UK Society for Social Medicine

The 38th Annual Scientific Meeting of the UK Society for Social Medicine was held in Leeds between 14 and 16 September 1994: abstracts of papers selected for oral and poster presentation are set out below.

Oral presentations

PLENARY PRESENTATIONS

Birthweight and later socioeconomic disadvantage: evidence from the 1958 British cohort study

C POWER, M BARTLEY, D BLANE, D GAVAY SMITH (Division of Public Health, Institute of Child Health, London; Social Statistics Research Unit, City University, London; Academic Department of Psychiatry, Charing Cross and Westminster Medical School, London; Department of Public Health, University of Glasgow)

Objective – To investigate the relationship between birthweight and socioeconomic disadvantage during childhood and adolescence in a birth cohort study.

Design – Longitudinal analysis of birthweight in relation to social class, financial difficulty, housing and overcrowding as reported by parents at interview when the subjects were aged 7, 11, 16; and receipt of unemployment or supplementary benefits as reported by the subject at age 23.

Subjects – Male subjects in the 1958 birth cohort (National Child Development Study): all those born to parents resident in Great Britain during the week 3–9 March 1958. Altogether 4321 have data on birthweight and financial difficulties between birth and 23, and 3370 have data on housing conditions and social class at ages 7, 11, and 16.

Main outcome measures – Socioeconomic disadvantage at later ages is in males (a) weighing 6lb or under at birth compared with those over 6lb, and (b) between quintiles of the birthweight distribution.

Results – Male cohort members weighing 6lb or under at birth were more likely to experience socioeconomic disadvantage between birth and age 23. Those in the lower quintiles of the birthweight distribution were more likely to experience socioeconomic disadvantage.

Conclusion – Birthweight is associated with socioeconomic disadvantage in childhood and adolescence. Studies which relate indicators of early development to adult health but do not take account of experiences between birth and adulthood cannot reliably identify aetiological processes as occurring in early life.

Hospital care for diseases of the female genital organs and breast during young adult life: admissions, treatment, and social variation in a national cohort

DIANA KUH, SUSAN STIRLING (MRC National Survey of Health and Development, Department of Epidemiology and Public Health, University College London Medical School)

Objectives – Diseases of the female genital system and breast are important sources of morbidity and mortality for adult women and have a considerable impact on quality of life and health care resources. Dilatation and curettage (D & C) and hysterectomy are commonly performed, and there is controversy about the appropriate indication for both procedures, particularly in younger women. In a nationally representative cohort of 43 year old women, admissions since adolescence to NHS and private hospitals for disorders of the genital system and breast, and reasons given in their medical records for performing D & C or hysterectomy, were examined. Socioeconomic variation in the risk of these admissions and surgical procedures was investigated.

Methods – Hospital admissions and socioeconomic information have been collected regularly on members of the MRC National Survey of Health and Development, who have been studied prospectively since birth, so far until 43 years. Admissions have been confirmed from hospital records with the patients’ consent. Changing rates of admission and surgical procedures at adolescence, young adulthood, and early middle age were based on data from the annual SMS survey for 1981–90. Socioeconomic variation was examined in 1512 women with a complete history of hospital admissions from 15–43 years.

Results – Between the ages of 15 and 43 years, 29% of women were admitted for disorders of the genital system and breast and 7% for malignant or benign neoplasms of the genital system or breast. By age 43 years one in 10 had undergone a hysterectomy and 1.5% of all one D & C. Of the hysterectomies, 72% were performed for benign disease. Of the D & Cs, 77% were performed for benign disease, 5% for malignancy, and 18% for other reasons.

Conclusion – The risks of admission of hysterectomy and D & C have increased with age, and that socioeconomic variation has been significant. The risk of acquiring a history of hysterectomy and D & C has been associated with lower social class in adolescence and young adulthood.

Inequality of hospital mortality associated with deprivation

G DAVEY SMITH, A MCLOONE (School of Health Sciences, University of Glasgow; Department of Public Health, University of Glasgow)

Objective – To assess the implications of relative changes in mortality within affluent and deprived areas when compared to absolute changes over the periods 1980–82 and 1990–92.

Methods – Variables derived from 1981 and 1991 censuses were combined according to the method devised by Carstairs and Morris to define Carstairs scores for postcode sectors in Scotland in 1981 and 1001 sectors in 1991. For most analyses, these scores were grouped into seven deprivation categories (DEPCATs) ranging from affluent to deprived localities. Mortality rates and standardised mortality ratios were estimated for localities categorised on this basis.

Results – On the basis of Carstairs scores, deprived localities in the UK were on average more deprived between 1981 and 1991; the mortality experience of deprived localities relative to either Scotland or affluent neighbourhoods worsened over this period with the result of a 1.6% increase in mortality. There was no deprivation effect in the UK compared to the UK.

Conclusion – On the basis of Carstairs scores, deprived localities in the UK were on average more deprived between 1981 and 1991; the mortality experience of deprived localities relative to either Scotland or affluent neighbourhoods worsened over this period with the result of a 1.6% increase in mortality.

Insulin and coronary heart disease in middle aged British men

J PERRY, P PH WHINCUP, A G SHAPER, M K WALKER, G M M ALBERTI (Department of Public Health, The Royal Free Hospital, London; Department of Medicine, University of Newcastle upon Tyne)

Background – Earlier studies have been unable to define whether raised circulating insulin concentrations are independently related to the development of coronary disease (CHD). Aims – To examine the relation between the non-fasting serum insulin concentrations and CHD in a cohort of middle aged British men. Insulin concentration was determined by a specific ELISA method which does not cross react with proinsulin.

Design, subjects, and setting – A prospective study comprising 5665 men (aged 40–59 years), recruited from 18 towns throughout the UK. Known diabetics at screening were excluded.
Main outcome measures – Major CHD event rates (fatal and non-fatal myocardial infarction) in 15.5 years follow-up.

Results There were 525 major CHD events – 261 fatal and 264 non-fatal. A non-linear relation between serum insulin and CHD events was observed, with a twofold increased relative risk (RR) in the 5th quintile relative to the 1st quintile, (RR 1-97; 95% CI 1-5, 2-6). The 5th quintile was further divided into deciles and it was found that the CHD risk was significantly increased only in the top decile of serum insulin (≥35-3 mIU/L) relative to the 1st quintile baseline group, (RR 2-5; 95% CI 1-9, 3-4). This association was attenuated after adjustment (using a proportional hazards model) for age, glucose, body mass index, social class, alcohol intake, cigarette smoking, total serum cholesterol, blood pressure, heart rate, physical activity, forced expiratory volume, and pre-existing ischaemic heart disease.

Additional adjustment for high density lipoprotein cholesterol produced further attenuation of the association, though it remained significant (RR 1-6; 95% CI 1-1, 2-4). Exclusion of 184 men who developed non-insulin dependent diabetes during the period of follow up did not change these findings.

Conclusion – These data are consistent with the hypothesis that insulin is atherogenic. Alternatively, the non-linear form of the association and the attenuation in multivariate analysis, suggest that raised insulin concentration may be a marker for the origins of both ischaemic heart disease and non-insulin dependent diabetes.

A randomised controlled trial and economic evaluation of laparoscopic versus open inguinal hernia repair

KATE LAWRENCE1, DOUGLAS MCDONNELL2, ALAN GRAY1, JOHN STORIE3, HELEN DOLL1

(1Health Services Research Unit, Department of Public Health and Primary Care, University of Oxford; 2Nuffield Department of Surgery, University of Oxford; 3Wolfson College, University of Oxford; 4Nuffield Department of Anaesthetics, University of Oxford)

Introduction – Whether benefits will arise from minimal access approaches to inguinal hernia repair remains to be seen. This study examined the safety, short term outcome, and comparative health service costs of undertaking laparoscopic versus open hernia repair.

Design – A randomised controlled trial and prospective economic evaluation were undertaken. Outcome was assessed by patient questionnaires at 10 days and six weeks post-operatively. Longer term return to normal activity was examined by patient questionnaire at three months. Outcome measures were the complication rate, pain scores, and resource use.

Results – No complications were experienced in the open surgery group but six arose in the laparoscopic group (13%; 95% CI 8, 18%; p<0.01). Pain scores showed a benefit to the laparoscopic group in the first postoperative week, except for visual analogue scores of return to normal activity, however, were comparable (Deshu statistic = 1.37; DF1, p = 0.24). The mean operating time was longer in the laparoscopic group (74 (95% CI 69, 79) minutes for laparoscopic repair versus 33 (95% CI 30, 35) minutes open repair), with cumulative operator experience explaining only 9% of the variance in the laparoscopic group. Total theatre costs were higher in the laparoscopic group (£850 laparoscopic versus £268 open (95% CI mean difference £355, £809), mostly because of the higher costs of consumables and of theatre facilities for the longer operating time in the laparoscopic group. Total health service costs were higher in the laparoscopic group as a result of the greater theatre costs. This access was not sensitive to assumptions about longer term recurrence, even using high estimates of recurrence in the open group. Seventy two percent of patients viewed recurrence as the most important outcome.

Conclusions – In view of the possible risks and increased costs shown we suggest that the results of larger trials of efficacy, effectiveness, and cost effectiveness, using recurrence as the primary outcome measure, should be awaited before laparoscopic repair becomes more widely used.

RESEARCH IN LEEDS (HOST’S SESSION)

Polarisation and residualisation – producing unhealthy communities

J CONNELLY (Division of General Practice and Public Health Medicine, University of Leeds)

Although geographical residential segregation of particular groups of people in the UK is not new, since the early 1950s two processes, polarisation and residualisation, have institutionalised this trend. Polarisation refers to the widening gap in choice and access to housing, determined by social and economic characteristics – gender, ethnicity, household type and income. Groups that have become “marginalised” within society are increasingly finding that the location and quality of the housing they can afford is judged “a problem”. The “problem” for the public sector housing managers is that their housing is “hard to let”, for tenants it is that the housing is often “hard to live in”.

