Society for Social Medicine

ABSTRACTS OF ORAL PRESENTATIONS

PLENARY PRESENTATIONS

An expert at your fingertips. Development of a computerised clinical guidance programme to help with the prophylactic oophorectomy decision

M. M. Gannon (MRC Multi-Centre Otitis Media Study Group (MRC Institute of Hearing Research, Nottingham))

Background—From the mid-1980s, paediatric ENT operations encountered increasing scepticism in public health quarters. The 1992 Effective Health Care Bulletin, coinciding with fundingholding, substantially reduced referral rates. This paper reports outline adenoidectomy results over two years.

Methods—Scores with norms were developed from parental questionnaires to a large sample of unaffected children and to children treated at +3, +6 and +12 months. These cover symptom areas (ear problems; respiratory infection; hearing difficulties); two behaviour factors (aggression and non-aggression problems); general health; and parent quality of life. All children were aged 3.5–7.0 years and had met strict criteria reflecting the operation policy by measuring broad family centred outcomes not used in previous trials. It has already reported benefits from combined surgery versus medical management controls over one year. This paper reports outline adenoidectomy results over two years.

Results—Highly significant additional gains were obtained for the two year average in weight, dB hearing level, parent reported hearing difficulties, respiratory symptoms, parent quality of life, and on the first principal component summarising all outcomes. Additional benefit in aggressive behaviour, and in general health was marginal, but was null for non-aggressive behaviours, ear symptoms and balance. Seven of the adolescent adenoidectomy effect sizes were about 0.5 standard deviation; limited effect modification suggests little scope for indicators of groups that could be targeted receiving greater benefit. Re-insertion of grommets was performed according to strict criteria reflecting hearing level, and its frequency within two years was significantly lower in those with adenoidectomy (15% versus 34%).

Conclusions—Overall policy conclusions await the analysis of the economic data being gathered. However, given some complementarity of effects from the two operations over time, these results reiterate grommet insertion plus adenoidectomy as a serious candidate for a cost effective treatment policy.

Benefits of adjuvant adenooidectomy in persistent OME (glue ear)

M. M. Gannon (MRC Multi-Centre Otitis Media Study Group (MRC Institute of Hearing Research, Nottingham))

Excess winter deaths, socioeconomic deprivation and housing conditions

I. Gemmell (MRC Social and Public Health Sciences Unit, Glasgow)

Background—Seasonal patterns in mortality in the UK are known to be greater than in most other European countries. Research in the UK has failed to demonstrate a consistent association between excess deaths and area based measures of deprivation.

Objectives—To explore the association between excess winter mortality (defined as the number of deaths in the three months December to February divided by the number of deaths in the rest of the year), socioeconomic deprivation and housing conditions.

Methods—Binary regression analysis of postcode sector based excess winter mortality, deprivation and census housing variables incorporating information from the 1996 Scottish House Conditions Survey.

Results—Between 1988 and 1997 in Scotland, all cause excess winter mortality in people aged 65 and over was 41%. Excess winter mortality in this age group was positively associated with lack of home central heating, socioeconomic deprivation and fuel poverty (predicted total annual running cost/month spent on fuel). Multiple regression analysis identified lack of home central heating (p<0.012) and socioeconomic deprivation (p=0.015) as the main predictors of all cause excess winter mortality. While cause specific mortality was examined, winter deaths from ischaemic heart disease (ICD9 410–414) were positively associated with fuel poverty (p=0.014). Excess winter deaths from respiratory disease (ICD9 460–518) were positively associated with lack of home central heating (p=0.036) and dampness (p=0.029). Excess winter mortality was 54% for deaths from respiratory disease and 42% for deaths from ischaemic heart disease. Deaths from all other causes demonstrated an excess winter mortality of 38%. Postcode sector based regression analysis showed no association between excess winter mortality from these other causes and socioeconomic deprivation or housing.

Conclusion—Housing condition, particularly availability of central heating and levels of fuel poverty are more closely associated with excess winter deaths than traditional measures of deprivation. These findings suggest that excess winter deaths in Scotland could be substantially reduced if adequate affordable heating was more widely available.

The provision of information on the management and treatment of minor illness. Does it affect use of services or feelings of confidence in dealing with symptoms of minor illness?

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Background—Patients are bombarded with information about the management of minor illness from government and professional...
organisations. It is assumed that the provision of this information will result in less demand for primary care services, and will enable people to engage in self care practices with more confidence.

Study aims—To investigate whether the provision of a patient information booklet influences patients’ feelings of confidence in dealing with symptoms and signs of minor illness.

Design—Randomised controlled trial of two information booklets on the management of minor illness.

Main outcome measures—Use of services in 12 months following receipt of booklets and self reports of confidence in dealing with symptoms of minor illness.

Setting—20 Lothian general practices.

Subjects—Two random samples from participating practices—one of population from Community Health Index and one of users contacting out of hours services in the previous year (n=9408).

Intervention—Participants were randomised to three groups. One group (n=3098) received a copy of “What Should I Do?”. The second group (n=2781) received “Healthcare Manual” and the control group (n=2712) were invited to participate in the study but received no booklet.

Methods—All groups were posted an invitation to participate in the study, a booklet if appropriate, and the opportunity to opt out of the study. At eight weeks participants were mailed a questionnaire ascertaining health status, use of services, confidence in dealing with minor ailments and views of booklet. At one year, the number of health service contacts in the year before and year after the one year, the number of health service contacts in the year before and year after the intervention was collected by a team of nurses examining the medical record of participants.

Main results—Eighty seven per cent of the sample did not opt out of the study, 53% responded to the questionnaire. Receipt of booklet did not have significant effect on health service utilisation, although matched practices allocated to “Healthcare Manual” had relatively reduced consultation rates in comparison to matched practices allocated to “What Should I Do?”. The booklets did not impact on patients’ confidence in dealing with minor ailments measured by their response to both booklets. Both booklets were well received and valued by patients.

Conclusions—These findings suggest that widespread distribution of booklets containing information on the management of minor illness in order to affect consulting behaviour is not advisable.

All’s fair in love and cardiology? Sex differences in risk factors, treatment and survival after acute myocardial infarction—a prospective observational study

B Hanratty, D A Lawlor, R Sapsford, A Hall, D Greenwood, M B Robinson, B Jackson, C Morrell

Background and objectives—To explore the association between job satisfaction, self perceived stress, cardiovascular risk factors and mortality.

Design—Prospective observational study.

Setting—27 workplaces in the West of Scotland.

Participants—1006 women and 6022 men in current employment.

Introduction—Coronary heart disease is the major cause of death of postmenopausal women in industrialised countries. Although acute myocardial infarction (AMI) affects men in greater numbers, the short-term outcomes for women are worse. In the longer term, studies suggest that mortality risk for women is lower or similar to that of men. However, length of follow up and adjustment for confounding factors have varied and more important than the association between treatment and outcomes has not been examined.

Methods—All groups were posted an invitation to participate in the study, a booklet if appropriate, and the opportunity to opt out of the study. At eight weeks participants were mailed a questionnaire ascertaining health status, use of services, confidence in dealing with minor ailments and views of booklet. At one year, the number of health service contacts in the year before and year after the intervention was collected by a team of nurses examining the medical record of participants.

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Conclusions—These findings suggest that widespread distribution of booklets containing information on the management of minor illness in order to affect consulting behaviour is not advisable.
standardised mortality ratios (SMRs) and cause of death were determined by linkage to national mortality statistics and death certificates (99% complete). Patterns of referral and treatment were established by record linkage to routine data sets and a medical note search in a sample of 376 (35%).

Results—1076 cases of CRF were identified. Five year survival within the cohort was 34% with no gender difference. However, in comparison with the general population mortality was influenced by gender: SMRs for men and women were 2.10 and 2.85 respectively. Age was also a major determinant of mortality; SMRs for the age groups <50, 50–64, 65–74, and >74 years were 2.02 and 2.02 respectively. Vascular causes comprised 46% of deaths and renal disease was only mentioned on 17% of death certificates. Referral to a nephrologist was low (24%) and significantly influenced by age, comorbidity and severity of disease. Referral cases had more extensive investigations and therapy. Eleven per cent of cases showed progression with a doubling of Scr. 27% (n=33) of those with an Scr ≥300 µmol/l were accepted for renal replacement therapy, lower age was significantly related to acceptance.

Discussion—Survival in CRF is poor (about 90% of deaths were due to vascular causes). Only a minority were referred to a local nephrologist. The Renal Association recommends that all cases with an Scr ≥150 µmol/l should be seen by a nephrologist, so there is scope for increased referral, but the cost effectiveness and the implications of an increased workload have not been assessed. There is a strong association between vascular disease and CRF, highlighting the importance of interventions to reduce vascular disease, which may be as important as those aimed at CRF.

CVD MANAGEMENT

Appropriate coronary revascularisation: clinical outcomes in patients who do not receive it compared with those who do: the ACRE study

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Background—In the past decade, there has been widespread implementation of oral antiagulation as a routine or in favour of antiplatelet treatment in patients with non-rheumatic atrial fibrillation (NRAF) in the reduction of risk from stroke. This is based upon evidence from randomised controlled trials (RCT) comparing long term anticoagulation versus placebo and antiplatelet treatment versus placebo. However, these “indirect” comparisons of the effects of the two treatment options may be biased by different selection criteria used in trials leading to differences in prognosis unrelated to treatment and (2) over-estimate the effects found. It is, therefore, necessary to undertake a direct, “head to head” comparison so that unbiased estimates of which is the better treatment option can be determined.

Methods—We conducted a systematic review of RCT comparing long term antiagulation with antiplatelet treatment using the Cochrane library, Medline, Cinahl and Siple for grey literature from 1966 to December 1999. Odds ratios (OR) and 95% confidence intervals (95% CI) were calculated to estimate treatment effects.

Results—Five RCT published between 1980–99 were identified. Using a fixed effects model on the pooled data, there were no differences between the two treatment options in stroke or cardiovascular death (stroke OR 0.91, 95% CI 0.47, 1.74; vascular OR 0.84, 95% CI 0.62, 1.14). There was a significant difference in non-fatal stroke in favour of antiagulation (OR 0.65, 95% CI 0.47, 0.99). However, this difference was not seen when AFASAK 1 (in which there was selection bias, premature cessation of the study and unblinded observers) was excluded (OR 0.75, 95% CI 0.53, 1.12). Using a random effects model, there was also no difference in the combined fatal and non-fatal events (OR 0.74, 95% CI 0.57, 1.02). Major bleeding events among patients on antiagulation tended to be higher than on antiplatelet treatment (OR 1.45, 95% CI 0.93, 2.27).

Conclusion—The heterogeneity between the trials and the limited data result in considerable uncertainty about the value of antiagulation compared with antiplatelet treatment. The risks of bleeding and the higher cost of antiagulation make it an even less convincing treatment option. The trials were small in number, two were stopped prematurely and the one that demonstrated a difference in effect was methodologically weak in design, skewing the apparent treatment effects. Further large scale RCT are needed to establish the value of long term antiagulation in patients with NRAF.

Reducing absolute risk of cardiovascular disease: randomised controlled trial of training interventions to improve information systems or knowledge of evidence-based medicine in primary care

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Objectives—We sought to determine interventions designed with active participation from the practices to improve management of cardiovascular disease (CVD) information and improve the access to and interpretation of evidence of effectiveness for secondary CVD prevention, resulted in an improvement of risk management in patients with established CVD.

Design—A cluster factorial randomised controlled trial.

Participants—Participating practices: primary care teams from 17 general practices in West London. Participating patients: all patients with CVD, including anticoagulation, myocardial infarction, stroke, transient ischaemic attack or peripheral vascular disease patients and those who had undergone coronary artery bypass grafting, percutaneous transluminal coronary angioplasty or vascular surgery.

Interventions—Primary care teams were randomly allocated to complex training interven- tions designed with active participation from patient information for CVD risk assessment; (b) access to and understanding of the evidence of effectiveness of secondary CVD prevention; (c) both; or (d) neither.

Outcome measures—The primary outcome measure was used to determine the impact of these interventions, between baseline (1998) and follow up (1999) on three outcomes: (i) complete recording of CVD clinical risk factors necessary to calculate absolute five year risk of a further CVD event (age, sex, smoking status, blood pressure, cholesterol and diabetic status); (ii) appropriate treatment for modification of those risk factors—prescribing aspirin, control of cholesterol and blood pressure; and ultimately (iii) the modification of absolute risk.

Results—1261 CVD patients were identified at baseline, of which 959 (76.1%) were available for follow up. Completeness of recording the six clinical risk factors necessary to calculate absolute risk increased from 36.9% at baseline to 55.4% at follow up (p=0.02). Improvement from baseline to follow up varied according to the group (c)—information management and access to evidence combined—from 34.0% to 59.8% (p=0.002) and group (b)—evidence only—from 41.6% to 58.6% (p=0.04). Outcomes for group (a)—information management—of 14.5% and group (d)—control group—of 14.8% were not significantly greater than baseline.

Conclusion—In the first RCT of interventions designed by active participation from
primary care teams to improve management of absolute risk in patients with CVD the results show that the combination of training in information management and improved access to and interpretation of evidence of effectiveness resulted in the largest increase in comprehension and recording of absolute risk assessment.

Gender differences in health and lifestyle after acute myocardial infarction: relevance for rehabilitation

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Background—Studies of rehabilitation after acute myocardial infarction (MI) provide little information on gender differences. Most previous studies have focused on men and particularly men of working age, although a significant and increasing proportion of MI patients are women and half of all are aged 65 or more.

Patients and methods—The British Heart Foundation multicentre trial of rehabilitation after MI (n=1607) included 621 women. Data were collected on admission from clinical records, after discharge by structured interview using standard measures in patients own homes, at six months by repeated interview using the same standard measures and at 12 months clinical examination in outpatients.

Results—Comparisons showed many highly significant gender differences in health status, "natural history" of rehabilitation and lifestyle changes after MI. At discharge clinically significant anxiety was identified in 42% of women compared with 26% of men (p<0.001), depression in 28% versus 16% (p<0.001) and severe disability in 38% versus 15% (p<0.001). At six months follow up these differences persisted and women had experienced significantly more comorbidity (4.0 versus 3.5 prescribed medications per day p<0.001), fewer had changed their diet 55% versus 64% (p=0.01), returned to work (among those previously in paid employment) 31% versus 52% (p<0.001) or undertook any physical exercise 36% versus 83% (p<0.001).

Conclusions—This study shows major differences between women and men in a number of standard measures both early after MI and six months later. The findings have implications for cardiac rehabilitation, which currently focuses on gym-based exercise. Programmes should be designed with sufficient flexibility to respond to different patient needs.

Angina: the self care/primary care interface

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Objectives—To describe and explain social class and gender variations in perceptions and primary care presentation of angina.

Design—Here, we present the qualitative component of a three stage study that included a survey of any angina questionnaire, to identify people with chest pain (n=5033); a general practice casenote review of those thus identified (n=650) and a qualitative interview study (n=60).

Setting—Two socially contrasting areas of Glasgow.

Participants—Thirty men and thirty women, aged 45–64 with Rose angina.

Results—The casenote review showed (i) people from the more deprived area were more likely to present with chest pain than those from the affluent area and (ii) men were more likely to present than women. The qualitative study demonstrated that respondents' decisions of whether to present were influenced by their perceived vulnerability to heart disease and their perceived options for action. To test their risk, participants took into account (i) their family history of heart disease, (ii) their cardiac risk behaviours and (iii) their perceived capacity for self care, opportunities for lay consultation and the perceived quality of previous encounters with health service professionals. Compared with those from the affluent area, those from the socially deprived area generally felt more vulnerable to heart disease, yet were often reluctant to seek medical help for chest pain because of low expectations of their health and of health services. Women were much more likely to present with a cardiac stereotype. They also considered competing explanations, such as other diseases or aging. Options for action included self care, lay consultation and primary care. The decision about action was influenced by the perceived capacity for self care, opportunities for lay consultation and the perceived quality of previous encounters with health service professionals.

Conclusion—Inequities in access to cardiology services have been described by others and it is increasingly recognised that research at the self care/primary care interface is important to understanding such inequities. This study outlines the factors that influence the progression from self care to primary care of people with angina. By understanding these processes, it should be possible, through patient education, to improve the appropriateness of primary care presentation for angina and to reduce inequities in access to cardiology services.

Pattern of associations between social class, education and Townsend Score and coronary heart disease, diabetes/impaired glucose intolerance and risk factors: cross sectional comparison of South Asians with Europeans

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Background—Studying health inequalities within ethnic groups in Britain is difficult because there are no widely applicable measures of socioeconomic position. Existing studies have given conflicting results. This paper applies the Townsend deprivation score widely used in European origin populations to three South Asian groups and to a wider range of health measures than studied hitherto.

Objectives—To compare the pattern of associations between social class, education and Townsend Deprivation Score and coronary heart disease, glucose intolerance (impaired glucose intolerance) and related risk factors in South Asians (Indians, Pakistanis, Bangladeshis) and Europeans, to test the hypothesis that associations would show worse risk profile or health in the socioeconomically disadvantaged in all ethnic groups (the predicted direction).

Setting and population—South Asians (n=684) comprising Indians (n=259), Pakistanis (n=305) and Bangladeshis (n=120), and Europeans (n=825), aged 25–74 years in Newcastle upon Tyne.

Design, methods and main outcome measure—Secondary analysis of cross sectional data from a questionnaire and clinical screening study. Eighty four associations were examined in each ethnic group relating to diseases (12 associations), lifestyle factors (51 associations), physical measures (24 associations), blood pressure (12 associations) and biochemistry (18 associations). Direction of association was the key outcome.

Results—Socioeconomic indicators were mostly associated with health measures as predicted in Europeans (71 of 84 (85%) associations) and less so in South Asians combined (56 of 84 (67%) associations). In Indians, only Townsend Deprivation Score, was consistently associated as predicted (23 of 28 (82%)). In Pakistanis and Bangladeshis associations with all socioeconomic measures were inconsistent. There were some differences between South Asians and Europeans (62 of 118 (52%) associations as predicted), Pakistanis (39 of 84, 46%) and Bangladeshis (40 of 84, 48%). In South Asian men and women associations were as predicted with most anthropometric (18) and blood pressure (18) measures (17% and 18%, respectively). In women, there were more consistently as predicted in Indians than Bangladeshis. South Asians' pattern of health inequalities differs from Europeans. Other explanations for the findings include artefacts from small sample size, differences in acculturation in Indians, Pakistanis and Bangladeshis, and that the chosen indicators were inappropriate for South Asian populations. Studies of inequalities in health should examine Indians, Pakistanis and Bangladeshis separately.

