Benefits of adenoidectomy in persistent OME (glue ear)

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Background—From the mid-1980s, paediatric ENT operations encountered increasing scepticism in public health quarters. The 1992 Effective Health Care Bulletin, coinciding with fundholding, substantially reduced referral intensity, and also compressed the district level practice variation. In rates for adenoid adenoidectomy remains high, suggesting uncertain clinical criteria and variable pressures of facilities and workload.

TARGET (The MRC randomised Trial of Alternative Regimens in Glue Ear treatment) is a three arm multicentre trial not led by service providers. It was undertaken to address overall intervention 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.

Methods—We have developed a CGP, based on a series of Markov models for each of the main health outcomes involved in the PO decision—ovarian cancer, breast cancer, coronary heart disease and major fracture due to osteoporosis. The results, using data drawn from a systematic literature review, are adjusted to reflect women’s own individual risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT. In conjunction with a facilitator, women record their major risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT. In conjunction with a facilitator, women record their major risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT. In conjunction with a facilitator, women record their major risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT. In conjunction with a facilitator, women record their major risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT. In conjunction with a facilitator, women record their major risk factors, health state valuations, attitudes to risk and predictions as to their likely intake of HRT.
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 general practitioners.

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=940).

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 at Your Fingertips”. 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 intervention was collected by a team of nurses examining the medical record of patients.

Main results—Eighty seven per cent of the sample did not opt out of the study, 53% responded to the questionnaire. Receipt of booklet had no significant effect on health service utilisation, although matched practices allocated to “Healthcare at Your Fingertips” 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 symptoms. 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

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 outcome 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 importantly the interaction between treatment and outcomes has not been examined.

Design—To investigate the effect of sex differences in risk factors and hospital treatment on survival after AMI.

Main results—AMI was confirmed by the attending consultant for 2196 admissions (2153 people, 850 women and 1303 men). Women were older and less likely than men to be smokers or have a history of ischaemic heart disease. Crude in hospital mortality rate was higher for women versus 19% for men, crude odds ratio (OR) of death before discharge for women 1.8, 95% confidence intervals (95% CI) 1.5, 2.2. This difference persisted after adjustment for age, risk factors and comorbidities (adjusted OR 1.3, 95% CI 1.0, 1.6, p=0.02), but was not significant when treatment was taken into account.

Methods—A prospective observational study collecting demographic and clinical data on cases of AMI admitted to hospitals in Yorkshire. The main outcome measures were survival status at discharge from hospital and two years later.

Setting—All district and university hospitals accepting emergency admissions in the former Yorkshire National Health Service (NHS) region of northern England.

Conclusions—While we found a strongly significant association between job satisfaction and perceived stress, there was little evidence to suggest that lack of job satisfaction was associated with cardiovascular risk factors in men or women, and no evidence to suggest that lack of job satisfaction was associated with cardiovascular or all cause mortality in men, once adjustment had been made for age and social class. There was some suggestion that women who reported increased satisfaction in their jobs between baseline and second screening were at less risk of dying from any cause than women who were always satisfied. We suggest that job dissatisfaction is an important form of stress for those in current employment and that there is a case for separating the experiences of men and women in future studies.

Survival and outcome in a population-based cohort of patients with chronic renal failure and their socio-demographic determinants

N Dreyer, P Roderick, J G Davey Smith, M Rogers

Background and objectives—Little is known of the outcomes of chronic renal failure (CRF) at a population-based level. There have been clinic-based studies of survival in advanced CRF, but survival in less severe CRF is not well understood. The objective of this study was to determine the outcomes and processes of health care in a population-based cohort of CRF.

Study design—Newly diagnosed cases of CRF, in Southampton and SW Hampshire Health Authority (1992–1994), were identified by a previously validated serum creatinine (SCR ≥150 µmol/l or ≥4.5 mg/dl) routinely used marker of renal failure) identified from chemical pathology records. Validation of diagnoses was by medical note search. A retrospective cohort was followed up for a mean of 5.5 years. Survival, including
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 a general population mortality which 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+ 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.

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**CVD MANAGEMENT**

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

H HEMINGWAY, H TUCKER, D SLOAN, P REID, J PETTIFFER, S THOM, H HEMINOWAY

**Background**—In the past decade, there has been widespread implementation of oral anticoagulation following percutaneous coronary angioplasty (PTCA) and coronary artery bypass grafting (CABG) 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 anticoagulation with antiplatelet treatment using the Cochrane library, Medline, Cinhal and Sigle 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 anticoagulation (OR 0.67, 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 0.48, 1.22).

A meta-analysis of the results of these RCTs was performed on the assumption that 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 41.0% to 58% (p=0.04). Improvements for group (a)—the cluster randomised controlled trial.—Five RCT published between 1980–99 were identified. Using a fixed effects model, there was also no difference in mortality tended to be higher than on antplatelet 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 anticoagulation compared with antiplatelet treatment. The risks of bleeding and the higher cost of anticoagulation 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 results towards harmful effects. Further large scale RCT are needed to establish the value of long term anticoagulation in patients with NRAF.

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

J LANGHAM, H TUCKER, D SLOAN, P REID, J PETTIFFER, S THOM, H HEMINOWAY

**Objectives**—We sought to determine interventions designed with active participation from the practices to improve management of cardiovascular disease (CVD) in general practice. Patients and primary care interventions in favour of antplatelet treatment may be a better guide to clinicians, yet there have been no consensus on the interpretation of evidence of effectiveness for secondary CVD prevention, resulted in an improvement of risk management in patients with established CVD.

**Design**—A factorial cluster randomised controlled trial.

**Participants**—Participating practices: primary care teams from 17 general practices in West London. Participating patients were those with CVD, including angina, 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 interventions which included: (a) the management of 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.

**Outcomes measures**—The systematic review was used to determine the impact of these interventions, between baseline (1998) and follow up (1999) on three outcomes: (i) complete recording of the six 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 was greatest in group (a)—the cluster randomised controlled trial.

Further large scale RCT are needed to establish the value of long term anticoagulation in patients with NRAF.
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 complete recording of absolute risk assessment.

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

D A Jones, R R West (University Of Wales College of Medicine, Cardiff)

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 and MI (n=607) 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<0.0001), depression in 28% versus 16% (p<0.0001) and severe disability in 38% versus 15% (p<0.0001). At six months follow up these differences persisted and women experienced significantly more comorbidity (0.4 versus 3.5 prescribed medications per day p<0.001), fewer had changed their diet (64% versus 83% (p<0.001), returned to work (among those previously in paid employment) 31% versus 52% (p<0.001) or undertaken any physical exercise 56% 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. These findings have implications for cardiac rehabilitation, which currently focuses on gym-based exercise. Programs should be designed with sufficient flexibility to respond to different patient needs.

Angina: the self care/primary care interface

H M Richards, M R Reid, C G Watt (Department of General Practice, Glasgow University, Department of Public Health, Glasgow University)

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

Design—Here, we present the qualitative stage of a three stage study that included a survey using the Rose 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=80).

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 assess their risk, participants took into account (i) their family history of heart disease, (ii) their cardiac risk behaviours and (iii) their associations with a cardiovascular 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 included respondents’ 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 more vulnerable to heart disease than men and in many cases delayed seeking medical help despite having typical angina. This tendency to delay was magnified by women’s greater propensity for self care and greater use of lay consultations. Women felt less vulnerable to heart disease and greater use of lay consultations. Women felt less vulnerable to heart disease and greater use of lay consultations.

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.

INEQUALITY

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 requires adequate control for other sociodemographic and disease factors. The cross sectional epidemiological associations between social class, education and Townsend Deprivation Score and coronary heart disease and their perceived options for action. To assess their risk, participants took into account (i) their family history of heart disease, (ii) their cardiac risk behaviours and (iii) their associations with a cardiovascular 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 included respondents’ 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 more vulnerable to heart disease than men and in many cases delayed seeking medical help despite having typical angina. This tendency to delay was magnified by women’s greater propensity for self care and greater use of lay consultations. Women felt less vulnerable to heart disease and greater use of lay consultations. Women felt less vulnerable to heart disease and greater use of lay consultations.