Residualisation refers to the geographical segregation of disadvantaged households between housing tenures and within public sector housing.

Housing policy choices, such as the view that home ownership is the natural tenure, have been a key to the “right to buy” policy for public sector tenants, and, crucially, government disinvestment in housing, have combined to make inevitable the emergence of “problem” housing estates with geographically segregated, unhealthy, and disadvantaged populations. This paper traces the working of these processes, the evidence, and the conditions for recovery.

An Ethiopian birth cohort study

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Objectives – To assess which factors are most strongly associated with faecal contamination of children’s hands in primary school reception classes.

Design – Twenty primary schools were chosen from 40 which had agreed to take part, out of 150 originally approached. Ten of the chosen schools had had notified outbreaks of diarrhoea or hepatitis A in the past four years, and 10 had not. The schools were otherwise chosen to represent the wide variety of neighbourhoods present in Leeds. Schools were visited sequentially, once per week. Kenner faecal medium agar plates were taken from children’s hands, from a variety of locations in toilets, and from carpets in the classroom where children routinely sit to listen to stories.

The plates were incubated and assessed for the presence of faecal streptococci. Each child was questioned on hand washing practices at school and at home. Aspects of school and toilet structure and construction were also assessed. Principal outcome measure – Presence or absence of faecal streptococci on hand plates.

Results – A total of 2285 hand plates (150 positive) were taken from 560 children. Some 303 reinfections (150 positive) were taken from toilets and carpets. Logistic regression analysis showed a strong school effect. The proportion of positive plates from carpets was strongly (positively) correlated with the school effect, as was the Townsend index of deprivation for the area in which the school was situated. Together, these account for two thirds of the school effect. Also significant was the sex of child, day of week (increasing counts from Monday to Wednesday), and the child’s answer to questions on hand washing practice.
Conclusions  
(1) Practical methods for diagnosing carriers on which children should need to be researched and introduced. (2) Schools in areas of high deprivation need to devote correspondingly higher levels of resources and effort to combat their increased risk of faecal contamination. (3) Children's hygiene practices at home are apparently an important risk factor in school hygiene, and one that parents might be encouraged to improve.

Inheritance of familial breast cancer: haplotype sharing in affected sib-pairs

ALAN S RIGBY,1 JENNIFER B BARRETT2 (1Division of Public Health, Nuffield Institute for Health, University of Leeds; 2Public Health Medicine, University of Leeds)

There is considerable evidence that breast cancer has an inherited component. Family history is an established risk factor for the disease; women with a first or second degree relative with breast cancer (FDR/SCD) have up to two to four-fold increased risk compared with women without this history. Recent research has shown evidence for linkage of a breast cancer gene (BRCA1) to markers on chromosome 17.1 The BRCA1 gene is highly penetrant, with autosomal dominant inheritance favoured; in such families the disease often occurs with ovarian cancer.

We present data from 214 families with breast or ovarian cancer, or both, ascertained through a family history (the data were made available by the Breast Cancer Linkage Consortium). Nearly all the families had at least two breast cancer cases, while just over half had four or more cases. Two fifths of the families had an age at onset of <43 years, while one third had at least one case of ovarian cancer.

Six polymorphic genetic markers (D17S250, D17S579, D17S858, NME1, D17S74, and GH) had been typed in the families from which it was possible to assign chromosomes c17 parental haplotypes to affected individuals. We analysed the data using the affected sib-pair haplotype sharing method. This approach showed a non-random segregation of c17 parental haplotypes in the affected sib-pairs which indicated genetic linkage between the markers on c17 and the putative BRCA1 gene.

Information on affected sib-pairs will be used to investigate the mode of inheritance of susceptibility to breast cancer. We will explore the relationship between haplotype sharing and both age at onset and the incidence of ovarian cancer. This will help us to understand further the mechanisms of disease inheritance in breast cancer.


Diet and breast cancer — a case–control study

J CADE,1 A VAIL1 (1Nuffield Institute for Health, Institute of Epidemiology and Health Services Research, University of Leeds)

Objectives — To explore relationships between the risk of breast cancer and nutrient intake (in particular fat intake) in women who had attended the breast screening programme.

Design — A case–control study.

Setting — Assessment clinics of the breast screening programmes in Southhampton and Portsmouth.

Subjects — Altogether 253 women with breast cancer, 207 with benign breast disease, 410 women who required an early rescreen, and 943 normal women were identified over two years (1991–92).

Main outcome measures — Diagnosis of breast cancer.

Methods — Potential risk factors for breast cancer were assessed by interview and postcard questionnaire. In particular, dietary data was assessed using a detailed food frequency questionnaire.

Results — Cases were 4 kg heavier than the RR group and they had a statistically significantly greater body mass index (BMI). Reported maximum and minimum ever weights were also higher for the cases. A simple comparison of nutrient intake between the groups showed no statistically significant differences. A logistic regression analysis adjusting for age, age at menarche, and BMI found that sugars and vitamin E had a positive association with risk of breast cancer. (Odds ratio (95% CI) for top quintile of intake: sugars 1.93 (1.00, 3.72); vitamin E 1.98 (0.63, 6.55); unsaturated fatty acids seemed to be protective (odds ratio (95% CI) for top quintile of intake, 0.49 (0.24–1.00)).

Conclusion — This is the first case–control study in a large series of breast cancer which has used women attending the breast screening programme, thereby avoiding recall bias in reporting of dietary intakes. There was no evidence that an increased total fat intake was associated with an increased risk of breast cancer. Polysaturated fatty acids seemed to be protective. Surprisingly, sugars and vitamin E were positively associated with an increased risk. These relationships will be investigated further along with an analysis of the food sources of these nutrients in the diets of the women.

Case-control studies of diabetes in Yorkshire

P A MCKINNEY, R WILLIAMS, J BODANSKY, P HOLLAND (University of Leeds, Leeds General Infirmary)

The incidence of childhood insulin dependent diabetes mellitus is rising both in Yorkshire and elsewhere. This is one of the commonest chronic diseases of childhood, and places a considerable burden on the individual, the family, and the NHS. Its aetiology remains unknown. A series of integrated epidemiological studies are in progress aimed at identifying both the patterns of occurrence and potential risk factors. Aspects of the provision of health care within the health region are also being determined.

The work is based on a population based register (1978 to date) that includes over 1500 cases.1 Analysis has identified a four yearly epidemicity and higher incidence in sparsely populated areas. Case-control studies are testing hypotheses of risk, for example, linked to intrauterine and early postnatal exposure to infections. Data are being collected systematically from obstetric notes and parental interviews. Blood samples from family members will further clarify the genetic component of the condition. An audit of treatment and support for insulin dependent diabetes mellitus is underway within health regions, not only in the quality of data recorded in the clinical notes but in the delivery of care to children with diabetes.


Major trauma workload within the Yorkshire health region

C M AIREY,1 A J FRANKS2 (1Nuffield Institute for Health, Institute for Epidemiology and Health Services Research, University of Leeds)

The incidence, distribution, and clinical patterns of life threatening and multiple injury were evaluated within the Yorkshire Regional Health Authority. Cases of major trauma were identified retrospectively for the 12 month period October 1988 to September 1989 using data from the 16 accident and emergency units in the region, and coroners’ records.

Another 968 cases of fatal and serious injury that met the criterion of an injury severity score greater than 15 were identified. Major trauma occurred predominantly in the young, especially young men, and was almost entirely in motor vehicle collisions (64%) due to road traffic related incidents. Thirty five per cent (337) died at the scene of the accident or before reaching hospital, while 65% (631) survived to reach the accident and emergency unit. This means that 92% of regional annual accident and emergency new case load, 75% surviving outside of normal office hours. Eleven per cent (72) died before ward admission and 34% (213) were immediately transferred to a secondary medical facility. There were 136 patients (38%) survived to be discharged from acute care while 188 (19%) died as inpatients. Major trauma was distributed throughout the region in proportion to the proportion of regional population density, with a regional incidence of 27 cases/100 000.

This study has quantified a group of patients with very specific and specialised needs. However, these results are important in that they point to a need for further research and debate.

Pooling data to improve the validity of cost-utility estimation: streptokinase for acute myocardial infarction

M B ROBINSON (Division of Public Health, Nuffield Institute for Health, University of Leeds)

Objectives — To determine the effects of using empirical data from a range of studies on the estimate of cost-utility for thrombolytic therapy originally based on a number of assumptions.

Design — Literature search for empirical data to replace assumed values. Reworking of original calculations using new information.

Results — The original model, based on the second International Study of Infarct Survival trial (ISIS-2) estimated the cost per quality adjusted life year (CPQ) of thrombolytic therapy with streptokinase as £794 for all patients, and £724 for those treated within six hours of the onset of their symptoms.1 There were six major assumptions made in the original model, of which extra data were available for five. These were: (1) the accuracy of the initial diagnosis; (2) the probability of survival with no treatment, by age; (3) the valuation of the quality of life among survivors; (4) life expectancy among survivors; and (5) variation in the willingness to pay as age increases.

In addition, there were two sorts of costs which the original model had omitted: those due to an increased incidence of haemorrhagic stroke with thrombolysis, and costs for the continuing medical care of survivors.


2. Robinson MB. Pooling data to improve the validity of cost-utility estimation: streptokinase for acute myocardial infarction. J Epidemiol Community Health: first published as 10.1136/jech.48.5.492 on 1 October 1994. Downloaded from http://jech.bmj.com/ on September 15, 2023 by guest. Protected by copyright.
The effect of a single factor was an increase of the CPQ ranging from 80% to 120%. When all the changes were modelled together, the CPQ increased about five times, to £4001 for all patients and £3615 for those presenting within six hours.

