood, Tinsley House, and Brook House. Interviews and ethnographic observations were completed with over 250 men and women. The interviews were a combination of semi-structured and unstructured, focusing among other topics on history of detention, impact of detention on health, coping with detention and institutional support structures. In addition, 158 detainees completed a questionnaire that included a depression measure (Hopkins Symptoms Checklist), self-report of health problems and current medication. This presentation will discuss the findings of both studies on physical and mental health issues in detention and risk factors.

Findings: Over 80% of participants were diagnosed with depression. Other health problems were reported by over 30% of participants; over 40% reported taking medication and over 20% had suicidal thoughts. The high levels of mental health problems reported in the questionnaires are discussed using the findings from the qualitative study. The qualitative data identified how depression symptoms are manifested in the environment, including continuous worries, isolation, disturbed sleep and appetite. Culture and gender were important: women feared stigma due to their detention, while both men and women feared the stigma of mental health problems and the long-lasting effect of mental health issues. Institutional difficulties in dealing with these issues also emerged as an issue.

Consequences: The findings of this study highlight the issues, both common and specific, faced by different groups of detainees. They highlight the need to recognise the impact of detention on health and well-being and the current lack of effective institutional options to help the detainees. Helping the institution to recognise those at most risk and impact of detention on health could facilitate the development of interventions to help the detainees.

4C.2

Incentivised screening for depression in patients with chronic heart disease and diabetes: an ethnographic study

Sarah Alderson, Amy M. Russell, Allan O. House, Barbara Potrata, Robert West, Kate McLintock, Robbie Foy
University of Leeds, Leeds, West Yorkshire, UK

The Problem: Chronic physical illness is associated with a high prevalence of depression and this co-morbidity can make depression hard to recognize and worsen the prognosis of both conditions. NICE guidance recommends screening for high-risk groups and the Quality Outcomes Framework (QOF) for UK general practice rewards screening for depression in all patients with a diagnosis of coronary heart disease (CHD) or diabetes. Routine data indicate high levels of screening nationally. However, professional and patient experiences of the process of screening and how they may affect clinical care are poorly understood. We investigated the process of depression screening during routine patient reviews, and its relation to subsequent clinical management.

The approach: An ethnographic study of purposively sampled practices to observe screening during consultations to review diabetes and CHD, with follow-up interviews to examine patient experiences. An ethnographer observed everyday practice activity and consultations. She held short 'debriefing' discussions with professionals, interviewed patients afterwards, and reviewed subsequent clinical events in patient records.
Data (observation notes, consultation and interview data) were coded for themes. We used a constant comparison and contrastive approach to examine for similarities and differences within and between the patients' perceptions and observations in different centres.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Findings: Twelve practices and 63 patients participated. Our analysis identified the following four issues:
First, screening exacerbated the discordance between the patient and professional agendas, the latter already dominated by the need for a tightly structured and time-limited interaction to document QOF processes.
Second, professional beliefs and abilities affected how screening was undertaken; there was uncertainty about how best to phrase and ask the questions, particularly amongst nursing staff.
Third, professionals were often wary of opening an emotional "can of worms." Subsequently, patient responses potentially suggesting emotional problems could be prematurely shut down by professionals, especially if threatening to extend the consultation.
Fourth, many patients screened did not see themselves as the type of people who would be prone to depression and did not understand why they were asked. This sometimes led to defensive or even defiant answers when screened.
Follow up also highlighted inconsistent systems and lines of communication for dealing with cases that screened positive.

Consequences: The introduction of screening exacerbated tensions between perceived patient care and the time-limited routine of the consultation. Both professional approaches and patient reactions subverted the screening process recommended by national guidance. Quality improvement strategies will need to take account of our results in two ways. First, despite their apparent simplicity, the screening questions are not consultation-friendly, and acceptable alternative ways to encourage raising the issue of depression need to be supported. Second, practice teams need clearer guidance on the pathway for people with likely depression which can be accommodated within available systems and resources.

4C.3

The effects of financial incentives for depression screening in patients with diabetes and coronary heart disease: interrupted time series

Kate McLintock[1], Amy M Russell[1], Sarah Alderson[1], Robert West[1], Allan House[1], Karen Johnson[2], Robbie Foy[1]
[1]Leeds Institute of Health Sciences, University of Leeds, Leeds, UK, [2]NHS Leeds, Leeds, UK

The problem Chronic physical illness is associated with a high prevalence of depression, the diagnosis being two to three times more common in those with problems such as coronary heart disease (CHD) or diabetes. This co-morbidity can make depression hard to recognise and worsen the prognosis of both the physical and mental health condition. Thus National Institute for Clinical Excellence guidance recommends screening for high-risk groups and the Quality Outcomes Framework (QOF) for UK general practice rewards screening for depression in all patients with a diagnosis of CHD or diabetes. Routine data indicate high levels (at least 90%) of screening nationally. However, the effects of incentivised screening on depression diagnosis and treatment are unknown.

The approach We evaluated the effects of incentivised screening using an interrupted time series analysis. We extracted routinely collected data from 2002-12 on coded diagnoses of depression (including Read Codes not used in QOF), antidepressant prescribing and referrals. We gathered these for the two conditions targeted by QOF (diabetes and CHD) and for four other long term conditions (hypertension, epilepsy, asthma and chronic obstructive pulmonary disease) which acted as comparison conditions. 65 out of 112 (58%) general practices in Leeds shared data; Leeds is typical of UK cities in terms of social deprivation indices, demographics, characteristics of primary care services and distribution of common diseases such as CHD and diabetes. Our modelling accounted for autocorrelation and secular trends.

Findings Rates of diagnosis of depression and prescribing of antidepressants increased after the introduction of screening. These remained higher than would have been expected if screening had not been introduced, even against the background trend of increasing antidepressant prescribing. Rates of diagnosis and prescribing were higher in patients with CHD and diabetes than in patients with other long term conditions in which depression screening does not attract payment. All of these trends were

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

statistically significant (i.e. at 5% level or lower). We also observed a steady increase in referrals but mainly attribute this to temporal changes in coding.

Consequences Whilst incentivised screening has changed clinical practice, the increased trends in diagnosis and antidepressant prescribing may not be improving patient outcomes. This may be especially relevant for those with mild to moderate depression that is unlikely to respond to prescribed medication. General practitioners need clearer guidance on care following detection of depression, including how to utilise primary and secondary care mental health services effectively and limiting the prescription of antidepressant drugs to those likely to gain the most benefit.

4C.4

Adjunct "human" support for computerised self-management of depression in primary care: factorial RCT

Lina Gega[1,3], Amanda Howe[1,2]
[1]Norwich Medical School, Norwich, Norfolk, UK, [2]NHS Norfolk, Norwich, Norfolk, UK, [3]MHCO, Northumberland IAPT, Newcastle, UK

The Problem: With depression being one of the most burdensome health problems worldwide, there is an increasing interest in self-management interventions delivered en-mass in primary care. One such recommended intervention in the NHS is internet-accessed computerised cognitive behaviour therapy (cCBT) whose clinical outcomes, cost-effectiveness and acceptability may be influenced by the "human" support offered as an adjunct to it. Unsupported cCBT is no better than treatment as usual in primary care, but we do not know how much support should be offered, and by whom, in order for patients and health services to make the most out of this readily available intervention. This study compared patients' symptoms, functioning and satisfaction between brief and enhanced support and between therapist and assistant support as an adjunct to the computerised self-management of depression in primary care.

The approach: In a 2x2 factorial RCT, 337 patients with non-suicidal depression were signposted into the study by their GP or another primary care health professional (e.g. psychological therapist, practice nurse). Following a brief phone assessment interview, 204 eligible patients were given access to an 8-module computerised self-management programme and were randomised to receive weekly phone support by either an experienced therapist or by a psychology assistant with no clinical qualifications. Support was either brief (5 to 10 minutes per call to monitor progress) or enhanced (20 to 30 minutes per call to offer therapeutic advice as well as monitor progress). We compared patients' depression and anxiety symptoms as well as quality of life, functioning and satisfaction with brief vs. enhanced support and with assistant vs. therapist support. The factorial design of our study increased its efficiency by allowing us to investigate two questions (therapist vs. assistant and brief vs. enhanced support) with a single sample of participants.