Deprivation and death in Scotland: constructing a graphical cohort survival model

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Objectives—To present disease specific population mortality data in a clear format.

Background—Tables summarising the effects of deprivation on age specific mortality can be difficult to explain to lay audiences and non-specialists. Worse still, their initial configuration can be shattered with the arrival of the concept of competing mortality. One of the conceptually clearest forms of population mortality data is the survival of a birth cohort. We set out to construct cohorts of the Scottish population to examine and illustrate the effects of deprivation on disease specific and overall mortality.

Setting—Scottish population of 5.1 million.

Methods—For cohorts of older people, there will inevitably have been a number of deaths in early childhood and young adulthood (particularly war service). But from the point of view of chronic diseases, deaths are relatively rare until people reach their mid 50s. We therefore identified a population...
Spatial variation in mortality and morbidity and the relations with social deprivation and accessibility to health services

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Objectives—To study the spatial variation in mortality and self-perceived morbidity in a region with a significant rural population. To examine whether the generic deprivation indices adequately reflect deprivation in rural areas, and whether these can be improved upon by the use of customised measures. To explore the association of access to primary and secondary health care with such variation.

Design—A geographically based cross-sectional study examining urban-rural and intra-rural variations in two health outcome measures, using several definitions of rurality. Correlation and regression analyses explore how well these are explained by generic deprivation indices. Multilevel Poisson modelling investigates whether Customised Deprivation Profiles (CDPs), area characteristics and access to GP surgeries and acute district general hospitals improve upon the explanatory power of the generic indices.

Setting—Nine counties in the south west of England, comprising of just over six million.

Main outcome measures—1991 Census limiting long term illness (LLTI) (0–64), and 1991–1996 all cause mortality (0–74).

Results—Intra-rural LLTI is apparent, with higher rates of premature LLTI, but not premature mortality, in remoter areas. The generic deprivation indices have strong positive relations with the health outcome measures in urban areas, but these are much weaker in semi-rural and rural locations. CDPs improve upon the generic indices, especially in the rural settings. A substantial reduction in unexplained variation in LLTI in rural areas is seen after controlling for the level of local isolation, with higher isolation, at the wider geographical scale, being related to higher levels of LLTI. The results for SMR will be presented as well as the associations between access to health care and both health outcomes.

Conclusions—This study highlights the need to treat rural areas as heterogeneous, although this may result in a tendency to incorporate research evidence in their everyday work. Practice guidelines are one of the key tactics advocated by the proponents of evidence-based medicine (EBM) to ensure that clinicians apply research evidence to their practice. The critics of EBM contend that there are fundamental differences between the formalised rules encapsulated in guidelines and the type of knowledge required to practice medicine. Much of the opposition to guidelines has been rooted in philosophical arguments about the tensions between “art” and “science”, and surgeons, in particular have been quick to argue that the exercise of clinical judgement makes the use of guidelines problematic. The aim of this paper is to suggest why surgeons ignore guidelines.

HEALTH SERVICES RESEARCH 1

Why surgeons don’t follow guidelines

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Introduction—Widespread and persistent medical and surgical practice variation is held to be a consequence of the failure of clinicians to incorporate research evidence in their everyday work. Practice guidelines are one of the key tactics advocated by the proponents of evidence-based medicine (EBM) to ensure that clinicians apply research evidence to their practice. The critics of EBM contend that there are fundamental differences between the formalised rules encapsulated in guidelines and the type of knowledge required to practice medicine. Much of the opposition to guidelines has been rooted in philosophical arguments about the tensions between “art” and “science”, and surgeons, in particular have been quick to argue that the exercise of clinical judgement makes the use of guidelines problematic. The aim of this paper is to suggest why surgeons ignore guidelines.

Methods—A qualitative study of 34 surgeons practicing urology, gynaecology or pelvic surgery in the UK and USA, involved in treating women with stress urinary incontinence. Qualitative interviews and observational methods were used to explore surgeons’ views of surgical practice, to examine the nature of everyday surgical work and consider the applicability of guidelines to this area of medical work. Analysis used techniques of constant comparison to generate themes and categories.
**Results**—Surgeons view surgical work as contingent: they describe it as both dependent on conditional factors and subject to chance. They respond to contingency by drawing on tacit knowledge and instinctive responses. Surgical judgement provides a strong justification for resisting the imposition of guidelines.

**Conclusion**—The technical knowledge embodied in guidelines may be difficult to reconcile with the individual and practical nature of everyday surgical work.

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**Does “practice make perfect”?** Volume of work and outcome in intensive care

C Goldfrad, K Crowan

**Background**—Before a policy to regionalise intensive care in the UK was implemented, it is important to have evidence that larger centres seeing greater numbers of patients achieve better outcomes for patients. There is little evidence, however, that larger centres provide better outcomes for patients. Previous analyses on 26 intensive care units (ICUs) using data from 1988–90 in the UK showed a statistically significant negative association between higher volumes of work and lower crude hospital death rates that could not be demonstrated after case mix adjustment. Given the small sample size of 26 ICUs in the earlier work, we repeated these analyses on a larger number of ICUs.

**Methods**—The relation between average daily ICU volume and hospital outcome was investigated for 46,587 admissions to 91 adult ICUs in the Case Mix Programme Database covering the period 1995–99. The average daily volume for each unit was calculated as the number of admissions divided by the number of days in the data collection period for each unit. The same analysis was repeated for solely surgical and non-surgical admissions.

**Results**—Unit volume varied from 2.3 to 26.6 admissions per week across ICUs, while ultimate hospital mortality rates varied from 17.7% to 48.7%. The proportion of surgical admissions varied from 8.6% to 71.2% across ICUs. For all admissions to ICU, there was a statistically significant negative association between unit volume and ultimate hospital death rate (Pearson correlation coefficient \( p = 0.215, \text{p value} = 0.041 \)). After adjustment for case mix, however, this negative association was no longer statistically significant (\( p = 0.190, \text{p value} = 0.071 \)). Similar results were found for solely surgical admissions (crude: \( p = 0.275, \text{p value} = 0.008 \); case mix adjusted: \( p = 0.227, \text{p value} = 0.029 \)). For solely non-surgical admissions, the negative association remained statistically significant after adjustment for case mix admissions (crude: \( p = 0.220, \text{p value} = 0.036 \); case mix adjusted: \( p = 0.08, \text{p value} = 0.048 \)).

**Conclusions**—Results showed no overall benefit of higher unit volume for case mix adjusted ultimate hospital mortality, although there was some marginal evidence of benefit for non-surgical admissions. To better understand the relation between volume and outcome, further analyses for subgroups of patients, with diseases that are rare in some ICUs, are warranted.

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**Do hospitals influence their own death rates?**

H M Baille, A H Leyland, A Body

**Objectives**—To assess the accuracy of death certificates in hospital deaths, using a pragmatic approach and randomisation of hospitals among general practitioners.

**Methods**—All new patients attending urology clinics in two hospitals were randomised to a consultation recorded using traditional notes versus structured forms. The completeness of the notes was compared using a 15 point scale of essential data items. The time taken to complete the forms and traditional notes was recorded. All the clinicians were given a questionnaire to assess acceptability of the forms.

**Results**—Over six months, 200 patients were randomised between 15 clinicians. There were significant differences in the completeness of death certificates under traditional notes (TN) and the structured forms for the following items: clinicians name (TN 32%, risk difference (RD) +53%, confidence intervals (CI) 41, 65), drug history (RD 28%, 48), discharge data in order to address methodological aspects of this broad question. This research was a part of the Scottish component of the study and uses linked data from the Scottish NHS together with organisational information about Scottish hospitals and data from a more detailed survey of nurses in acute hospitals. The analysis uses multilevel modelling with a three level model describing area, patient and hospital effects.

**Data**—The data cover all patients discharged from any one of the 29 acute hospitals in Scotland in 1997/98 in any of five diagnostic groups: 8440 patients with acute myocardial infarction (AMI), 4634 with bacterial pneumonia, 6716 with chronic obstructive pulmonary disease (COPD), 6328 with stroke and 5825 with chronic heart failure.

**Conclusions**—Crude death rates for these conditions varied by factors of between two and four: as examples, unadjusted death rates for AMI varied from 12.1% to 24.7% and those for stroke from 17.1% to 55.5%. Explanations for these differences, of course, require adjustment for several possible influences: within broad diagnostic categories it is necessary to take account of the influence of comorbidities; the demographic characteristics of a hospital’s patients and its admission and discharge policies are clearly relevant, as is the population served by a particular hospital in terms of its patterns of health and social characteristics. As a further example, crude hospital death rates for COPD ranged between 2.7% and 11.5%; overall, a high proportion of deaths are explained by variables that were not within the control of individual hospitals.

**Conclusions**—Answers to the question of whether hospitals are able to influence death rates require more detailed exploration. More specific questions addressed in this paper include whether adjusted outcomes for specific diagnostic groups are correlated (implying links to other hospital attributes); whether hospital effects are focused on particular patient groups (such as those who have longer lengths of stay); and whether organisational features of different hospitals influence outcomes. Answers to these questions are relevant to “good practice” in the evaluation of hospital care, but are also germane to such wider questions as resource allocation and service planning.

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**Changing the medical record—improving quality**

K Thomas, J Emberton, M Lee, B Reeves

**Objectives**—To assess whether structured outcome forms significantly improved the completeness of urological documentation. The differences seen were most dramatic (risk difference >45%) in the following: clinician name, allergies, social history, diagnosis and consultation outcome. This simple and economical method of improving the quality of documentation in the medical record has obvious benefits for patient care, audit, research and medicolegal claims.

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The United Kingdom Neonatal Staffing Study

G Parry, J Tucker, C Tarnop-Mordi, C Mccabe, P Nicolson

**Objectives**—To assess whether adjusted outcomes of neonatal intensive care are related to differences in patient volume, levels of nursing and medical staffing and workload. Design—A prospective, study of volumes for a cohort of infants consecutively admitted to a random sample of UK neonatal intensive care units, stratified in a 3×2×2 factorial matrix by high, medium, or low volume of patients; higher versus lower provision of nursing staff; and higher versus lower neonatal consultant availability.

Setting—54 UK neonatal intensive care units within the National Health Service.


Main outcome measures—Death before hospital discharge; major brain damage of probable nosocomial origin; bacteraemia or septicaemia of probable nosocomial origin, adjusted for risk using the Clinical Risk Index for Babies (CRIB) score and other case mix variables obtained in the first 12 hours after birth.

Results—High volume units were found to care for sicker infants than medium and low volume units. The percentage of infants with a CRIB Score greater than 0 was 32% in high volume units, 26% in medium volume units and 23% in low volume units. No differences were found in the results of the studies between the three groups.
were found in the risk adjusted odds of mortality, mortality or brain damage and nosocomial bacteraemia with patient volume, consultant availability and nursing provision. Infants admitted during periods when occupancy of cots was above 70% were found to have increased risk adjusted odds of mortality (1.64, 95% confidence intervals 1.10, 2.45) compared with periods of lower occupancy. Conclusions—The current system of neonatal intensive care in the UK reveals no differences in risk adjusted outcomes in simple relation to these major organisational characteristics. There is an increased risk of mortality for all infants admitted when units approach maximum occupancy of cots. Neonatal intensive care may need to be reconfigured to reduce the occasions when units approach maximum occupancy of cots.

**EVIDENCE-BASED MEDICINE/SYSTEMATIC REVIEW**

The Emperor’s New Clothes: general practitioner views on evidence-based medicine and the role of clinical effect-iveness evidence—a qualitative study

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Background—Both development work to promote evidence-based medicine (EBM) and studies, which evaluate the impact of these activities, are mostly based on the assumption that GPs hold the same views and beliefs about what EBM is, to those of the EBM promotion materials. There is growing evidence in the literature that this is not the case and this assumption may contribute to the low impact of attempts to promote EBM among GPs.

Research aims—How can EBM be best defined, understood and supported in general practice and what are the implications for Primary Care Groups/Trusts approaches to Clinical Governance?

Method—Qualitative methods were used in one case study, a Health Authority area. Semi-structured face to face interviews and group discussions were carried out. Both interview and discussion schedule were piloted. A purposive sample of 98 GPs from a possible 148 were involved in interviews (12), group discussion (40) and pilot (6).

Findings—General practice was defined by GPs as a combination of art and science dealing with both the clinical and social aspects of patients’ health and illness. Decision making in general practice was seen to be a patient and context specific involving a range of factors to be taken into account in a clinical judgement. Patient expectation was an important factor. Established definitions of EBM were not felt to fully recognise the complex dynamics of decision making and childbirth. Antenatally: 1386 women reaching 28 weeks gestation before, and 1778 after, the intervention; i.e., interventionally: 1714 women at eight weeks post delivery before, and 1547 after, the intervention.

Intervention—Informed Choice leaflets for all women delivering in an eight month period, leaflets for all midwives, and a two hour training session for staff in each intervention unit.

Main outcome measures—The primary outcome was the proportion of women reporting that they had exercised informed choice overall in their maternity care. Secondary outcomes were the components of informed choice, such as women’s knowledge levels of topics covered by the leaflets and their satisfaction with information; and the possible consequences of informed choice, such as women’s emotional health, satisfaction with services, and change in service usage.

Results—The overall response rate to the questionnaires was 64% (6452 of 10 070). The change in the proportion of women exercising informed choice was 1% (95% confidence intervals 95% CI −13%, 15%) for women antenatally and −4% (95% CI −13%, 5%) for women postnatally. There was an increase in knowledge levels postnatally of 0.24 (95% CI 0.03, 0.45) on a 10 point scale and the uptake of screening tests for Down’s syndrome and spina bifida decreased by 10% (95% CI −20, −1), although these were no longer statistically significant when adjusted for confounders.

Conclusions—The use of Informed Choice leaflets on a service wide basis was not effective in delivering informed choice. Qualitative research undertaken alongside the trial identified problems with the implementation of informed choice rather than the intervention itself.

Understanding the role of opinion leaders in putting evidence into practice: the methodological challenge of reviewing qualitative research

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Objective—To explore the methodological problems involved in taking an overview of seven recent qualitative studies by two groups of organisational behaviour researchers, which examined the process of getting evidence into practice. To discuss what benefits of this exercise in terms of its contribution to understanding the change process.

Methods—The seven studies used similar case study methods, using in depth semi-structured interviews and different interview and discussion techniques

—EBM in general practice

—Pragmatic cluster trial, with randomisation of five maternity units to intervention and five to act as controls. Postal randomisation of five maternity units to intervention and five to act as controls. Postal randomisation of five maternity units to intervention and five to act as controls.

—Both development work to promote a patient and context specific involving a range of factors to be taken into account in a clinical judgement. Patient expectation was an important factor. Established definitions of EBM were not felt to fully recognise the complex dynamics of decision making and the role of evidence-based leaflets on promoting informed choice among users of maternity services.

Design—Pragmatic cluster trial, with randomisation of five maternity units to intervention and five to act as controls. Postal randomisation of five maternity units to intervention and five to act as controls.

Results—We have so far analysed one of the identified themes: the role of clinical opinion leaders. This emerged consistently as crucial for the flow of evidence into practice. However, subjective understandings of the role differ widely among respondents, and there is a spread of different role definitions (notably expert and peer opinion leaders, and the impact of opinion leaders). Researchers also understand the role differently. They attach subtly different meanings to the same term, or use different terms to mean similar things. One team preferred the term “opinion leaders” (encompassing hostile reactions); the other preferred the term “product champions” and treated hostile stakeholders separately. This perhaps raises a question about how far one can “systematically” review material—whether from case studies or randomised controlled trials—when such different definitions are in use, and the reviewer is in part acting as translator. Different understandings of these terms will have affected how questions about opinion leaders were constructed and asked, and how responses were interpreted and categorised.

Conclusions—Qualitative research often produces small scale, non-generalisable results. Developing more cumulative findings by taking an overview across such studies could help validate and reinforce evidence from individual studies; our experience so far suggests consistent themes can usefully be identified, but a number of methodological difficulties remain to be worked through.

Systematic sense—clinical nonsense

K HOPSTAN (School of Health Policy and Practice, University of East Anglia)

Introduction—Systematic reviews may be internally consistent and may satisfy the criteria for being adequately conducted. However, they may come to clinical sense they will fail to convince clinicians. Reviews of the effectiveness of epidural corticosteroid injections for low back pain and sciatica illustrate this well. Practitioners will want an answer to the question,
"If I give an epidural corticosteroid injection to a patient with low back pain or sciatica in primary care or outpatients, will the patient get pain relief more quickly than if I do not?"

Method—Three systematic reviews on the subject, including a Cochrane review, have been published. The trials included in the reviews were scrutinised for the relevance of the study population, clinical appropriateness of the intervention, and the adequacy of the outcome measures.

Results—The conduct of the reviews did not make sense from a practitioner’s viewpoint. The following faults were identified: (1) One review said more about the inadequacies of previous wound scoring than about the condition under study by demonstrating that methodological quality was not related to statistical significance. (2) Two reviews included populations, such as postoperative patients, who are likely to be better suited for this role in systematic reviews. (3) Two reviews included a study with an inappropriate intervention: patients in the placebo group were crossed over to active treatment so early as to invalidate the outcome assessment and to invalidate the eventual pooling. (4) Studies with poor outcome assessments were included. Their inclusion arose from the review team’s lack of attention to the methodological rating systems which give lower weighting to outcome assessments (maximum of 5 points out of a potential total of 100) than to other aspects of study design. These older studies might have been acceptable at the time of the primary research but the assessments are unacceptable to practitioners now, who form the audience for this secondary research.

Conclusion—These systematic reviews lost sight of the question asked by clinicians. Greater attention should be paid to understanding the condition and the interventions so that studies are selected on the basis of their relevance and appropriateness. Greater attention should also be paid to the adequacy of the outcome measures. Clinicians may be best suited for this role in systematic reviews.

A systematic review of the definition and measurement of surgical wound infection

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Introduction—The measurement and monitoring of surgical adverse events is of growing importance given the increase in innovative surgical techniques. Furthermore, the general decline in hospital length of stay has contributed to a need to review whether postoperative events are being accurately and comprehensively monitored.

Objectives—To review the definition and measurement of surgical wound infection.