Consequently, the original model gave a more optimistic assessment of the cost-utility of thrombolysis than is suggested by subsequent data. The revised figures are still subject to a number of assumptions. Cost-utilty estimates used regular review in the light of new data.

CHALLENGES FOR THE NHS (1)

The consumer and the market

ALLYSON M POLLOCK (Department of Public Health Sciences, St George's Hospital Medical School, London)

It has become fashionable to involve consumers in decisions about how to allocate resources within the public sector. Increasingly, politicians and bureaucrats turn to mini referenda on what should and should not be provided by the public sector. This paper examines the economic and ethical basis of these approaches drawing on recent examples of priority setting exercises carried out by health and local authorities.

In the London borough of Tower Hamlets, the local authority localised health care over its level of council tax, using a postal questionnaire. In the neighbouring borough of Hackney the health authority invited its residents to rank priorities for health care at public meetings. This paper will show that sampling frames, response rates, information on need effectiveness, and informed consent are not the concern of the study initiators. For example in Tower Hamlets the response rate of 37% was considered excellent. It was possible to escape members that the 12% of householders who voted in the final council tax rate does not constitute a majority. While the local authority have response rates of over 80% the small sample meant that subgroup analysis could not be undertaken. In neither study were residents given information on effectiveness, needs, and current service provision. The questions were often ambiguous, for instance in Hackney it was unclear whether the public were rating client groups, intervention, or services.

Flawed, pseudoscientific processes are being used to justify political decisions, especially with regard to spending cuts. The ethical dimensions are not being considered. For instance should the majority decide on behalf of the minority receiving services when the majority cannot be held accountable? Ultimately, these processes are profoundly antidemocratic because they bypass accountability.

Within the NHS, the rise in consumerism can be shown to be a byproduct of decreased local accountability and of absent planning structures. Planning is the only means of ensuring the rational and equitable distribution of resources based on need. It is in this vacuum that health authorities are turning to priority setting and health gain exercises. This paper uses recent examples of health gain exercises to illustrate why the market can never be a model for allocating public good for a substitute for planning. It concludes by suggesting that epidemiologists, sociologists, and public health workers can take a more proactive role in examining the scientific and ethical basis of these exercises.

Can the costs of exercise be overlooked?
P COLEMAN, J P NICHOLL, J E BRAZIER (Medical Care Research Unit, University of Sheffield)

If exercise reduces the risks of morbidity and premature mortality from major illnesses, it may be reasonable to assume that there will also be associated savings in the direct costs of treating those diseases. However, this assumption holds true only if it can be shown that the risks and treatment costs of exercise related morbidity are less than the costs avoided by exercising in protecting against disease and reducing related treatment costs.

A model to consider the costs and benefits of exercise using routine UK data sources has been developed. Estimates of the risks of public major diseases for which there is good evidence that the risk can be modified by regular exercise (heart and cerebrovascular diseases, diabetes, fractured neck of femur, and mental illnesses) in regular exercisers relative to non-exercisers have been obtained from published reports. These estimates of relative risk have been used to estimate the relative frequency of hospital admission and deaths in exercisers and non-exercisers. The health care costs that might therefore be avoided by exercise have been calculated and set against the published risks and health care resource implications of exercise related morbidity to derive estimates of the net health related costs that could be avoided by exercise in protecting against disease and reducing related treatment costs.

The results indicate that in younger adults (15-44 years) the average annual medical care costs incurred (approximately £30 per person) exceed considerably those that might be avoided by the disease prevention effects of exercise (<£5 per person) but that the reverse is true for older adults.

There is evidence to suggest that physically sedentary older adults who take up exercise derive the same benefits in terms of reduced risk of certain illnesses as life-long exercisers. Assuming that the capacity to take up exercise remains, when older does not depend on forming regular exercise patterns when younger, it could be argued that, on economic grounds, exercise should be encouraged in older but not in younger adults. Accepting the limitations of the model, these surprising results (which have also been reported in a study of a Dutch population) indicate that to maximise the potential health benefits of exercise, the risks and treatment costs of exercise related morbidity have to be taken seriously.

NHS reforms and waiting lists

D JONES, R W WEST (University of Wales College of Medicine, Cardiff)

A study designed to monitor the NHS reforms of the 1990s interviewed a representative random sample of 1500 elderly people in 1990 and another representative random sample (of 1500) in 1992 in the same three health districts. The study investigated the availability, use, and consumers' views of primary and secondary health care. Response rates were 94% in both "before" and "after" studies.

The proportion of elderly people on outpatient waiting lists remained unchanged (at 7%) but there was a modest increase in the waiting time (mean 3-7 and 5-0 weeks on list, at time of interview). The proportion on inpatient (and day case) waiting lists increased from 2% to 4% between 1990 and 1992. The increase in numbers waiting was concentrated among older people (≥75 years) and among those waiting for cataract, orthopaedic, and heart operations. The numbers of elderly people who had been hospital inpatients during the previous two years decreased slightly (from 27% to 25%).

The NHS reforms, designed to improve access and availability through competition, do not seem to have achieved reductions in waiting time for specialist hospital treatment, at least in the short term and in the three health districts studied.

Resource allocation

Allocating resources to health authorities: a small area analysis of inpatient utilisation

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Objective - To identify the principal determinants of NHS hospital inpatient utilisation in England in order to inform the development of a new national weighted capitation formula for allocating central sources of hospital funding.

Design - An analysis of a routine dataset of 19 million hospital episodes in 1990-92, combined with the 1991 census data, vital statistics, and data on supply of health care at ward level. Costs of each episode were estimated using national data for each specialty/age group.

Analysis - The observed/expected cost per head of hospital utilisation was calculated for each electoral ward. A model of the variation in the costs of hospital utilisation that examined the impact of health and social needs variables after adjusting for supply was developed. Two stage least squares (2SLS) regression techniques were used to take account of simultaneity, and multilevel modelling to take into account the hierarchical nature of the data.

Results - Health needs indicators such as SMR, self reported illness, unemployment, and manual social class were found to be important in explaining variations in supply adjusted utilisation for acute care between populations at a ward level. The social and health needs gradient for mental illness and geriatrics was steeper than that for acute care. If these results are incorporated into a national weighted capitation formula it will result in a significant redistribution of resources to poorer areas in the country compared with the existing formula based on the square root of SMR.

Conclusion - A method of developing weights for a national formula that can be used to allocate hospital and community health service resources has been developed that is probably more statistically robust and more sensitive to needs than previous empirical approaches. However, as with any method based upon existing utilisation, the degree to which health care needs are fully captured is uncertain.
Deriving a capitation formula for setting GP fundholding budgets: limitations of using aggregate routine data

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Objectives – To explore the possibility of using routine data to derive a weighted capitation formula as a basis for calculating GP fundholding budgets for the purchase of hospital inpatient services.

Design – An analysis of the hospital episode statistics for 1991-92 from which GP fundholding procedures were extracted, combined with the 1991 census data, vital statistics, and data on the supply of health care at ward level. Costs were attached to each procedure according to the average cost of the relevant “Mersey band” category.

Analysis – The observed/expected costs per head of utilisation of GP fundholding procedures were calculated for each electoral ward. A model of the variations in electoral ward level expenditure on elective GP fundholding procedures was developed that examined the impact of health and social needs variables after adjusting for supply. In order to take account of simultaneity a two stage least squares (2SLS) regression technique was used.

Results – No simple and sensible model could be derived for GP fundholding. The most statistically acceptable model showed that while the standardised mortality ratio, self reported illness, and a number of social class variables were associated with utilisation, the signs and the size of the coefficients were contradictory. The most important explanation of variation was provided by age/sex differences between wards.

Conclusions – An equitable system of setting GP fundholders’ budgets is urgently needed. National utilisation data are probably inadequate for developing a formula that adjusts adequately for the differences in the health risk of GP populations. In the short term, age/sex weighted capitation should form the principal basis of GP budget setting. Methods of developing a formula for capitation funding of GP fundholders which takes account of the health needs of the registered population and avoids the ecologic problem constitutes a major unresolved issue for health services research.

GENERAL PRACTICE

Do deprivation supplements compensate GPs for extra workload or for low uptake of services?

MAURICIA LYNCH (Public Health Research Unit, University of Glasgow)

Objectives – To examine the relationship between the deprivation supplements introduced by the 1990 GPs’ contract into the GPs’ remuneration system and the provision of primary care services across areas with different socioeconomic characteristics.

Design – Statistical analyses of the distribution of selected services – health promotion clinics, childhood immunisations, cervical cytology tests, minor surgeries, and child health surveillance – across practices that serve socioeconomically distinct patient populations, and of the contribution of the deprivation supplements to changes, in real terms, in total fees and allowances paid to individual practices between the financial years 1989-90 and 1991-92.

Subjects – A total of 208 anonymised practices in the Greater Glasgow area are examined.

Results – Preliminary results suggest that in 1991-92 the deprivation supplements played an important role in maintaining or increasing the remuneration (compared with 1989-90 levels) of practices serving socially deprived populations, despite the relatively lower uptake of services in these populations. These supplements seem to have cushioned a significant number of practices that serve deprived populations from a reduction in real income.

Implementing the findings from systematic overviews: has information on the effectiveness and cost effectiveness of selective serotonin reuptake inhibitors changed practice?

N FREEMAN,1 WATT,1 MASON1 (NHS Centre for Reviews and Dissemination, Centre for Health Economics, University of York)

Objectives – In 1993-94 all UK GPs received a schematic overview of the available evidence on the clinical and cost effectiveness of the new antidepressants, the selective serotonin reuptake inhibitors (SSRIs). This study examines the impact of that information on the prescribing of antidepressants, and describes the major advertising campaigns used by the pharmaceutical industry to promote SSRIs over this period.