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.

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), lifestyles (5 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 as associated as predicted (23 of 28 (82%)). In Pakistanis and Bangladeshis associations with all socioeconomic measures were inconsistent. There were some differences between Indian and Pakistani groups (83% of 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 of 24, 75%), lifestyle (13 of 18, 72%) measures, but those with blood pressure (4 of 12, 33%) and disease (6 of 12, 50%) were not. The pattern in Bangladeshis was often opposite to that predicted, even for physical measures (11 of 24, 46%) and biochemistry (44%).

Conclusions—Associations were mostly as predicted in Europeans, but were inconsistent in the South Asian groups. Associations 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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Objective—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 confidence can be shattered with the introduction 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 variation is apparent, with higher rates of premature LLTI, but not premature mortality, in remoter areas. The generic deprivation indices have strong positive correlations 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 has a tendency to weaken in health research. Generic deprivation indices are unlikely to be a true reflection of levels of deprivation in rural environments. The importance of CDPs that are specific to the area type and the health outcome measure is emphasised. The significance of physical isolation suggests that accessibility to public and health services may be an important issue. This analysis is in progress at present and findings will be presented at the conference.

Variations in English hospital admissions for anaphylaxis by deprivation and geography

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Background—Anaphylaxis is a severe allergic disorder, the epidemiology of anaphylaxis is poorly described. This is of particular concern as recent time trend studies of hospital admissions for acute anaphylaxis have shown admission rates to have almost doubled between 1991–1995.

Objectives—To describe the epidemiology of hospital admissions for acute anaphylaxis by deprivation, residence in rural areas and geography.

Design—Descriptive study using routinely collected individual hospital discharge data.


Participants—2323 emergency admissions for anaphylaxis to NHS hospitals between 1 January 1991 to 31 March 1995.

Main outcome measures—Distribution adjusted anaphylaxis discharge rates (emergency anaphylaxis discharges per 100 000 emergency discharges). We defined Poisson regression models to examine the strength of the association between the admission adjusted rates and four potential risk factors: deprivation (UPA score of greater than 18); rural residence; residence in north/south; residence in east/west.

Results—Of the 13.5 million emergency discharges from NHS hospitals during the study period, 2323 patients had a primary diagnosis of anaphylaxis. Overall admission adjusted anaphylaxis rate was 17 per 100 000 emergency discharges. Three of the four factors studied were independent risk factors for anaphylaxis admission: south relative risk (RR) 1.35 (95% confidence intervals (95% CI) 1.24, 1.47), rural RR 1.33 (95% CI 1.16, 1.51) and non-deprived RR 1.24 (95% CI 1.12, 1.37).

Conclusions—Study of four years national hospital discharge data reveals that rates of emergency anaphylaxis hospital discharges vary considerably by deprivation, residence in rural areas and geography. The highest rates of anaphylaxis discharges were seen in patients resident in rural, affluent areas of the south west of England.

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 practise 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.

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

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Background—Before a policy to regionalise intensive care in the UK was implemented, it is important to have evidence that larger centres see greater numbers of patients achieving 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 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 outcomes was investigated within 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 1000 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 $\rho = -0.215$, $p = 0.041$). After adjustment for several possible influences: between broad diagnostic categories it is necessary to take into account 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 differences were 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.

Changing the medical record—improving quality

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Objectives—Medical records are often incomplete. This study aims to determine if completeness is improved by replacing the traditional medical record with structured forms in one specialty (urology).

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 no significant differences in completeness between traditional notes and the structured forms for the following items: clinicians name (TN 32%, risk difference (RD) +55%, confidence intervals (CI) 41, 65), social history (TN 36%, RD +28%, CI 26, 38), medical history (TN 37%, RD +48%, CI 28, 48), drug history (TN 50%, RD +40%, CI 29, 51), allergies (TN 32%, RD +61%, CI 51, 71), social history (TN 30%, RD +64%, CI 54, 74), examination (TN 68%, RD +23%, CI 12, 34), investigation (TN 80%, RD +16%, CI 7, 24), diagnosis (TN 31%, RD +48%, CI 36, 60), outcome (TN 44%, RD +51%, CI 40, 62) and signature (TN 60%, RD +37%, CI 27, 47). All but two of the clinicians said that they preferred the structured forms and would opt to use them if given the choice. There was no significant difference in the time taken to use the forms compared with TN.

Conclusions—Using structured forms significantly improved the completeness of urological documentation. The differences seen were most dramatic (risk difference >85%) 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 medico-legal claims.

The United Kingdom Neonatal Staffing Study

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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 ICUs 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 periventricular origin; moderate or severe brain damage 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 52% in high volume units, 26% in medium volume units and 23% in low volume units. No differences...
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 effectiveness evidence—a qualitative study

Barker (Office for Public Management, London)

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 promoters. 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 aim—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 mixture 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 focus on the decision making process not the evidence. They attached subtly different understandings to the term “product champion” and treated passing hostile reactions; the other preferred the term “opinion leaders” (encompassing hostile reactions); the other preferred independently. They attach subtly different understandings to the term “product champion” 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 trial studies—when such different terminologies and points of divergence was developed through a process of iterative reflection and debate. This framework is now being used to carry out a comparative analysis of the final reports; methodology problems arising are being recorded and discussed as the exercise progresses.

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 types of opinion leaders (notably expert and peer opinion leaders, and the impact of hostile 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 champion” 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 trial studies—when such different terminologies and points of divergence is 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

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

Introduction—Systematic reviews may be internally consistent and may satisfy the criteria for adequately conducted systematic reviews; they make 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 want an answer to the question,
Cardiovascular disease in women in Scotland: long term implications of hypertension in pregnancy

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Background—Scotland has one of the highest morbidity due to cardiovascular and circulatory disorders in the world. Women are exposed to the same cardiovascular risk factors as men and to a greater number of 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 an 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 Data Bank. 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 participate. A total of 1457 (78% of those invited) agreed to participate.

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.

Conclusions—Despite international efforts at surveillance over at least 20 years, there is wide variation in the definition of surgical wound infection. An important element of postoperative wound infection is hampered by the lack of a standardised, repeatable and validated definition. 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

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 the 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 taken 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.

Conclusions—Despite international efforts at surveillance over at least 20 years, there is wide variation in the definition of surgical wound infection. An important element of postoperative wound infection is hampered by the lack of a standardised, repeatable and validated definition. 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.


J Iverson

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

Design—Retrospective analysis of a computerised obstetric dataset.

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 (71%, 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 times, painful clots, and 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.

Conclusions—Less than half of menorrhagia referrals judge their periods as “very heavy”, which may partly explain why relatively few of similar women have excessive blood loss, if objectively measured. Future studies that periods are “very heavy” is based on more than solely subjective volume of loss. However, despite the fact that women from relatively deprived areas are more likely to report severe problems with periods, they are not more likely to judge their periods “very heavy”, nor to have been referred for excessive bleeding. Rather than focusing on volume of loss, healthcare need across socioeconomic groups would be better revealed by an integrated assessment of menstrual health, encompassing physical symptoms as well as psychosocial effects.

CANCER

Specialisation, survival and clinical practice in patients with pancreatic, oesophageal and gastric cancer

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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.

Methods—Cohort study. Multiple logistic regression and Cox’s proportional hazards models adjusted for various clinical 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 for all pancreatic cancers (adjusted hazard ratios attributable to managing 40 more patients per year: 0.69 (95% confidence intervals (CI) 0.49, 0.98), 0.78 (95% CI 0.62, 0.97) and 0.64 (95% CI 0.49, 0.83) respectively). Operative mortality was less likely with increasing doctor volume 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, 1.0) 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 Audit Group

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**Introduction**—The relation 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 patients 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 and deprivation were included in the survival analysis (n=4169). Deprivation 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 (most deprived versus most affluent 20%) was 1.22 (95% confidence intervals (CI) 0.97, 1.59). After adjustment for these prognostic factors, the hazard ratio was 1.26 (95% CI 1.11, 1.44). For patients presenting with Duke's stage C cancer, receiving postoperative chemotherapy was significantly related to deprivation: 0.68 (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, chemotherapy 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

**Methods**—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 consider breast screening). General practices were eligible to participate in these trials if they had obtained a practice uptake of less than 70% 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 women.