Findings: Attrition was high: a third of all referrals did not take up the offer for an assessment and less than half of the referrals made adequate use of the computer programme. Having an experienced therapist offering support to patients did not confer any additional benefits over an assistant. Brief assistant support was the most cost-effective option. Duration of support was not an important predictor of clinical outcomes but it led to better patient satisfaction, although better patient satisfaction was not related to better clinical outcomes. Patients benefited more from the computerised self-management programme the less depressed they were at baseline and the more they engaged with it.

Consequences: For a self-selected group of patients with depression in primary care who take up computerised self-management and make adequate use of it, brief phone support provided by a member of staff without specialist therapy training can be as effective and satisfactory, and more cost-effective, than enhanced therapist support.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

4C.5

Men and women's mental wellbeing and adjustment in pregnancy following infertility and treatment: A qualitative study

Lydia French, Katrina Turner, Debbie Sharp, Sarah Yardley
University of Bristol, Bristol, UK

Introduction & Aims: Despite the rising provision of infertility treatment, little is known of couple's experience of pregnancy following treatment. Couples blend in with the larger population of parents-to-be and health professionals and patients alike anticipate no further problems. However emergent research has suggested couples may struggle to adjust to pregnancy and may be dismissed regarding their potential to experience difficulties. The aim of this study was to explore men and women's experience of infertility and treatment and its legacy on their mental wellbeing and adjustment in pregnancy.

Method: In-depth interviews were conducted with 12 pregnant women and 8 male partners, who had conceived through infertility treatment at one of three infertility clinics in the South of England. Interviews were face to face, audio taped, fully transcribed and between 1-3 hours in length. Interviews were analysed using constant comparison method and thematic analysis.

Results: Interviewee's accounts suggested that the experience of infertility and treatment may increase perceptions of pregnancy loss, heighten feelings of anxiety during pregnancy, decrease confidence in the body to maintain the pregnancy, increase need for medical reassurance and evidence of the pregnancy, hinder and delay preparation for the birth, make difficult acceptance and disclosure of ambivalent or negative feelings, and give rise to feelings of social isolation.

Conclusion: Couple's legacy of infertility treatment appears to give rise to difficulties in pregnancy that primary care practitioners may wish to be aware of in order to provide appropriate care and support.

Key Words: Infertility treatment, pregnancy, qualitative methods, adjustment.

4C.6

Addressing Suicide in Primary Care - An Overview of the Suicide Prevention in Primary Care Project

Claire Collins[1], Nicholas Fenlon[1], Pearse Finnegan[1], Aisling Lavelle[2], David McLean[3]
[1]Irish College of General Practitioners, Dublin, Ireland, [2]Clinical MedEd, Dublin, Ireland, [3]CPD Sessions, Dublin, Ireland

Problem 525 deaths by suicide were registered in Ireland during 2011[1]. The role of health professionals in suicide prevention should not be underestimated, as many patients present to primary care in the months prior to the event, and physician education in recognition & treatment of depression has been shown to reduce suicide rates[2]. Moreover, enquiries by a health professional about suicidal thoughts are not associated with an increased incidence of suicidal ideation or suicide attempts[3].

Approach The Suicide Prevention in Primary Care Project was developed to educate and support GPs and other members of the Primary Care Team in dealing with the challenge of suicide. It was informed by a needs-assessment in primary care carried out by the ICGP and was developed in collaboration with relevant stakeholders.

A working group comprising GPs, mental health professionals, National Office for Suicide Prevention and patient advocate groups was convened by the ICGP and a programme outline was developed. Further input was sought from ICGP CME tutors. The resulting programme was reviewed by all stakeholders and

piloted in the CME context. The programme will be launched in March 2013. An evaluation is planned for March 2014.

Findings Based on needs assessment and stakeholder input, the programme is divided into 3 modules, exploring the themes of Suicide Prevention, Intervention and Postvention.

- Module 1, delivered through eLearning, focuses on prevention - highlighting awareness, identification and assessment of suicide risk.
- Module 2 is central to the project and delivered through the CME network. It focuses on acute crisis management and provides a secure environment, underpinned by education and GP experiences, to stimulate local planning of support mechanisms for both patients and GPs
- Module 3, delivered through eLearning, focuses on postvention, local support services and developing practice protocols

Consequences The eLearning modules are designed to convey information, to provoke reflection and serve as resources and prompts for further discussion and action. Lessons can be shared with other members of the Primary Care Team and used to stimulate discussion and practice planning. Patient and family testimonies give patients a voice and are included as simulated consultations. GP interaction on suicide is key, combining experience and expertise, support and guidance and providing leadership both at practice and community level.

NOTE

It is envisaged that presentation of this project would include a (very brief) demonstration of some eLearning content.

1. Vital Statistics, 4th Quarter and Yearly Summary 2011, CSO
2. *Mann, J. et al. 2005.* Suicide Prevention Strategies, A Systematic Review J*AMA* 294(16):2064-2074
3. Crawford MJ, Thana L, Methuen C, et al. Impact of screening for risk of suicide, randomised controlled trial. Br J Psychiatry. 2011;198(5):379-384.
4. Norris, D, Clarke, M. 2012. Evaluation and treatment of the suicidal patient. American Family Physician. Volume 85:9

4D Sex, women's and children's health

4D.1

Quality of Prescribing Indicators for Children in Primary Care

Kirsty O'Brien[1], Janine Glover[2], Anthony Cummins[1], Fiona Boland[1], Patrick Redmond[1], Claire Keogh[1], Udo Reulbach[3], Tom Fahey[1]
[1]Royal College of Surgeons In Ireland (RCSI), Dublin, Ireland, [2]Queen's University Belfast, Belfast, UK, [3]Trinity College Dublin, Dublin, Ireland

The Problem: In 2007 the World Health Organisation launched a global campaign to make "medicines child size" amid growing concerns around the safety and efficacy of medicines used in children. The pharmacokinetic and pharmacodynamic properties of drugs can differ markedly between children and adults due to physiological differences and yet drugs are often prescribed to children that are unlicensed in the age group using doses that are extrapolated from data collected on adults. Drugs that are considered safe in adults can also affect the growth and development of children.
High quality prescribing to children in primary care can potentially reduce medication related adverse

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

events as well as save the health care system money. Based on published literature, guidelines and expert opinion, we developed a list of indicators for quality prescribing in children.

The approach: Potential indicators were identified from guidelines and by searching the published literature. Indicators were included if there was evidence to show they were potentially harmful, inappropriate or lacking efficacy. The relevance of each indicator was assessed using the the Irish Medicines Formulary (IMF) and the British National Formulary (BNF). A team consisting of three general practitioners, three primary care researchers and a pharmacist reviewed the list of indicators and excluded those indicators that were deemed to be no longer relevant, not relevant in the Irish context or where the extraction of data from an electronic prescribing database was unlikely to be feasible.
The final list of prescribing indicators will be applied to the Irish Health Services Executive (HSE) Primary Care Reimbursement Service (HSE-PCRS) database to assess the quality and safety of prescribing to children in this dataset. The PCRS contains information on dispensed medications and represents approximately 28% of Irish children, with lower socioeconomic groups being over-represented.

Findings: Over thirty prescribing indicators have been identified to date. These indicators cover hazardous or ineffective prescribing across a range of therapeutic drug classes including: Anti-infective agents (5 indicators), for example "tetracycline should not be prescribed for adolescents less than 12 years of age; respiratory disease drugs (asthma - 7 indicators, other respiratory disease - 8 indicators), for example "All children should be prescribed a spacer device for administering asthma medication"; central nervous system drugs, gastrointestinal drugs (3 indicators) and dermatological drugs (1 indicator) for example "All children prescribed a topical corticosteroid for eczema should be prescribed an emollient.