Study design—A systematic review of prospective, follow up, cohort and longitudinal studies of surgical wound infection published in English between 1993 and 1999. This study was undertaken as part of an NHS R & D Health Technology Assessment methodological review.

Main outcome measures—(1) The definition of surgical wound infection, (2) identification of measurement, scoring or grading systems and (3) the assessment of the validity, reliability, accuracy and practicality of identified definitions and grading systems.

Results—Over 1400 abstracts were retrieved and read; 240 articles fulfilled eligibility criteria and were assessed by two independent reviewers. Preliminary findings suggest that there is no clear consensus on the definition of surgical wound infection. There is large variation in the measurement of wound infection and little evidence on the validity and reliability of wound scoring and grading systems currently in practice.

Conclusion—Despite international efforts at surveillance over at least 20 years, there is wide variation in the definition of surgical wound infection in the published literature. The measurement of postoperative wound infection is hampered by the lack of a standardised, repeatable and validated definition. Given the trend towards decreased hospital length of stay it is crucial that a single repeatable definition be used in the measurement of surgical wound infection in both hospital and post-discharge settings.

WOMEN’S HEALTH

Cardiovascular disease in women in Scotland: long term implications of hypertension in pregnancy

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Background—Scotland has one of the highest rates of cardiovascular disease mortality in the world. Women are exposed to the same cardiovascular risk factors as men and to a number of gender specific risk factors such as pregnancy, menopause, hysterectomy and the use of exogenous hormones. Vital statistics data suggest, that, compared with nulliparous women, parous women have higher mortality from hypertension, ischaemic and degenerative heart disease and cerebrovascular disease. Recent case-control studies have suggested a strong association between pregnancy related hypertensive diseases and later cardiovascular morbidity. However, these studies are potentially confounded by recall bias. We have conducted a cohort study to test this hypothesis, starting with reliable data on exposure to raised blood pressure during pregnancy.

Methods—Women who delivered their first baby in Aberdeen maternity hospitals between 1951 and 1970 were identified from the Aberdeen Maternity and Neonatal Database. The women with pre-eclampsia/ eclampsia (defined using internationally agreed criteria) were age matched with those with gestational hypertension and those with normotensive pregnancies. The women were traced through their medical records in Grampian and contacted with the knowledge of their GP. A total of 1876 were invited to conduct a physical examination of 76 per cent was obtained and we were able to conduct a physical examination of 76 per cent of the questionnaire respondents. Differences between the three study groups were observed for body mass index and smoking history. Overall analysis indicates statistically significant excess risks of hypertension at follow up clinical examination, and of hospital discharge diagnoses of hypertension, ischaemic heart disease and circulatory disorders in women with previous hypertensive disease of pregnancy.

Conclusion—These data contribute to a growing understanding of the pathogenesis of cardiovascular disease in women. If the associations described here are real, we suggest that long term follow up of women who have raised blood pressure during pregnancy might be warranted in order to minimise morbidity due to cardiovascular and circulatory diseases in later life.

The association between HbA1c levels in early pregnancy and poor pregnancy outcomes

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Objectives—To assess the relation between HbA1c levels in the first trimester of pregnancy in women with pre-existing insulin dependent diabetes mellitus in whom an HbA1c was recorded at 102 weeks gestation. Pregnancies resulting in a live or stillborn infant were included. HbA1c measurements were normalised using the criteria of the Standardisation Initiative for Glycated Haemoglobin.

Design—Prospective cohort study.

Setting—Geographically defined cohort, attending 10 centres for maternity care in north west England.

Main outcome measures—Adjusted HbA1c measurement in the first trimester of pregnancy. The prevalence of congenital anomalies.

Results—202 pregnancies were included in the analysis. The HbA1c values were divided into tertiles. The prevalence of congenital anomalies in the lowest tertile was not statistically different from that observed in the general population, (14/1000 total births; 95% confidence intervals (95% CI) 0, 43/1000). In contrast, the prevalence of congenital anomalies in women in the uppermost tertile was nine times higher (134/1000; 95% CI 53, 216/1000).

Conclusions—The findings suggest that there may be a threshold level for HbA1c, in pregnant women with insulin diabetes mellitus, below which the risk of congenital anomalies in their offspring approaches that seen in the general population.


1 J IBISON (Department of General Practice and Primary Care, St George’s Hospital Medical School, London)

Objectives—To analyse the variation in mode of delivery in primiparous women, by ethnic group.

Design—Retrospective analysis of a computerised obstetric dataset.


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Changes with age in the socioeconomic gradient in hysterectomy: findings from a national cohort

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Objectives—To examine whether the striking social gradient in hysterectomy observed in a cohort of women at ages 43 years attenuated in the fifth decade of life.

Methods—1759 (69%) of 2547 women born in England, Scotland and Wales followed up since birth until the age of 52 years who provided information on gynaecological surgery. Socioeconomic status was measured using highest educational qualifications, partner’s and own social class and childhood social class. Cox’s regression models were used to examine the risk of hysterectomy by education, fitted as a categorical factor with no qualifications as baseline, and social class, fitted as a linear trend with social class V as baseline. Time dependent covariates were used to assess whether the effects remained constant at all ages.

Results—The cumulative hysterectomy risk doubled (from 10 to 21%) between age 43 and 52 years. By 52 years, women with less education were 1.51 times more likely to have had an hysterectomy (p=0.005) but the hazard ratio for women in the highest three educational categories, compared with women with no qualifications, attenuated with increasing age. For ages up to 43 years, the social gradient in hysterectomy was associated with partner’s social class (hazard ratio (HR)=0.85; 95% confidence intervals (95% CI) 0.75, 0.95) found previously was confirmed, while an equivalent analysis with follow-up to age 52 years indicated a weaker effect (HR=0.93; 95% CI 0.86, 1.01). A piecewise Cox’s regression model with two time intervals (up to age 43 years and 44–52 years) provided evidence of a difference in effect for parity at age 43 (p=0.017). A lack of a gradient between age 44–52 years (HR=1.01; 95% CI 0.89, 1.15) was observed. A gradient with childhood social class was observed (p=0.003), which remained constant over time periods (HR=0.88; 95% CI 0.81, 0.96). Adjustment for parity, obesity and prior sterilisation did not account for the differences by education or by father’s and partner’s social class. The effect of own social class was of marginal significance during both time periods.

Conclusions—This is the first study to report changing effects in the social gradient in the risk of hysterectomy. The greater social differentials at younger rather than older ages may be due to the increased proportion of hysterectomies for benign diagnoses among younger women. Alternatively, the diseases and conditions for which hysterectomy provides a treatment may occur later in women from higher social groups. The constant effect of childhood social class may reflect differences in gynaecological health throughout life.

What is meant by “heavy periods”? P WARNER, H O D CRITCHELEY, M A LUMSDEN, M CAMPBELL-BROWN, A DOUGLAS, G D MURRAY (Public Health Sciences, University of Edinburgh, Obstetrics and Gynaecology, University of Edinburgh, Department of Obstetrics and Gynaecology, University of Glasgow)

Introduction—Although the formal definition of menorrhagia (excessive periods) is blood loss over 80 mL per period, objective assessment of volume of loss is rarely undertaken in routine clinical practice. The fact that management and treatment depends on subjective complaint of “heavy periods” occasions considerable unease, as it has been found that if blood loss is measured fewer than half of menorrhagia referrals have excessive loss by defined criteria.

Design—Cross sectional questionnaire survey.

Setting—Gynaecology outpatient clinics at three hospitals in Edinburgh and Glasgow.

Participants—Women aged 25–49 years, newly referred for menstrual problems (n=952).

Main outcome measures—Report of menstrual experience, deprivation code, subjective judgement of periods, referral for menorrhagia.

Results—Among 343 (36%) women reporting periods as very heavy, less than half (47%) state volume of loss as a severe problem, and only a third (35%) say it contributed to healthcare seeking. The majority of referrals were for excessive periods (719, 76%) but even within this subgroup only 43% reported their periods as “very heavy”. Logistic regression analyses were undertaken to construct a model explaining subjective judgement of periods as “very heavy”. This shows that “very heavy” periods are associated with a range of menstrual aspects being experienced as problematic, particularly “accidents”, change from normal, volume of loss, and pain, but also, at least to some extent, with having to get up to change protection at night and needing to use double protection. Reporting of “very heavy” periods was not associated with deprivation category but there was a strong deprivation gradient for reporting the various aspects of menstruation as “severe problem”, including extra washing caused and cost of sanitary protection, with up to a fourfold increase in prevalence with deprivation.

CANCER

Specialisation, survival and clinical practice in patients with pancreatic, oesophageal and gastric cancer. M WARNER, D ALDERSON, D EDWARDS, C BEDFORD, S WOOTTON, T PETERS, I HARVEY (MRC Health Services Research Collaboration, University of Bristol, Department of Social Medicine, University of Bristol, Department of Surgery, University of Bristol)

Objectives—To examine the relations between specialisation of cancer care (indicated by volumes of patients managed annually by doctors and hospitals) and clinical practice and patient mortality.

Design—Cohort study. Multiple logistic regression and Cox’s proportional hazards models were adjusted for patient and prognostic variables. Each cancer was examined separately.

Setting—Hospitals in south and west England, and (for pancreas) south Wales.

Participants—2294 patients newly diagnosed as having gastric, oesophageal or pancreatic cancer, between June 1996 and May 1997.

Main outcome measures—Test and treatments provided. Operative (30 day) mortality. Survival time.

Results—Patients of higher volume hospitals and doctors tended to have better prognostic factors. Several investigations were more likely with increasing doctor volume. Patients of higher volume doctors were more likely to...
have resections. "No active treatment" was more likely with lower doctor volumes for all three cancers and with lower hospital volumes for pancreatic cancer. Survival time was longer with higher doctor volumes for oesophageal cancer and with higher hospital volumes in all three cancers. (adjusted hazard ratios attributable to managing 40 more patients per year: 0.69 (95% confidence intervals 0.52, 0.96) for oesophageal and gastric cancers (adjusted odds ratios attributable to managing 10 more patients per year: 0.68 (95% CI 0.52, 0.96) and 0.60 (95% CI 0.39, 1.00) respectively, but for pancreatic cancers was not associated with doctor or hospital volumes.

Conclusions—Specialist cancer care, as indicated by patient volumes, was significantly and substantially associated with lower mortality. Clinical practice was influenced more by doctor specialisation than by hospital specialisation. The study supports the specialisation of care. Specialisation of care is at least as important as specialisation of hospitals, especially for oesophageal and gastric cancers.

Inequalities in survival from colorectal cancer: data from the Wessex Colorectal Cancer & Breast Cancer Intelligence Unit, Winchester

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Introduction—Inequalities in survival between deprivation and survival from a wide range of cancers has been well documented, but the underlying reasons are not well understood. Delay in presentation, comorbidity and inequity of treatment have been cited as possible factors. We investigated the effect of deprivation on survival from colorectal cancer while controlling for prognostic factors of age, sex, site of cancer, Duke's stage at diagnosis, comorbidity at presentation, emergency versus elective initial surgery and specialist versus non-specialist surgeon.

Methods—All incident cases of colorectal cancer in the residents of Wessex, SW England, over a three year period between 1991 and 1994 were included in the study (n=5176). Patients with complete data on all prognostic factors were included in the survival analysis (n=4169). Depreciation was measured using the Townsend score of the patient's postcode of residence. Z tests were used to identify differences between included and excluded cases. Kaplan-Meier analysis was used to confirm the effect of the above variables on survival in this population, and survival of the most and least deprived quintiles of the study population was compared using Cox regression analysis. For patients presenting with Duke's stage C cancer, numbers receiving chemotherapy in the most and least deprived population quintiles were compared.

Results—Patients excluded from the analysis had a similar level of deprivation to those included: (Z=0.18, p=0.5), but had shorter median survival times (45 versus 1096 days). The unadjusted hazard ratio for dying from colorectal cancer in the most deprived versus the most affluent (20%) was 1.22 (95% confidence intervals 0.95% CI 1.07, 1.39). After adjustment for these prognostic factors, the hazard ratio was reduced to 1.26 (95% CI 0.99, 1.40). For patients presenting with Duke's stage C cancer, receiving postoperative chemotherapy was significantly related to deprivation: 6.8% (n=13) of the most deprived quintile versus 18.3% (n=35) of the most affluent quintile (Z=11.5, p=0.0007).

Conclusions—In this population-based cohort, survival from colorectal cancer is associated with material deprivation. The differences in survival cannot be explained in terms of known prognostic factors such as the stage of disease at diagnosis, initial health status, or surgical treatment. We found no evidence of differential exclusion of more deprived patients, but patients with short survival times were differentially excluded, raising our overall estimate of survival. There is some evidence that, in this population, chemotheraphy treatment varied by deprivation, though this was not sufficient to explain survival differences. Further investigation at the level of individual patients is necessary to identify the underlying causes of such survival differences.

Exploring some QALY assumptions: the views of bereaved relatives about the value of survival in malignant cerebral glioma

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Background—Malignant cerebral glioma provides one example of a potential trade off between quality and length of survival. The median survival after surgery is increased from only 1–2 months to around 10 by radiotherapy and only 5–15% of patients survive two years. Radiotherapy takes six weeks and a range of adverse effects including fatigue, deterioration and cognitive problems may follow. An economic appraisal shows that the cost of achieving one QALY is over £100 000.

Objective—To explore the views of bereaved relatives of patients with malignant cerebral glioma about survival following radiotherapy.

Design—Semi-structured interviews with relatives of patients previously studied between diagnosis and death.

Setting—Patients were referred to radiotherapy at five London hospitals between 1990-2.

Subjects—56 relatives (44 spouses; 12 others) seen 4–6 months after bereavement and 20 relatives interviewed in the first month.

Main outcome measures—Relatives' views about quality of life and the value of radiotherapy.

Results—Relatives viewed quality of life as good or acceptable when they saw patients as having been fit, able to carry on some normal activities or to enjoy social relationships. They described restricted and dependent states, constant deterioration or loss of normal social interaction and providing poor quality of life. Most relatives (34 of 56) described poor quality of life and most were satisfied with radiotherapy (36 of 56). (Inter-rater reliability for interview ratings of quality of life and satisfaction with radiotherapy was assessed by K 0.73 and 0.83). Relatives' views were stable over time. Patients highly disabled at diagnosis were less often felt to have had a good or acceptable quality of life (3 of 19) than patients who were not disabled (9 of 12).

Patients initially rated as highly distressed were also less often viewed as having an acceptable quality of life (2 of 12 versus 23 of 42). Relatives more often expressed dissatisfaction with radiotherapy when patients lived no months free from disability from 13 (3 of 21) than when they lived one to six months or more free from disability (7 of 35). Relatives of patients surviving less than six months also expressed more dissatisfaction with radiotherapy (12 of 19) than those living six months or more (7 of 42).

Conclusions—Bereaved relatives' views about quality of life relate to patient disability and distress at diagnosis. Relatives judge short periods free from disability or 6 to 12 months of survival as worthwhile. These findings support the use of disability and distress in quality of life indices but suggest shorter periods than a full year free from disability are judged worthwhile.

General practice approaches to increase attendance for breast screening: results from two randomised controlled trials targeting either recent non-attenders or all eligible women

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Methods—Two interventions aimed at improving screening attendance were investigated in two parallel factorial trials. The interventions were a systematic intervention (a letter of endorsement from all general practitioners in the practice) and an opportunistic intervention (a coloured flag in the notes to prompt the health professional to mention breast screening). General practices were eligible to participate in these trials if they had obtained a practice uptake of less than 80% in the previous screening round. The two trials differed as they targeted: all women prior to being invited for the third screening round in Trial 1; recent non-attenders in the third screening round in Trial 2. In addition, Trial 1 was cluster randomised by practice, while Trial 2 individually randomised.

Results—In Trial 1, 633 women from 24 GP practices were cluster randomised into the four intervention groups: 1721 to control, 1818 to letter, 1232 to flag, and 1362 to letter and flag. Attendance data were obtained for 5732 women (94%). In Trial 2, 1158 non-attenders were individually randomised: 289 in control, 201 to letter and 288 to letter and flag. Subsequent attendance status was obtained for 1148 women (99%). The letter independently increased attendance in both trials (Trial 1: OR = 1.3; 95% confidence intervals 1.3, 2.1 versus control; 7 of 36). In Trial 2: OR = 1.5; 95% CI 1.0, 2.2), whereas the flag only significantly improved attendance for all eligible women (Trial 1: OR = 4.9; 95% CI 1.1, 1.4; and Trial 2: OR = 1.4; 95% CI 0.9, 2.1). Costs per
Association between breast feeding and growth in childhood to adulthood: the Boyd Orr cohort study

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Background—The long term influences of breast feeding in childhood and adult nutritional status are unclear. Based on a long term follow up study of the Carnegie (Boyd Orr) Survey of Diet and Health in Pre-War Britain (1937–39), we investigated the effects of breast feeding on later childhood and adult height and body mass index.

Methods—4999 children from 1352 families were included in the study. Information on infant feeding method and later childhood nutritional status was available for 2995 children.

The main outcomes were mean differences between ever and never breast fed subjects for childhood and adult anthropometry.

Findings—Breast feeding was weakly associated with greater per capita income and increased weekly food expenditure, but was not associated with the number of children in the household, birth order or social class. In childhood, breast fed subjects were significantly taller and heavier than non-breast fed subjects.

The mean difference in Z score for childhood height was 0.15 standard deviations (SD) (95% confidence intervals (95% CI) 0.06, 0.24; p=0.001) and the mean difference in Z score for childhood leg length was 0.15 SD (95% CI 0.07, 0.24; p=0.001). The association between breast feeding and childhood height and leg length persisted when the analysis was restricted to the family level.

Infant feeding method differences in relation to within family differences in breast feeding. Breast feeding was also associated with greater adult height and leg length (mean differences: 0.21 SD, 95% CI 0.06, 0.36; p=0.005; and 0.21 SD; 95% CI 0.04, 0.38; p=0.018, respectively). There was no association between breast feeding and childhood or adulthood body mass index.

Interpretation—Infants who were breast fed in the 1930s were taller in later childhood and became taller, but not more obese, adults. As stature is associated with health and life expectancy, the relationship of infant feeding in explaining adult mortality patterns is discussed.