**Results**—In Trial 1, 6133 women from 24 GP practices were cluster randomised into the four intervention groups: 1721 to control, 2101 to flag, 2888 to letter and flag, 3180 to letter, 1232 to flag, and 1232 to letter and flag. Attendance data were obtained for 5732 women (94%). In Trial 2, 1158 non-attenders were individually randomised: 2895 to control, 2894 to letter, 2888 to letter and flag. Subsequent attendance status was obtained for 1148 women (99%). The letter independently increased attendance in both trials (Trial 1: OR = 1.9; 95% confidence intervals (CI) 1.0, 1.7 and 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 = 1.4; 95% CI 0.9, 2.1 and Trial 2: OR = 1.4; 95% CI 0.9, 2.1). Costs per...
extra attendance were £26 (Trial 1) and £35 (Trial 2) for the letter and £39 (Trial 1) and £63 (Trial 2) for the flag.

Conclusion—The letter was the most cost effective intervention when targeting recent non-attenders or all eligible women prior to screening. The flag intervention was effective for all eligible women, although slightly less cost effective than the letter.

EARLY LIFE RISK FACTORS

Transgenerational influences in inequalities in size at birth

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Background—There is evidence for intergenerational continuities in birth outcome, however the mechanisms underlying these generational continuities in birth outcome, and the socioeconomic information and school health records of women whose own fathers were in social class I and II were 3405 g, while for social class IV and V it was 3285 g, a difference of 120 g (p<0.02). Adjusting for each of these factors, average height, parity and smoking in pregnancy failed to reduce the difference to less than 82 g. However, the difference was reduced to 57 g on adjustment for the mother’s own size at birth (p=0.10) and to 62 g adjusting for height at age 4–6 years (p=0.09). Simultaneous adjustment for both early factors reduced the difference further to 25 g (p=0.44). Adjusting for all contemporary factors reduced the difference to 43 g (p=0.04).

Conclusion—Inequalities according to current social class exist in each generation’s size at birth. These results demonstrate that the birth weight of an infant is also related to the mother’s own childhood social and economic environment. Contemporary socially patterned reproductive behaviours account for only a small proportion of this gradient. Instead, much of this effect is mediated through the effect of social class on the mother’s own fetal 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.

Association between breast feeding and growth in childhood through to adulthood: the Boyd Orr cohort study

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Background—The long term influences of breast feeding on 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 than their never breast fed subjects. The mean difference in Z score for childhood height was 0.15 standard deviations (SD) (95% confidence intervals (95% CI) 0.07, 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 repeated for the subgroup of mother and family height 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 relation between breast feeding and childhood growth is a more sensitive marker of fetal growth, supporting studies that found poor childhood growth is related to waist hip ratio and waist circumference after adjustment for current body size (p<0.001 for both). These relations were attenuated in men of large BMI (p<0.01 for interactions between relative weight at 7 years and BMI in both cases). Relative weights at 4, 11 and 15 years showed similar patterns to those observed at 7 years. These findings were independent of lifetime socioeconomic circumstances.

Conclusions—Women of low birth weight may have higher waist hip ratios because of a small pelvic size rather than abdominal obesity. Our findings for men may simply mean that lightness at birth is a metric of low birth weight, rather than birth weight of impaired fetal growth. Alternatively, the relation may be independent of fetal growth, supporting studies that link poor childhood growth to insulin resistance. The stronger association with men with lower BMI in adult life (counter to the findings of other studies), may occur if being heavy in childhood or reaching puberty earlier is associated with a greater concentration of weight around the hips.

An investigation of birth size and arterial compliance in a cohort of young adults

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Objectives—It has been hypothesised that synthesis of elastin in the aorta and large arteries may be related to aortic growth. An accelerated rate of aortic growth is impaired, leading to permanent stiffening of these vessels and raised blood pressure in later life. The aim of this study was to investigate the relation between birth size and arterial pulse wave velocity in a cohort of young adults.

Design—Follow up study of men and women who, along with their mothers, had been participants in the MRC Infant Growth and Nutrition Study (a randomised controlled trial of milk supplementation) between 1972 and 1979.

Subjects—603 men and women from the towns of Barry and Caerphilly in South Wales, who constituted the original study, had detailed anthropometric measurements from birth until age 5.

Exposure—Primary: body size, as measured by weight and length at birth. Secondary: changes in weight and length (or height) between birth and adulthood, and birth and 6 months.

Outcome—Pulse wave velocity, which is inversely related to arterial compliance and an indicator of alterations in elastin
How misleading can subgroup analyses be?

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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. The aim was to investigate the effect of heterogeneity across subgroups on the magnitude of the overall treatment effect. 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.

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). Conclusion—Many papers on retrospective studies of reproductive health include a passing reference to the possibility that recall bias may have influenced the results of our study. If 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.
The comparative performance of the Rose angina questionnaire in South Asian populations

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Objectives—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. 

Participants—A self-completed questionnaire was completed in the Newcastle Heart Project.

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 more common in South Asians than Europeans (5% versus 2% in men). The prevalences in South Asians and Europeans of RQP and a definite 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 (3% 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 an unsatisfactory measure of burden of ill health. 

Beyond the burden of illness? What factors predict general practitioner concern about a unique local condition? 

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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 and 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—Questionnaires 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 health; and (iv) dimensions of care that had been taken 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. The importance of social support and 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 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 experience 

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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, who 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 general practices. Isolation and resource use 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 lead 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 aim 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 adoption of a unique role dependent on 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. 

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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

R W Morris, P H Whincup, P L M W Black, A J Lee, J S Pinkney, A Hutchinson, N Black (Health Services Research Unit, London School of Hygiene and Tropical Medicine, Department of Psychiatry, Imperial College of Science, Technology and Medicine, London, Department of Public Mental Health, Imperial College of Science, Technology and Medicine, West Middlesex University Hospital) Background—A large proportion of a general practitioner’s caseload comprises patients with mental health problems. It is important to examine in what circumstances care is provided appropriately, on the basis of clinical need. It is therefore necessary to investigate the determinants of the use of mental health care in the primary care sector and, in particular, to identify any non-clinical characteristics of patients that affect the likelihood of their receiving appropriate care.

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 16–74 years (n = 802) attending one of eight practices (20 general practitioners) in inner west London.

Results—Multivariable analysis showed that the combination of factors that best predict general practitioners’ acknowledgement of the presence of mental health problems are 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 intervention 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 I

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

A J Lee, J W Chalmers, S Capewell, J Boyd, S Stewart, A Hutchinson, N Black (Wolffson Unit, Department of Community Health Sciences, University of Edinburgh, Thrombosis and Vascular Medicine Unit, Department of Medicine, University of Glasgow) Background—Lp(a) lipoprotein consists of a large glycoprotein, apolipoprotein(a), linked to a molecular of low density lipoprotein cholesterol and may be an important risk factor for the development of atherosclerosis. It is widely accepted that Lp(a) lipoprotein levels are raised in patients with pre-existing coronary artery disease, but there is some doubt about the causality of the relation. Little is known about the relation between Lp(a) lipoprotein and either stroke or peripheral arterial disease, nor about the role of Lp(a) lipoprotein in women.

Methods—1592 men and women aged 55–74 years were selected at random from 11 general practices in Edinburgh, Scotland and followed up for 12 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 (95% CI) 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 1.15 (95% CI 0.88, 1.57) 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

A Redpath, J W Chalmers, S Capewell, K Macintyre, J Boyd, A Finlayson, J F Pell, C J J Evans, J M Mcmurray (Information and Statistics Division NHS in Scotland, Edinburgh, Department of Public Health, University of Liverpool, Department of Public Health University of Glasgow, ‘Greater Glasgow Heart Board, ‘CRI in Heart Failure University of Glasgow) Objective—To examine population mortality rates according to socioeconomic deprivation for those individuals who experienced a first acute myocardial infarction (AMI) but did not survive to reach hospital.