Design – Descriptive study of the volume of prescribing of SSRIs and other primary care prescribed antidepressants. Summary of the advertising campaigns for antidepressants derived from a hand search of the British Medical Journal, and other medical practice press.

Setting – UK primary care.

Subjects – GPs who prescribed antidepressants (dispensing and non-dispensing), in England.

Main outcome measure – Previously unpublished English primary care activity based data on the cost tabulations (PACT) data supplied by the Prescriptions Pricing Authority (Newcastle), which reported both the cost of primary care prescriptions dispensed and activity corrected for volume (28 day treatment units) using the World Health Organisation’s tables of defined daily doses. Summary of advertising activity (number of advertisements and main messages).

Results – The rate of SSRIs prescribing continues to increase dramatically in spite of the absence of good evidence to support their increased use in primary care. The provision of evidence on the relative effectiveness of antidepressants to GPs and their professional advisors is insufficient to change prescribing practice in the majority. Advertising campaigns selectively report the merits of the products detailed, and seem to respond to available evidence from other sources.

Conclusions – Providing information in an accessible form is insufficient to promote rational prescribing among general practitioners. The existing network of medical and pharmaceutical advisors is insufficient to counter the resources available to the pharmaceutical industry, whose activities promote practice which is not cost effective for the NHS. Implementing the results of systematic overviews requires far greater effort and resources than is currently available.

Impact of obligatory histological examination of GP-excised tissue

A J LOWY, D WILLIS (Department of Epidemiology and Public Health, University of Leicester)

Introduction – GPs are currently free to decide whether or not to send excised lesions for pathological examination. It has been suggested that failure to send specimens results in important diagnoses being missed, and that histopathological examination is cost-effective. Observational studies, in which unsuspected malignancies were found among specimens sent by GPs, have been widely cited in support of this policy change. However some GPs only send lesions which are suspicious or of atypical appearance, and existing research has shown that most of the lesions they discard are clinically diagnosed as warts, skin tags, ingrowing toenails, and other benign lesions.

Observational studies based on the non-random sample of lesions which GPs choose to send give no information about the additional diagnoses which would be made if pathological examination were made obligatory.

The cost of this proposed policy would be considerable, and an intervention study is needed to estimate its impact on health.

Methods – A national sample of 300 GP practices in 21 areas was recruited into an intervention study. Participating GPs agreed to send their local pathology department a biopsy specimen of every skin lesion removed during a six month period. Pathological diagnoses during the intervention were compared with those during earlier control periods.

Preliminary results – Over 80% of GPs approached agreed to participate. Study GPs increased their use of histopathological services, by 33% during the intervention period. On the basis of 6000 specimens from six areas, the number of total malignant and premalignant lesions increased from 95 to 99; melanomas increased from six to seven. The intervention was associated with larger increases in confirmation of inconclusive diagnoses.

Conclusions to date – The finding of disproportionate increases in the trivial lesions confirms the suspicion that observational studies overestimate the benefit of examining tissue which GPs currently discard. The intervention placed an additional burden on pathology laboratories.

Whether or not this use of resources increases the detection of important skin pathology will be discussed in the light of the full dataset, and implications for the cost effectiveness of expanding GP use of pathology will be discussed.

CANCER INCIDENCE

Does socioeconomic deprivation explain high rates of lung cancer in the west of Scotland?

C L HART,1 D J HOLE,2 M SHIPLEY,2 G DAVEY SMITH,1 G C WATT,1 C R GILLIS,3 M G MARSH,4 R KENNEDY1 (Scottish Cancer Surveillance Unit, 2Department of Epidemiology and Public Health, University College, London; 3Department of Public Health, University of Glasgow; 4Department of Epidemiology, London School of Hygiene and Tropical Medicine)
Background and objectives—Lung cancer rates in the west of Scotland are among the highest in the world. The objective of this study is to determine whether this can be attributed solely to differences in smoking behaviour, or to socioeconomic deprivation, or to an influence specific to the west of Scotland.

Design—Fifteen year mortality rates for men aged 45–64 at the time of screening from two cohort studies were compared.


Outcomes—Lung cancer mortality rates at given levels of smoking.

Results—Six smoking categories were defined as follows: never smoked; cigarette smokers of 1–14, 15–24, and 25 or more per day; pipe or cigar smokers; and ex-smokers. Age adjusted lung cancer mortality rates were higher in the Renfrew and Paisley study for each level of smoking. The crude differences in the first five years had little effect on this difference. A general population cohort would be expected to contain more sick persons (including those with prevalent lung cancer) than a working population but for lung cancer mortality any such effect should disappear during this period. After dividing the study populations into manual and non-manual social class, based on occupation, mortality rates were very similar in both studies. When lung cancer mortality in Renfrew and Paisley was compared with Whitehall (as the baseline) and adjusted for age and smoking habits, the lung cancer mortality rates were significantly higher in the west of Scotland. Implications for public health in avoiding excess deaths from lung cancer in such areas are discussed.

Radon exposure and cancers other than lung cancer in underground miners: a collaborative analysis of 11 studies

E WHITLEY, S C DARRY and COLLABORATORS (ICRF Cancer Epidemiology Unit, University of Oxford)

Objective—To characterise the risks for cancers other than lung cancer from atmospheric radon.

Design—Collaborative analysis using data from 11 cohorts of underground miners in whom radon related excesses of lung cancer had already been established.

Setting—All known cohort studies of underground miners with at least 400 deaths caused by cancers other than lung cancer and estimates of exposure to radon progeny available in working level months (WLM) for each cohort member based on measurements of radon progeny.

Subjects—A total of 64,209 men known to have worked underground.

Results—For all cancers other than lung cancer the total number of deaths observed was close to the number expected from mortality rates in the area surrounding the mines (ratio of observed to expected deaths (O/E) 1·01; 95% CI 0·95, 1·07, based on 1179 deaths), and mortality did not increase with increasing cumulative exposure to radon. Among 28 individual categories of cancer examined, mortality was increased overall only for cancers of the stomach (O/E 1·33; 95% CI 1·16, 1·52) and liver (O/E 1·73; 95% CI 1·29, 2·28) while for leukaemia, mortality was increased in the period less than 10 years since leaving work (O/E 1·93; 95% CI 1·19, 2·99), but not subsequently. Mortality was not significantly related to cumulative exposure to radon progeny for any of these three diseases. Among the lung cancer cases, individual categories of cancer other than lung cancer, mortality was related to cumulative exposure only for cancer of the pancreas (ERR/WLM = 0·07%; 95% CI 0·01, 0·12) and, in the period less than 10 years since the start of employment, for other and unspecified cancers (ERR/WLM = 0·22%; 95% CI 0·08, 0·37).

Conclusions—The increases in stomach cancer, liver cancer, and leukaemia are unlikely to be due to radon. The association between cumulative radon exposure and pancreatic cancer seems likely to be a chance finding, while the association between cumulative radon exposure and other and unspecified cancers seems to be due to deaths that were not certified as carcinomaatoses and are likely to have been lung cancers. This study therefore provides considerable evidence that atmospheric radon does not cause a material risk of mortality from cancers other than lung cancer.

Changes in the incidence of breast cancer with the introduction of mammographic screening

A SEKWOGERERE, D J HOLE, D W LAMONT, C R GILLIES (West of Scotland Cancer Surveillance Unit, Glasgow)

Objective—(1) To measure the incidence of breast cancer in the age groups 20–49, 50–64 (screening age group), and 65–69 years in a defined population before the introduction of mammography and during the first round of breast cancer screening. (2) To examine the extent of changes in incidence in specific tumour size and lymph node category subgroups. (3) To monitor the extent of the changes in relation to socioeconomic status.

Design—Retrospective population based study using cancer registry and pathology records.

Setting—Those postcodes in the north west of Glasgow (total population 230,000) where the first round of screening had been completed by the end of 1991.

Subjects—A total of 1108 new cases of invasive breast cancer in women aged less than 70 years diagnosed between 1980 and mid 1988 (before screening) and mid 1988 to 1992 (after screening) had been introduced.

Main outcome measures—Changes in breast cancer incidence with screening in the whole population, in relation to tumour size and node involvement and by Carstairs deprivation category.

Results—Breast cancer incidence rose from 225/100,000 before screening to 292/100,000 during the first round of screening (30% increase) in women aged 50–64 years. There was an increase in the incidence of small tumours (less than 20 mm) from 69/100,000 before the introduction of screening to 126/100,000 afterwards, and from 78/100,000 to 131/100,000 for tumours with no lymph node involvement. There was also a decrease in large tumours (greater than 40 mm), from 35/100,000 before screening began to 31/100,000 afterwards, and from 45/100,000 to 16/100,000 for large tumours with more than 50% lymph node involvement. Results for changes in breast cancer incidence with screening in relation to deprivation show the highest increase among the most affluent followed by those in the middle class. The most deprived showed the least increase with screening.

Conclusion—The cancer registry, in conjunction with good pathology data, can provide a useful means of monitoring surrogate end points in a breast cancer screening programme.

TRAUMA OUTCOME

Comprehensive assessment of the outcome of a hip fracture to one year, including the impact on the health and social services

S M SHEPHERD, B J PRESCOTT (Department of Public Health Sciences, University of Edinburgh)

Study objectives—To assess the impact of a series of hip fracture patients using a broad range of outcome measures incorporating the standardised assessment scales recommended by the British Geriatrics Society and the Royal College of Physicians for evaluation of the elderly.

Design—A cohort study with 12 months of follow up was conducted. Patients were recruited from 11191 hip fractures that were performed between 1980 and 1982. Interventions were performed within a week of the hip fracture and then at one, six, and 12 months afterwards. A series of scales and ad hoc questions were used.