Birth weight, childhood growth and central obesity in adult life

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Objective—Birth weight and adult body size are related to adolescent and adult obesity. The aims of this study were to test the hypothesis that later in life, birth weight is related to the distribution of body fat and to changes in fat and postnatal growth. These results demonstrate the way in which poor socioeconomic circumstances of one generation can have an adverse affect upon the fetal growth of the next.
Results—Pulse wave velocity was significantly faster in men than women at all three sites (p<0.001) and there was a non-significant inverse relation between pulse wave velocity and age. In all sites, pulse wave velocity was not associated with either birth weight or birth length at any of the measurement sites, either before or after adjustment for gestation period. Pulse wave velocity was not associated with maternal weight, height, smoking or blood pressure, social class at 18 months of age or group in the original randomised trial. Pulse wave velocity increased with period. Systolic blood pressure, smoking, alcohol and physical activity. There was no interaction effect on pulse wave velocity between either birth weight and adult size or birth weight and size at 6 months.

Conclusion—These data do not support the hypothesis that reduced arterial compliance in adulthood is more likely in individuals who were either light or short at birth. Neither was there any evidence that individuals who are likely to be overweight in early adult life are more likely to have reduced arterial compliance.

METHODS

How misleading can subgroup analyses be?

S T BROOKES, t J PETERS, t E WHITLEY, t G DAVEY SMITH, t M EGGER t (Department of Social Medicine, University of Bristol)

Incongruities in the results of subgroup analyses in randomised controlled trials arise in many different settings, for example, centres in a multi-centre trial, or groups of patients defined by age, gender or baseline risk. While the presentation of subgroup analyses in such trials is common, inappropriate analyses such as separate subgroup-specific tests of treatment effect are often presented and may lead to the incorrect conclusion of differential treatment effects across different subgroups. The aim of this paper is to explore the extent of this problem in different scenarios within the context of randomised controlled trials.

Methods—Data were computer simulated as if from two treatments across different subgroups and included the types of outcome variables commonly encountered in clinical trials. Considerable doubt is cast on the validity of some of the subgroup analyses, such as the magnitude of the overall treatment effect and the sizes of the treatment arms and subgroups, were varied in a controlled manner to assess their impact on false positive and false negative rates. Analysis of simulated data considered the overall treatment effect, subgroup specific treatment effects and formal interaction tests.

Results—Many scenarios were examined. For example, samples were randomly generated from the normal distribution for two treatments and two subgroups of equal size, to represent the case where the null hypothesis of no overall treatment and no subgroup effects is true. Across both the simulated datasets produced a statistically significant overall treatment effect. Of those significant overall, subgroup specific tests found just one treatment effect to be significant in 5% to 64% of cases, for various sample sizes. Altering the subgroup ratio led to a marginal increase in this percentage (58% to 71%). Data were also simulated for the case where an overall treatment effect exists but no differential effect across subgroups. At 80% nominal power for the overall test, just one subgroup reached significance in 77% to 58% of cases, for various sample sizes. Altering the subgroup ratio led to an increase in this percentage (61% to 79%). No patterns were seen with a change in treatment ratio. For all these scenarios the percentage of significant interaction tests fluctuated around 5%.

Conclusions—The degree of error when performing subgroup specific treatment tests is high and may result in the incorrect conclusion of differential treatment effects across different subgroups. It is important that researchers and clinicians are aware of this potential problem when assessing the validity and interpreting the results of subgroup analyses.

Estimating the degree of undercount in Congenital Anomalies Registers: How well does the capture-recapture technique perform?

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Congenital anatomic anomalies are a significant cause of ill health and mortality in childhood, with approximately 2.5% of all newborn babies having at least one major structural abnormality. The Trent Register for Congenital Anomalies started data collection in 1997, at which time Trent was the only region in mainland Britain not to be at least partly covered by a register. The benefits are not restricted to Trent, as the data (along with data from other congenital anomalies) are now routinely transferred to the National database managed by the Office for National Statistics. This has led to substantial increases in the recorded rates of the great majority of anomalies.

How many cases could the register still be overlooking? One method used for estimating the extent of undercount in registers in many areas of medicine—"including congenital anomalies—is capture-recapture. This is based on a straightforward and attractive concept, using the pattern in which different notifiers to a register may notify some of the same children.

Difficulties can occur when using capture-recapture in practice. Estimates can be very imprecise, as often only relatively small amounts of data are available. For example, the assumptions need to be made about the extent of correlation between the different sources of information. For example, an infant notified with a gastrochisis by an antenatal clinic has an increased probability of also being notified by a paediatric surgeon and a neonatal intensive care unit. This situation can be simplified by combining the notifiers into a number of groups, but the way in which this is done can have a large effect on the estimate.

Depending upon the assumptions made, experimental estimates from Trent of the number of unrecorded cardiovascular defects include an upper 95% confidence limit (yielding a rate of 27 per 10 000 registrable births; 95% confidence intervals (95% CI) 18, 134) and 1018 as a relatively high estimate (76 per 10 000 births; 95% CI 56, 108). Indeed, some sets of assumptions result in no useful estimate at all being obtained.

This paper will present work currently in progress on the Trent data and introduce some of the potential solutions to the concerns expressed above. It is argued that these need to be addressed before embarking on a capture-recapture exercise with congenital anomaly register data.

Recall bias in a study of cardiovascular disease and hypertension in pregnancy

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Background—There is great interest in whether events during pregnancy and childhood are associated with long term health outcomes for mothers and their children. The large cost of long term prospective studies has led to an increase in the use of retrospective data. Subjects are asked to remember events taking place months, years or even decades before. If the accuracy of these memories is generally poor then associations between recalled experiences and health outcomes are diminished. If there is differential accuracy of recall between sick and healthy subjects then there is great potential for these associations to be exaggerated in studies based entirely on recall.

Methods—In 1997, as part of a study of cardiovascular disease, a questionnaire was sent to women who delivered their first baby in Aberdeen between 1951 and 1970. A total of 1312 women returned completed questionnaires. Women’s recall of hypertension in first pregnancy was compared with information collected during that pregnancy that was stored on the Aberdeen Maternity and Neonatal Databank. This databank contains comprehensive details of all pregnancies in Aberdeen from the 1920s to the present day. Odds ratios (OR) for the adverse association between adverse cardiovascular health outcomes and hypertension in first pregnancy were calculated firstly using only recall data and secondly using only maternity records.

Results—Discrepancies between recall and records of hypertensive disease in pregnancy were found for 20% of those with pre-eclampsia or eclampsia in their first pregnancy and 10% of those with no hypertensive disease. When based solely on recall associations between hypertensive disease in first pregnancy and cardiovascular outcomes were generally exaggerated in comparison to similar associations based on maternity records. p Values tended to be smaller when based on recall data. A significant positive association was found between angina and recalled hypertensive disease in first pregnancy (OR=2.01, 95% confidence intervals (95% CI) 1.23, 3.29, p=0.005). This was not significant when maternity record data were used instead (OR=1.27, 95% CI 0.98, 1.64, p=0.07).

Conclusions—Many papers on retrospective studies of reproductive health include a passing reference to the possibility that recall bias may have influenced the results. While our study had been based only on recall we would be reporting some exaggerated effects and one spurious association between recalled events and long term cardiovascular outcomes. Some assessment of the accuracy of recall is required if we are to be informed rather than misled by retrospective studies.

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The comparative performance of the Rose angina questionnaire in South Asian populations

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Objective—To assess the performance, in South Asian populations compared with Europeans, of two versions of the Rose angina questionnaire, as translated and implemented in the Newcastle Heart Project.

Design—Cross sectional study.

Settngs—Stratified random sample of 1509 Newcastle residents aged 25–74 years from European (n=825), Indian (n=259), Pakistani (n=305) and Bangladeshi (n=120) ethnic groups.

Main measures—Major abnormalities on a resting 12 lead ECG; prevalence of possible (RQP) or definite (RQD) Rose questionnaire angina; self reported doctor’s diagnosis of angina; and associations between these measures.

Results—Major ECG abnormalities were commoner in South Asians than Europeans (5.5% versus 2.3% in men). The prevalences in South Asians and Europeans of RQP and a diagnosis of angina were similar (18% versus 19% for RQP and 7% versus 8% for a doctor’s diagnosis in men, respectively), but RQD was less common (5% versus 7% in men). Among Indian men the prevalence of RQD (4%) was similar to that of a doctor’s diagnosis (5%) and major ECG abnormalities (4%) but among Bangladeshi men RQD was about half as common (4%) as a doctor’s diagnosis (9%) and major ECG abnormalities (8%). RQD showed a pattern of lower sensitivity and lower agreement with other measures in South Asians compared with Europeans. For example, sensitivity for a doctor’s diagnosis was 25% in South Asian and 38% in European men. By contrast, RQP showed similar levels of sensitivity and agreement in the South Asians and Europeans. For RQP the corresponding figures were 83% and 84%. Similar patterns were seen in women.

Conclusions—The performance of the Rose angina questionnaire, particularly the RQD form, was less satisfactory in different ethnic groups to warrant further work to achieve greater cross cultural validity. The RQP form of the Rose questionnaire performed more consistently across ethnic groups than the RQD.

GENERAL PRACTICE AND PRIMARY CARE

Beyond the burden of illness? What factors predict general practitioner consultation? A longitudinal study

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Objectives—(a) To compare the effectiveness of different indicators of the burden of illness in predicting 12 month consultations with general practitioners; (b) to evaluate whether social support indicators of social location have any additional explanatory value.

Design—Community health survey of two age cohorts of adults taking part in the West of Scotland Twenty-07 study.

Respondents—331 men and 423 women in their early 40s and 323 men and 400 women in their early 60s.

Main outcome measures—Number of general practitioner surgery contacts in previous 12 months reported by respondents.

Methods—Face-to-face interviews conducted by nurse interviewers included the collection of detailed data on morbidity. A series of regression models compared the amount of variation in consultation rates explained by (i) detailed indicators of burden of illness attributed to chronic illness (including number of conditions, type of condition, severity, frequency of pain); (ii) detailed data on current symptoms; (iii) a global self assessment of the overall dimensions of health were then added sequentially to regression models. Indicators of social support and social location were included to assess whether they had any predictive power after the various indicators of burden of illness had been taken into account. Finally these models were assessed against more parsimonious models.

Results—In isolation, the various indicators of burden of illness explained similar levels of variation in consultation (chronic illness 14.4%, current symptoms 16.5%, self assessed health 15.7%). When all three indicators were included 22.4% of the variation was explained. To describe the social support and social location further enhanced the predictive power of the model (to 25.6% and 28.1% respectively). These models were assessed against simpler, more parsimonious models. One such model estimated that 23.6% of variation is explained by a small subset of just eight predictors.

Conclusions—The three general approaches to measurement of burden of illness were equally successful in explaining variation in 12 month consultation rates. However, combining the three approaches was even more successful. Social support indicators and indicators of social location contributed to explaining 12 month consultation rates even in parsimonious models, confirming that non-illness factors influence the use of services.

General practitioner’s involvement in commissioning maternity care. Will it make a difference? Evidence from the total purchasing and extended fundholding experiments

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Objectives—To evaluate the impact of general practitioners’ commissioning of maternity services on women’s experiences of care, and on resource use, and to consider the implications for primary care commissioning more generally.

Design—Comparison of women’s experiences and resource use between 21 matched commissioning and non-commissioning general practices.

Subjects—Staff in general practices, NHS Trusts, and health authorities described organisation of care. Women registered with general practice responded to a postal questionnaire about their experience and resource use.

Main outcome measure—Women’s self reported experience of information, choice in and control over care, and of resource use.

Results—After two reminders, 1957 women responded to the questionnaire (overall response rate 62% range (52%–81%). Multi-level models adjusted for case mix showed no difference in women’s experience of care, or their resource use, between commissioning and non-commissioning practices. Extension of commissioning practices were more likely to be associated with more vertically integrated models of service organisation, but responses to only 3 of 21 questions about experience of information, choice and control over care, or about resource use, varied between models of service organisation.

Conclusions—The expectation that giving primary care organisations responsibility for commissioning care will result in improved patient experience of care or better use of resources, may be misguided. The presence of strong national policy (such as Changing Childbirth) may be equally important. Models of service organisation are not proxies for quality of care. The most powerful force shaping patients’ experiences of care may be professionals themselves.

Lay expertise? The difficult role of lay members on primary care groups

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Objectives—To describe the role of lay members on primary care groups (PCGs) and to assess the characteristics of the policy and practice context that foster or obstruct the development of this role.

Background—PCGs were established in 1999 as the heart of the Labour government’s plans for a primary care led health service, close to local communities and responsive to their needs. All PCG boards were required to appoint a single lay member, recruited from the local community, but a lack of detailed guidance has left individual lay members to work out for themselves what their role in practice should be.

Methods—A self complete survey was disseminated to chief executives and lay members of all 66 London PCGs. Respondents’ views of the role of the lay member were subject to a content analysis. Subsequently, six PCGs were selected as case studies. In depth interviews with key local stakeholders in public involvement were undertaken, including the lay members. The nature of these interviews focused on the perceived role of the lay member and its relation to the local policy and practice environment.

Results—Questionnaires were received from 89% of chief executives and 74% of lay members in London PCGs. Their descriptions of the lay member’s role revealed a tension between acting as any other board member, albeit with a non-professional view, and the assumption of a special relationship with the local community. There was also no consensus over the specific part that the lay member should play in promoting public involvement in general. The experience in the case studies revealed that these tensions were at the heart of the difficulties that lay members faced. Even where PCGs took very corporate approaches to public involvement, lay members were expected to provide a lead or insight for which they were not always equipped. Although defined by their lack of medical expertise, lay members were none the less expected to bring much more to the board than a simply a lay perspective.
Conclusion—Public involvement in healthcare will require considerable investment if it is to move beyond the levels of informing and consultation (on Arinstein's ladder of participation). Although lay members have a role in this development, it is complicated by the tension between their lay status and expectations of special skills or community relationships. Greater clarity is needed about the future role of lay members within the development of public involvement in primary care.

Patient determinants of mental health interventions in primary care

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Aim—To identify and compare the influence of non-clinical patient factors on general practitioners' acknowledgement of mental problems and on their provision of mental health care.

Method—Cross-sectional study of adults aged 16–65 years (n=802) attending one of eight general practices (20 general practitioners) in inner London.

Results—Multivariable analysis showed that the combination of factors that best predict general practitioners' acknowledgement of the presence of mental problems was GHQ scores (odds ratio (OR) 1.10 per unit increase in score, 95% confidence intervals (95% CI) 1.07, 1.13), previous mental symptoms (OR 7.5, 95% CI 4.3, 12.9), increasing age (OR 1.03 per 1 year increase, 95% CI 1.01, 1.04) and physical health status (OR 0.98 per unit increase in SF36 score, 95% CI 0.96, 1.00).

Multivariable analysis showed that the combination of factors that best predict intervention (prescription for psychotropic medication; return visit to general practitioner; referral to psychiatric inpatients/outpatients; referral to other (specified) health professionals; or social services) are previous symptoms (OR 7.4, 95% CI 3.8, 14.4), white ethnic group (OR 2.2, 95% CI 0.9, 5.5) and not owning a property (OR 2.1, 95% CI 1.1, 4.0).

Life events influenced intervention only in the presence of low GHQ scores (OR 8.1, 95% CI 2.7, 24.0).

Conclusions—Mental problems are common in primary care and their acknowledgement is a necessary but not a sufficient condition for intervention. Our results show that general practitioners' decisions about mental health interventions can be influenced by non-clinical patient factors, regardless of patients' clinical needs. The results suggest that current practice may not always be equitable, and point to the need for better understanding of the basis of these potential inequalities and for focused training.

CARDIOVASCULAR DISEASE RISK 1

Lp(a) lipoprotein and risk of coronary and peripheral arterial disease: Edinburgh Artery Study

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Methods—1592 men and women aged 55–74 years were selected at random from 11 general practices in Edinburgh, Scotland and followed up for 7 years. Three diseases were defined: myocardial infarction (fatal and non-fatal), peripheral arterial disease (WHO intermittent claudication) and stroke (fatal and non-fatal).

Results—The incidences of myocardial infarction, intermittent claudication and stroke were 13.4%, 9.4% and 3.7% respectively. Raised Lp(a) lipoprotein levels at baseline were associated with an increased risk (95% confidence intervals) of myocardial infarction relative risk (RR) 1.15 (95% CI 1.00, 1.32), intermittent claudication RR 1.32 (95% CI 1.10, 1.57), but not significantly for stroke RR 1.24 (95% CI 0.93, 1.64). This increased risk persisted for intermittent claudication after adjustment for baseline cardiovascular disease and other risk factors RR 1.20 (95% CI 1.00, 1.44), but for myocardial infarction became non-significant RR 1.07 (95% CI 0.93, 1.24). The risk of disease associated with raised Lp(a) lipoprotein was slightly higher in women than in men, especially for intermittent claudication (men RR 1.10 (95% CI 0.88, 1.37) compared with women RR 1.38 (95% CI 1.01, 1.89).

Conclusion—We found that Lp(a) lipoprotein was an independent predictor of cardiovascular events in both sexes. The association between Lp(a) lipoprotein and cardiovascular events may have been stronger in women than in men, and for peripheral arterial disease than myocardial infarction or stroke.

A population-based analysis of the relation between socioeconomic deprivation and death without hospitalisation from a first acute myocardial infarction in Scotland

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Setting—Prospective study.

Main outcome measures—Death from first AMI (ICD code 410) between 1986 and 1995 according to age, sex and deprivation category.

Results—Between 1986 and 1995, 48 481 men (mean (SD) age 71.2 (11) years) and 42 058 women (mean (SD) age 78.8 (10) years) died without hospitalisation following a first AMI in Scotland. There was a marked socioeconomic gradient, which was greater in men and in younger age groups (p < 0.001 for all age groups). The population-based mortality rate in deprivation category five was more than twice that of category one in men and women aged <65 years. In this age group alone, there were 665 and 388 more male and female deaths than expected. Overall, there were 2007 excess deaths in the lowest socioeconomic category.

Conclusion—Socioeconomic deprivation profoundly affects population-based mortality rates in first AMI not hospitalised. This effect was greatest in the young and in men.

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Geographical variation of incidence of coronary heart disease in Britain: the contribution of established risk factors

R W MORRIS, P H WHINCUP, C F LAMPS, M WALKER, G WANNAMETHEE, A G SHAPER (Department of Primary Care and Population Sciences, Royal Free and University College Medical School, London (Back)ground—To examine population mortality from coronary heart disease (CHD), and to estimate how much may be explained by conventional risk factors.