Design—Population-based study.

Setting—Scotland.

Subjects—All Scottish residents dying between 1986 and 1995 for whom a first AMI was the principal cause of death. AMI was defined as no prior hospitalisation for AMI since 1981.

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 42,398 women (mean (SD) age 82.8 (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 rate in first AMIs not surviving to reach hospital. This effect was greatest in the young and in men.

The authors are grateful to the British Heart Foundation for funding for this work.

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

R W Morris, P H Whincup, P L M W Black, M Walker, J W Chalmers, A G Shaper (Department of Primary Care and Population Sciences, Royal Free and University College Medical School, London) Objective—To quantify the degree of geographical variation in incidence of coronary heart disease (CHD), and to estimate how much may be explained by conventional risk factors.

Design—Prospective study.

Setting—24 British towns.

Subjects—7735 men followed up from screening in 1978–80 for 15 years.

Main outcome—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 current cigarette smoking, of leisure time physical activity, and social class distribution. Allowing for sampling error only, we estimated that true age adjusted CHD incidence (over 15 years) would vary from 8.8% to 15.2% among British 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. Analysis based on these six variables accounts partially but not completely for 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 existed between dietary 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 12 general practices and invited to screening. A total of 1566 subjects completed a validated questionnaire enquiring about dietary fibre intake and bowel habit. The presence 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 (46%) and severe (12%) trunk varices compared with men who did not strain (32.8% and 6.1% respectively). After adjustment for age, social class, body mass index and mobility at work, this group of men showed a significantly increased risk of having severe trunk varices (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 0.79: 95% CI 0.58, 1.1). The association was not seen in men born in South Asia or in those born before the second world war. However, it is not known whether these observations are relevant to those born in Britain to South Asian parents and to younger post-war cohorts. Electron beam computed tomography (EBCT) is a new non-invasive measure of coronary artery calcification and thus indirectly of coronary atheroma. We have used EBCT in a study of young men to address these uncertainties.

Study aim—To determine whether birth weight and ethnicity are associated with calcified coronary atheroma in men born in west London 1964–68.

Methods—Obstetric records of 19,000 men born in west London hospitals 1964–68 were abstracted. Men in the top and bottom 15% of the birth weight for gestational age distribution were matched at term to mothers with South Asian names were traced. All those currently registered with a London GP were invited to participate. To date, 315 men (53 South Asian) have been examined. In the non-South Asian group, 91 are low birth weight.

Results—The overall prevalence of coronary calcification was 21% (calcification defined as calcium score > 10). Body mass index (p<0.001), weight (p<0.001), height (p<0.001) and waist hip ratio (p<0.001) were all independently and positively associated with coronary calcification. South Asian ethnicity was associated with an increased risk of coronary artery calcification. South Asians compared with white subjects, had lower minor psychiatric morbidity (General Health Questionnaire), social supports (marital status, social networks, negative aspects of support, confiding emotional support, social support at work), psychosocial work characteristics (job control, effort-reward imbalance), hostility and Type A personality.

Conclusions—These results indicate that second generation South Asians in the UK have a higher prevalence of coronary atheroma than their non-South Asian counterparts, suggesting that these higher rates of CHD evident in first generation South Asians may be exhibited in their children. The lack of a significant association between low birth weight and coronary disease is interesting. Research into factors underlying the size at birth—CHD association and its relevance to those born more recently.

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 villages in South Wales, UK.

Participants—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.

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

Results—The adjusted odds ratio of CHD per standard deviation change in nutrient as measured by a food frequency questionnaire was 0.85 (95% confidence intervals (95% CI) 0.7, 1.0) p=0.02 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. Sixty two per cent (62%) of 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 III measurement, 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 is used, the odds ratio of CHD is 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 for the mean of the three measurements.

Conclusions—These results indicate 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 54 years or less. Ethnicity was observer and self assigned (agreement beyond chance χ2 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, confiding 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 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 minor psychiatric 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-Caribbean women 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, quantitative and reproducible measure of atherosclerosis is the ratio of ankle systolic pressure to arm systolic pressure (ABP). The ABP is related inversely to the degree of atheroma loss in the legs (and throughout the vascular system). Studying personality and social factors in relation to ABP 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 ABP measured at baseline and at the end of a five year follow up. Trait submissive-aggression was measured at baseline using the Bedford-Foulds personality validity scales. Data on other baseline risk factors, including social and physiological factors, were also collected.

Results—Rapid progression of atherosclerosis over five years was correlated with increased baseline age and smoking in both men and women (age; men: r = -0.10; women: r = -0.25; smoking; men: r = -0.09; women: r = -0.11; p < 0.05). Other significant (p < 0.05) correlates with atherosclerotic progression in men were decreased baseline alcohol consumption (r = -0.10) and higher submissiveness (r = -0.09). In women, baseline cholesterol levels (r = -0.11, p < 0.01) and alcohol consumption (r = 0.09, p < 0.05) were also correlated with atherosclerotic progression. In multiple linear regression models, in men, smoking, alcohol consumption and submissiveness accounted for 24% of the variance in ABP change. In women, only age related to ABP change, accounting for 6% of the variance. Well fitting structural equation models in both sexes revealed complex associations; age directly influenced both baseline ABI and change in ABI; smoking and social deprivation directly affected baseline ABI; but the effect of hostility, and some of the effect of social deprivation, was mediated by smoking.

Conclusions—In addition to biological factors, social and psychological variables have an impact on cardiovascular disease. This is important for a clearer understanding of the complex interaction of risks and for more effective disease prevention.

The influence of socioeconomic circumstances in early and later life on stroke risk among men in a Scottish cohort study
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(1Department of Public Health, University of Glasgow, 2Department of Social Medicine, University of Bristol)

Objectives—The purpose of the study was to investigate stroke risk in relation to socioeconomic position at different stages of the life course.

Design—Prospective cohort study.

Setting—27 workplaces in Scotland.

Subjects—5765 working men aged 35–64 at the time of screening in 1970–1973, who were in manual social classes had higher relative rates of stroke. Men who left full time education at 16 years or under also had significantly higher rates of stroke. Men living in more deprived areas had non-significantly higher rates of stroke. The most marked difference was in relation to father's social class (age adjusted relative rate was 1.70 (95% confidence intervals (95% CI) (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 non-manual and IV or V) and even after adjusting for risk factors for stroke, men whose fathers were in manual social classes had higher relative rates of stroke than men whose fathers were in non-manual 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)). Men who were upwardly mobile (father's social class manual, own social class non-manual) had a similar rate of stroke to stable manual men.

Conclusions—Poorer socioeconomic circumstances was associated with greater stroke risk. Improved early life conditions may reduce socioeconomic inequalities in stroke.

Evaluating 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 data from a population survey of health care use before the intervention.

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 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. Local and national agencies were asked to provide data, together with data from a population survey of health care use before and after the start of NHS Direct, have been examined to identify changes that may be attributable to NHS Direct.

Results—Population call rates to NHS Direct have risen steadily and it now accounts for a substantial proportion of all contacts with immediate care services. Over two thirds of calls are out of hours, with a patient and casemix profile resembling that of “acute primary care”. Analysis of other service activity and population survey data suggest there has been no discernible impact on overall demand for ambulance or 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.
for themselves and 48% 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 19 335 callers (0.09%) 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, and sympathetic staff who 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 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? 

S Abbott, S Gillam
(The King's Fund, London) Background—"The new NHS. Modern. Dependable." emphasised that the NHS should strive to improve the general health of the population. 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), manage the interface with national and local issues (for example, the NHS Modernisation Fund), and include Service and Financial Frameworks.