Consequences: The identification of valid prescribing indicators for children could increase the quality of prescribing in this age group; especially if these indicators were incorporated into a computerised decision support system or even used as comparative clinical indicators to alert General Practitioners in terms of enhancing the quality and safety of prescribing in children

4D.2

Using Primary Care Data to Explore the Association between Antibiotic Prescribing in Pregnancy and Adverse Neurological Outcome in Childhood

Wilhelmine Meeraus[1], Ruth Gilbert[1], Irene Petersen[2]
[1]UCL Institute of Child Health, London, UK, [2]UCL Department of Primary Care and Population Health, London, UK

THE PROBLEM: When prescribing medication to pregnant women, GPs are often asked about the safety of treatment, specifically the risks to the unborn child. Although most antibiotics are thought to be safe during pregnancy, results from a mega-trial suggest women who receive certain antibiotics during pregnancy have twice the risk of giving birth to a child with cerebral palsy (CP). The trial results were also consistent with an increased, but not statistically significant, risk of seizures in children whose mothers were randomised to receive antibiotics. Such unexpected findings from a mega-trial make further trials unlikely for ethical reasons. However, analyses of observational, primary care data, offer a way of exploring the association between antibiotic prescribing in pregnancy and the risk of adverse neurological outcomes in childhood.

THE APPROACH: We conducted a cohort study using The Health Improvement Network (THIN) primary care database. In pregnancies resulting in a live birth at 37 weeks or more of gestation, we compared any antibiotic treatment vs. no antibiotic treatment, on time to a composite adverse neurological outcome of CP and/or epilepsy. Pregnant women receiving prescriptions for systemic antibiotics during pregnancy were identified according to the British National Formulary (chapter 5.1). Children with CP were identified based on records reflecting CP diagnosis, symptoms (e.g. diplegia, spasticity), treatment (e.g. baclofen) or management (e.g. tenotomy). Likewise, epilepsy was identified using diagnosis, symptoms (non-febrile

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

seizures) and treatment (anti-epileptic drugs) records. All records that suggested an adverse neurological outcome were manually reviewed by a GP and a paediatrician The association between antibiotics and adverse neurological outcome was examined in a multivariable Cox regression model including variables for potential confounders (deprivation, chronic medical conditions, infection in pregnancy, obesity, alcohol abuse, smoking, age group, illicit drug use, hypertension in pregnancy, diabetes in pregnancy). Clustering at GP practice level was accounted for using robust standard errors.

FINDINGS: Among 195,899 singleton pregnancies resulting in a live birth between 1990 - 2010, we identified 64,614 (33%) pregnancies in which antibiotics were prescribed and 1,319 (0.67%) children with an adverse neurological outcome. There appeared to be a crude association between antibiotic prescriptions and adverse neurological outcome (Hazard Ratio (HR): 1.16, 95% Confidence Interval (CI): 1.03 - 1.31, p=0.01). However, after adjustment for confounding there was no association between antibiotic prescriptions in pregnancy and adverse neurological outcome in the child (HR: 1.01, 95% CI: 0.89 - 1.15, p=0.9).

CONSEQUENCES: Our results do not support the previous findings of an association between antibiotics in pregnancy and an increased risk of adverse neurological outcome in childhood.

4D.3

What is the role of primary health care in supporting migrant women experiencing domestic violence: Evaluation of Migrant women's Needs regarding domestic violence and Abuse (EMiNA)

Nadia Khelaifat, Ali Heawood, Maggie Evans, Gene Feder
University of Bristol, Bristol, UK

The problem: Domestic violence is a major human rights and public health problem, with persistent damage to the health of women and children. It represents ‘a common, hidden and under-researched problem in general practice'. Most clinicians have not received training about domestic violence thus making it harder to broach the subject. If unrecognised, the health sequelae of domestic violence, such as depression and PTSD, may become chronic.
Migrant women, although a diverse group, seem to be particularly vulnerable; there is some evidence that they encounter domestic violence more frequently and more severely. Migrant women are often removed and isolated from their social network, dependent on their husbands (both financially and with regards to their migrant status), afraid of losing custody of their children if they separate from their husbands, unable to communicate effectively due to language barriers, and unaware of their rights and availability of support. Primary care is often a first point of contact for migrant women. It is unclear whether existing interventions that increase identification and referral of affected women to specialist domestic violence agencies, such as the IRIS programme, are sufficiently tailored to the needs of migrant women.

The approach: The aim of this ongoing study is to identify: a) how migrant women experiencing domestic violence are currently supported by healthcare and other agencies; b) any gaps in support provision; c) how primary care might appropriately support migrant women experiencing domestic violence. We address this through a systematic review of the literature, along with key informant interviews (n=~25) with professionals from relevant agencies, including primary health care, and with migrant women currently receiving support from 3rd sector domestic violence agencies. All interviews are recorded and transcribed verbatim and analysed thematically drawing on the constant comparative method.

Findings: Initial findings from this study provide preliminary evidence regarding the barriers to providing primary care based support for migrant women experiencing domestic violence. For migrant women barriers include language, isolation, issues surrounding trust and confidentiality, in particular when an interpreter is involved. Barriers on the sides of professionals include fearing to offend migrant women or appear racist when asking about DV. The provision of additional training for health care professionals is

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

needed to increase their understanding of the specific situation faced by abused migrant women in order to help them more appropriately.

Consequences:
This study breaks new ground as this group of women is under-researched, as is the role of primary health care in supporting these women. Through targeting migrant women specifically, this study begins to address this gap by developing initial ideas about appropriate interventions and the potential role of primary health care services.

4D.4

Outcomes of clinic staff versus intensive researcher led recruitment to a sexual health intervention in UK primary care

Jackie Cassell[1], Julie Dodds[2], Stefania Lanza[1], Nicola Low[3], Tracy Roberts[4], Helen Smith[1], Greta Rait[5]
[1]Brighton and Sussex Medical School, Brighton, UK, [2]Queen Mary, University of London, London, UK, [3]University of Bern, Bern, Switzerland, [4]University of Birmingham, Birmingham, UK, [5]University College London, London, UK

The Problem: As part of a national randomised controlled trial, we attempted to recruit young people for Chlamydia testing and partner notification interventions in UK general practices (primary care clinics). Practices were paid for recruitment which was managed by clinic staff. Despite training, there were barriers to testing and recruitment: staff experienced competing priorities, were reluctant to mention testing, perceived that STIs were uncommon in their population, and believed that few young people attended the clinic. We aimed to assess the effect of intensive researcher led recruitment on testing rates and compare with prior optimised recruitment by clinic staff.

The approach: Ten general practices in North and South East England agreed to participate. We trained research staff on recruitment processes and allocated a researcher to each general practice. The researcher approached potentially eligible young people in the waiting room for a three week period and offered Chlamydia testing and trial enrolment. We compared testing and recruitment rates with those achieved by trained clinic staff over a period of 3 months.

Findings: 1145 16-25 year olds were approached in the 10 practices during intensive recruitment periods, of whom 43% consented and tested. Of refusals, 37% had tested elsewhere. Most practices achieved 45-50 tests per 3 week period, compared with 3-4 per month during 3 months of optimised clinic staff recruitment.

Consequences: Recruitment to primary care studies remains problematic especially in the area of chlamydia testing. External researcher led intensive recruitment increased testing levels substantially and should be considered as an alternative to clinic staff enrolment in primary care. Even if enrolment targets are met, the impact of sexual health interventions in primary care will be limited unless other barriers to engagement in sexual health are overcome.

4D.5

Let's talk about sex: Findings from a qualitative study on health care professional discussion of sexual wellbeing with stroke patients

Ruth Mellor[1], Sheila Greenfield[1], George Dowswell[1], Richard McManus[2]
[1]University of Birmingham, Birmingham, UK, [2]University of Oxford, Oxford, UK

The problem Talking about sex is a taboo in society in general and hence a potential issue for health care professionals (HCPs). Having a stroke can affect the sex lives of stroke survivors and their spouses through

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

a variety of factors including: reduction in libido, erectile dysfunction, reduced ability to communicate, or lowered mobility restricting sexual activity. National Guidelines recommend that sexual issues are discussed post stroke but previous studies suggest that patients find raising the issue difficult. Little is known about HCP views on discussing these topics with stroke patients.