Setting—Prospective study.

Main outcome measures—Percentage of variance between the towns in CHD incidence that can be explained by attributes of men in the towns.

Results—Incidence rates over 15 years varied from 7.7% in Lowestoft to 16.0% in Dewsbury, and tended to follow the well-known pattern of being higher in Scottish and northern English towns, and lower in southern English towns ("north-south gradient").

Town incidence rates were strongly related to average systolic blood pressure, prevalence of cigarette smoking, leisure time physical activity, and social class distribution. Allowing for sampling error only, we estimated that true age adjusted CHD incidence (over 45 years) would vary from 8.8% to 15.2% among Scottish towns (95% range). After adjusting for baseline blood pressure, cholesterol, body mass index, smoking status, and physical activity, this variation would reduce by 59%, and by 65% if adjustment for social class was also included. This is explained in part by factors, but not completely, by the north-south gradient.

Conclusion—Almost two thirds of the variation in CHD incidence between British towns was accounted for by conventional risk factors.
variables; remaining unexplained variation could be related to environmental factors such as climate, or simply measurement error in the known risk variables.

Are dietary fibre and bowel habit risk factors for varicose veins in the general population?: Edinburgh Vein Study

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Background—Venous disease is common, resulting in considerable morbidity and a heavy burden on national healthcare resources. For many years, it has been postulated that diets deficient in fibre-rich plant foods are a fundamental cause of varicose veins in the Western world. Such a refined diet results in larger, harder stools that are more difficult to pass leading to constipation and regular straining. The objective of this study was to determine if a relation exists between fibre intake, constipation and clinical venous disease within a Westernised population.

Methods—The Edinburgh Vein Study is the first study in the United Kingdom to investigate venous disease in the general population. Men and women aged 18–64 years were selected at random from the age-sex registers of two general practices and invited to participate. A total of 1566 subjects completed a validated questionnaire enquiring about dietary fibre intake and bowel habit. The prevalence and severity of varicose veins were assessed during a standardised clinical examination.

Results—Fibre intake, intestinal transit time, defecation frequency and the prevalence of straining at stool were all found to be significantly different between the sexes. Men who reported that they strained in order to start passing a motion showed a higher prevalence of mild (36%) and severe (12%) trunk varices (odds ratio (OR) 2.76 and 6.1% respectively). After adjustment for anthropometric measures, bowel straining at stool was associated with a higher prevalence of mild (46%) and severe (12%) trunk varices (OR 2.67; p=0.00001) and waist hip ratio (OR < 0.001) were all independently and positively associated with coronary calcification. A significant association between dietary fibre intake and coronary artery calcification was found in men born in west London hospitals 1964–68. In the top and bottom 15% of the birth weight for gestational age distribution, the prevalence of at term mothers with Asian names were traced. All those currently registered with a London GP were invited to participate. To date, 313 men (53 South Asian) have been examined. In the non-South Asian group, 91 are low birth weight.

Results—The overall prevalence of coronary artery calcification was 21% (calcification defined as calcium score > 0). Body mass index (BMI) < 25, weight < 70% of height (BMI < 70%) and waist hip ratio (BMI < 0.85) were all independently and positively associated with coronary artery calcification. South Asian ethnicity was associated with an increased risk of coronary artery calcification (age adjusted odds ratio (OR): 1.94; 95% confidence intervals (95% CI) 0.99, 3.82). Adjusting for concurrent body size increased the strength of association (OR: 2.53; 95% CI 1.01, 6.42). Low birth weight was associated with a lower prevalence of coronary artery calcification, but this association was not statistically significant, even when adjusted for anthropometric measures (OR 0.75; 95% CI 0.55).

Conclusions—These results indicate that second generation South Asians in the UK have a higher prevalence of coronary artery disease than those born in South Asia and the distribution of psychosocial factors in ethnic groups with coronary rates higher (South Asian) and lower (Afro-Caribbean) than a white population.

Folate, vitamin B6, vitamin B12 and coronary heart disease in the Caerphilly study

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Objective—To assess the risk of coronary heart disease (CHD) associated with dietary folate, vitamin B6 and vitamin B12.

Design—Nest case-control study.

Setting—Caerphilly and surrounding areas in South Wales, UK. For phase I of the study, 2512 men recruited in 1979 to phase I of the study. After 15 years of follow up, 337 men developed CHD and were compared with 1348 randomly selected age frequency matched controls. In phase II of the study, 496 men developed CHD and were compared with 496 age frequency matched controls. In phase III of the study, 62 men developed CHD and were compared with 488 age frequency matched controls.

Main outcome measure—Acute myocardial infarction or death due to CHD.

Results—The adjusted odds ratio of CHD per standard deviation change in nutrient measured by a food frequency questionnaire was 0.85 (95% confidence intervals (95% CI) 0.7, 1.0) p=0.002 for folate, 0.81 (95% CI 0.7, 0.9) p=0.003 for vitamin B6 and 0.95 (95% CI 0.8, 1.1) p=0.4 for vitamin B12. In phase III of the dietary folate, vitamin B6 and vitamin B12 developed CHD between phase III and IV of the study. Comparing these 62 cases with 248 age frequency matched controls show an odds ratio per standard deviation change in mean folate of 0.81 (0.6, 1.1) p=0.2 using the phase I data. In phase II, 0.85 (0.6, 1.1) p=0.3 using the mean of phase I and II, and 0.83 (0.6, 1.1) p=0.2 using the mean of phase I, II and III. When more than one measure of vitamin B6 was used, the odds ratio of CHD was 0.77 (95% CI 0.6, 1.1) p=0.1 for one measurement, 0.84 (95% CI 0.6, 1.1) p=0.2 for the mean of two measurements and 0.85 (95% CI 0.6, 1.2) p=0.2 using the mean of three measurements.

Conclusion—These findings support the hypothesis that folate and B6 are protective against CHD. Using the mean of more than one measurement does not alter the odds ratio greatly. Randomised controlled trials of folic acid and the B vitamins are needed to determine if this is a true association.

Psychosocial risk factors for coronary disease in white, South Asian and Afro-Caribbean civil servants: the Whitehall II study

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Background—Psychosocial factors are associated with the aetiology and prognosis of coronary heart disease (CHD) in white populations, but previous studies have not examined the distribution of psychosocial factors in ethnic groups with coronary rates higher (South Asian) and lower (Afro-Caribbean) than a white population.

Study objective—To determine whether ethnic differences in psychosocial risk factors parallel those in CHD mortality.

Design—Cross sectional survey.

Setting—20 civil service departments in London.

Participants—8973 white, 577 South Asian (62% Indian) and 360 Afro-Caribbean office based civil servants aged 35–60. Ethnical identity was observer and self assigned (agreement beyond chance K 0.85 (95% confidence intervals (95% CI) 0.83, 0.87).

Outcome measures—Minor psychiatric morbidity (General Health Questionnaire), social supports (marital status, social networks, negative aspects of support, conforming/ emotional support, social support at work), psychosocial work characteristics (job control, effort-reward imbalance), hostility and Type A personality.

Results—South Asians and Afro-Caribbeans were considerably more likely than white subjects to be in lower employment grades; with grades, South Asians were more likely than white subjects or Afro-Caribbeans to have a car, own their own home or be highly educated. South Asians, compared with the white population, had more depression, higher negative support, social support at work, less job control, more effort-reward imbalance and higher hostility, when adjusting for age and sex. Afro-Caribbeans, compared with white subjects, had lower scores on psychosocial morbidity and lower Type A
scores. Thus, the odds of being in the adverse tertile of the depression sub-scale of the GHQ was higher among South Asians (odds ratio 1.42 (95% CI 1.2, 1.7)) and lower among Afro-Caribbeans (0.65 (95% CI 0.5, 0.8)) than among white office workers. The remaining psychosocial factors showed either no ethnic differences in distribution, or effects opposite in direction to those predicted from coronary event rates. Further adjustment for employment grade made little difference to these associations.

Conclusion—Among South Asians, the majority of whom were Indian, the distribution of psychosocial factors was consistent with ethnic differences in coronary rates; the pattern for Afro-Caribbeans was less consistent. Further work is required to test the ability of psychosocial factors to predict events within ethnic groups and to characterise better psychosocial measures.

Personality and social predictors of atherosclerotic progression: Edinburgh Artery Study

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Background—If personality and social factors relate to the occurrence of acute cardiovascular events, but also to the progression of atherosclerosis, then research can be better targeted to examine the putative mechanisms driving the disease process. An objective, non-invasive and reliable measure of atherosclerosis is the ratio of ankle systolic pressure to arm systolic pressure (ABPI). The ABPI is related inversely to the degree of atherosclerotic progression and to the degree of vessel loss in the legs (and throughout the vascular system). Studying personality and social factors in relation to ABPI change may indicate whether these factors are part of the mechanism that accelerates atherosclerosis.

Methods—In the Edinburgh Artery Study, 1992 men and women were sampled randomly from the general population and had their ABPI measured at baseline and at the end of a five year follow up. Trait submissive-dominance and sex were assessed at baseline using the Bedford-Foulds personality deviation scales. Data on other baseline risk factors, including social and physiological factors, were also collected.

Results—Over five years of follow-up, the mean ABPI of autosomal-dominant homozygotes was higher at baseline than at the five year follow-up, but not at the three year follow-up. The ABPI difference was larger in men than women. In the coronary heart disease risk factor categories, the ABPI was higher in men than women who were in non-manual social classes (adjusted relative rate was 1.70 (95% confidence interval 1.31, 2.20) for manual father's social class compared with non-manual). Father's social class was divided into three categories (their occupation), III manual and IV or V and even after adjusting for risk factors for stroke, men whose fathers were in non-manual social classes had higher relative rates of stroke than men whose fathers were in manual social classes (adjusted relative rate for father's social class III manual was 1.37 (95% CI 1.03, 1.81) and for father's social class IV or V was 1.46 (95% CI 1.09, 1.96)). Father's social class (adjusted relative rate for father's social class II manual was 1.49 (95% CI 1.20, 1.84)) was a similar ratio of stroke to stable manual men.

Conclusions—Poorer socioeconomic circumstances was associated with greater stroke risk. Adverse early life circumstances were of particular importance and men who improved their social class in adulthood did not affect their stroke risk. Improved early life conditions may reduce socioeconomic inequalities in stroke.

Pol icy

Activity and impact of first wave NHS Direct sites

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Objectives—NHS Direct, the 24 hour nurse led telephone advice service, will cover the whole of England by the end of 2000. Although the public aim of the service is to provide “easier and faster access” to care there have also been hopes, and concerns, about the potential impact on demand for other services. We report here findings on the activity and impact of the three first wave NHS Direct sites.

Methods—Call data from 16 months of site logs and anonymised transcripts of a random sample of 267 calls have been analysed to describe the activity and casemix of NHS Direct in Local and national general practitioner and out of hours general practitioner and A & E services. However, the data suggest that the introduction of NHS Direct was associated with an interruption in the pre-existing upward trend in demand for out of hours general practice, so that GP co-op workload is no longer increasing.

Conclusions—The available data on activity, casemix and caller intention suggest that NHS Direct is being used particularly as an alternative to out of hours contact with a general practitioner. The finding that the service may have restrained growth in out of hours demand for general practice, but has had no impact on A&E or ambulance services, is consistent with this pattern of use. The emerging impact of NHS Direct on the future organisation of primary care, both in and out of hours, will be explored in the light of local projects to integrate NHS Direct with GP cooperatives, the national review of out of hours primary care services and the development of the new walk in centres.

Evaluation of the NHS Direct Hampshire 2 Wave Pilot Site

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Objectives—To determine: (1) Callers’ perceptions of ease of access and satisfaction with the service offered by NHS Direct, Hampshire. (2) Safety of the service in terms of adverse incidents following a call.

Study design—(1) Postal survey of NHS Direct callers using a structured questionnaire, with space for free text comments. (2) Comparison of caller data with coroners’ records over a six month period to identify deaths within seven days of consulting the service.

Setting—NHS Direct pilot site, Hampshire.

Participants—1000 consecutive callers to NHS Direct over one week. Anonymous questionnaires, based on a previously tested model, were withheld in extreme emergencies or if a caller declined.

Main outcome measures—(1) Caller satisfaction and dissatisfaction with the service. (2) Number of deaths within seven days of calling NHS Direct.

Results—(1) 700 people (70%) responded after repeat mailing. Ages of callers ranged from 16–84 years, peaking in the 25–34 years age group. Female callers outnumbered male by more than 3:1. Forty per cent called
for themselves and 45% on behalf of others. Ninety-five per cent indicated satisfaction with the service. Of 176 who commented, 33 (19%) cited potential benefits to the NHS of fewer visits to GPs and A&E departments. Main benefits included reassurance, and helpful, appropriate advice. Negative comments (13%) concerned length of calls, excessive questioning, and waiting time. (2) Eighteen patients from 1935 callers (0.99%) died within seven days of consulting NHS Direct.

Discussion—(1) NHS Direct is being used predominantly by younger women. They appear to consider it an efficient, professional service, which they find sympathetic and give appropriate advice. Some comments reveal poor understanding of its purpose and indicate a need for clearer advertising. The view expressed by some of excessive questioning reflects the use of clinical decision support software in the consultation. (2) No adverse incidents resulting from calls to NHS Direct were detected. The rates of deaths of patients within seven days of consulting the service are similar to those observed in the SWOP study.

Conclusions—NHS Direct Hampshire is a safe service that is popular with members of the public. It seems likely that these results will support the government’s determination to roll out the service to the whole UK by October 2000. Callers’ perception that the service will ease demand on busy doctors and A&E departments, while yet unproven, supports calls for closer integration with primary care.

Health Improvement Programmes: what do health authorities mean by health improvement, and how do they plan to achieve it?

Health authorities (HAs) are now required to draw up Health Improvement Programmes (HImPs), and to revise and extend them each year. HImPs must take account of national priorities for health (for example, the four Our Healthier Nation priority areas), managerial and organisational issues (for example, the NHS Modernisation Fund), and include Service and Financial Frameworks. Objective—To discover how HAs interpret “health improvement”, and how they have used HImPs to focus activity on improving health.

Design—Structured analysis of the first and revised HImPs of a sample of 36 HAs. Results—In the first HImPs, priorities relating to population health receive considerably more emphasis than do bureaucratic priorities. The health priorities chosen are predominantly those set out in Our Healthier Nation, particularly coronary heart disease, cancer and mental health. Population health priorities are more likely to be targeted at specific diseases than at the socioeconomic determinants of health, although the need for health promotion to people with harmful life-styles is often mentioned. In most cases, intended processes for achieving priorities lack specific measurable targets and do not name the people or agencies responsible for key outcomes. Negative comments to HImPs make some reference to consultation and partnership working with NHS and non-NHS organisations, and with the public. However, a few make very little mention of primary care groups (PCGs) despite their central importance in delivering the HImP agenda. In general, therefore, the first HImPs provide broad frameworks for NHS activity, rather than detailed strategies for health improvement at a local population level. The analysis of the revised HImPs (April 2000) will examine evidence of whether the emphasis on population health is maintained, whether strategic planning for health focus has become any sharper, and whether PCGs are pursuing HImP priorities in locally specific ways.

Conclusions—The challenge for HAs is to devise a deliverable strategy for health gain at population level that can be implemented locally by PCGs in partnership with other agencies. Future HImPs need to include more detailed strategies for improving health that have local relevance and ownership, so that stakeholders can work together effectively and accountability to improve the health of their populations.

How have primary care groups managed their core functions in their first year?

Primary Care Investment Plans and Annual Accountability Agreements are examples of health policies that PCGs are supposed to pursue. Primary care groups (PCGs) and their predecessors, the primary health care groups (PHCGs), have been under review recently. The King’s Fund and National Primary Care Research and Development Centre were commissioned by the NHS to undertake a national evaluation of PCGs/Ts. “The new NHS. Modern. Deleterious” emphasised that the NHS should face up to the challenges of globalisation, marketisation and accountability to different stakeholders. The new NHS framework for local innovations if they are to consolidate their early achievements.

Clinical governance in the UK: a principal-agent analysis

Clinical governance is a concept used by government and the NHS. It aims to regulate the provision of healthcare services by empowering the managers. Accountability for clinical performance is to be achieved by new structural, procedural and cultural changes collected under the umbrella term of “clinical governance.” Principal—This paper analyses the latest proposals for clinical governance in the UK. The objective is to elucidate shifts in the emphasis of government policy regarding physician control. Key aims underpinning the proposals for clinical governance are: the development of an appropriate quality culture and the establishment of a diversity of overlapping principal-agent relationships. Yet asymmetries of information and a lack of congruence between objective functions hamper principals’ ability to control clinical behaviour. This policy framework may have increased and more prescriptive attention to the former, and a comparative neglect of the latter. Thus recent policy shifts in the UK regarding physician control. Clinical governance: a principal-agent framework. Principal findings—The UK NHS can be envisaged as a diverse collection of overlapping principal-agent relationships. Yet asymmetries of information and a lack of congruence between objective functions hamper principals’ ability to control clinical behaviour. This policy framework may have increased and more prescriptive attention to the former, and a comparative neglect of the latter.
The acute effects of air pollution reduction in Westminster on disease outcomes 1

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Objectives—To model the effects of achieving the UK National Air Quality Strategy objectives on mortality and morbidity.

Design—Modelling that combines epidemiological evidence with policy options to influence determinants of disease.

Setting—City of Westminster.

Main outcome measures—Estimated lives no longer shortened and emergency cardiac and respiratory hospital admissions no longer caused or brought forward.

Background—Westminster City Council has declared an air quality management area: levels of PM$_{10}$ and NO$_2$ are predicted to exceed the UK National Air Quality Strategy targets unless additional action is taken. I have developed spreadsheets to enable local or health authorities to calculate the health effects of reducing particulate and NO$_2$ pollution in their area.

Method—I derived three models, representing the relative effects of achieving various reductions in ambient concentrations of PM$_{10}$ and NO$_2$ from 1996–1999 ambient levels. Results are based on effect estimates from the most recent time series studies in London and on WHO meta-analyses.