Objectives—(1) To discover how HAs interpret "health improvement", and how they have used HiMPs to focus activity on improving health. 
(2) To discover how HiMPs have been used in Health Improvement Programmes (HiMps), to develop primary and community care; to commission services; to improve health of the local population. The King's Fund and National Primary Care Research Development Centre, University of Manchester

Introduction—Primary Care Groups/Trusts (PCGs/Ts) were introduced in 1997 as part of Labour's programme of privatising the NHS. They comprise groups of primary practitioners, covering populations of approximately 100 000. PCGs have three core functions: to develop primary and community care; to commission services; and to improve the health of the local population. The King's Fund and National Primary Care Research Development Centre were commissioned by the Department of Health to undertake a national evaluation of PCG/T development. This paper will present findings from the first year of the study.

Objectives—(1) To describe how PCGs have tackled their core functions and the obstacles and enabling factors encountered. (2) To identify features associated with the successful delivery of their core functions drawing on lessons from previous forms of primary care commissioning.

Design—A random sample of 72 PCGs (15% of PCGs in England) were selected for a three year longitudinal study. Structured face to face interviews were held with each PCG Chair, chief executive and nominated health authority lead during September–October 1999. Postal questionnaires were used to collect further data from other key stakeholders on the PCG boards. Relevant documents were collected from each PCG, including Health Improvement Programmes, Primary Care Investment Plans and Annual Accountability Documents.

Results—PCGs spent much of their first year developing the organisation. Management costs varied considerably across PCGs; 17% had fewer than two staff with smaller PCGs generally having lower management costs and fewer staff. PCGs had begun to take stock of their existing practice infrastructure and provision and had developed specific initiatives on prescribing and clinical governance. PCGs were also beginning to tackle their commissioning role, with 50% having fully delegated responsibility for commissioning hospital and primary care services. Health improvement was usually defined as tackling inequalities in access, rather than health inequalities. Forty per cent are considering applying for PCT status for April 2001 but were not clearly more advanced in term of their organisation or core functions.

Conclusions—PCGs/Ts have made significant steps in the first year, although much variation was observed amongst them. Not surprisingly they have tended to concentrate on areas that are more familiar to them, such as prescribing and general practice provision. However, the majority have plans to develop their commissioning role. PCGs need scope for local innovations if they are to consolidate their early achievements.

Clinical governance in the UK: a principal-agent analysis

S D Malbon, T H Malbon
(Centre for Health Economics, University of York, Department of Management, University of St Andrews, Fife) Background—A key feature of the latest round of UK health reform is the placing on senior health service management and capture of accountability for clinical quality. Accountability for clinical performance is to be achieved by new structural, procedural and cultural changes collected under the umbrella term of "clinical governance".

Objectives—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 include: (1) description of the determinants of current policy; analysis of the implications of new policy mandates; and a SWOT analysis (strengths, weaknesses, opportunities, threats) of the proposals as currently constituted.

Methods—Analysis of the key government policy documents, and assessment of the proposals contained therein, in the light of the established literature on health improvement and control strategies. The dominant perspective of the analysis is 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 of objective functions hamper principals' ability to control clinical behaviour. This policy shift (from hierarchical to more decentralised and autonomous governance) may have had greater and more prescriptive attention to the former, and a comparative neglect of the latter. Thus recent policy shifts in the UK regarding physician-centred performance management and control strategies.

The objective framework to reward excellence and punish ineptitude, however, remains under-articulated. Internal modes of control (for example, individual ethics, professional norms, and satisfaction in self efficacy) receive little concrete attention. Although frequent mention is made of inculcating an appropriate quality culture and the importance of leadership it remains unclear how this is to be accomplished.

Conclusions—An over-reliance on bureaucratic control facilitated by performance measurement and objective function mandates has hitherto been only one of the major asymmetries inherent in the principal-agent relationship. The comparative neglect of possible incongruities in objective functions and the potential for the deleterious impact of top-down control mechanisms need further consideration. Bureaucratic control brings one level of reassurance, but may impact adversely on the development of an appropriate quality culture and reflective practice. Thus setting
ENVIRONMENT AND OCCUPATION

The acute effects of air pollution reduction in Westminster on health outcomes 1

Objective—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 PM10 and NO2 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 NO2 pollution in their area.

Method—I derived three models, representing minimum, maximum and an intermediate fall in daily pollution to achieve the UK objectives. Using 1996–98 ONS and HES data, I modelled the effects of achieving variou s reductions in ambient concentrations of PM10 and NO2 from 1996–1998 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 PM10 objective for 31 December 2004 is met was 1 per year (London or WHO) when particulate levels are ‘capped’ at that concentration. This increased to 4 (London) or 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 PM10 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 PM10 annual objectives of 40 µg/m3 and 20 µg/m3 (gravimetric) would delay between 2 and 8 deaths respectively (London) or 4 and 21 (WHO). Reducing the NO2 annual mean would delay 9 (London) to 44 (WHO) deaths. Based on London studies, reducing PM10, to the higher annual mean objective (40 µg/m3) delays or prevents 4–6 respiratory and 4 cardiovascular emergency hospital admissions. Reaching 20 µg/m3 (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.

The resurgence of tuberculosis in an industrialised city in northern England: the relative effects of poverty, ethnicity and crowding

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Since the mid-1980s, several industrialised countries have seen a resurgence in tuberculosis (TB). In England, the city of Liverpool has experienced one of the fastest growing rates for the disease. This study overcomes some of the limitation of routinely published TB statistics by using individual level data from the city’s TB register. It represents a ward level ecological analysis of standardised annual TB notification rates between 1974 and 1995; categorised by age, sex, type of TB and ethnic group. Mapped distributions of relative risks illustrate the cross sectional variation in disease and how this has changed over time. The relation between TB and various socioeconomic, demographic and ethnic measures is analysed using Poisson regression modelling techniques. The relative contributions to disease levels made by exogenous infection and endogenous reactivation are discussed. For all TB categories, a cluster of high relative risk was evident in inner city wards. In contrast, mapped distributions of trends over time indicated that most of the increase in TB has occurred elsewhere in the city. Cross sectional Poisson models confirmed the known strong relation between TB and poverty. For indigenous white and ethnic minority groups alike, the Jarman index constituted the best predictor of variation in disease. For men under 65 years, an interaction effect was found between poverty and the proportion of ward level population from the Indian subcontinent. In more affluent wards TB was negatively associated with Indian subcontinent population but, as poverty increased, the relation became increasingly positive. Models of trends indicated that better TB in TB has occurred, not in the poorest parts of the city, but in those wards with relatively high population densities and low levels of household overcrowding. For those over 65 years, increased relative risk was characterised by those areas that have seen least improvement in the level of household overcrowding. Explanations for the observed relations include poverty related immunosuppression, population mixing and migration because of slum clearance and re-housing programmes.

A population-based study of the impacts of exposure to environmental ultraviolet B radiation on blood pressure

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Objectives—to determine the geographical relation between exposure to environmental ultraviolet B radiation, blood pressure, and mortality from ischaemic heart disease (ICD410–414) and cerebrovascular disease (ICD430–438).

Results—for the INTERSALT centres, mean population blood pressure was positively associated with estimated population exposure to ultraviolet B radiation, achieving a mean diastolic pressure for a 200 000 J/m2 increase in annual environmental ultraviolet B radiation = 0.19 mm Hg, (p<0.001). Within Greater Britain a similar positive association was found to between exposure to ultraviolet B radiation and mortality from ischaemic heart disease (reduction in adjusted relative risk for a 50 000 J/m2 increase in annual environmental ultraviolet B dose 0.05, 95% CI 0.00, 0.11). Reductions in cerebrovascular disease (reduction in adjusted relative risk for a 50 000 J/m2 increase in annual environmental ultraviolet B dose = 0.08, p=0.005).

Conclusions—There is evidence that exposure to environmental ultraviolet B radiation may be protective against hypertension and related conditions within populations. The mechanism by which this protection is afforded is not fully understood and may be associated with the process by which levels of 1,25-dihydroxyvitamin D are regulated within the body. The generally held view of the negative health impacts of exposure to environmental ultraviolet B radiation could require a fundamental reassessment.