Setting—The city of Edinburgh.

Patients—A total of 270 consecutively admitted hospital patients aged 60 years or more with an osteoporotic hip fracture who lived in a defined geographical area (98% of those eligible) were recruited into the study. Patients refused to participate and one withdrew during the course of follow up.

Main results—The mean (SD) age was 81·1 (9·1) years. There was no sex predominance. Thirty four per cent were cognitively impaired as gauged by the Abbreviated Mental Test. Mortality was 7%, 20%, and 29% at one, six, and 12 months respectively. Little change in psychological status as measured by the Geriatric Depression Scale and the Philadelphia Geriatric Centre Morale Scale was observed. A general pattern of functional recovery emerged, with patients recovering profoundly by one month, partial improvement at six months, and then a plateauing out over the next six months. Among survivors the proportion in institutional care (nursing home or long stay hospital) rose from 16% to 29%, and dependency according to the Barthel index rose from 10% to 24%, over the year of follow up. The proportion who were bed-bound or only managed with walking assistance fell from 2% to 14%, and the proportion requiring assistance with walking rose from 38% to 68%. The continuing burden to society at these levels was anticipated. The total number of patients in interim care at 3644 did not change over the year of follow up. Home help service use declined, 52 patients at one year after fracture compared with 77 at baseline). This reflects the shift of the
survivors to more dependent forms of care and the death of the trailer individuals.

Conclusions – At one year after fracture there is a considerable deterioration in the average functional level of hip fracture patients. The overall burden to the health and social services in the longer term is offset by the high mortality.

An epidemiological study of post traumatic stress disorder after serious accident

H SNOOKS, J P NICHOLL (Medical Care Research Unit, Sheffield)

Most of the research on post traumatic stress disorder (PTSD) has been carried out on war veterans, disaster victims, and people who have been violently assaulted. It is generally accepted that accident victims are at risk of developing PTSD, but published reports are few and inconclusive. No major epidemiological studies have been undertaken on seriously injured people.

At this unit, a substantial database on trauma patients has been built up, including detailed information about the nature of incidents, type of injury, injury severity, disability, general health, and mental health outcomes.

The patients in this study were all accident victims who had been taken to accident and emergency departments and had stayed in hospital for at least 72 hours after their injury. They were interviewed six months after their accident. PTSD has been assessed using the American Psychiatric Association criteria and validated against the diagnostic interview method used at the Traumatic Stress Clinic at St George's Hospital. Information has been collected about the incident scene, the severity of injuries using the AAMM Abbreviated Injury Scale (1990), inpatient stay, disability, and general health outcomes using the Office of Population Censuses and Surveys disability questionnaire and the Nottingham Heath Profile.

The overall prevalence of PTSD symptoms at six months in this sample of 131 patients was 23.7% rising from 21.7% in patients with an ISS score <9 to 28.6% in patients with major trauma (ISS >15). There is also a suggestion that those who stayed longer in hospital have a higher risk of injury to their injuries have a higher risk of developing PTSD, as do those with higher disability scores at six months. Other possible risk factors which would be looked at include age, sex, types of incident and injury, individual AIS scores in the different body regions, other injuries or deaths occurring at scene, entrapment, loss of limb, time off work, and previous psychiatric history.

The results of this analysis will be discussed in this paper, and the implications of the findings will be considered.

**Cancer Care and Outcome**

**Impact on colorectal cancer survival of cases wrongly registered by death certificate only: implications for national survival data.**

**NEIL VICKERS, ALLYSYN M POLOICK (St George's Hospital Medical School, London)**

This paper describes the importance of the "death certificate only" registration (DCO) for national cancer survival statistics. DCO registration arises when no other information is available on a registration than the death certificate. The Thames Cancer Registry is the largest registry in the UK and contributes nearly a third of all cancer cases to national cancer registration data at the Office of Population Censuses and Surveys (OPCS). Compared with other registries where DCO rates are in the order of 1–3% of all registrations, Thames Cancer Registry's DCO rates are high, comprising 24% of all registrations. Because it is rarely possible to confirm a date of diagnosis for DCOs, they are excluded from survival analysis. This means that since 1987 up to a quarter of Thames Cancer Registry cases will be excluded from national survival analysis.

The study was set up to explore the effect of the DCO registration on five year relative survival statistics, by retrospectively following cases on colorectal cancer to ascertain date of diagnosis. Cases were requested on all cases of colorectal cancer (n=673) registered in 1983 and 1988 in four health districts in south east England; 150 of these were DCOs. Of the 150, only six sets of case notes were retrieved. Twenty four cases were excluded because of missing dates of diagnosis or death. The overall retrieval rate on DCO registrations was 58% and for case notes retrieval was 38%.

Cumulative relative five year survival rates in relation to district health authority of residence were calculated first for cases registered by DCO and then for all cases including cases misregistered as DCOs. In all four districts, five year survival decreased with the inclusion of DCO registrations: district A by 9.1% (from 52.8% to 43.7%); district B by 4.5% (from 59.6% to 55.1%); district C by 4.8% (from 80% to 75.2%) and district D by 7.6% (from 31.4% to 23.8%).

This study shows that the exclusion of DCOs in registries with high DCO rates has a differential impact on area based survival rates. Further analysis using Thames Cancer Registry data has shown that DCO rates vary by tumour site and survival time. We discuss the importance of excluding DCO registrations in a quality measure of ascertainment and follow up. Our recommendations are that the OPCS should publish DCO proportions by registry, area of residence, and cancer site.

Using cancer registry data to examine variations in the management of breast cancer and set standards in a region

**I BASNETT, B CHIPPERFIELD, A M CHOUILLET (Camden and Islington Health Authority, London; Thames Cancer Registry, Sutton, Surrey)**

Objectives – To help examine the process of cancer care in a health region and to see whether previously documented variations in good standards of care between health districts were still present. To act as a stimulus for setting and auditing regional standards in care.

Methods – Clinical information was collected retrospectively from the notes of women with breast cancer diagnosed early in 1990 and living within the North East Thames Regional Health Authority. The sample was derived from the Thames Cancer Registry as part of the Eurocare study.

Results – Altogether 194 cases were studied. Eighteen per cent of the women lived in inner London, 38% in outer London and 45% in rural districts. Overall, over 70% of women underwent conservative treatment, in contrast with the previous high of 45% in some centres. Only 5% of women were entered into trials and only 55% of women underwent axillary sampling or clearance as part of their initial treatment. Although the numbers of women were small (a maximum of 27 in any one district) there were wide variations in management between districts – for example, in some a minority underwent bone scans (41%, 11/27), in others these were used on all women (16/16, 15/15); the majority of women had axillary surgery in some districts (74%, 20/27), whereas in others this was the exception (13%, 2/15). These and other data from this study were used as a stimulus for a research and development project to establish regional standards for breast cancer and audit of those standards.

Conclusions – There are still considerable differences in care from established good practice as well as variations in care that are not apparently explained by case mix. The variations in good practice are similar to those documented in studies in the UK and some practice has changed with time. Using the cancer registry as a population based sampling frame has stimulated the setting of regional standards which will involve clinicians, and can be audited.

**Does cancer treatment in a specialist unit improve outcome?**

**M HARDING, J PAUL, C R GILLIS, S B KAYE (Cancer Research Campaign Department of Medical Oncology and West of Scotland Cancer Surveillance Unit, Glasgow)**

Objectives – To determine the relative contributions of tumour extent (case severity), protocol treatment, and treatment unit to survival.

Design – Retrospective case note study.

Setting – All cases from west of Scotland, a geographical area comprising six health boards with a total population 2.7 million, covered by a single cancer registry in Glasgow. Subjects – All adult (>14 years) men resident in the west of Scotland whose teratomas were diagnosed between 1975 and 1988.

Outcome measure – Teratoma related death. Results – Case notes were available for 440 of 454 (97%) cases. All but 11 were treated at tertiary referral centres; 235 men were treated at a single unit (unit 1) and 194 at four other centres (units 2–5). Eighty nine men (20%) had died from teratoma by December 1991. Survival was independently influenced by the extent of tumour at diagnosis (p<0.001 – survival improved in successive five year intervals), and treatment unit (unit 1 v units 2–5 (p<0.001)). The proportion of men who received nationally agreed protocol treatment was higher in unit 1 than elsewhere (97% v
HEALTH RELATED BEHAVIOUR

Lay attitudes to prevention of coronary heart disease among South Asian communities

L SEVAK, H LAMBERT, P M MCKEIGUE (Epidemiology Unit, London School of Hygiene and Tropical Medicine)

Objectives - To investigate perceptions of health and illness relevant to the prevention of coronary heart disease among South Asian men and women.

Design - A qualitative study was conducted among men and women from three South Asian communities - Gujarati, Punjabi, and Bangladeshi. Informants were contacted through general practices, community organisations, and places of worship. Ethnographic methods, including interviews, group discussions, and participant observation were used to gather information.

Setting - London boroughs of Ealing, Brent, and Camden.

Results - Health promotion messages were often seen as contradictory and were perceived to conflict with personal experiences. The need for information and advice on reducing the risk of heart disease was consistently expressed. Informants were familiar with current health education messages, although these were often not clearly understood. For instance, oil was believed to be fattening, and butter or ghee were preferred. Obesity, smoking, and poor physical activity were identified as attributes predisposing individuals to developing heart disease but not as underlying causes of heart disease.

Introduction - The incidence of heart disease and stroke among South Asians is higher than in the general population, and prevention is paramount.

Conclusion - Messages that convey the individual's responsibility for the family's wellbeing rather than the "put yourself first" ethos of current health promotion are more likely to succeed. Messages need to address the perceived importance of constitutional predisposition to heart disease. Interventions targeting physical activity need to take into account the long working hours of most South Asians.