The approach Thirty in depth interviews were conducted with HCPs who work with stroke patients: interviewees included general practitioners, stroke ward staff, therapists and support coordinators. Interviewees were asked their views and experiences of raising sexual wellbeing with stroke patients. Interviews were analysed thematically, through the 'one-sheet-of-paper' (OSOP) method.

Findings Sexual wellbeing was a topic that HCPs did not raise with patients and was infrequently raised by patients. Some HCPs lacked awareness that patients might find sexual wellbeing a difficult area. Barriers to raising discussion were split into four sub-themes: structural care pathway level, health care professional level, patient level, and HCP-patient interface. Examples of barriers were: sexual wellbeing not present within hospital stroke policy (structural level);perception that sexual wellbeing was not within their role (health care professional level); concern that raising the issue could cause harm to the patient (patient level); and making assumptions around characteristics of patients felt inappropriate or unimportant to discuss with, including older people or women (HCP-patient interface).

Consequences Despite guidelines explicitly recommending sexual wellbeing discussion, and literature suggesting patients find this a valued but difficult area to raise, providers are not filling this information gap. So what can be done to improve such sensitive discussions? Relatively small structural changes may be needed to allow individual HCPs to change practice by legitimising the topic, ensuring they feel supported in raising it and making it routine practice. Inclusion of sexual wellbeing in care pathways, improving information provision and simple training could help HCPs know what resources and services are available, examine attitudes around legitimacy of patients having sex lives and the appropriateness of such discussions. Within training, role play techniques could be used to build communication skills around raising sensitive topics and how best to include partners/carers (or not) in discussions. Increasing these skills may also be of value for discussing other taboo areas.

4D.6

A qualitative study of public attitudes towards opt-out testing for HIV

Simon Glew, Alex Pollard, Leila Hughes, Carrie Llewellyn
Brighton and Sussex Medicial School, Brighton, UK

The Problem The rate of new HIV infections in the UK continues to rise with approximately 25% of people remaining undiagnosed. Opt-out is a method used to increase HIV testing uptake which has proved effective in pre-natal care. Recent recommendations have been published to introduce opt-out testing for all patients aged 15-59 when registering with a new GP and upon acute medical admission to hospital in areas within England where HIV prevalence is greater than 2 per 1000. Pilot studies into this recommendation have described service-level methodologies and the clinician's perspective. The public perspective has been inferred via test uptake rate and questionnaire response. These methodologies provide a limited scope for appreciating the nuances of decision making. Furthermore sexual orientation, ethnicity, gender, age and previous experience of HIV testing have not been specifically investigated as factors that may affect attitudes towards opt-out testing. This study aims to further understand the public's perspective on opt-out testing for HIV in England.

The Approach Nine community-based focus groups were recruited. Quota sampling based on sexual orientation, ethnicity, gender, age and testing experience was applied to classify high and low prevalence groups. Data was analysed using framework analysis.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Findings Opt-out testing for HIV was largely acceptable. New registration with a GP was regarded as a more appropriate setting than acute medical admission. Participants from higher prevalence groups felt a HIV test required careful consideration which may not be possible during acute hospital admission. There was concern that screening would still be targeted at higher prevalence communities based on clinicians' judgment of patients' background, lifestyle or sexuality. Any pressure to test exerted by clinicians is likely to be poorly received.

Consequences Opt-out testing for HIV is acceptable but must be offered universally to eligible persons to prevent patients resenting feeling targeted. Higher prevalence groups may decline testing in these non-traditional scenarios as they do not allow opportunity for consideration of the test and potential outcomes resulting in the policy failing to reach the most at-risk groups. Primary care was seen as an appropriate setting for HIV testing with significant repercussions for future service planning.

4E Quality and safety

4E.1

Model answers: finding factors affecting mortality in primary care

Kate Honeyford[1], Richard Baker[1], John Bankart[2], David Jones[1]
[1]University of Leicester, Leicester, UK, [2]Keele University, Keele, Staffordshire, UK

The Problem: There is still considerable variation in the rate of coronary heart disease (CHD) mortality between PCTs and between general practices. Previous studies have reached different conclusions regarding the impact of the quality of primary care on improving health outcomes. However, different approaches have been used in both the selection of measures to describe the quality of primary care and the selection of statistical model. In this study, comparing the measures and modelling approaches aims to bring clarity to the situation.

The approach: We carried out a cross-sectional, observational study of 229 East Midlands practices . Routinely available data were used to model associations between quality of primary care and premature (under 75) CHD mortality. The count of CHD deaths in those aged under 75 was the main outcome measure; this was compared to all CHD deaths. A negative binomial model was the primary modelling approach; this was compared to a weighted linear regression model. Two key approaches to quantifying the quality of relevant primary care were compared, i) two individual indicators as used by Levene et al (2012), and ii) a 'score' made up of 12 key indicators from the Quality and Outcomes Framework first proposed by Kiran et al (2010).

Findings: Both population characteristics and the quality of primary care were found to be associated with variations in premature CHD mortality. Increasing levels of deprivation, the percentage of the practice population who were on the practice diabetes register, who were white, over 65 and who were male were all associated with increasing levels of premature CHD mortality. Control of serum cholesterol levels in those with CHD and the percentage of patients who could recall being able to see their preferred GP were both associated with decreased levels of premature CHD mortality. For every 1% increase in the number of people whose serum cholesterol was controlled, there was a 0.1% decrease in mortality (95% CI: 0.0% - 0.2%). Similar results were found when all age mortality was considered. The combined measure of the quality of primary care was associated with a decrease in both all age and premature CHD mortality. However, it is difficult to determine which individual indicators within this measure are key to reducing CHD mortality. Different modelling approaches yielded qualitatively similar results; however, if there is an emphasis on p-values the interpretation of the results is model dependent.

Consequences: High quality primary care appears to be associated with reducing CHD mortality; this includes aspects of access and continuity of care, detection and management, and has a bigger impact on reducing premature CHD mortality compared to all-age CHD mortality. The choice of statistical model

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

needs careful consideration and interpretation. Determining the most useful measures of quality of primary care needs further consideration.

4E.2

Supporting diagnosis in primary care via computerised systems: early reminders vs. late alerts

Olga Kostopoulou, Andrea Rosen, Thomas Round, Ellen Wright, Brendan Delaney
King's College London, London, UK

The Problem: Despite four decades of development, computerised diagnostic support systems (CDSS) are not used extensively in clinical practice. Potential problems of the traditional approach to diagnostic support include systems being physician-triggered rather than automated and physicians seeking system advice after having gathered a substantial amount of information, which determines the quality of the advice. We hypothesised that diagnostic advice provided early on in the consultation, before physicians start testing hypotheses, will be more effective than advice that is provided after physicians have settled on a diagnosis.

The approach: We designed a study to test two principles of automated diagnostic support: one where a list of diagnostic suggestions is provided early on in the clinical encounter, based on information about the patient contained in the record (age, risk factors, past medical history etc.) and triggered by the reason for encounter ("suggesting"); and one where an individualized, shorter list of diagnostic suggestions is provided late in the encounter, based on information the physician has collected and triggered by the physicians' own diagnosis ("alerting").

We recruited 297 GPs and GP registrars in England with help from the NIHR Primary Care Research Network and via word-of-mouth by other study participants. Following a mixed factorial design, participants saw 9 patient scenarios on computer, in random order and covering a spectrum of diagnostic difficulty. Participants were allocated via blocked randomisation to one of three experimental conditions: control, "suggesting" or "alerting". The main outcome measure was diagnostic accuracy.

Findings: "Suggesting" significantly improved diagnostic accuracy over control (OR 1.34 [95% CI 1.04-1.74]), while "alerting" did not (OR 1.11 [95% CI 0.86-1.42]). This improvement was observed both for easy and difficult scenarios. Looking for evidence for the main competing diagnosis was inversely related to accuracy (OR 0.79 [95% CI 0.73-0.87] $p<0.0001$) but this effect was significantly less pronounced in the "suggesting" condition (OR 0.92, $p=0.024$).

Consequences: Reminding GPs of diagnostic possibilities to consider early on in the consultation, before they start narrowing down on hypotheses, can significantly improve diagnostic accuracy across a wide range of diagnostic difficulty. This possibly relates to an enhanced ability of the physician to hold other diagnoses in memory, while testing a focal diagnosis. As part of the TRANSFoRm collaborative project (http://www.transformproject.eu) research is currently underway to operationalise "suggesting" and establish the specific features of a CDSS based on this principle of early diagnostic support.