The health consequences of frequent job changes

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Background—The health consequences of frequent job changes have received little attention. Such employment histories are becoming more common in an increasingly flexible labour market. It is hypothesised that an employment history characterised by frequent job changes will be associated with poorer health. Psychosocial stress, and its influence on health linked behaviours and physiological factors, will be considered as a possible mediator in such a relation.

Design—Cross sectional study.

Setting—27 workplaces in the west of Scotland.


Main measures—Number of job changes since leaving school (categorised as 0, 1–2, 3, 4–5, 6–8, 9+ changes), “Reeder” stress inventory, health behaviours (cigarette smoking, alcohol consumption, physical exercise), physiology (diastolic blood pressure, body mass index, forced expiratory volume, plasma cholesterol concentration), and current health (angina and myocardial ischaemia).

Results—The statistics presented here are odds ratios (OR), or differences in means where units are given, for each increase in job change category, adjusted for age, height and socioeconomic position and time since most recent job change. The 95% confidence intervals (95% CI) are also provided. Frequent job changes were associated with frequent psychosocial stress for women (OR 1.25, 95% CI 1.11, 1.40) but not men (OR 1.03, 95% CI 0.99, 1.09). There was no association between frequent job changes and physiological measures for females, while for men there was evidence of lower diastolic
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 significant angina 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 I diabetes mellitus? NST PETERS,1 P A MCKINNEY,2 C C PATTERSON,3 R C FARSLOW,4 H J BODANSKY5 (Leukaemia Research Fund, University of Leeds, 1Pediatric Epidemiology Group, University of Leeds, 2Department of Epidemiology and Public Health, University, Belfast, 3Leeds General Infirmary, 4University of Sheffield, 5School of Health and Related Research, University of Sheffield)

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 I diabetes.

Design—Two population-based case-control studies of children diagnosed with type I diabetes.

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 I diabetes were assessed using odds ratios (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 age at diagnosis.

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, 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—mothers: 12 cases and 27 controls, low and medium exposure levels were combined. Childhood type I 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 high risk individuals (28% compared with 9% of low risk) (18% Yorkshire, 17% Northern Ireland) had jobs involving 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).

Conclusion—There was no association between parental occupational social mixing and childhood type I 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.

HEALTH SERVICES RESEARCH II

Comparing the length of NHS waiting times: can we trust official statistics? P W ARMSTRONG (Department of Health Sciences, University of East London)

Objectives—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 extent to which increased performance on one measure predicts rank 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 31 December 1994. We calculated the proportion eventually admitted—that is, the proportion of waiting times no longer eligible for inclusion in the waiting time list on the day of elective admission. Finally, we calculated the likelihood of elective admission within three months, among all those at risk, as the product of these two proportions.

Results—The proportion of elective admissions occurring within three months of enrolment ranged from 0.62 to 0.27. The proportion eventually admitted ranged from 0.93 to 0.31. As a result, the likelihood of elective admission within the three months, among all those at risk, ranged from 0.55 to 0.12. This measure confirms that elective admission may be very much less prompt than suggested by the Government Statistical Service estimate of mothers (30%) and to which together influence use of services (by the public) or provide access to them (by the professional). Each category involves many elements, with participants/groups often preferring perspectives having high or low values with varying levels and directions of influence. Some elements relate to each other across categories: for example, some circumstantial factors directly influence use of services—as such as access to ownership of a car—whereas others, such as poverty, influence use indirectly, via relations to attitudes at life. Most importantly it is experience of health care encounters that influences use and access: the participants’ approach, either as user or provider, strongly influences 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 discouraging health professional strongly impact on decisions relating to whether, how and when a person uses the services subsequently; similarly, experiences of assertive patients and/or perceptions of motivation influence professionals’ decisions to provide treatment and/or referral. Diagrammatic representations of the key issues and processes in use of and access to services have been developed, which will also be presented.

Health variations: a qualitative study of the reasons for differences in health services use and access. S KENNEDY, N PAYNE, C SAUL, D LUFF, K MCKIE (School of Health and Related Research, University of Sheffield)

Background—The qualitative study is part of a research programme investigating inequalities as they relate to the use of, and access to, health services.

Aims and objectives—To develop understanding of reasons for differences in the use of, and access to, health services; to generate questions for a population survey in order to assess the relative importance of the reasons.

Method—Fourteen focus groups, involving purposive recruitment of participants from the general public and health care occupations, were conducted to explore people’s various experiences and knowledge of the health service and discuss key issues and factors they consider pertinent to differences in use and access.

Analysis—Verbatim transcripts from each session were coded independently and then together. Data were indexed manually, as well as by computer, using structured analysis software Atlas.ti. Similar themes and issues within and across sessions were grouped together, then associations and relations between the categories were identified. The detail, sequence, emphasis and consensus/divergence within the discussions was emphasised rather than just frequency, as befits the methodology.

Results—Prior health related experiences; attitudes and beliefs (general and health related); knowledge, skills and abilities (general and health related); and social/economic circumstances; operating within a service context (organisation and quantity), combine together to influence use of services (by the public) or provide access to them (by the professional). Each category involves many elements, with participants/groups often preferring perspectives having high or low values with varying levels and directions of influence. Some elements relate to each other across categories: for example, some circumstantial factors directly influence use of services—as such as access to ownership of a car—whereas others, such as poverty, influence use indirectly, via relations to attitudes at life. Most importantly it is experience of health care encounters that influences use and access: the participants’ approach, either as user or provider, strongly influences 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 discouraging health professional strongly impact on decisions relating to whether, how and when a person uses the services subsequently; similarly, experiences of assertive patients and/or perceptions of motivation influence professionals’ decisions to provide treatment and/or referral. Diagrammatic representations of the key issues and processes in use of and access to services have been developed, which will also be presented.
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 quality 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.

Design—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 and it's the size of a hazelnut. Eventually it will become tender and increase in size. The information was contained in 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 (hospital admission) for the symptoms described in each case study. The questionnaire response rate was 91% (70.8%). The social class distribution was: SCII and III 31%, IINM 25%, IIM 19% and IV and V 24% and mean age of respondents was 56.1 years (34–80). A four 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 scale was 1.29 (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 poorest social class. The interviewees, these include questions about prevention, causes and effects of hypertension and explanation of the meaning of blood pressure readings.

Conclusion—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—A stratified random sample of 1509 Newcastle residents aged 25–74 years from European (n=825), Indian (n=305) and Pakistani (n=305) and Bangladesh (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 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, greater in those with IGT and greatest in those with type II DM. Among Europeans diabetes prevalence was 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 L DONOVAN,1 N CHATURVEDI,1 Y BEN-SHLOMO ("Department of Social Medicine, University of Bristol, Department of Epidemiology and Public Health, Royal Free and University College London Medical School"

Objectives—to use routine data sources to explore the possibility of age related decision making in the hospital management of colorectal cancer and to ascertain whether there are differences that cannot be explained on clinical grounds.


Main outcome measures—Histological verification was used to indicate the "gold standard" of investigation. Definitive surgery and chemotheraphy were used as indicators of treatment received.

Results—After adjustments for demographic factors, tumour size, type of admission, increasing age was associated with decreased histological verification, surgery and chemotherapy.

Conclusions—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 experience, rather than economic pressure, withholding treatment without clinical justification should be seen as discrimination rather than as rationing.
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 728 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 with a history of ischemic heart disease and stroke, there were 290 incident cases of diabetes in this group of 728 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, previous history of ischemic heart disease 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 smoking. 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

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Background—There are strong links between the development of rheumatoid arthritis (RA) and work disability. Most studies to remain in work. Work loss occurs early in the disease process.

Methods—A cross sectional population-based study of 1344 consecutive patients who were registered with general practitioners in Norfolk, UK and were surveyed as part of the EPIC—Norfolk study between 1995 and 1998.

Main outcome measures—Time spent participating in recreational physical activity and ultrasound measurement of heel bone density in men and women.