Results—The minimum estimate for lives no longer shortened when the 24 hour PM$_{10}$ objective for 31 December 2000 is met was 1 per year (London or WHO) when particulate levels are ‘capped’ at that concentration. This increased to 4 (London) to 11 (WHO) when the percentage fall in concentration each day is the same as the reduction needed for the highest non-permitted level. Based on London studies, reaching the 31 December 2009 24 hour PM$_{10}$ objective results in 1 (minimum) to 7 (maximum) lives no longer shortened. Using the WHO meta-analysis, the figures are 3 (minimum) to 18 (maximum) lives. Half are cardiovascular and half respiratory deaths. Achieving the PM$_{10}$ annual objectives of 40 μg/m$^3$ and 20 μg/m$^3$ (gravimetric) would delay between 2 and 8 deaths respectively (London) or 4 and 21 (WHO). Reducing the NO$_2$ annual mean to 45 μg/m$^3$ would delay 9 (London) to 44 (WHO) deaths. Based on London studies, reducing PM$_{10}$ to the higher annual mean objective (40 μg/m$^3$) delays or prevents 4–6 respiratory and 4 cardiovascular emergency hospital admissions. Reaching 20 μg/m$^3$ (gravimetric) affects 20–32 respiratory and 17 cardiovascular admissions.

Conclusion—It is possible to use modelling to estimate the health impacts of achieving environmental targets and to compare different strategies. With an assumption of no threshold, greater reductions are obtained when air pollution is reduced each day than with a model that removes the exceedences alone.
blood pressure (+0.32 mm Hg, 95% CI −0.56, −0.09), cholesterol (+1.74 mmol/L, 95% CI −2.62, −0.85) and perhaps lung function (+0.42%, 95% CI −0.87, 0.02). There was strong evidence for a link between frequent job changes and unhealthy behaviour. For men there were greater odds of being a smoker (OR 1.05, 95% CI 1.00, 1.10), and of drinking more than 22 units of alcohol per week (OR 1.11, 95% CI 1.05, 1.18). Similar relations were observed for women. There was weak evidence of an association between frequent job changes and a lower risk of ischaemia in males (OR 0.91, 95% CI 0.83, 1.00) but perhaps a higher risk in females (OR 1.12, 95% CI 0.90, 1.41). There was no detectable tendency for men or women.

Conclusions—There was little evidence for the expected relation between frequent job changes and poor health despite an association of more frequent changes with high stress in women and greater cigarette and alcohol consumption in both sexes. An intensified healthy worker effect among frequent job changers will be proposed as a possible explanation of these findings.

Do parental occupations involving social mixing and infectious contacts affect the risk of childhood type 1 diabetes mellitus? 1

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Objective—To investigate the hypothesis that increased exposure to infections, through parental jobs involving high levels of social mixing, reduces the risk of childhood type 1 diabetes.

Design—Two population-based case-control studies of children diagnosed with type 1 diabetes were performed by level of parental occupational social mixing and infectious contacts affect the risk of childhood type 1 diabetes mellitus? 1

Setting—Yorkshire and Northern Ireland.

Subjects—220 cases and 433 controls from Yorkshire (aged 0–15 years); 189 cases and 465 controls from Northern Ireland (aged 0–14 years).

Main outcome measures—Associations between parental occupational social mixing and childhood type 1 diabetes were assessed using both a logistic (OR) adjusted for age and sex. For each OR, 95% confidence intervals (95% CI) and two sided tests of statistical significance were obtained. Analyses were performed by level of parental occupational social mixing and infectious contacts affect the risk of childhood type 1 diabetes.

Results—Parental occupations were coded using a standard occupational classification and each job allocated to high, medium or low levels of social mixing according to a predefined categorisation. One hundred and six (29%) occupations out of 371 were identified as having potentially increased levels of social mixing: 75 classified as “high” and 31 as “medium”. The remaining 265 (71%) occupations, whose likely social mixing was not judged to be unusual, was classified as low. Because of small numbers within the medium exposure group (Yorkshire—mothers: 12 cases and 22 controls; fathers: 13 cases and 21 controls; Northern Ireland—head of household, usually the father: 8 cases and 27 controls), low and medium exposure levels were combined. Childhood type 1 diabetes was not associated with high levels of parental occupational social mixing (Yorkshire—mothers: OR 1.07, 95% CI 0.76, 1.50, based on 88 exposed cases; fathers: OR 1.15, 95% CI 0.75, 1.76, based on 41 exposed cases; Northern Ireland—heads of household, usually the father: OR 0.78, 95% CI 0.49, 1.25, based on 27 exposed cases). A larger proportion of fathers had jobs with high levels of social mixing. Mothers with high social mixing jobs conferred a non-significant reduced risk of diabetes among children diagnosed under 5 years (OR 0.58, 95% CI 0.24, 1.38) compared with those diagnosed at age 5 and over (OR 1.14, 95% CI 0.77, 1.69).

Conclusions—There was no relation between parental occupational social mixing and childhood type 1 diabetes was detected for all ages combined. Mothers were more likely to have jobs involving high levels of social mixing than fathers. The possible protective effect of maternal high occupational social mixing on children diagnosed under 5 merits investigation.

Comparing the length of NHS waiting times: can we trust official statistics? 1

R W Armstrong (Department of Health Sciences, University of East London)

Objective—To compare two measures of the promptness of elective admission, namely the proportion of valid elective episodes admitted within three months and the likelihood of elective admission within three months. To assess the possible effect of elective admission among frequent attenders on one measure predicts ranked performance on the other.

Methods—We obtained information on each elective episode with a date of enrolment other than “15 Oct 1582” and a date of admission for trauma and orthopaedic surgery at each of 34 NHS Trusts in South Thames Region between 1 July and 31 December 1994 inclusive. We calculated the proportion of valid elective episodes admitted within three months. We also obtained the KH06, KH07 and KH07A counts submitted for these waiting lists for the quarters ending 30 September and 31 December 1994. We calculated the proportion eventually admitted—that is, the proportion of valid elective episodes “admitted” within three months. Each category involves many elements, with patients, clinicians, and/or perceptions of motivation influence the response of the other; interpersonal aspects of the professional, crucial, and more so than technical ones. For example, experiences of an encouraging/disapproving health professional strongly influence the response of the other; interpersonal aspects of the professional’s approach are identified as especially crucial, and more so than technical ones. For example, experiences of an encouraging/disapproving health professional strongly influence the response of the other; interpersonal aspects of the professional’s approach are identified as especially crucial, and more so than technical ones.

Results—On average, the proportion of valid elective episodes admitted within three months ranged from 0.14 to 0.21. The proportion eventually admitted ranged from 0.93 to 0.99. As a result, the likelihood of elective admission within three months, among all those at risk, ranged from 0.55 to 0.78. This measure confirms that elective admission may be very much less prompt than suggested by the Government Statistical Service estimates, with the result of one measure of the other.

Conclusions—The published statistics allow those already admitted to look back over their shoulder and assess how typical their experiences were. And the published statistics allow those destined to be admitted to assess their chance of admission within any given “time since enrolment”. But patients, clinicians, managers and politicians all want to know how long new recruits might expect to wait and cannot predict whose “time since enrolment” will end in admission and whose “time since enrolment” will end in some competing event. As a result, the published caveats fail to protect users from misinterpreting official statistics: the proportion of elective episodes admitted is of no interest unless it enlightens how long new recruits might expect to wait so users assume that this is what it does!
Open SESAME—the impact of socioeconomic status on health care seeking behaviour

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Objectives—The study aims to explore how variations in health care seeking behaviour can influence the level of equitable health care access, specifically testing the hypothesis that sociodemographic factors such as socioeconomic status, gender and age influence an individual’s perception of the need and urgency for seeking health care.

Methods—1500 people aged 30 to 80 years, from a general practice in the south of England were sent a questionnaire asking about sociodemographic characteristics, attitudes to health and health care, and intended response to a clinical vignette about a lump under the armpit. Initially it is non-tender (part I) but then a few weeks later it is associated with night sweats and a throbbing pain (part II). This practice was selected because it contained an even social mix according to census data.

Main outcome variables—The main outcome measure was the proportion indicating that they would seek immediate care (fast track emergency department or general practitioner) for the symptoms described in each case scenario.

Results—The final sample was 1287 and the questionnaire response rate was 911 (70.8%). The social class distribution was: SCI and II 31%, IINM 25%, IIM 19% and IV and V 24% and mean age of respondents 56.9 (95% CI 56.0, 57.7).

Methods—A five group socioeconomic ordinal scale was created based on a composite of several measures. For part I of the vignette, the age and sex adjusted odds ratio (OR) for trend across the scales 1.2 (95% CI 0.95, 1.5), 1.3 (1.05, 1.6), 1.4 (1.14, 1.8), 1.5 (1.2, 2.0), with 95% confidence intervals (95% CI 1.13, 1.46; p<0.001), so that lower socioeconomic status was associated with greater reporting of seeking immediate care. However, for part II, this had now disappeared (OR for trend across groups 1.02, 95% CI 0.93, 1.14). Other variables that were strong predictors of immediate care seeking were being older, high degree of anxiety, agreeing that one should always do what the doctor says, and agreeing that good health is very important to them.

Conclusion—Although all factors could not be accounted for, it was possible to conclude, drawing on published literature, that clinical factors were not the sole determinants of care. It is suggested that decisions on the grounds of chronological age may be being made by clinicians because of beliefs and expectations about “quality of life” in older people that are out of date with the present evidence base. Furthermore, it is thought that, where the basis of the decision is belief and expectation, with economic pressure, withholding treatment without clinical justification should be seen ethically as discrimination rather than as rationing.

An introduction to DIPEx—a database of individual patient experience

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Objectives—DIPEx is a multimedia web site and CD ROM that links patients’ experiences with evidence-based information about treatments and the illness itself, with a range of other resources that may be useful, including support groups and links to other web sites. DIPEx aims to identify the questions that matter to people when they are ill and may be used for informing patients, educating health care professionals and providing a patient-centred perspective to nurses and those who manage the health service. An important feature of the database is that it addresses the needs of professionals and the general public. The same database will be available for patients, carers, professionals and students, policy makers and researchers. In this paper the first complete DIPEx site, for hypertension, will be demonstrated.

Methods—A purposive sample was chosen to represent the widest practical range of experiences of hypertension. Volunteers for the project were sought through GP’s, support groups, radio broadcasts and newspaper articles. Interviews took place in the respondents’ home. Experienced qualitative researchers conducted semi-structured, narrative interviews with 40 respondents, recorded on digital video or audio tape. The information about treatments and general resources was compiled by a steering group including lay and professional experts.

Results—The analysis used grounded theory to identify the issues that are important to the respondents. Themes are illustrated with video, and audio clips and written excerpts from the interviews. The information about hypertension and the answers to “frequently asked questions” on the site have been developed in response to the information needs of the interviewees. These include questions about prevention, causes and effects of hypertension and explanation of the meaning of blood pressure readings.

Conclusions—We believe that DIPEx is unique in the field of patient and healthcare communication. The demonstration of the hypertension site includes a short film about the project and video clips from the interviews.

DIABETES AND MUSCULOSKELETAL HEALTH

Family history of diabetes in UK South Asians

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Objectives—To describe the associations between diabetes mellitus (DM) and impaired glucose tolerance (IGT) in study subjects and reported diabetes in their parents and siblings.

Methods—Cross-sectional study.

Subjects—A stratified random sample of 1509 Newcastle residents aged 25–74 years from European (n=885), Indian (n=305) and Pakistani (n=305) and Bangladeshis (n=120) ethnic groups.

Main measures—Self reported history of diabetes in parents and siblings of subjects.

Results—Among Europeans 8.3% of those with normal glucose tolerance, 13.3% of those with IGT and 18.9% of those with type II DM reported parental diabetes. Among South Asians the prevalence of diabetes in parents was similar regardless of the normal glucose tolerance status of the respondent (26.2%, 25.8% and 25.4% of those with normal and impaired glucose tolerance and type II DM respectively). In both Europeans and South Asians the likelihood of reporting a sibling with diabetes was least in those with normal glucose tolerance, greatest in those with IGT and greatest in those with type II DM. Among Europeans diabetic subjects were only almost five times as likely as those with normal glucose tolerance to report a sibling with diabetes (17.9% versus 3.8%), while among South Asians diabetics were less than twice as likely to report a sibling with diabetes (17.8% versus 9.3%). The same overall patterns were observed in Indians, Pakistanis and Bangladeshis, and when male and female respondents were analysed separately.

Conclusions—An association between the glucose tolerance status of the respondent and the frequency of diabetes in parents and siblings is consistent with a genetic basis for diabetes. An association with sibling but not parental diabetes is consistent with changing environmental risk factors, as the exposure status of respondents would be expected to resemble their siblings more than their parents. Our data suggest that risk factors for diabetes in UK South Asians are more likely to be shared with their siblings than with their parents. In explaining the well recognised familial pattern of type II DM, environmental influences among UK South Asians may be more, and genetic factors less, important than is usually acknowledged.

Smoking and risk of type II diabetes

J A PERRY,1 S G WANNAMETHEE,2 A G SHAPER1 (Department of Epidemiology and Public Health, University College Cork, Department of
Primary Care and Population Sciences, Royal Free Hospital School of Medicine, London)

Introduction—It is known that smoking causes insulin resistance. However, the relation of smoking to risk of type II diabetes has not been well defined.

Aim—To estimate the relative risk of type II diabetes in smokers relative to non-smokers and to assess the effect of smoking cessation on diabetes risk.

Design—Prospective cohort study involving a group of 73% middle aged men followed up for an average period of 16.8 years.

Results—Baseline data on smoking status were available from 7124 men. Upon exclusion of known diabetics at screening, and those taking medication for ischaemic heart disease and stroke, there were 290 incident cases of diabetes in this group of 7128 men during follow up. All current smokers combined had a significantly increased risk of diabetes compared with never smokers, relative risk (RR) (95% confidence intervals (95% CI)) 1.7 (1.2, 2.4), adjusted for body mass index and other potential confounders including physical activity, social class, alcohol intake, parity, hormone replacement therapy and anti-hypertensive treatment. Primary pipe/cigar smokers showed similar risk to never smokers but secondary pipe/cigar smokers showed significantly higher risk than never smokers, adjusted RR 1.9 (95% CI 1.1, 2.8). Ex-smokers showed lower risk than current smokers and diabetes risk tended to decrease with increasing years since quitting. After adjustment for age, body mass index and other confounders, the benefit of giving up smoking was apparent in those who had given up at least five years before to screening. Diabetes risk reverted to that of never smokers in those who had given up at least 20 years before screening.

Conclusion—The findings suggest that smoking is an independent and reversible risk factor for type II diabetes.

Work disability in patients with rheumatoid arthritis

E M BARRETT,1 E B M SYMMONS,2 H M WILSON,2 D P M FALCONER,1 H H RENWICK,1 ARC Epidemiology Unit, University of Manchester Medical School)

Background—There are strong links between the development of rheumatoid arthritis (RA) and work disability but little is known about how work disability varies in RA. Work loss often occurs early in the disease process. We previously reported work disability rates of 14% at one year and 28.6% at three years from RA onset. The move to earlier, more joint-sparing interventions and the ability to remain in work. Work loss rates in RA are affected by both disease activity and employment.

Objectives—To report self reported physical activity and ultrasound measurement of heel bone density in men and women.

Methods/main outcome measure—Time spent participating in recreational physical activity was calculated for four groups that were defined according to the level of impact from questionnaire data. The questionnaire also quantified stair climbing and frequency of inactivity (time spent viewing television/video). At least two measurements of bone density, per foot, at the heel were recorded by BUA has previously been shown to predict hip fracture. BUA correlates moderately with bone mineral density and is related to bone geometry.

Results—Self reported time spent in high impact physical activity was strongly and positively associated with heel bone density, independently of age, weight and other confounding factors. Men who reported participating in ≥2 hours per week of high impact activity compared with men who report no such participation, had 8.40 dB/MHz (95% confidence intervals (95% CI) 0.22, 1.13), p<0.005 for men. There was a significant negative association between time spent in recreational physical activity and heel bone density in women. In women, the difference in heel bone density between reporting any versus no time spent in recreational physical activity was −0.08 dB/MHz (95% CI −0.14, −0.02), p<0.009. These associations were independent of possible confounding factors; age, weight, height, cigarette smoking habit and hormone replacement therapy in women.

Conclusion—This cross sectional study demonstrates an independent relation between high impact physical activity and a measure of bone density (by BUA) in men and women. Interventions to increase participation in these activities may have important public health consequences.

Barriers to utilisation of total joint replacements

S SANDERS,1 J DONOVAN,1 J CHARD,2 P DIEPPE1 (Department of Social Medicine/MRC HSRG, University of Bristol)

Introduction—While total joint replacement (TJR) is an effective treatment for severe joint disease, research evidence consistently shows variations in surgical rates nationally and internationally. Expert discussions and literature identified three potential barriers to appropriate utilisation: people with joint disease not presenting to primary care physicians, primary care physicians not referring people to specialists, and surgeons refusing to operate on particular groups (for example, young, obese). Recent changes in review guidelines for primary care physicians, published literature from standard electronic databases concerned with treatments for osteoarthritis were reviewed. Conclusions—This potential to de- velop strategies that might reduce inequality and unmet need, including referral and review guidelines for primary care physicians. It is also clear that there is a need for further research to establish appropriate indications for the timing of TJR to ensure on time joint replacements.

0.08 dB/MHz (95% CI

Research articles

STATEMENT ON JOURNAL POLICY

Cardiovascular disease

Trends in mortality and hospitalisation following a first acute myocardial infarction: a population-based study

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Introduction—The Norfolk Arthritis Register (NOAR)—a primary care based inception cohort of patients with inflammatory polyarthritis (IP) with longitudinal follow up. Methods—(1) 134 consecutive patients (52 male, 82 female) with symptom onset in 1989–1992 were followed up. All current smokers combined had a significantly increased risk of diabetes compared with never smokers, relative risk (RR) (95% confidence intervals (95% CI)) 1.7 (1.2, 2.4), adjusted for body mass index and other potential confounders including physical activity, social class, alcohol intake, parity, hormone replacement therapy and anti-hypertensive treatment. Primary pipe/cigar smokers showed similar risk to never smokers but secondary pipe/cigar smokers showed significantly higher risk than never smokers, adjusted RR 1.9 (95% CI 1.1, 2.8). Ex-smokers showed lower risk than never smokers, and diabetes risk tended to decrease with increasing years since quitting. After adjustment for age, body mass index and other confounders, the benefit of giving up smoking was apparent in those who had given up at least five years before to screening. Diabetes risk reverted to that of never smokers in those who had given up at least 20 years before screening.