4E.3

The epidemiology of malpractice claims in primary care: a systematic review

Emma Wallace[1], Jean Lowry[2], Susan M Smith[1], Tom Fahey[1]
[1]HRB Centre for primary Care Research, Royal College of Surgeons in Ireland (RCSI), Dublin, Ireland, [2]Trinity College Dublin Medical School, Dublin, Ireland

The problem: Adverse events are under recognised in primary care and malpractice risk in this setting remains understudied. The use of malpractice claims for studying adverse events may be

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

unrepresentative and difficult to generalise. However, clinical disiplines such as paediatrics and anaesthetics have utilised malpractice claims as an indirect measure of the safety of practice. In primary care malpractice claims may offer insights regarding common medical misadventures which could facilitate the implementation of education and risk management systems in this setting.

The approach: A computerised systematic literature search was conducted. Studies were included if they reported original data (≥ 10 cases) pertinent to malpractice claims, were based in primary care and were published in the English language. Studies that were considered eligible for inclusion were read fully in duplicate by two reviewers and their suitability for inclusion to the study was independently determined. Disagreements were managed by consensus. Data was synthesised using a narrative approach. The PRISMA guidelines for the conduct and reporting of systematic reviews were adhered to.

Findings: The systematic search yielded 6,887 articles of which 6,617 were excluded based on their title and/or abstract. The remaining 306 articles were assessed in full text. A total of 33 studies met the inclusion criteria and were included in the narrative analysis. Of the included studies a total of 27 studies presented data from medical indemnity malpractice claims databases and six studies presented survey data. Fourteen studies were based in the United States (US), nine in the United Kingdom (UK), seven in Australia, one in Canada and two in France. Primary care malpractice claims accounted for 7.9-20% of all speciality claims in the included studies while the annual prevalence rates of malpractice claims varied according to country.The commonest medical misadventure resulting in claims was failure to or delay in diagnosis which represented 26-63% of all claims across included studies. Common missed or delayed diagnoses included cancer and myocardial infarction in adults and meningitis in children. Medication error represented the second commonest domain of malpractice claims representing 5.6-20% of all primary care claims.

Consequences: This review of malpractice claims in the primary care setting highlights diagnostic error and medication error as areas to be prioritised in developing educational strategies and risk management systems.

4E.4

Defences against medication errors in general practice

Rachel Howard[1], Sarah Slight[2], Masioon Ghaleb[3], Bryony Dean Franklin[4,5], Nick Barber[4], Anthony Avery[2]
[1]University of Reading, Reading, UK, [2]University of Nottingham, Nottingham, UK, [3]University of Hertfordshire, Hatfield, UK, [4]University College London, London, UK, [5]Imperial College Healthcare NHS Trust, London, UK

The Problem: Prescribing and monitoring errors affect one in eight patients in English primary care In U.K. general practice, however, little is known about defences against medication errors. We undertook a large-scale study (the PRACtICE study) of the incidence, underlying causes and defences against medication errors in English general practices. The aim of this paper is to describe the defences against medication errors present in English general practice.

The Approach: A qualitative approach was taken, exploring defences against medication errors (specifically prescribing and monitoring errors) in 15 general practices from three Primary Care Trusts in England. NHS ethics approval was obtained. Between October 2010 and May 2011, thirty-two GPs participated in audio-recorded interviews exploring their perspectives on the medicines management systems within their practice and the causes of specific errors. A broad range of general practice staff also participated in six audio-recorded focus groups exploring their perspectives on defences against medication errors within their practices. All audio-recorded interviews and focus groups were transcribed verbatim and imported into QSR NVivo v8. Transcripts were analysed thematically using constant comparison and a framework analysis, informed by Reason's model of organisational accidents, was

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

conducted. A 'model' of the medicines management process was developed from the data; defences against medication errors were mapped to this.

Findings: The medicines management process within general practice is complex. Defences against medication errors were found at all stages, including issuing new prescriptions, supporting patients' ongoing decision making, dispensing prescriptions (in dispensing practices), repeat prescribing, monitoring patients, and amending prescriptions based on outside correspondence. In addition, there were a plethora of other activities which supported the medicines management process in general practice, including significant event reporting and staff training. Defences against medication errors were wide ranging and included practice-wide, health information technology (HIT) and personal strategies (which prescribers or other staff members could undertake). Specific examples included reviewing newly prescribed medicines within six weeks, adding medicines to the repeat list only when patients were stable on them for a specified period of time, confirming important information with patients even when they were well known to the prescriber, and ensuring that prescribers are competent to use all of the important features of e-prescribing and other IT-support systems. Notably, pharmacists were rarely mentioned as an error defence.

Consequences: General practices have a broad range of practice-wide, HIT and personal strategies to help avoid medication errors reaching patients. Pharmacists can also help GPs to reduce prescribing errors by identifying patients at risk and appropriately managing any problems identified.[1] This approach would be suitable for tackling some of the errors we observed, particularly monitoring errors.

Reference: 1. Avery et al. A pharmacist-led information technology intervention for medication errors (PINCER). *Lancet* 2012;378(9823):1310-9.

4E.5

PREVALENCE AND DISTRIBUTION OF ANALGESICS' PRESCRIBING IN THE GENERAL POPULATION: A 15-YEAR, PATIENT-LEVEL COMPARISON IN TAYSIDE, SCOTLAND.

Andrea Ruscitto, Bruce Guthrie, Blair Smith
University of Dundee, Dundee, UK

The problem**:** The management of pain has been a field of huge focus in the last decades, with concerns expressed on the rising use of various painkillers, primarily opioids. Detailed epidemiological studies on the trend of drug dispensing within a population are lacking despite evidence of analgesic use being affected by factors such as deprivation status and multimorbidity. Our study analysed GP-prescribed analgesic data in the population of the Tayside (Scotland) in 1995 and 2010, to ascertain whether there has been a change and in which analgesic classes such changes occurred as well as to described differences in the distribution of strong opioids within different classes in a population.

The approach**:** Data for current analgesic prescriptions (defined as receiving a dispensed medication in the 84 days before and including 31st March 1995 and 2010) were extracted for all adults (≥20 years) residents of Tayside. The proportion of patients receiving Paracetamol, other non-opioid analgesics, opioids (divided into weak and strong), non-selective NSAIDs, Cox-2 inhibitors, Gabapentin and Pregabalin were calculated for 1995 and 2010. A logistic regression was done for strong opioid prescribing in 2010, stratifying the population by age, gender, deprivation status, urban/rural status, non-analgesic medications (polypharmacy) and other variables.

Findings**:** In 2010, 17.9% (55914/311881) of the population received at least one analgesic medication compared to 15.7% (n=47158/301020) in 1995. This increase was not equal in every drug class, with certain analgesic groups (Paracetamol, Opioids, Gabapentin and Pregabalin) showing a large increase, whereas others (mainly other non-opioids and non-selective NSAIDs) showing a decrease. The logistic regression primarily revealed that patients in deprived areas were more likely to receive strong opioids

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

than patients in affluent areas (Odds Ratio 1.56, 95% CI 1.45 to 1.68) and patients receiving large numbers of non-analgesic medications were more likely to be prescribed strong opioids than patients on no (or very few) other medications (OR 26.4, 95% CI 25.1 to 27.9).

Consequences**:** There has been an increase in the number of patients receiving analgesic medications in 2010 compared to 1995, in particular in analgesic classes such as Paracetamol, Opioids, Gabapentin and Pregabalin. More patients also receive multiple analgesics than they did in 1995. Among strong opioids, patients receiving Tramadol increased most significantly of all other classes. Deprivation status and use of non-analgesic medications are predictors of strong opioids use, with polypharmacy being a stronger predictor for opioids use than age, which can be explained by a higher prevalence of multimorbidity, including painful conditions, at a younger age in deprived areas compared to affluent ones. Research is needed to establish the cause of such increase, to determine whether increasing use is justified with increasing prevalence of painful condition or whether alternative, non-pharmacological treatments for pain are more desirable.