Results—A cross sectional population-based study.

Subjects—2256 men and 2914 women, aged 45–74 years who were registered with general practitioners in Norfolk, UK and surveyed as part of the EPIC—Norfolk study in 1995 and 1998.

Methods/main outcome measures—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 broadband ultrasound attenuation (BUA). BUA has previously been shown to predict hip fracture risk.

Conclusion—Self reported time spent in high impact physical activity was strongly and positively associated with heel bone density, independently of age 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) 4.49, 12.32) higher heel bone density. 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 either men or women. This null association was expected since 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 0.01 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 and 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<0.005. 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

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Introduction—While total joint replacement (TJR) is an effective treatment for severe joint disease, research evidence consistently shows varying patterns of referrals for joint replacements. We investigated barriers to appropriate utilisation of TJR.

Methods—Published literature from standard electronic databases concerning interventions for osteoarthritis was reviewed. Consensus panels including primary care physicians, rheumatologists and orthopaedic surgeons were formed to explore expert views about barriers to utilisation. In depth interviews were undertaken with people with severe hip/knee disease and low levels of service utilisation selected from a community prevalence survey (Somerset and Avon Survey of Health) to explore why they had not sought help. Interviews were audiotaped and transcribed. Analysis was according to the method of constant comparison.

Results—Evidence of inequality in the provision of TJR was found in the literature, with wide 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, primary care physicians not referring people to specialists, and surgeons refusing to operate on particular groups (for example, young, obese). Recurring themes in interviews to explain why people did not seek health care included perceptions that they were too old or unwell for TJR, a view that joint problems were a normal part of aging, not wishing to understand surgical outcomes in friends/relatives, and unwillingness to initiate reconsideration for referral/surgery after previous refusal.

Conclusion—There is the 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 and that incorporate patient preferences and clinical factors.

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.

Study design and 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 IC9D code 410 with no prior hospitalisation for AMI since 1981).

Results—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 rates for men and women 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 proportional 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 most 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 outcome.

Objectives—To investigate the association between socioeconomic deprivation and the management of, and survival after, AMI.

Design—Prospective observational study collecting epidemiographic 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 possible diagnosis of AMI admitted to hospita 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, of whom 1970 (92%) were admitted to a Townsend quintile. People waiting a similar time before seeking medical help. After adjusting for clinical variables and hospital of admission, deceased 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 or without 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=0.60) 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 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, 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 the 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 indicating 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, EFT, 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 further reduction in UK coronary heart disease (CHD) death rates in the UK.

Background—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?

Settings—(a) Scottish population of 5.1 million, (b) UK population of 59 million.

Methods—A previously validated cell-based mortality model combining effectiveness data from published meta-analyses with available information on: (a) median annual CHD treatments in all patient categories, (b) risk factor trends (smoking, blood pressure, cholesterol, deprivation) by sex/age group. Applying data from Objective 3 (Monitoring of Trends and Determinants in Cardiovascular Disease) project and elsewhere, 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 Scotland 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 25% in men and 34% in women; reductions in population mean cholesterol levels and blood pressure declined by only approximately 5% and 9% respectively. These observed risk factor changes explained approximately 20% 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 if coronary heart disease risk 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.

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**Mental Health**

Is exercise an effective intervention for the management of depression? A systematic review and meta-analysis

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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 compliant with antidepressant treatment is poor. 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, PsyChi, 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.

**Measure**—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 analysis undertaken in only two.

(b) The majority (nine) of the studies were of controlled trials, in any language, obtained using five electronic databases, (Medline, Embase, PsyChi, 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.

(c) Exercise—Standardised mean difference in effect size and weighted mean difference in Beck Depression Inventory (BDI).

**Conclusions**—Exercise is efficacious, when compared with no exercise, in inducing 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 shows 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

D GUNNELL, S FRANKEL (Department of Social Medicine, University of Bristol, School of Geography, University of Leeds)

**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 trends in male suicide—E&W, West Germany, France and Norway—we have investigated whether changes in rural and urban areas may explain 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 West Germany 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 antecedents of suicide and in developing prevention strategies. Particular features of Germany in the past 50 years are war post-war 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

N MIDDLETON, D GUNNELL, S FRANKEL (Department of Social Medicine, University of Bristol, School of Geography, University of Leeds)

**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 the young and healthy. We have investigated whether similar geographical differences in trends in suicide exist in England and Wales.

**Setting**—England and Wales, 1981–92.

**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) 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 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% −0.4, 0.8) in the most urban quartile. In women aged 25–44, suicide rates decreased over the years studied across all quartiles (0.0% (95% CI 1.6, −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.
The impact of legislation and changing vehicle propulsion methods on suicides using motor vehicle exhaust gases across the UK

R C WILSON, P J SAUNDERS (Department of Public Health and Epidemiology, University of Birmingham)

Background—Catalytic converters (CATs) have been compulsory on all new 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 gas. In addition there has 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 absence of any analysis of a combination of methods 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 if any substitution of methods occurred.


Methods—Deaths as a result of suicide (ICD codes E950–E959), including undetermined nature (E980–E989), were compared with the number of vehicles powered by petrol or diesel. Change in the proportion of vehicles with CATs was examined by producing annual rates by year of death. Linear regression was used to test the effect of increasing diesel ownership and the decline in cars without CATs on suicide rates.

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 all other methods remained relatively constant around 9.3 per 100 000. However, rates for hanging (E953+E959) have increased from 2.54 per 100 000 to 3.30 per 100 000. Initial findings indicate that the increase in diesel suicides 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

A WILLMS, I S SUTTON (Division of Child Dental Health, University of Bristol)

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.

Aims—to examine the characteristics of children born with unilateral cleft lip and palate (UCLP) in the UK who have unmet needs for speech therapy and/or dental treatment. Design and setting—a retrospective study of subjects under the care of UK cleft teams. Subjects—Children born with complete UCLP between 1 April 1982 and 31 March 1984 (‘twelve year olds’) and 1 April 1989 and 31 March 1991 (‘nineteen year olds’). An independent research team collected outcomes for 238 five year olds and 218 twelve year olds (71% of cases identified). Socioeconomic status was determined from postcodes. Results—Forty per cent of five year olds and 20% of twelve year olds needed speech therapy. Low socioeconomic status was a risk factor for need for dental care in five year olds (odds ratio (OR) 1.73, 95% confidence intervals (95% CI) 1.01, 2.96 p=0.046) and for need for speech therapy in both age cohorts (OR 2.15, 95% CI 1.40, 3.30 p=0.001). Being under the care of a ‘high volume’ cleft team (more than 25 cleft referrals per year) was associated with unmet need for dental treatment in five year olds (OR 2.45, 95% CI 1.44, 4.18 p=0.001). Adjusting for socioeconomic status and being registered with a dentist had little effect on this association. In both age cohorts, children under the exclusive care of the cleft team therapist were less likely to need speech therapy than children who were managed by a combination of team and local therapists (OR 2.51, 95% CI 1.45, 4.36 p=0.001). This association was independent of socioeconomic status.

Conclusions—Cleft services in the UK are failing to meet the treatment needs of a significant number of children born with UCLP, especially those from low socioeconomic backgrounds. It is important that cleft teams, particularly those treating larger numbers of patients, have adequate arrangements in place to ensure that children receive appropriate treatment and follow up.

Social determinants of children with behavioural problems

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Objective—to identify the key social determinants of children with behavioural problems.

Design—Population based cross sectional study; information collected by health visitors.

Setting—Torbay, Devon.

Subjects—10 015 households with children under the age of 5 years.

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

Results—Overall 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 ill (OR 2.90, 4.11), (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). The low income group (who were working but dependent on benefits) seemed to be worse off, as compared with the unemployed (OR 1.14, 95% CI 0.93, 1.40). The one parent family (excluding those with extended family support) effect seemed to be independent of the effect of recent divorce (OR 1.31, 95% CI 1.00, 1.72).

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 25–25 in the utilisation of asthma medications.