Psychosocial factors influence the decision to stop smoking after myocardial infarction

D C GREENWOOD, K R MUBA, C J PACKHAM, R J MADELEY (Department of Health Medicine and Epidemiology, University Hospital, Queen's Medical Centre, Nottingham)

Objective - To examine the effect on mortality of stopping smoking after myocardial infarction, and the psychosocial factors that may influence the decision to stop.

Design - In a large prospective study of survivors of myocardial infarction, patients completed questionnaires providing information on lifestyle and psychosocial factors. A post hoc analysis of the smokers was carried out.

Setting - Coronary care units at six large district hospitals involved in a multicentre clinical trial in the UK.

Subjects - All consenting survivors of acute myocardial infarction identified as smokers who completed questionnaires within seven days of infarct at six hospitals participating in the Anglo-Scandinavian Study of Early Thrombolysis (ASSET). Patients have all been followed for over five and a half years.

Main outcome measures - Five year, all cause mortality. Deaths were notified by the National Health Service Central Registry.

Results - Smokers who stopped within one month of infarction showed significantly reduced all cause mortality over those who remained smokers (age adjusted odds ratio 0.58, 95% CI 0.34-0.99). Adjusting for other prognostic indicators did not change this result. Being married, low life stress levels before infarct, and higher social class were associated with smoking cessation. Of the clinical variables, a diagnosis on discharge of definite myocardial infarction, and having suffered complications in hospital, were both associated with smoking cessation.

Conclusion - Smoking cessation can halve smokers' risk of death after myocardial infarction, making it one of the most important steps a smoker can take. Though conventional clinical features still remain central to prognosis, psychosocial factors may play a vital role in the important decision to stop smoking.

Sex education

Sexual health education for teenagers in Grampian, Scotland

VAL WAREHAM, MARGARET MURISON, GRAHAM CRONKHIT, PETER GILES, MARY SEGWICK, JENNY GREENER, NEIL DRUMMOND (Department of Obstetrics and Gynaecology, University of Aberdeen; Health Promotion Department, Grampian Health Board; Department of Education, Grampian Regional Council; Health Services Research Unit, University of Aberdeen)

Introduction - The incidence of unintended teenage pregnancy among teenage women in Britain remains unsatisfactorily high. Interest has arisen in the role of sexual health education for teenagers in school as a means of ultimately reducing teenage pregnancy rates.

Objective - To implement and evaluate a pilot programme of sexual health education which provides young people with opportunities to discuss sexuality and sexual behaviour in a relaxed and unthreatening environment.

Design - A non-randomised controlled pragmatic trial. Each school nominated two pilot classes who received the programme and two control classes who did not. Anonymised questionnaires were completed by pupils in control and pilot classes before starting the programme, and repeated afterwards. These were supplemented by semi-structured interviews conducted with selected pupils and...
teacher evaluation sheets completed for each session.

Setting – Secondary schools in Grampian Region.

Participants – Around 600 schoolchildren in S2 and S4 year groups (13-15 and 15-16 years), in 11 schools.

Main outcome measures – Locus of control, self esteem, knowledge of contraception, knowledge of safer sex, and attitudes to sexual behaviour.

Results – Initial analysis suggests students who received the programme experienced improvement in knowledge, increase in self esteem, and an internalised locus of control. In addition, students and staff reported the programme to be beneficial when compared with pre-existing arrangements for sexual health education in school.

Conclusions – Sexual health education in secondary school which facilitates discussion of sexual behaviour and emotional relationships in a confidential environment and provides accurate information about disease and pregnancy, may be an effective method of equipping students with the knowledge and confidence they need to make informed choices about their sexual behaviour.

Provision of sex education and early sexual experience: the relationship examined.

WELLING S K, WADSORTH J J, JOHNSON A M, FIELD J, WHITTAKER L (London School of Hygiene and Tropical Medicine; St Mary’s Hospital Medical School, London; University College, London; Social and Community Planning Research, London)

This paper explores the relationship between recent sexual experience and sexual behaviour using data from the National Survey of Sexual Attitudes and Lifestyles, based on a random sample of nearly 19,000 respondents aged 16 to 59. This survey showed that the median age at first intercourse has fallen by four years for women and three years for men over the past four decades, to 17 for both men and women aged 16 to 19 at the time of interview. Early experience of sexual intercourse was less likely to be preceded by contraception and more likely to be accompanied by feelings of regret, and was associated with larger numbers of sexual partners, both in the most recent past and over the lifetime.

Concern is sometimes expressed that provision of sex education in school might hasten the onset of sexual experience. These data provide no evidence for this. Respondents whose main source of sex education was school-based lessons were less likely to have had intercourse before the age of 16 than were those who cited other main sources, such as family and friends. They were also more likely to use contraception. In multivariate analysis, these effects remained after controlling for the effect of educational attainment and social class. This paper also examines the perceived deficits and preferred sources of sex education in the context of early sexual experience. These, as yet unpublished, findings have important implications for the provision of sexual health education, its nature and content.

DEPRIVATION AND HEALTH

Education and occupational social class: which is the more important indicator of mortality risk?

GEORGE DAVEY SMITH, CAROLE HART, DAVID HOLLE, CHARLES GILLIS, GRAHAM WATT, VICTOR HAWTHORN (Department of Public Health, University of Glasgow)

Background and objective – In the UK, studies of socioeconomic differentials in mortality have generally related social occupational or economic class as the index of socioeconomic position, while in the US, measures based upon education have been widely used. These two measures have different characteristics; for example, socioeconomic status changes through adult life, while education is unlikely to alter after early adulthood. Therefore different interpretations can be given to the mortality differentials which are seen. The objective of the present analysis is to demonstrate the profile of mortality differentials, and the factors underlying these differentials, which are associated with the two socioeconomic measures.

Design – Prospective cohort study.

Setting – Workplaces in Glasgow, Grangemouth, and Clydebank.

Subjects – A total of 4,971 men aged 35-64 years who completed questionnaires and underwent clinical examination between 1970 and 1972.

Main outcome measures – All cause and cause specific mortality over an 18 year follow up period.

Results – At baseline, similar gradients between socioeconomic position and blood pressure, height, lung function, and smoking behaviour were seen, regardless of the measure of socioeconomic position used. Manual social class and early termination of full time education were associated with higher blood pressure, shorter height, poorer lung function, and a higher prevalence of smoking. Within educational strata, the graded association between smoking and social class remains, whereas within social class groups there is no clear relationship between education and smoking. Over 18 years of follow up, 1430 of the men died. Mortality from all causes and from four broad cause of death groups (cardiovascular disease, malignant disease, other disease, and violent causes) showed similar social class gradients and education. In all cases, men in manual social classes and men who terminated full time education at an early age had higher mortality rates than those in professional education strata. Graded associations between social class and all cause mortality are seen, whereas within social class groups the relationships between education and mortality are less clear.

Conclusions – The social environment in adulthood seems to be a key determinant of socioeconomic differentials in mortality. This finding has important implications for theories regarding the origins of adult mortality risk and for strategies aimed at reducing inequalities in health.

Deprivation and mortality in Yorkshire 1980-83 and 1990-92

A STAINES, R A CARTWRIGHT (Leukaemia Research Fund Unit for Clinical Epidemiology, University of Leeds)

Study objective – There is a well known relationship between deprivation and mortality. This study has examined this relationship for the Yorkshire Region. Data were obtained for the years 1981-83 and 1990-92. The main concern was whether or not this relationship had changed between these periods.

Design – This was an ecological study, using electoral wards as the base for analysis. Routinely collected mortality statistics for 1981-83 and 1990-92 were obtained. Deaths were allocated to wards using the appropriate postcode directories. Population counts and statistics required to derive deprivation scores were obtained from the small area statistics for the 1981 and 1991 censuses.

Setting – The Yorkshire Regional Health Authority area, which encompasses the counties of West Yorkshire, North Yorkshire, and Humberside.

Measurements and main results – Three deprivation scores were calculated, those of Townsend, Carstairs or the Scottish deprivation score, and Jarman or the underprivileged area (UPA) score. Their relationship with mortality was investigated using Poisson regression modelling. Results were similar regardless of which score was chosen. There was a significant fall in mortality between 1980-83 and 1990-92 (rate ratio=0.80; 95% CI 0.78, 0.81). For the Townsend score the rate ratio for a change of 1 SD in the deprivation score was 1.076 (95% CI 1.06, 1.09), and increased to 1.100 (95% CI 1.09, 1.11) in 1990-92. Results for the Carstairs and Jarman scores were similar.

Conclusions – There is a strong relationship between deprivation and mortality, regardless of which measure of deprivation is chosen. This relationship was stronger in 1990-92 than in 1981-83. This suggests that the gap between richer and poorer areas and, by implication, richer and poorer people has widened further over the past decade.

Socioeconomic differentials in reason for sickness absence from the Whitehall II Study

A F EENEY, F NORT, J HEAD, R CANNER, A MACHER, M MARMOT (Department of Epidemiology and Public Health, University College London Medical School)

Objective – Large socioeconomic differences exist in disease and mortality. This paper describes the distribution of sickness absence and other reasons for sickness absence in relation to grade of employment in the Whitehall II Study, and validates the medical reason by comparison with general practitioner records.

Design – Analysis of sickness absence data collected from the first phase of the Whitehall II Study.

Setting – Twelve of the 20 London based civil service departments participating in the Whitehall II Study where the medical reason for absence was available.

Subjects – A total of 5,620 male and female civil servants aged 35-55 years.

Main outcome measures – Rates and distribution of reasons for absence for short spells (≤7 days) and long spells (>7 days).