4E.6

The Relationship Between Quality of Care and Choice of Clinical Computing System: Retrospective Analysis of Family Practice Performance Under the UK's Quality and Outcomes Framework

Evangelos Kontopantelis[1], Iain Buchan[1], David Reeves[1], Kath Checkland[1], Tim Doran[2]
[1]University of Manchester, Manchester, UK, [2]University of York, York, UK

The problem: The UK Quality and Outcomes framework pay-for-performance scheme ignores the potential effect of clinical computer system choice on reported quality of care, although architectural differences between systems exist. We aimed to investigate the relationship between performance on the scheme and choice of clinical computer system.

The approach: Data for 2007-8 to 2010-11, were extracted from the clinical computer systems of general practices in England. All English practices participating in the pay-for-performance scheme were included in this retrospective longitudinal study: average 8257 each year, covering over 99% of the English population registered with a general practice. The main outcome measures were used were levels of achievement on 62 quality of care indicators, measured as: reported achievement (levels of care after excluding inappropriate patients); population achievement (levels of care for all patients with the relevant condition); and percentage of available quality points attained. Multilevel mixed effects multiple linear regression models were used to identify population, practice, and clinical computing system predictors of achievement.

Findings: Seven clinical computer systems were consistently active in the study period, collectively holding approximately 99% of the market share. Of all population and practice characteristics assessed, choice of clinical computing system was the strongest predictor of performance across all three outcome measures. Differences between systems were greatest for intermediate outcomes indicators (for example, control of cholesterol levels).

Consequences: Under the UK's pay-for-performance scheme, differences in practice performance were associated with choice of clinical computing system. This raises the question of whether particular system characteristics facilitate higher quality of care, better data recording, or both. Inconsistencies across systems need to be understood and addressed, and researchers need to be cautious when generalizing findings from samples of providers using a single computing system.

4F Respiratory

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

4F.1

Ethnic and nutritional determinants of respiratory function in east London children

Chris Griffiths[1], Robert Walton[1], Ian Mudway[2], Isobel Dundas[1], Jeenath Jamaludin[2], Helen Wood[2], Louise Cross[1], David McLaughlin[1], Anna Schwappach[1], Neetha Purushotham[1], Nadine Marlin[1], Frank Kelly[2]
[1]PCTU, Centre for Primary Care and Public Health, London, UK, [2]King's College, London, UK

The Problem: Poor lung function in childhood is an important problem in deprived, multicultural UK inner cities and there are no normative standards for South East Asians, Black Africans or mixed ethnicity. We therefore explored the relationship between ethnicity and nutritional status on lung function in children from an area of high ethnic diversity and marked child poverty.

The approach: Lung function was measured in 1000, 8-9 year old children from 23 schools (2008-11). Mixed effects models were constructed allowing for random effect of school, adjusted for age, sex, height, deprivation (IMD) and study year adding either BMI or reported ethnicity. Children were typed for 27 random DNA markers.

Findings: 358 (36.9%) children reported Asian (Indian sub-continent) ethnicity, 270 (27.1%) White, 249 (25.0%) Black and 118 (11.9%) mixed or other ethnicity. Twenty (2.0%) were very underweight (≤2nd centile), 30 (3.0%) underweight (≤5th centile). Ten of 20 (50%) very underweight children were Asian. FEV1 and FVC were higher in Whites compared to all other groups (FEV1 0.129, 95% CI: 0.098 0.160 L, FVC 0.169, 95% CI: 0.134 to 0.205 L) and lower in very underweight compared to others (FEV1, -0.129; 95% CI -0.214, -0.433 L. FVC, -0.190, 95% CI -0.297 -0.084 L). Genetic markers identified three population components correlated with FEV1 and FVC ($p<0.001$). Reported ethnicity predicted higher FEV1 and FVC than genetic markers in children from the mixed group.

Consequences: Nutritional status and ethnicity strongly determine childhood respiratory function. Random genetic markers and reported ethnicity were equally effective in predicting FEV1 and FVC. In children of mixed background, genetic markers may predict lung function better than reported ethnicity and thus could be an important tool for future research.

4F.2

***"It's just a virus"* Health Care Practitioners' communication strategies in consultations for Respiratory tract infections in children**

Jeremy Horwood, Christie Cabral, Alastair Hay, Jenny Ingram
University of Bristol, Bristol, UK

Problem: Acute respiratory tract infections (RTIs) in children are the commonest reason why parents consult their general practitioner in the UK. They are therefore costly to the NHS. RTI's in children are problematic, as even though they are largely minor self-limiting illnesses, they are sometimes associated with complications such as Pneumonia and therefore can be a significant cause of anxiety for parents. There is clinical uncertainty regarding diagnosis and management; and there is little consensus between parents and Health Care Practitioners about the effectiveness of treatments, with the overuse of antibiotics leads to bacterial resistance. Little is known about how information is communicated during these consultations. This study investigated how Health Care Practitioners communicated with parents about management of RTI in children for the TARGET research programme.

The approach: In-depth interviews were conducted with 28 Health Care Practitioners recruited from 6 general practices and 1 walk-in-centre in Bristol. Purposive sampling was used to capture maximum variation in views and experience. Practices serving deprived, affluent and median areas were selected and HCPs with a range of length of service and paediatric experience were recruited. Semi-structured interviews explored Health Care Practitioners' experiences of consultations when children have RTIs and

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

investigated communication strategies in consultations in relation to, diagnosis, treatment decisions and advice. Interviews were audio-recorded, transcribed and imported into NVivo8 for coding. A thematic analysis was conducted using constant comparison techniques.

Findings: Health Care Practitioners often used 'it's a virus' for minor cases, as a means of providing reassurance to parents and to communicate the nature of the illness (it's probably not serious, it is self limiting and will most likely get better on its own) and implications for treatment (not appropriate to prescribe antibiotics), even when there was uncertainty that parents understood what a virus was, and what was implied by a viral diagnosis. Health Care Practitioners reported providing specific information for cases they deemed 'serious', especially in relation to safety netting advice, while supplying less specific advice ('come back if worried') for minor cases, as a means of leaving a door open to re-consulting. Non-specific communication for minor cases was influenced by a desire to avoid risk of a bad outcome, medico-legal issues, and a desire to maintain good relationships with families.

Consequences: The findings suggest that 'it's a virus' is used as a short cut to provide reassurance, communicate diagnosis and treatment. However, Health Care Practitioners were uncertain if this term was an effective communication strategy on its own and may fail to reassure parents. Using non-specific communication could miss an opportunity to educate and improve parental knowledge of RTIs.

4F.3

Acute non-steroidal anti-inflammatory drug exposure in asthma: a meta-analysis of clinical trials

Daniel Morales[1], Virginia H Santiago[1], Brian Lipworth[2], Cathy Jackson[1], Peter Donnan[1], Bruce Guthrie[1]
[1]University of Dundee, Dundee, UK, [2]University of St Andrews, St Andrews, UK

The Problem: Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly prescribed analgesics but can trigger bronchospasm in susceptible patients with asthma. This risk is thought to be greatest following acute exposure which may result in NSAIDs being withheld or administered with uncertain risk to patients with asthma. The objective of this study is to evaluate changes in respiratory function and symptoms following acute exposure to NSAIDs in asthma.

The approach: A systematic review of MEDLINE, EMBASE and CENTRAL databases identified all blinded, placebo-controlled clinical trials evaluating acute aspirin and NSAID exposure in asthma. Outcome measures included; fall in FEV1 of ≥20%; incidence of respiratory symptoms; the mean provocative dose of aspirin. Selective NSAIDs were evaluated in patients with a prior history of NSAID-sensitive asthma. Effect estimates were reported as the risk difference (RD) and pooled using fixed-effect meta-analysis. Heterogeneity was investigated using subgroup analysis.