Conclusion—The findings suggest that smoking is an independent and reversible risk factor for type II diabetes.

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Background—There are strong links between the development of rheumatoid arthritis (RA) and work disability but little is known about how work disability varies in RA. Work loss often occurs early in the disease process. We previously reported work disability rates of 14% at one year and 28.6% at three years from RA onset. The move to earlier, more joint-sparing interventions and the ability to remain in work. Work loss rates in RA are affected by both disease activity and employment.

Objectives—To study associations between self reported physical activity and ultrasound measurement of heel bone density in men and women.

Methods/main outcome measure—Time spent participating in recreational physical activity was calculated for four groups that were defined according to the level of impact from questionnaire data. The questionnaire also quantified stair climbing and frequency of inactivity (time spent viewing television/video). At least two measurements of bone density, per foot, at the heel were recorded by BUA has previously been shown to predict hip fracture. BUA correlates moderately with bone mineral density and is related to bone geometry.

Results—Self reported time spent in high impact physical activity was strongly and positively associated with heel bone density, independently of age, weight and other confounding factors. Men who reported participating in ≥2 hours per week of high impact activity compared with men who report no such participation, had 8.40 dB/MHz (95% confidence intervals (95% CI) 0.22, 1.13), p<0.005 for men. There was a significant negative association between time spent in recreational physical activity and heel bone density in women. In women, the difference in heel bone density between reporting any versus no time spent in high impact activity was 2.36 dB/MHz (95% CI 0.42, 4.31). The size of this effect was equivalent to that of four years in age. There was no significant association between time spent in moderate impact activity on heel bone density in men or women. This null association was expected when the analysis was restricted only to people who did not participate in high impact activity. For each additional five flights of stairs climbed per day the increase in heel bone density was 0.68 dB/MHz (95% CI 0.22, 1.13), p<0.005 for women. There was a significant negative association between increasing television/video viewing hours per week and heel bone density in men but not women. The effect of each additional hour of television/video viewing per week was −0.08 dB/MHz (95% CI −0.14, −0.02), p<0.009. These associations were independent of possible confounding factors; age, weight, height, cigarette smoking habit and hormone replacement therapy in women.

Conclusion—This cross sectional study demonstrates an independent relation between high impact physical activity and a measure of bone density (by BUA) in men and women. Interventions to increase participation in these activities may have important public health consequences.

Barriers to utilisation of total joint replacements

S SANDERS,1 J DONOVAN,1 J CHARD,2 P DIEPPE1 (Department of Social Medicine/MRC HSRG, University of Bristol; Norwich Medical School)

Introduction—While total joint replacement (TJR) is an effective treatment for severe joint disease, research evidence consistently shows variations in surgical rates nationally and internationally. Expert discussions and literature identified three potential barriers to appropriate utilisation: people with joint disease not presenting to primary care physicians, primary care physicians not referring people to specialists, and surgeons refusing to operate on particular groups (for example, young, obese). Recent changes in review guidelines for primary care physicians, published literature from standard electronic databases concerned with treatments for osteoarthritis were reviewed. Conclusions—This potential to develop strategies that might reduce inequality and unmet need, including referral and review guidelines for primary care physicians. It is also clear that there is a need for further research to establish appropriate indications for the timing of TJR to ensure on time joint replacements.

Cardiovascular disease

Trends in mortality and hospitalisation following a first acute myocardial infarction: a population-based study

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Objectives—To examine the trends in: (a) population mortality rates following a first acute myocardial infarction (AMI) in those people who did not survive to reach hospital, and (b) the proportion of people experiencing a first AMI who were admitted to hospital in Scotland between 1986 and 1995. Setting—Population-based study in Scotland (population 5.1 million). Subjects—All 208 527 men and women experiencing a first AMI in Scotland between 1986 and 1995, including the 117 749 people who were admitted to hospital, plus the 90 778 people who did not survive to reach hospital. (A first AMI was defined as ICD9 code 410 with no prior hospitalisation for AMI since 1981). Follow-up between 1986 and 1995, a total of 48 481 men and 42 297 women had a first AMI and did not survive to reach hospital. Overall, population-based death rates increased with age. Thus, in 1986 the death rate was 11 per 100 000 population aged 73 and 24/100 000 population respectively, rising with age to 1930 and 1210/100 000 respectively in those aged >74 years. Significant declines were observed in all age groups between 1986 and 1995, and were greatest in men and the young. Thus, death rates halved in men aged <65 years; (from 73 to 36/100 000). The proportion of people who survived to reach hospital increased over this period. Although this proportion increase occurred in men and women in all age groups, it was most evident in younger cohorts. According to multivariate analysis performed separately for men and women, year of admission, age and extent of social deprivation were all significant predictors of probability of admission to hospital. Conclusion—Population-based death rates following a first AMI, but without hospitalisation, declined significantly between 1986 and 1995. This trend was most evident in men and younger age groups. These data are consistent with the impact of primary prevention.

The association between socioeconomic deprivation and the management of acute myocardial infarction and survival at two years: a prospective observational study

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Background—Coronary heart disease is a major factor in the widening social divide in health. The decline in death rates since the 1970s has been least marked in lower socioeconomic groups; variations in lifestyle and environmental factors are likely to account for most of this difference. With the advent of effective treatments such as thrombolysis, ACE inhibitors and aspirin, the management of acute myocardial infarction (AMI) may be an additional factor contributing to socioeconomic variation in outcomes. Objective—To investigate the association between socioeconomic deprivation and the management of, and survival after, AMI. Design—Prospective observational study collecting demographic and clinical data all cases of AMI admitted to hospitals in Yorkshire. Setting—Acute admitting district and university hospitals in the Yorkshire region of northern England. Participants—3684 consecutive patients with a diagnosis of AMI admitted to hospitals in Yorkshire between 1 September and 30 November 1995. Main outcome measures—Types of ward on admission of AMI in secondary care. Survival status at discharge from hospital and two years, by quintiles of Townsend score. Results—2153 people had a confirmed AMI. Those from the ‘better off’ quintiles waited a similar time before seeking medical help. After adjusting for clinical variables and hospital of admission, deprived patients were less likely to be admitted directly to a coronary care unit (adjusted odds ratio (OR) 0.96, 95% confidence intervals (95% CI) 0.93, 0.99, p=0.005 per unit of Townsend score) and more likely to attend accident and emergency. Once in hospital, deprivation was associated with treatment with aspirin or thrombolysis, treatment on discharge or investigations planned after discharge. No relation was seen between deprivation and death before discharge (adjusted OR 0.99, 95% CI 0.95, 1.03, p=0.06) or two years (adjusted OR 1.01, 95% CI 0.98, 1.06, p=0.41). Conclusion—If social inequities in the management of AMI in secondary care do exist, they are not an important contribution to the social divide in coronary heart disease outcomes. However, there may be important differences in the primary care of AMI that merit further attention.

Identifying the risk factors and indicators of ischaemic heart disease in primary and secondary care: is there a consensus model?  

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Background—Medical research has identified numerous cues that are associated with ischaemic heart disease (IHD), but no one clear pathogenic predictor. Given time and resource constraints in clinical practice, diagnosis is likely to be based upon a subset of these: those a physician considers to be the most predictive of IHD. It is not known which factors are most influential in reaching a diagnosis, nor whether there are systematic differences between primary and secondary care physicians. Objectives—Our overall aim was to examine the degree of consensus between and within primary and secondary care physicians on subjective models of diagnosis of IHD. Our first objective was to elicit those cues considered by physicians in the diagnosis of IHD. Our second objective was to ascertain the strength of association between these cues and IHD. Our third objective was to examine the interrelation between these cues. Method—The study was divided into two experiments. The first experiment used an open-ended cue identification task. Sixty primary and secondary care specialists were asked to identify the cues, which in their view were predictive of a diagnosis of IHD. Each cue was also subjectively weighted. that is, the strength of association between the cue and IHD was rated. The second experiment used a network diagram technique to elicit each person’s causal model of IHD. Physicians formulated a causal (belief) diagram identifying the relations between cues and the strength of the identified associations.

Results—Seventy two different cues were identified by at least one physician as being associated with IHD. Both primary and secondary care physicians consistently identified six risk factors (angina, diabetes mellitus, hyperlipidaemia, hypertension, smoking and a positive family history of IHD) and four possible test results (ECG, ETT, angiography and thallium scan) as predictive of IHD. Although these six cues were both rated highly and identified by most people, and cues with low ratings tended to be identified by few people, there were some cues that only a few people identified but which were rated very highly.

Conclusion—This is the first study to use causal modelling to examine the role of information used by primary and secondary care physicians in the diagnosis of IHD. Although our model showed agreement on the core cues involved in a diagnosis, we have also identified cues that could lead to a difference in opinion with any one patient.

Is “Saving Lives” feasible? Estimating the potential for further reductions in UK coronary heart disease deaths  

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Objectives—To assess the potential for reductions in coronary heart disease (CHD) death rates in the UK. Setting—The recent public health white paper “Saving Lives: Our Healthier Nation”, sets a target of a 40% (200 000) reduction in CHD deaths in people under 75 between 1997 and 2010. Is this feasible through further risk factor reductions? Methods—A previously validated cell-based mortality model combining effectiveness data from published meta-analyses with available information on CHD treatment in all patient categories, (b) risk factor trends (smoking, blood pressure, cholesterol, deprivation) by sex/age group. Applying data from the UK (Monitoring of Trends and Determinants in Cardiovascular Disease) project and else-where, the model was used to estimate the additional deaths that might have been prevented by a variety of plausible scenarios, such as if: (1) reductions in smoking prevalence in Scotland had been as great among women as among men; (2) reductions in population mean cholesterol level in Scot-land had been as great as in Sweden; (3) reductions in population mean diastolic blood pressure had been 50% higher than those observed (an additional 4 mm Hg over all age/sex groups in the model). The robustness of the model results to uncertainties surrounding all key parameters was examined by extensive sensitivity analyses. Results—Between 1975 and 1994, smoking prevalence in Scotland declined by 6% in men and 34% in women; population mean cholesterol levels and blood pressure declined by only approximately 5% and 9% respectively. These observed risk fac-tor changes explained approximately 12% of the deaths prevented in 1994 compared with
1975. If the reduction in smoking prevalence among women had equalled that in men, several hundred further deaths might have been prevented in 1994, mostly in older age groups (over 75). Significant additional deaths might have been prevented by further blood pressure reduction, and death rates could have been reduced substantially if the decline in population mean cholesterol in Scotland had mirrored that in Gothenberg, Sweden. Comparable reductions in CHD deaths were seen when the model was extended from 1994 to 2010.

Conclusions—Cautious extrapolation to the UK population of 59 million suggests that comparable factor reductions were achieved, approximately 20 000 further CHD deaths per annum might be prevented. Given that cardiological treatments should also have a substantial impact, the “Saving Lives” target seems entirely feasible.

MENTAL HEALTH

Is exercise an effective intervention for the management of depression? A systematic review

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Background and Objective—Depression is common and an important cause of morbidity and mortality worldwide. Despite the availability of effective pharmacological interventions, much depression remains inadequately treated and consumes a disproportionate amount of health resources. An effective alternative treatment that might be more acceptable to patients would therefore be beneficial. Research into the effect of exercise on depression has gone back several decades and there is a growing body of literature on this subject. This review examines the effectiveness of exercise as an intervention for the management of depression.

Design—Systematic review of all randomised controlled trials, in any language, obtained using five electronic databases, (Medline, Embase, PsycLit, Sport discus, Cochrane Library) contact with experts in the field, bibliographic searches and hand searches of recent copies of relevant journals. Meta-analysis and meta-regression of trials for which complete data were obtained. Analysis—Standardised mean difference in effect size and weighted mean difference in Beck Depression Inventory (BDI).

Results—16 articles referring to 14 studies met our inclusion criteria. The key results are: (a) There is a paucity of good evidence. All studies had important methodological weaknesses with randomisation being adequately concealed in only three and intention to treat analyses undertaken in only two. (b) The majority (nine) of the studies were of non-clinical community volunteers sometimes with financial or other incentives to participate and complete. In most of these an adequate diagnosis of clinical depression was not made. (c) Most studies did not present data to enable statistical pooling or confirmation of author’s conclusions. After contact with authors, adequate data were available for 12 of the 14 studies. (d) Exercise is efficacious, when compared with no exercise, in reducing depressive symptoms—standardised mean difference −1.1 (95% CI −1.5, −0.6), weighted mean difference in outcome

BDI = −7.3 (95% CI −10.0, −4.6). (e) There were systematic differences (heterogeneity) between studies that were not explained by study quality, setting or depression severity but were explained by publication type and length of follow up. (f) Exercise has similar efficacy to cognitive therapy in reducing depressive symptoms—standardised mean difference −0.3 (95% CI −0.7, +0.1).

Conclusions—Exercise is efficacious in the management of depressive symptoms but these results may be exaggerated by the inclusion of two conference abstracts in the analysis and the short-term follow up of studies. The long-term efficacy of exercise in the treatment of depression cannot be determined with currently available evidence.

Explanations for the rise in youth suicide: a European perspective

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Background—Suicide rates have doubled in men aged <30 in England and Wales (E&W) since 1970, while in young women rates have declined. With the exception of the former West Germany many other European countries have experienced similar increases in young male suicide and elsewhere in Europe trends in female suicide have generally followed those in men.

Methods—Using age and gender specific social and economic data from four countries with different suicide rates—E&W, West Germany, France and Norway—we have investigated whether changes in social and economic conditions or in the lethality of suicide methods underlie these differing trends.

Results—In young men in E&W, France and Norway suicide rates increased by over 70% between 1970–1990, whereas in West Germany, over the same period, rates declined. In young women, rates decreased in E&W and Norway but increased in both France and Norway. In all four countries there have been reductions in female overdose suicide mortality but in France and Norway these have been offset by increased use of other methods, particularly hanging. Trends in markers of social and economic conditions are broadly similar across the four countries. Between 1970–1990 levels of unemployment rose steeply in each country. In E&W and France the timing of the increase in unemployment coincided with the rise in suicide. While divorce rates have also increased markedly in all four countries, the timing of these rises differs from that for the increases in suicide in all countries except France. Marriage rates declined in all four countries from around 1970. Changes in all these risk factors have been greatest in people aged <30. There are no clear differences between the countries in trends in alcohol consumption or GDP, both of which have increased. Trends in income inequality show no consistent association with suicide trends.

Summary—Changes in the social and economic risk factors examined do not seem to explain differing trends in youth suicide. Changes in the lethality of methods used for suicide may have influenced trends in women. Further research is required into reasons for the discordance in suicide trends in Germany compared with other European countries, explanations are relevant to understanding the aetiology of suicide and in developing prevention strategies. Particular features of Germany in the past 50 years are postwar reconstruction, changes in its national borders and reunification in 1989. It is notable that similar reductions in youth suicide occurred in Japan 1970–1990.

Urban-rural differences in the rise in youth suicide in England and Wales

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Background—Suicide rates have doubled in young men over the past 30 years in most industrialised countries. Explanations for these rises are unclear, but research from Australia indicates that the steepest rises have occurred in rural areas. It is speculated that these changes reflect a decline in the rural economy and its effects on rural communities, including the out-migration of young people. We have investigated whether similar geographical differences in trends in suicide exist in England and Wales.


Methods—The wards of England and Wales were categorised into four quartiles of rurality using an index of population potential derived from the 1991 census. The index is based on the populations of all wards in Britain, each weighted by its distance from the centre of the index ward. Differences in suicide rates (ICD9 codes E950–959 and E980–989 excluding E988.8) between 1981–85 and 1986–92 were calculated in each quartile for 15–24 and 25–44 year old men and women separately using routine mortality data.

Results—In men, between 1981–85 and 1986–92, suicide rates increased by 4.9 (95% confidence intervals (95% CI) 4.3, 5.6) per 100 000 person years in 15–24 year olds and by 1.0 (95% CI 0.4, 1.7) in 25–44 year olds. In women, the changes were 0.6 (95% CI 0.3, 1.0) and −1.4 (95% CI −1.8, −1.1) in the same age bands. In men aged 15–24, rises in suicide rates were similar in both rural and urban areas. In men aged 25–44, however, there were striking differences across the four categories of rurality—most of the increase occurred in the most rural wards: 3.0 (95% CI 1.3, 4.7) while just 0.02 (95% CI −1.0, 1.0) in the most urban wards. In women aged 15–24, there were similar marked differences depending on rurality: 1.4 (95% CI 0.5, 2.3) in the most rural and 0.2 (95% CI −0.4, 0.8) in the most urban quartile. In women aged 25–44, suicide rates decreased over the years studied across all quartiles (95% CI −2.6, −1.4) in urban and −1.5 (95% CI −2.5, −0.6) in rural areas. It is unlikely that changes in unemployment explain these trends, as between 1981 and 1991 the greatest increases in unemployment were experienced in urban areas (correlation between change in unemployment and population potential 0.20; p<0.001 in men and 0.33; p<0.001 in women).

Summary—These findings suggest that the greatest increases in youth suicide have occurred in rural areas, in particular in 15–24 year old women and 25–44 year old men. The influence of changes in preferred methods of suicide as well as other social and economic changes in rural wards will be presented at the conference.

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The impact of legislation and changing vehicle propulsion methods on suicides using motor vehicle exhaust gases across the UK

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Background— Catalytic converters (CATs) have been compulsory on all petrol cars sold in the European Union since 31 December 1992. As CATs reduce the level of carbon monoxide (CO) in motor vehicle emissions by approximately 86% it has been postulated to have an unintended benefit of reducing suicides using motor vehicle emissions. In addition, CATs have been a major change in the UK car fleet in the past 15 years with an increasing proportion of diesel engine cars, which generate lower levels of CO than petrol engines fitted with CATs. A coincidental decline in suicides and the introduction of CATs has been reported in US and in Scotland. However, the US studies are limited in their generalisability because of the preponderance of petrol vehicles and the advent of carbon monoxide as an alternative method of suicide, and the Scottish study failed to examine the changes in the car fleet.

Objective— To consider: what impact did the uptake of diesel vehicles have on suicide rates? and any substitution of methods occurred.