Results – Respiratory and gastrointestinal disorders accounted for over half of all spells of absence, with headache and migraine, musculoskeletal injury, and neurosis ill-defined musculoskeletal injury, and digestive disorders, with rates four to 16 times higher in the lower clerical/office support group. For long spells (>7 days) there was a similar grade gradient, with rates four to eight times higher...
in the lower employment group. In general, women had higher rates of absence than men. Validation of the reason for very long spells of absence (>21 days) was carried out by comparing the reason for absence coded by the civil service with the reason subsequently provided to the Whitall II Study by the general practitioner.

Conclusion – There is a lack of comprehensive national data on sickness absence and the matching reasons for absence, in particular, for women and for spells of different duration. Data from the Whitall II Study show large employment grade and sex differences in the distribution of medical reasons for absence, similar to those reported in morbidity documented in other studies. There was reasonable agreement on the reason for absence between the civil service and general practitioner, suggesting that reason for absence may be a valuable source of information for examining patterns of disease distribution in employed populations, and in longer term follow up as a useful predictor of serious morbidity and mortality.

RECENT DEVELOPMENTS IN RESEARCH AND STATISTICS FROM PRIMARY CARE (CHAIR’S SESSION)

Research agenda for primary care

DAVID WILKIN (Health Services Research, University of Manchester)

The National Centre for Research and Development in Primary Care is being established by the University of Manchester with collaborating groups at the Centre for Health Economics at the University of York and the Public Health Research Centre at the University of Salford. This new centre, funded by the Department of Health, will employ a multidisciplinary team with a strong emphasis on dissemination of research findings and the role of research in promoting service development.

This paper will set out the strategic framework for the centre’s research programme in primary care from health needs and demands for care through structure and organisation of services, and the role of research in monitoring and evaluating health care delivery. In each of four substantive research areas we are developing strategies which will address some of the key issues for primary care over the next decade. These strategies are reflected in the centre’s initial programme, which will be summarised in the presentation. In addition to the substantive research agenda, there is a need for the development of research methods to provide the capacity required for the research and for research into the effectiveness of dissemination strategies in producing research based development in primary care.

Some of the key issues and problems for the development of research in primary care will be raised for discussion:

1. The need to formulate a research and development agenda which, whilst reflecting the experience of general practice, is founded on a comprehensive concept of primary care.
2. How can we ensure that the research agenda reflects the perceived needs of parents, carers, professionals and managers, as well as addressing fundamental long-term issues in the provision of primary care?
3. The problems of ensuring that the research agenda is capable of responding to the rapid pace of change in service provision.

4. The relationship between research and development, and the extent to which the research agenda should also encompass a service development agenda.

The NHS Research and Development programme is prompting the NHS to think more strategically about the role of research in health care. There are enormous opportunities for research to play a greater role in shaping the provision of primary health care. It is essential that researchers should engage fully in the agenda setting process and address the many real problems inherent in producing research which contributes to a more knowledge based service.

Developing a strategy for collecting data from GPs

R J BUTLER (Department of Health, London)

The VAMP Research Database is expected to be transferred to the Department of Health by Reuters Ltd in the very near future. It contains some 10 million patient years’ data on diagnoses, prescriptions, and referrals to secondary care and is likely to be of interest to a wide range of public and private bodies concerned with post marketing surveillance of drugs, morbidity at the primary care level, and for other research purposes.

The cost of maintaining and updating the database, currently held at the Office of Population Censuses and Surveys, is being financed by the Department of Health until 31.12.94, while arrangements are considered for its long term operational and financial future. The long term arrangements will be of the subject of an open debate over the next six months and began with a seminar at the Royal Society of Medicine on 11 July 1994.

GP data and pharmacoepidemiologic research

HERSHEL JICK (Boston Collaborative Drug Surveillance Program, Boston University Medical Center)

Formal epidemiologic studies are necessary to provide useful quantification of the risk of toxicity for the many drugs used in clinical practice. The fundamental requirement for these studies is valid information on drugs that people use and illnesses which they develop in a well defined study population. This information is normally presented in the clinical files of GPs. If these files are composed only of paper records, the cost of abstracting the relevant information is far too high to allow for substantial drug safety research. On the other hand, if the office records are computarised, there is an opportunity to obtain directly in mainframe form information on the required drugs prescribed and illnesses diagnosed, together with relevant dates. In a fully computerised GP office system, it is also possible to get demographic data and other relevant characteristics of the patient population, such as smoking.

To make this information useable for formal drug safety research, the following is required:

1. All patients which form the research resource must enter the relevant data in a standard manner.
2. The information must be sent (anonynised) to a research centre.
3. The files from each participating practice must be merged into a single file.
4. The files must be reorganised for efficient access suitable for research activities.

When this has been accomplished, it is next essential that the critical data information be evaluated for quality and completeness.

Quality of life and service use in a random sample of elderly people with urinary incontinence living in the community

C MCQUAID, D JONES (University of Wales College of Medicine, Cardiff)

Objectives To investigate urinary incontinence in elderly people living in the community, its impact on their quality of life, contact with services, and the implications for health and social services.

Design A community based random sample of 2818 elderly people interviewed in their own home.

Setting Three district health authorities.

Subjects A total of 1111 men and 1707 women aged 65 years and over.

Main measures Patients’ responses to an interview schedule which included previously validated questionnaires exploring the following: urinary incontinence, anxiety and depression, mobility, and loneliness. Problems with incontinence and contact with services were also investigated.

Results Data were available on 2818 subjects (94% response rate). Eighteen per cent of the total population were incontinent to some extent: 9% of men (97) and 24% of women (419). There was an increased prevalence of incontinence in both sexes, but the relative effect was greater in men. Seventy five per cent of men and 67% of women reported being incontinent of a large quantity of urine. Of the respondents who admitted incontinence, 51% of men and 40% of women were incontinent at least daily. A number of the incontinent group had difficulty with mobility, and an association was found with those who needed assistance to go out of the house. In terms of the impact of urinary incontinence on their lives, suffers most commonly reported restrictions to social life, increased expense of coping with the problem, and the embarrassment it caused. A significant association was found between anxiety and depression and incontinence. Of both men and women who were incontinent, a large number said they would like to discuss their problem with a health professional. Very few reported having been asked by their GP about continence.

Conclusions Urinary incontinence affects a substantial number of those over 65 years old and has a profound effect on their emotional health and economic and social wellbeing. Health and social care professionals need to be aware of the prevalence and consequent problems of incontinence. There are implications for the development of effective strategies for the over 75 year olds health checks.
How can I assess social and health needs in general practice?

S A MURRAY (Department of General Practice, University of Edinburgh)

Objectives – To assess how a primary care team may most effectively and realistically assess social and health needs.

Methods – Four different methods were explored:

(1) Rapid participatory appraisal: a qualitative action research method involving an extended primary care team.

(2) A postal survey: in liaison with a local researcher.

(3) Analysis of population-based statistics: in liaison with a public health physician.

(4) Exploration of practice-held information: primary care notes, facilitated by GPASS computer software.

Results – The strengths and weaknesses of the above methods with regard to process and outcomes are discussed.

Conclusion – A mixture of qualitative and quantitative methods may best identify and describe needs in a neighbourhood. Rapid appraisal, involving local residents and workers as key informants, also facilitates change.

How not to succeed with weight screening despite really trying

CHARLOTTE WRIGHT,1 TONY WATERS2 (1 Department of Community Child Health, University of Newcastle upon Tyne; 2 Newcastle City Health, Newcastle General Hospital)

Introduction – All child health services regularly weigh children aged under 2 years, and slow weight gain is a marker for a range of serious conditions. The procedure is safe, requiring little equipment. Previous work in Newcastle has shown that between 80 and 90% of children are weighed regularly during their first year. However, the resulting information is not systematically exploited for either clinical or epidemiological purposes.

Aims – To examine the uptake and yield of a weight screening programme and factors that influence it.

Method – A computerised weight screening programme has been set up to identify the slowest growing 5% of children aged <2 years as part of a continuing randomised trial of intervention in failure to thrive. The system requires an early weight at 6 weeks and a late weight at any age >9 months. Weights are entered onto the district child health computer and a child is defined as a case if, compared with the early weight, the late weight has fallen below a standard screening threshold.

Results – Uptake was negligible when the trial began in October 1991, although it improved after feedback to health visitors. However, by June 1992 late weights were still only available for 54% children aged 18–21 months. Because of this, the programme was streamlined and relaunched and support given to practices with the poorest uptake. This resulted in an increase to 69% for late weights by age 18–21 months, but over the next year there was no further improvement and by October 1993 uptake had fallen slightly. Over the same period, uptake of the early weight was only 75–80%. Since both early and late weights are required, this suggests that as few as 50% of children may have had complete weight data entered.

Assuming that the programme was successful, it required a 30% increase in health visits, this suggests that the unscreened children were at lower risk.

Conclusions – Despite a high level of routine weighing activity, this was not translated into an equivalent uptake of screening, although the proportion of eligible cases identified was reasonable. Feedback to workers, according to the programme, and extra publicity resulted in excellent short term gains in coverage. However, many of the changes also provoked furious initial resentment in workers unused to a formal system of audit. Lessons learnt and pitfalls for others to avoid will be discussed.

ASSESSING HEALTH AND NEEDS

Deriving a single index measure for health from the short form 36 health survey

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The short form 36 (SF-36) health survey

Socioeconomic factors associated with GP consultation in men and women aged 16–44

JOHN CHARLTON, GERRY NICOLAAS, PATRICK HEADY (Office of Population Censuses and Surveys, London)
Epidemiologically-led health care needs assessment for rheumatic disease

ALAN TENNANT,1 JON FEAR,2 ALISON CUTTS,3 ANNE PICKERING,2 MICKY HILLMAN,1 M ANNE CHAMBERLAIN1 (1Rheumatology and Rehabilitation Research Unit, University of Leeds; 2North Yorkshire Health, York; 3Rheumatology and Rehabilitation Research Unit, University of Leeds)

Introduction – Recent change in the UK to a purchaser-provider model of health care has required purchasers to identify health care needs. If key rheumatological and orthogonal services are to be maintained it is imperative that purchasers should be well informed, but time and money for this process is limited. To respond to this problem a multi-stage, multi-method approach, using postal questionnaires, has been developed.