Findings: A total of 29 clinical trials were identified. Compared to control, aspirin exposure was associated with a fall in FEV1 of ≥20% in 10% (RD 0.10, 95%CI 0.07 to 0.14), respiratory symptoms in 19% (RD 0.13, 95%CI 0.10 to 0.28) with a mean provocative dose of 10.8mg. In patients with a history of NSAID-sensitive asthma, no significant difference was found following acute selective NSAID exposure in fall in FEV1 of ≥20% (RD 0.00, 95%CI -0.02 to 0.02), respiratory symptoms (RD 0.01, 95%CI -0.01 to 0.03) or nasal symptoms (RD 0.00, 95%CI -0.03 to 0.03) compared to control. Only one trial which involved children investigated non-selective NSAIDs compared to control in patients not selected on the basis of prior response. From which, no significant difference was found following acute non-selective NSAID exposure in fall in FEV1 of ≥20% (RD 0.02, 95%CI -0.01 to 0.05) or respiratory symptoms (RD 0.01, 95% CI -0.02 to 0.04) compared to control.

Consequences: The prevalence of aspirin-sensitive asthma was 10% as defined by fall in FEV1 of ≥20%. Aspirin-induced bronchospasm was often triggered by relatively low doses of aspirin. Based upon clinical trial evidence, selective-NSAIDs appear to be a safe alternative in patients with mild to moderate asthma who have true NSAID-sensitivity.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

4F.4

Acute β-blocker exposure in asthma: a meta-analysis of randomized controlled trials

Daniel Morales[1], Cathy Jackson[2], Brian Lipworth[1], Peter Donnan[1], Bruce Guthrie[1]
[1]University of Dundee, Dundee, UK, [2]University of St Andrews, St Andrews, UK

The Problem: β-blockers are avoided in asthma over concerns regarding acute bronchoconstriction even where patients have strong indications for them such as in cardiovascular disease, glaucoma or pregnancy-induced hypertension. This risk is greatest following acute exposure when β2-agonists may be antagonised. The objective is to evaluate changes in respiratory function and β2-agonist response following acute β-blockade to inform the management of intended and unintended exposures in asthma.

The approach: A systematic review of MEDLINE, EMBASE and CENTRAL databases identified all randomized, blinded, placebo-controlled trials evaluating acute oral, topical or intravenous β-blockers in asthma. Effect estimates for changes in forced expiratory volume in one second (FEV1), symptoms and β2-agonist response were pooled using random-effects meta-analysis with heterogeneity investigated using subgroup analysis and meta-regression.

Findings: Of 32 trials identified none evaluated topical β-blockers. Selective β-blockers were associated with a mean change in FEV1 of -6.9 % (95%CI -8.5 to -5.2), symptoms in 1 in 33 patients; fall in FEV1 of ≥20% in 1 in 8 patients and reduction in β2-agonist response of -10.2% (95%CI -14.0 to -6.4). Non-selective β-blockers were associated with a mean change in FEV1 of -10.2% (95%CI -14.7 to -5.6), symptoms in 1 in 13 patients, fall in FEV1 of ≥20% in 1 in 9 patients and reduction in β2-agonist response of -20.0% (95%CI -29.4 to -10.7). Following investigation of heterogeneity; mean change in FEV1 for celiprolol was 1.8% (95%CI -2.3 to 5.8) vs. -9.3% (95%CI -12.0 to -6.6) for metoprolol; mean change in FEV1 for labetalol was -2.7% (95%CI -9.6 to 4.1) vs. -17.0% (95%CI -21.4 to -12.6) for propranolol. A dose-response relationship was demonstrated for selective β-blockers.

Consequences: Although better tolerated, selective β-blockers are not risk free. Risk from acute exposure may be mitigated by initiating smaller doses, using β-blockers with greater β1-selectivity and possibly those with dual alpha-blocking properties in patients with mild to moderate asthma. Moderate to high-dose beta-blocker induced bronchospasm responds reasonably well to beta2-agonists but response is blunted more by non-selective than selective beta-blocker exposure.

4F.5

Corticosteroids for acute lower respiratory tract infection: a systematic review

Magdy El-Gohary[1], Alastair Hay[2], Peter Coventry[3], Michael Moore[1], Beth Stuart[1], Paul Little[1]
[1]University of Southampton, Southampton, UK, [2]University of Bristol, Bristol, UK, [3]University of Manchester, Manchester, UK

The problem: Cough resulting from an acute lower respiratory tract infection (LRTI) is one of the most common conditions seen in primary care. In most cases the disease is self-limiting with the development of complications an infrequent occurrence. Despite the lack of evidence for the use of antibiotics in this condition they continue to be prescribed at a great cost, and are a significant cause of emerging bacterial resistance, constituting a growing public health concern. There is evidence to support the use of corticosteroids in other respiratory tract infections, and there is some evidence that GPs are beginning to use corticosteroids in LRTI.

The approach: A systematic review of randomised controlled trials looking at the use of corticosteroids in LRTI was carried out. We searched for published and unpublished studies using seven electronic databases and five on-going trials registers. Studies were eligible if they compared the use of any corticosteroid treatment against a control group in adults with an acute (<3) or subacute (<8 weeks)

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

cough associated with a LRTI, but no asthma. The primary outcomes were the differences in mean cough and other symptom scores. Secondary outcomes included adverse effects, subsequent diagnosis of asthma and patient satisfaction.

Findings: Four trials (335 participants) were identified investigating the effects of inhaled corticosteroids. A variety of inhaled corticosteroids were used, but no trials investigated the use of oral corticosteroids. Results were mixed with two reporting equivalence and two benefits for mean cough score (p=0.012) and cough frequency (p=0.047). One reported additional benefits for non-smokers compared to smokers. Adverse events were rare and there were no data on patient satisfaction or the subsequent diagnosis of asthma. The majority of trials were of unclear risk of bias. Study outcomes were too heterogeneous to pool into meta-analysis.

Consequences: At present, there is insufficient evidence to recommend the routine use of inhaled corticosteroids for acute LRTI in adults. However, some studies have shown benefits to their use and clearly indicate a need for further, high quality and adequately powered trials. In addition it would be important to assess the role of oral corticosteroids in LRTI.

4F.6

Socio-economic variation in health care access and quality of life in patients with COPD; exploring the role of psychosocial factors

Sofia Georgopoulou, Alison J. Wright, John Weinman, Helen Booth, Hannah Thornton, Patrick White
King's College London, London, UK

The problem: Psychosocial factors such as illness perceptions, self-efficacy and social capital play a significant role in the management and quality of life of many chronic diseases. The way psycho-social factors interact with socio-economic status and may influence the experience of chronic illness is poorly understood. The aim of this research was to examine associations between psychosocial factors and socio-economic status, health care access and quality of life in Chronic Obstructive Pulmonary Disease (COPD) to consider their role as possible mediators in these relationships.

The approach: Cross-sectional, interview-based survey in London of COPD patients >40 years recruited in primary care. Measures included socio-economic status (SES) indicators (weekly household income, educational attainment, occupational class and Index of Multiple Deprivation (IMD) scores), illness perceptions (IPs), quality of life (QoL) (Chronic Respiratory Disease Questionnaire Self-Administered Standardised), Medical Research Council (MRC) dyspnoea scale, general self-efficacy (GSE) scale, measures of social capital (SC), Hospital Anxiety and Depression Scale (HADS), and lung function assessment (spirometry). Information on health care access (HCA) (smoking cessation and pulmonary rehabilitation referrals and attendance and prescription patterns) was collected using a modified version of the Client Service Receipt Inventory (CSRI). Associations between socioeconomic status, health care access, quality of life and psychosocial variables were examined. Mediation analysis was used to explore the mechanism of their relationship.

Findings: Illness perceptions were significantly correlated with certain HCA outcomes. Illness perceptions, self-efficacy and social capital were significantly associated with QoL in COPD. The relationship between SES and HCA was not significantly mediated by any of the psychosocial variables examined. The relationship between SES and QoL was significantly mediated by a combination of psychosocial variables. The effect of SES (income level) on: (a) dyspnea (QoL) was mediated by identity consequences, feelings of trust and safety and value of life (effect=0.26, SE=0.09, [95% CI]=0.0804-0.4503); (b) fatigue (QoL) was mediated by consequences (effect=0.22, SE=0.07, [95% CI]=0.0833-0.3806); (c) emotional function (QoL) was mediated by identity, emotional representations and self-efficacy (effect=0.21, SE=0.07, [95% CI]=0.0757-0.3593); (d) mastery (QoL) was mediated by identity, consequences, personal control, emotional representations and self-efficacy (effect=0.35, SE=0.10, [95% CI]=0.1620-0.5566); (e)

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

depression (QoL) was mediated by consequences, self-efficacy and social agency/social proactivity (effect=-0.90, SE=0.28, [95% CI]=-1.5512 - -0.4270).