Design— Retrospective analysis of mortality reports from the Registrar Generals (1980–1995). Deaths as a result of suicide (ICD9 codes E950–E959), including undetermined suicidal intent (E980–E989), were compared with reports from the Registrar Generals (1980–1992). As CATS reduced the level of carbon monoxide (CO) in motor vehicle emissions by approximately 86% it has been postulated to have an unintended benefit of reducing suicides using motor vehicle emissions. In addition, CATS have been a major change in the UK car fleet in the past 15 years with an increasing proportion of diesel engine cars, which generate lower levels of CO than petrol engines fitted with CATs. A coincidental decline in suicides and the introduction of CATs has been reported in US and in Scotland. However, the US studies are limited in their generalisability because of the preponderance of petrol vehicles and the advent of carbon monoxide as an alternative method of suicide, and the Scottish study failed to examine the changes in the car fleet.

Results— The suicide rate using motor vehicle gases (E952+E982) increased steadily to peak in 1992 at 2.51 per 100 000 before dropping to 1.50 per 100 000 by 1995, while suicides from other methods remained relatively constant around 9.3 per 100 000. However, rates for hanging (E953+E954) have increased from 2.54 per 100 000 to 3.30 per 100 000. Initial findings indicate that the increase in diesel vehicles did not have the expected effect on the level of suicides before the introduction of CAT fitted petrol vehicles.

Conclusion— This study shows for the first time that substitution is occurring with a marked shift towards the use of hanging. It is interesting that the uptake of diesel vehicles did have the same impact on suicides as the introduction of CATs. This raises the question whether those who own diesel vehicles are somehow different to those with petrol ones.

CHILDREN AND TEENAGERS

Slipping through the net—risk factors for unmet treatment need in children born with cleft lip and palate

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Background— Children born with cleft lip and palate require long term follow up with multidisciplinary specialist treatment, including surgery, speech therapy and dentistry, from birth until adulthood. After a national audit of the outcome of cleft care the number of cleft teams in the UK is being reduced to create regional specialist centres. The risk in this strategy is that there will be reduced access to specialist services in vulnerable population groups.

Main outcome measure— Main outcome measure—Household having a child with a behavioural problems where a planned programme of intervention is in place.

Results— Overview there were 866 children (8.5%) with behavioural problems who were also having a planned programme of intervention. Of the various household and family factors studied, nine remained significant after adjustment for possible confounders. However, the three most important determinants (adjusted odds ratios (OR) and 95% confidence intervals (95% CI)) as defined by the best model (goodness of fit r²= 0.068) were: (a) either parent being dependent mentally (OR 2.90, 9.11), (b) low income families (OR 1.88, 95% CI 1.59, 2.21) and (c) one parent families (OR 1.99, 95% CI 1.66, 2.38).

Conclusions— Behavioural problems in children are on the rise and to some extent reflect on the changing social environment of early childhood. This study identifies some of the key social determinants that may prove useful to policy makers involved in developing programmes such as “Sure start”.

Age and gender differences in utilisation of asthma medication in children and young adults in Tayside, Scotland

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Background— There are few studies that examine the age and gender differences in children and young adults aged 0–25 in the utilisation of asthma medications.

Methods— The Medicines Monitoring Unit (MEMO) captures all dispensed medication for the Tayside area of Scotland (population 450 000). These data have a unique patient identifier attached that allows demographic and drug safety studies to be carried out. This study examined the dispensing of asthma medications for a population resident and registered with a GP in Tayside between 1993 and 1995.

Results— A total of 130 372 subjects aged 25 or under were identified. Of this group 18.1% of males and 16.3% of females had received at least one prescription for asthma medication. Stratifying by age in four year bands the age group 1–4 years had the highest proportion with an asthma prescription (29.4% males and 23.5% females, p=0.001 χ² test). The proportion of male subjects with an asthma prescription was consistently higher than female subjects until the age of 19 after which there was a higher proportion of female subjects. Logistic regression analysis showed that overall male subjects were more likely to be dispensed a prescription for asthma medication than female subjects (odds ratio (OR) 1.14, 95% confidence intervals (95% CI) 1.11, 1.18, p<0.001). Those aged under 20 were twice as likely to have a prescription as those aged 20–25 (OR 2.02, 95% CI 1.95, 2.10, p<0.001). There was a significant age by gender interaction (p<0.001) whereby male subjects were more likely to have a prescription for asthma than female subjects before the age of 20 (OR 1.26, 95% CI 1.22, 1.30, p<0.001) and less likely after the age of 20 (OR 0.73, 95% CI 0.69, 0.79, p<0.001).

Discussion— The difference in results for male subjects may reflect a higher incidence of asthma under age 20 or a possible prescribing bias. Gender should be taken into account when studying asthma in children and young adults.
Trends in teenage pregnancies in Scotland and the associations with deprivation and rurality

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Background—The recent Scottish white paper “Towards a healthier Scotland” set a target to reduce pregnancies among 13–15 year olds by 20% by the year 2010.

Objectives—To describe trends in teenage pregnancy in the national and local level and associations with deprivation and rurality.

Subjects—Teenage conceptions treated in NHS hospitals in 1981–96, abstracted from hospital discharge records (SMR1, SMR2).

Methods—Annual age specific conception rates per 1000 population and the proportions resulting in a maternity for 13–15, 16–17 and 18–19 year olds.

Results—Conception rates increased for 13–15 from 5 to 9 per 1000 and 16–17 year olds (from 45 to 60 per 1000) in 1981–96, while rates remained constant at around 89 per 1000 for 18–19 year olds. The percent resulting in a maternity decreased from 80% to 65% for 18–19 year olds, from 70% to 65% for 16–17 year olds and stayed constant at 50% for 13–15 year olds. These trends varied by rurality but differences between localities were largely maintained so that districts above the average at the start of the 1980s were still above average in the mid-90s.

Conclusion—Pregnancies in young teenagers have increased in the previous two decades while the percent leading to a maternity has changed very little. The consistency of district differentials implies that local strategies to reduce unwanted pregnancies are desirable. While increased pregnancies in rural areas might reflect cultural differences, the impact of access to services must also be considered. To achieve government targets, population-based interventions aimed at preventing unwanted teenage pregnancies and supporting teenage mothers must take account of different social, economic and cultural circumstances and the consequential health service needs of teenagers living in both deprived and rural communities.

RISK FACTORS

The relationship of body mass index in early and mid-adulthood to mortality risk

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Objectives—To examine whether psychological health was related to increased mortality in terms of all cause mortality, cardiovascular mortality, and cancers.

Subjects—5718 men aged 35–64 at recruitment and followed up for 21 years.

Methods—Annual age specific conception rates per 1000 population and the proportions resulting in a maternity for 13–15, 16–17 and 18–19 year olds.

Results—Conception rates increased for 13–15 from 5 to 9 per 1000 and 16–17 year olds (from 45 to 60 per 1000) in 1981–96, while rates remained constant at around 89 per 1000 for 18–19 year olds. The percent resulting in a maternity decreased from 80% to 65% for 18–19 year olds, from 70% to 65% for 16–17 year olds and stayed constant at 50% for 13–15 year olds. These trends varied by rurality but differences between localities were largely maintained so that districts above the average at the start of the 1980s were still above average in the mid-90s.

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The association between early life BMI and mortality is only partially confounded by social position. This “protective” effect was seen despite the expected association between stress and unhealthy behaviour, suggesting that material circumstances may be more important than individual behaviour in determining health.

Personality in young adults and later mortality: prospective observational study

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Background—Perceived psychological stress has been proposed as an important determinant of physical health. Stress may influence health directly (through neuroendocrine mechanisms that increase physiological risk) or indirectly (through the promotion of unhealthy behaviour). Perception of stress is socially patterned therefore other correlates of social position may confound the apparent association between stress and health.

Objectives—To examine the association between self reported stress, disease risk, social position and mortality.

Subjects—8394 former males Glasgow University students aged 16–30 years, (mean 20.5) at the time of first examination.

Methods—Annual age specific conception rates per 1000 population and the proportions resulting in a maternity for 13–15, 16–17 and 18–19 year olds.

Results—Conception rates increased for 13–15 from 5 to 9 per 1000 and 16–17 year olds (from 45 to 60 per 1000) in 1981–96, while rates remained constant at around 89 per 1000 for 18–19 year olds. The percent resulting in a maternity decreased from 80% to 65% for 18–19 year olds, from 70% to 65% for 16–17 year olds and stayed constant at 50% for 13–15 year olds. These trends varied by rurality but differences between localities were largely maintained so that districts above the average at the start of the 1980s were still above average in the mid-90s.

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The association between early life BMI and mortality is only partially confounded by social position. This “protective” effect was seen despite the expected association between stress and unhealthy behaviour, suggesting that material circumstances may be more important than individual behaviour in determining health.
models were used to estimate the association between personality and mortality. Results—There were 830 deaths. The number of participants with at least one personality category was 820 (9.8%). The most common personality category was anxiety with 481 (5.7%). Only 12 (0.1%) men were labelled depressed. The presence of “any” coding was associated with an increased risk of stroke, hazard ratio (HR) (95% CI 1.06, 1.68) and anxiety (95% CI 1.04) for all cause and cancer mortality respectively; for depression the these were 4.02 (95% CI 1.50, 10.73) and 5.45 (95% CI 1.38, 22.27) for the same causes of death respectively. Depression was also positively associated with cardiovascular disease and coronary heart disease and stroke and with both cancers related to smoking and cancers not related to smoking. There were no significant associations between other categories and mortality. These results were unchanged after controlling for the potential confounding variables of cigarette smoking, father’s social class, body mass index, systolic blood pressure and vital status of parents.

Conclusions—The results indicate that certain aspects of “personality” in early adulthood may be associated with later mortality. Although state and trait aspects of personal- ity were conflated and assessed subjectively (and only a small number of students were depressed) these findings are suggestive of the importance of psychological well being in determining future mortality risk. Along with other accumu- lating evidence the results point to the need to optimise mental health in young adults.

Current trends in mortality among adults in Scotland

P MCLADDEN (MRC Social and Public Health Sciences Unit, University of Glasgow)

Objective—To describe recent trends in death rates in Scotland with particular reference to mortality among young adults.

Data and methods—Trends in age specific death rates for all cause and specific causes since 1981 from mortality records gathered by the General Register Office for Scotland. Results—Since 1981 from mortality records gathered death rates for all cause and specific causes mortality among young adults. This picture, however, was somewhat complicated and the number of deaths from AIDS in Dundee and Edin- burgh.

Conclusion—In Scotland the rate of decline in mortality among men aged 59 and below is slowing down, and death rates among young men aged 20–39 are increasing. If these trends continue there is a suggestion that future death rates will also rise at older ages. The failure to maintain earlier gains in mortality has important implications for the ways in which public health policies are prioritised.

Body image and weight change in middle age: a qualitative study

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Objective—To explore experiences of weight change in adulthood and views of the medical, social and practical problems associated with different body shapes.

Design—Qualitative study using semi-structured, tape recorded interviews. Views about weight change in adulthood, experi- ences of changes and motivations to change were explored. Pictures of a set of eight body shapes designed to represent a range from underweight (1) to borderline obese (8) were used to encourage discussion about body image preferences for men and women. Respondents were asked to identify any health, social or practical problems they would associate with the different body shapes.

Setting—A purposive sample was identified through two health centres. Interviews were conducted in the respondents’ home by researchers trained in qualitative interview- ing.

Participants—Seventy two men and women aged between 35 and 55 with body mass indices (BMI) between 22 and 29. (That is, of recommended weight or moderate over- weight).

Results—Experience of weight gain in adult- hood was widespread in this group: 97% of men and 95% of women had noticed gain since they were in their 20s. However, less than half thought that weight gain was inevi- table in middle age. Overall, one third of the men, but few women, said that they had never tried to lose weight. 42% of the men, but only 13% of the women with BMI below 26.9, had ever tried to gain weight. Responses to the pictures of body shapes were consistent with this find- ing: more men (41%) than women (26%) expressed a preference for a body shape numbered “4” or above for themselves. Forty seven per cent of men and 60% of women with BMI under 26.9 reported that they had successfully lost weight at least once. Prob- lems associated with overweight included heart disease, joint problems, breathlessness, low self esteem, negative reactions from others, mobility, fitting into seats, and difficulty finding clothes, jobs and partners. Weight gain was attributed to slower metabolism, ageing, quitting smoking and more sedentary lifestyle, although childbearing, comfort eat- ing and “letting oneself go” were thought to be reasons for women’s gain while being less sporty and drinking beer were cited for men.

Discussion—Although none of the respond- ents’ weight would be seen as a medical problem the interviews provide rich accounts of struggles with weight and body image. Respondents were aware of holding contra- dictory views about ideal weight. Body image preferences bear little relation to recognised medical risk.

Incidence of HIV infection among gay men seeking a repeat HIV test

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Objective—To estimate the incidence of HIV infection among gay men who have previ- ously tested negative for HIV.

Methods—Of 2100 people attending the same HIV testing clinic at this hospital between September 1997 to July 1998, 1580 (75%) completed an anonymous questionnaire con- cerning sexual risk behaviour, number of previ- ous HIV tests and details of repeat testers were those clinic attendees who had previously tested negative for HIV and were returning for another test. Only those whose previous test was at least three months before the present test were included in this analysis. HIV incidence was estimated by dividing the number of newly diagnosed cases of HIV among repeat testers by the person years of exposure since their last negative test.

Results—470 clinic attendees were gay men of whom 337 (72%) were repeat testers; 275 provided information on date of last test (median time since last test 24 months), age (median 31 years), previous negative tests; 151 (55%) had one or two previous negative tests while 124 (45%) reported three or more. Of these 275 men, 12 tested HIV positive. Overall HIV incidence was estimated to be 1.8 per 100 person years (12/655.2) (95% confidence intervals (95% CI) 0.8, 2.9). HIV incidence was increased for men whose previous test was within the last 12 months (4.7%) compared with those who had tested more than 12 months before (1.4%) (p=0.06). HIV incidence was also higher among men reporting three or more previous HIV tests (3.6%) than men with one or two previous tests (1.1%) (p=0.05). The highest HIV incidence (8.0%) was seen among gay men with a history of three or more previous tests who had tested negative within the past 12 months. Forty two per cent of gay men with three or more previous HIV tests (p=0.002), compared with 25% of those who had had one or two previous tests (p=0.002).

Conclusion—HIV incidence among gay men who had tested negative for HIV in the previ- ous 12 months was high (4.7%) and was even higher for those who reported three or more previous negative tests (8.0%), for some gay
The impact of bicycle helmets on im-

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Background—The protective effect of bicycle
helmets remains unclear, with case-control
studies accused of inadequate adjustment for
confounding factors and existing time trend
studies possibly affected by changing levels of
bicycle use.

Objective—To examine patterns of serious
head injuries among cyclists during a period
of increased helmet usage. Associations with
age, sex and deprivation are explored.

Design—Analysis of hospital admissions for
the years 1991/92 to 1994/95, using the hos-
pital episode statistics database.

Setting—All emergency admissions to NHS
hospitals in England.

Participants—35 056 bicycle related admis-
sions (ICD-9 E8261, E810–E825, 4th
digit=6).

Main outcome measures—Monthly counts of
admissions. Head injuries defined as fracture
of vault or base of skull, or intracranial injury
(ICD-9 800, 801, 850–854).

Results—Head injuries were the primary
diagnosis in 34% of cases (n=11 985), over
half of these being in children. Head injury
admissions declined significantly over the
four years, by 9% annually (95% confidence
intervals (95% CI −2%, 0%).

Conclusion—The protective effect of bicycle
helmets remains unclear, with case-control
studies accused of inadequate adjustment for
confounding factors and existing time trend
studies possibly affected by changing levels of
bicycle use.

Over the study period total admissions of
cyclists increased, non-significantly, by 0.2%
(95% CI, −1%, 1.1%). The increase did not
differ between the sexes but was significantly
higher in those from deprived areas, 6.3%
(95% CI 2.6%, 10%) compared with −1.2%
(95% CI −2%, 0%).

The level of cycling changed little
during the study period, taking total
admissions as a marker of cycle use. The
observed year on year decline in head
injuries occurred during a period of steadily
increasing helmet use and provides strong
evidence of their having a protective effect at
all ages. Residents of deprived areas did
however appear to cycle more, again taking
total admissions as a marker for cycle use.
This may explain the smaller decline they
experienced in numbers of head injuries,
rather than a difference in helmet wearing
patterns.

Print media response to a major mal-
practice inquiry in the UK

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Background—In 1997–8, the body with the
statutory duty to uphold professional stand-
ards, the General Medical Council (GMC),
held its longest ever disciplinary hearing cen-
tred on events at the Bristol Royal Infirmary.
Three doctors (two surgeons and a senior
health service manager) were eventually
found guilty of serious professional miscon-
duct and were severely sanctioned. The case
received unprecedented attention in both the
professional and the lay media, and provoked
intense government scrutiny culminating in a
public inquiry.

Objective—To examine the print media reaction
to The Bristol Case as a way of gaining
insight into the public debates over health care
quality assurance in the UK NHS.

Methods—We reviewed all major daily and
Sunday newspapers in the UK for the five
weeks period surrounding the announcement
of the GMC verdict and sentencing (14
newspaper titles in all; total of 230 issues). A
total of 184 separate media items were
retrieved. A qualitative content analysis of the
material was conducted in an attempt to draw
out the major ideas and viewpoints. A small
number of very prominent themes appeared
repeatedly; these themes were confirmed by
independent review of the material by each of
the authors.

Results—The print media reporting of The
Bristol Case was intense, emotive and hostile.
Almost all the papers devoted editorial
space to the case, some repeatedly. The
Bristol Case was seen less as an unusual
aberration by individual doctors and more as
a symptom of systematic failings in the
health system. Many articles referred to
diminished public trust in health services
and expressed disdain for professional self
regulation. The key reforms demanded were
greater publication of performance data (for
example, individual surgeons’ mortality
rates) and increased external scrutiny. These
findings will be illustrated with direct quotes
from newspaper articles.

Conclusions—The media (and indeed govern-
ment and professional) interest in The Bristol
Case was unprecedented. The print media
was characterised by hostility towards doc-
tors, scepticism about self regulation and
demands for greater accountability. UK gov-
ernment policy on health care quality will
have to pay much greater heed to public sen-
tibility than hitherto. Any attempts at
reforming physician regulation must now
take place in the face of a highly sensitised
and sceptical print media. Fine tuned argu-
ments on the relative merits of professional
self regulation and external scrutiny may thus
be hard to sustain. Demands for greater
access to data on clinical performance are
unlikely to be deflected.