Methods—the Medicines Monitoring Unit (MEMO) captures all dispensed medication for a Tayside area of Scotland (population approx 400 000). 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% male, and 23.5% female, 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 utilisation 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

A McLeod (MRC Social and Public Health Sciences Unit, University of Glasgow)

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 Scotland and the associated social factors.

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 95 per 1000 among 18–19 year olds. The proportion 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 urbanicity, rurality and deprivation. Conclusions—Strategies to reduce teenage conceptions and associated social problems are likely to be more effective if targeted at areas of high deprivation.

Main outcome measures
- All cause, cardiovascular disease (CVD) and cancer mortality.

Results—For ages 23 to 39, BMI increased by an average 2.7 kg/m². The two BMI measures, based on the original height measure and weight readings 16 years apart were correlated (r=0.67). Ninety two men (19%) died during the mean follow up period (from the second weight measurement) of 33 years. Fifty two deaths were attributable to CVD and 23 to cancer. BMI at ages 23 and 39 was positively associated with subsequent mortality. High and medium BMI (compared with low) were nearly three times as likely to give birth and adjust for confounding the association between BMI and mortality HR 1.18 (95% CI 0.96, 1.45). Smoking (95% CI 0.76, 0.95) and high 0.93 (95% CI 0.83, 1.03) medium 0.94 (95% CI 0.81, 1.10). Cardiovascular: high 0.84 (95% CI 0.67, 1.04), medium 0.82 (95% CI 0.71, 0.95) and high 0.90 (95% CI 0.72, 1.12) respectively. Cause specific analyses showed BMI at both ages was strongly predictive of CVD. The later but not the earlier BMI measure was related to cancer mortality. There were insufficient deaths to determine whether BMI was related to site specific cancer. Change in BMI was positively associated with increased risk of CVD mortality, per 1 kg/m² increase in BMI change, the adjusted HR were 1.07 (95% CI 0.97, 1.08) and 1.11 (95% CI 0.97, 1.18) respectively. Controlling for mean BMI substantially attenuated these relations. However, when controlled by 1.kg/m² increase in BMI change was associated with increased risk of cancer mortality HR 1.18 (95% CI 0.96, 1.45).

Conclusions—BMI between early life and mid adulthood is only partially explained by the tracking of BMI from early to later adulthood. Efforts to decrease BMI in early life and to minimise weight gain from early to mid adulthood may have substantial impact on subsequent health.

Stress and mortality—confounding or causation?

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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 estimate the association between self reported stress, disease risk, social position and mortality.

Design—Prospective cohort study.

Setting—University of Glasgow student health service.

Subjects—5178 men aged 35–64 at recruitment and followed up for 21 years.

Main outcome measures—Hazard ratios for death from all causes, from cardiovascular disease (ICD9 codes 390–459), from smoking related cancers (ICD9 codes 140–149, 150–155), other causes (remainder of ICD9 codes 140–208).

Results—Higher stress (measured by the “Readers stress inventory”) was significantly associated with both higher occupational class and unhealthy behaviour (less exercise, more cigarettes smoked, greater alcohol consumption) but not with increased physiological mortality. High and medium (compared with low) perceived stress appeared protective to health in terms of all cause mortality, cardiovascular mortality, and cancers. These associations were generally attenuated on adjustment for occupation and social position.

Conclusion—The apparent protective effect of stress on health was the result of confounding 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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Objectives—There is evidence that anxiety and depression in middle age are associated with increased cardiovascular disease. We examined whether psychological health measured much earlier in the life course, in a cohort of young adults born 1920–50, is also associated with later mortality patterns.

Design—Observational study following attendance at the University of Glasgow from 1948–68 who participated in a health survey. A box labelled “personality” prompted a free text assessment by the examining physician. Before analyses, these were coded into eight categories: anxious, schizoid, depressed, immature, hypochondriacal, unstable, hysteric, paranoid, inadequate, obsessive and odd.

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

Main outcome measures—All cause and cause specific mortality after a median follow up time of 41.3 years.

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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 (5.7%) followed by depression (4.7%). Men (1.4%) were labelled depressed. The presence of “any” coding was associated with an increased risk of stroke, hazard ratio (HR) (95% CI) 1.83 (1.00, 3.56). Both anxiety and depression codings were positively associated with all cause mortality and cancer. For anxiety the HR were 1.33 (95% CI 1.06, 1.68) and 1.48 (95% CI 1.01, 2.14) for all cause and cancer mortality respectively; for depression these were 4.02 (95% CI 1.50, 10.73) and 5.54 (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 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 personality were conflated and assessed subjectively (and only a small number of studies were depressed) these findings are suggestive of the importance of psychological well being in determining future mortality risk. Along with other accumulating evidence the results point to the need to optimise mental health in young adults.

Current trends in mortality among adults in Scotland

P McLoone (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.

Methods—Data and trends—Trends in age specific death rates for all cause and specific causes mortality among young adults. RESULTS—Between 1981–83 and 1988–91 death rates in Scotland began to rise among young men aged 20–24 (6% increase) while death rates among young men aged 20–39 are increasing. If these trends continue there is a suggestion that future death rates will also see a 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.

MISCELLANEOUS

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, experiences 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.

Results—A purposive sample was identified through two health centres. Interviews were conducted in the respondents’ home by researchers trained in qualitative interviewing.

Participants—Seveny 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 overweight).

Results—Experience of weight gain in adulthood 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 inevitable in middle age. Overall, a 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 shape were mixed. With this finding: 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. Problems 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 with ageing, quitting smoking and more sedentary lifestyle, although childbearing, comfort eating and “letting oneself go” were thought to be reasons for women’s gain while being less sporting and drinking beer were cited for men.

Discussion—Although none of the respondents’ weight would be seen as a medical problem the interviews provide rich accounts of struggles with weight gain.

Respondents were aware of holding contradictory 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 previously tested negative for HIV.

Methods—Of 2100 people attending the same day HIV testing clinic at this hospital between September 1997 to July 1998, 1580 (75%) completed an anonymous questionnaire concerning sexual risk behaviour, number of previous HIV tests and date of last test. Repeat testers were those clinic attenders 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 attenders 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) and number of previous HIV tests; 151 (55%) had had one or two previous negative tests while 124 (45%) reported three or more. Of these 275, 12 test 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 were reported “high risk” unprotected anal intercourse in the past three months (that is, with a partner whose HIV status was either positive or unknown) compared with 25% of those who had had one or two previous tests (p=0.002).

Conclusions—HIV incidence among gay men who had tested negative for HIV in the previous 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
men a negative HIV test result may produce a disinhibiting effect and reinforce risky behaviour. This needs to be tackled by health promotion programmes.

The impact of bicycle helmets on impacts involving bicycles

A D COOK, A SHEIKH (Department of Primary Health Care and General Practice, Imperial College School of Medicine, London)

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 hospital episode statistics database.

Setting—All emergency admissions to NHS hospitals in England.

Participants—35 056 bicycle related admissions (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) 7%, 10%). The decline was significant in three age subgroups: 6–10 years, p<0.001; 11–15 years, p<0.001; and >15 years, p=0.001. The decline did not differ between males and females but was significantly lower among those from deprived areas, 4% annually compared with 10% elsewhere (p<0.001). For all cyclist emergency admissions, 75% were male while 21% were resident in deprived areas (Jarman under privileged area score > 20). Numbers of admissions varied strongly by season, from an average of 1173 in July to 352 in January. 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%).

Conclusion—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 malpractice inquiry in the UK

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Background—In 1997–8, the body with the statutory duty to uphold professional standards, the General Medical Council (GMC), held its longest ever disciplinary hearing centred on events at the Bristol Royal Infirmary. Three doctors (two surgeons and a senior health service manager) were eventually found guilty of serious professional misconduct 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 analyse lay 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 week 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 government and professional) interest in The Bristol Case was unprecedented. The print media was characterised by hostility towards doctors, scepticism about self regulation and demands for greater accountability. UK government policy on health care quality will have to pay much greater heed to public sensibilities 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 arguments 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.