Consequences: Psychosocial variables were significantly associated with HCA and QOL in COPD. Their effect is exerted in different ways depending on the outcome examined, i.e. HCA or QoL. Interventions targeting illness perceptions in patients with COPD should be tailored accordingly. Future research should focus on increasing our understanding of illness perceptions in different stages of the disease.

Papers of distinction

Prize 1

National changes in prescribing of ACE inhibitors and angiotensin receptor blockers are associated with increased hospitalisation with acute kidney injury

Laurie Tomlinson[1], Gary Abel[2], Afzal Chaudhry[1], Alex Riding[1], Charles Tomson[3], Ian Wilkinson[1], Martin Roland[2], Rupert Payne[2]
[1]Dept. of Medicine, Addebrooke's HospitalUniversity of Cambridge, Cambridge, UK, [2]Cambridge Centre for Health Services Research, University of Cambridge, Cambridge, UK, [3]Richard Bright Renal Unit, North Bristol NHS Trust, Bristol, UK

The Problem ACE inhibitors and angiotensin receptor blockers (ACE-I/ARB) are commonly prescribed for a range of indications but can cause acute kidney injury (AKI) during intercurrent illness. Rates of hospitalization with AKI are increasing. It is unknown if increased AKI rates are associated with increased ACE-I/ARB prescribing.

The Approach English NHS prescribing data for ACE-I/ARB items were matched at the level of the general practice to numbers of hospital admissions with a primary diagnosis of AKI. Prescribing rates were weighted for the age and sex characteristics of general practices. We performed a mixed-effect Poisson regression to model the number of admissions for AKI occurring in each practice for each of 4 years from 1 April 2007.

Findings From 2007/8-2010/11, crude AKI admission rates increased from 0.38 to 0.57 per 1000 patients (51.6% increase), and national annual ACE-I/ARB prescribing rates increased by 0.032 from 0.202 to 0.234 (15.8% increase). There was strong evidence ($p<0.001$) that increases in practice ACE-I/ARB prescribing over the study period were associated with an increase in AKI admission rates. A typical practice increase in prescribing corresponded to an increase in admissions of approximately 5.1% (rate ratio=1.051 for a 0.03 per ASTRO-PU increase in annual prescribing rate, 95%CI 1.047 to 1.055). Using the regression model to predict the number of AKI admissions that would not have occurred if prescribing rates were at the 2007/8 level suggests a figure of 1,636 (95% CI 1,540- 1,780), equivalent to 14.8% of the total increase in AKI admissions.

Consequences In England, up to 15% of the increase in AKI admissions over a 4-year time period is potentially attributable to increased prescribing of ACE-I/ARB. Past increases in use of these medications, before the study period, may have contributed still further. The benefits of these drugs are determined from carefully conducted clinical trials. However, the adverse effects, including AKI, may be more common in general clinical use and thus the risk-benefit ratio may be wrongly estimated. It is important to improve our understanding of the factors associated with increased risk of AKI with these medications, in order to better risk stratify patients receiving them and to develop evidence-based interventions to prevent this serious complication.

Prize 2

Exploring emergency ambulance use for 'primary care sensitive' problems: results and reflections from a qualitative study.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Matthew Booker, Sarah Purdy, Rosemary Simmonds
University of Bristol, Bristol, UK

The problem Systems of accessing, prioritising and delivering unscheduled care are undergoing significant changes, with attempts to match an appropriate and timely urgent primary care response to patients, regardless of how the request for treatment is routed through the unscheduled care infrastructure. Despite a broad range of pathways, some patients still resort to calling an emergency ambulance for problems that could be successfully managed by a timely contact with primary care. This is an expensive and inefficient way to deliver primary care service. The reasons behind these requests, and the way in which ambulance clinicians identify and manage urgent 'primary care' problems is not fully understood. Understanding and contextualising these patient journeys is vital to ensure appropriate urgent primary care pathways are developed.

The approach A qualitative observation- and interview- based study, employing ethnographic methods, sought to explore the decision making process and contextualising factors that resulted in an emergency ambulance response for what turned out to be a 'primary care sensitive' clinical problem. A primary care clinician accompanied paramedic crews responding to '999' emergencies as an observer, to identify examples of clinical situations more suited to an urgent primary care response. Semi-structured interviews with these callers (and their family/carers) were undertaken and thematically analysed, to explore common factors the decision making process.

Findings Many patients found the primary care infrastructure confusing, often perceiving a dichotomous system offering either 'routine' or 'emergency' care with no middle ground. Community-based urgent care services were frequently seen as too routine for the patient's particular problem, despite many clinical problems having evolved over hours or days. A key theme was patient -carer anxiety and conflict around assessing and managing perceived risk. Complex interpersonal dynamics between patients and informal carers often resulted in a default to the care avenue seen as least risky (the immediate response provided by the ambulance service). The ambulance service was often perceived as being universally competent to deal with anything, and commonly seen as serving a 'triage' role to direct patients to the most appropriate provider after clinical assessment has excluded a serious illness.

Consequences These findings are important in the context of publicity campaigns, and in understanding the decision making process behind calling for an emergency ambulance. Care pathways need to respond to the risk management strategies of the lay public, and acknowledge the perceptions of routine verses urgent care. Further work is needed to explore how ambulance clinicians make decisions in the context of these patient-carer risk management dynamics. In addition, lessons have been learnt about using ethnographic methods in the emergency pre-hospital setting, following a reflexive evaluation by the primary care clinician researcher.

Prize 3

Twenty year follow-up of the Royal College of General Practitioners Myocardial Infarction Study

Kenneth M Gilmour[1], Lisa Iversen[2], Philip C Hannaford[2]

[1] 5th year Medical Student, University of Aberdeen

[2] Academic Primary Care, University of Aberdeen

Introduction Acute Myocardial Infarction is a major cause of morbidity and mortality in the UK. Thrombolysis is a time-dependent therapy for AMI that can be used effectively in the pre-hospital setting. Sparse data exists however on the long term survival benefits of pre-hospital thrombolysis within an observational study setting.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press

Aim To analyse twenty year mortality data from the RCGP MI study (1) to investigate whether there is a long term survival benefit from delivering thrombolysis and additionally pre-hospital thrombolysis.

Methods Study participants who either received thrombolysis in hospital (n=290), pre-hospital (n=781) or did not receive thrombolysis (n=2021) were "flagged" at the NHS central registries and their mortality data collected for twenty years. The relationship between thrombolysis and survival time was analysed using Cox regression.

Results Comparing participants who received thrombolysis with those who did not a statistically significant survival benefit favouring thrombolysis was found. Hazard ratios of 0.69 (CI 0.57 to 0.83), 0.88 (CI 0.80 to 0.96) and 0.92 (CI 0.84 to 1.00) were found at 1; 15 years post-AMI and at the end of follow-up (approximately 20 years post-AMI) respectively after adjustment for age, sex, smoking status, occupation and history of previous MI. Comparing participants who received hospital thrombolysis to those who received pre-hospital thrombolysis an adjusted HR of 0.79 (CI 0.56 to 1.10) at 1 year post-AMI and 0.97 (CI 0.82 to 1.13) at end of follow-up was found.

Conclusion This study has demonstrated long term survival benefits, of up to 15 years of delivering thrombolysis over no thrombolysis. No additional benefit from pre-hospital thrombolysis was found at any time point although our study might be underpowered to detect a significant difference.

References (1)Hannaford P, Vincent R, Ferry S, Hirsch S, Kay C. (1995) Assessment of the practicality and safety of thrombolysis with anistreplase given by general practitioners.. *British Journal of General Practice*, 45:175-179.

https://doi.org/10.1017/S1463423614000085 Published online by Cambridge University Press