Method – A first-stage questionnaire designed to identify all those with rheumatic hip and knee problems was sent to a stratified probability sample of 12,827 respondents aged 55 years and over and living in north Yorkshire: 87% responded. Those who reported various symptoms, including problems with hips and knees which had lasted for at least six weeks during the past three months, were selected for a second stage of the study. This comprised more detailed questions and utilised standard measures of health status and disability including the short form 36, Stanford health assessment questionnaire, and the index of severity of hip and knee osteoarthritides: 82% responded to this second stage.

Results – Ninety-two/1000 (95% CI 87, 96) reported problems with their right hip; 89/ 1000 (95% CI 85, 94) reported problems with their left knee; 113/1000 (95% CI 50, 57) reported bilateral hip problems. Altogether 179/1000 (95% CI 173, 185) reported problems with their right knee; 173/ 1000 (95% CI 167, 179) reported problems with their left knee, and 130/1000 (95% CI 125, 135) reported bilateral knee problems. Ten/1000 people aged 55 years and over were so disabled that they should be considered although most of those with severe knee problems reported having seen their GP during the last year because of this, especially fewer (2%) were reported to be there currently to the care of a hospital doctor because of joint problems, and only one was in the hospital at the time of the interview.

Conclusions – Epidemiologically-led health needs assessment can play an important role in shaping the current provision of rheumatological and orthopaedic services in the new purchaser-provider model of health care. The current methodology has been shown to be inexpensive and speedy. Costs, sensitive enough to look at age-gender variation within small districts, are about £1 per person entered into the sample, and the results were available within six months. The estimates derived from the survey indicate a considerable demand upon health care services and are substantially higher than current provision. Further research is needed to establish the true costs of surgery, meeting these levels of need could reduce the future burden of care, both in the health and social care sectors.

Recollected versus contemporary patient reports of preoperative symptoms in men undergoing transurethral prostatic resection for benign disease

MARK EMBERTON,1 ANDY CHALLANDS,1 ROSEMARY A STYLES,2 JOHN A WIGHTMAN,3 NICK BLACK1 (1The Surgical Audit Unit, The Royal College of Surgeons of England, 2Departments of Urology and Clinical Audits, Chesterfield and Derbyshire Royal Hospitals; 3The Health Services Research Unit, London School of Hygiene and Tropical Medicine)

Objectives – To investigate the reliability of patients’ recollected pre-intervention symptom status and the impact of those symptoms compared with contemporary preoperative reports, and to test the stability of recollected symptom levels.

Design – (A) self completed symptom questionnaire administered before (contemporary) and three months after (recollected) surgery. (B) Self completed symptom questionnaire with recollected preoperative symptoms administered 12 and 14 weeks after surgery.

Setting – (A) Twin consultant urological unit in the Chelsea and Westminster, North Derbyshire Royal Hospital NHS Trust. (B) Sample from the National Prostatectomy Audit.

Subjects – (A) 77 consecutive patients scheduled for transurethral resection of the prostate (TURP), (B) 170 consecutive respondents undergoing TURP.

Main outcome measures – Difference in group mean scores for the American Urological Association (AUA) symptom index, impact index (a score of symptom impact), and 14 constituent questions; association assessed using Pearson’s correlation coefficient; agreement assessed using weighted Kappa statistics.

Results – Complete paired data sets were available for 58 (75%) men for the symptom index, and for 61 (79%) men for the impact index. Preoperative mean symptom index scores for contemporary and recollected were similar, as were mean scores for the impact index. However, only poor to fair levels of association and agreement were obtained for the symptom index (r = 0.6, K(ω) = 0.3) and impact index (r = 0.6, K(ω) = 0.9). Results for the constituent questions were similar. In addition the direction of the differences was not consistent – some men recalled their symptoms as being more severe than their contemporary report, and others reported the reverse. A two week test-re-test of recollected health status showed good to excellent stability.

Challenges for the NHS (II)

What has become of the invisible priorities?

ALLYN M POLLOCK (Department of Public Health Sciences, St George’s Hospital Medical School, London)

*Health authorities are beginning to use their purchasing power . . . by shifting resources into community health care.*

This Department of Health press release in October 1993 from Brian Mawhinney (minister for health) flies in the face of reality. The report cited by the press release showed that actual service spending is still relatively low compared to the NHS budget, even when measured at the local authority level.

The Community Care Act, 1993 has consolidated the enormous shadow cast by community health care over the past two decades. Since 1982, there has been a 50% reduction in NHS residential care provision for the elderly, the disabled, and mentally ill. Spending on community services remains static at around 9% of the NHS budget compared with the 54% spent on hospital services, but recent policy changes will obscure the ability to track community care spending.

The Community Care Act, 1993 has consolidated the enormous shadow cast by community health care over the past two decades. Since 1982, there has been a 50% reduction in NHS residential care provision for the elderly, the physically disabled, and the mentally ill. Spending on community services remains static at around 9% of the NHS budget compared with the 54% spent on hospital services, but recent policy changes will obscure the ability to track community care spending.

The recent Health of the Nation report, commissioned by the Department of Health, represents a significant step forward in the development of a national benchmarking system.

This is the second part of a two-part article. Part I appeared in J Epidemiol Community Health in March 1994. Further information concerning the study is available from the author.
Now the government has deferred income support funding for residential care from the Department of Social Security to local authorities in the form of the special transitional grant. Local authorities suggest that this funding is inadequate to meet needs and that the shortfall in funding will be around £139 million pounds or 30% of the total allocation.

This paper presents data which show that all client groups and carers are increasingly cost sharing and cost bearing. Using data from the primary care development strategies it will also show how the internal market will further obscure community care spending and provision because of acute care substitution. It concludes by highlighting the care we need to collect across the health and social care interface to monitor the impact of these policies in increasing inequalities in the health and wealth of care groups such as the elderly.

From surgery to surgeon: does universality of access guarantee equity in surgical health care provision?

Y BEN-SHLOMO, N CHATURVEDI (Department of Epidemiology and Public Health, University College London)

Objectives – To determine whether there are socioeconomic differences in the relationship between expressed need for possible surgical intervention and surgical provision.

Data – Commission of individual data on primary care consultations in relation to social class for inguinal hernia, gall stones, tonsillitis, varicose veins, cataract, and osteoarthritis, and ecological data on their appropriate operations classified, according to area of residence, by Townsend deprivation score.

Setting – All patients consulting primary care practitioners participating in the third UK national morbidity survey (1981) with census linked data, and all residents of North East Thames Regional Health Authority from January 1991 to July 1992.

Subjects – Altogether 140 049 subjects in the morbidity survey, and all residents of North East Thames Health Authority (approximately 3.8 million).

Results – The relationship between expressed need and provision by deprivation was concordant for some conditions, but discordant for others. For cataract and tonsillitis, there was an inverse U relationship between increasing deprivation and both patient consultation and operation. For varicose veins, deprivation was associated with higher patient consultation and operation rates. For hernia, gall stones and osteoarthritis, consultations increased with deprivation; however, operation rates were either unrelated to deprivation scores (hernia and gallstones) or decreased by deprivation score (hip operation).

Conclusions – In this study, discordant patterns exist between presentation to primary care and provision of some surgical procedures by deprivation. There are several possible explanations for these patterns, but inequity in access to surgical services by deprivation should be considered as one explanation. Our findings emphasise the need to evaluate rather than assume equity in provision.

EVALUATION

Doing it the American way: are American methods for assessing acute care appropriate? A INGLIS, J COAST, S GRAY, R MORGAN, D KAMM (Health Care Evaluation Unit, University of Bristol; Research and Development Directorate, South Western Regional Health Authority; Department of Public Medicine, Bristol and District Health Authority)

Objective – To evaluate the validity and reliability of the intensity-severity-discharge review system with adult criteria (ISD-A) for the assessment of hospital utilisation in the UK.

Setting – One acute hospital in the south western health region.

Design – The ISD-A was applied to a sample of general medical and geriatric admissions to identify the need for acute hospital care. The ISD-A was developed in the United States for the purposes of routine review of hospital utilisation, and has not previously been used in the UK. Interobserver reliability for a sample of admissions and days was evaluated by comparing assessments made by the usual reviewer with a senior registrar. A second application of the ISD-A to a sample of admissions was made by the usual reviewer to assess intraobserver reliability. Criterion validity was evaluated by comparing, for a sample of admissions and days of hospital stay, assessments made using the ISD-A with assessments made using another more widely used screening tool, the appropriateness evaluation procedure (AEP).

Construct validity was assessed in two ways. Firstly, agreement between a panel of GPs and the ISD-A over the need for admission to the acute hospital, was measured. In this assessment GPs assumed the availability of a full range of alternative forms of provision. Secondly, agreement between hospital clinicians and the ISD-A was measured. This panel did not assume that alternatives other than those currently used in the NHS would be available. All forms of agreement in these tests were measured using overall agreement and Cohen’s kappa statistic.

Results – Both the interobserver and intraobserver reliability of the instrument were high. The ISD-A produced highly comparable results to the AEP. Agreement between the GP panel and the ISD-A was in the fair to moderate range, while agreement between the panel of hospital clinicians and the ISD-A was poor.

Conclusions – The ISD-A was shown to be a highly reliable method of assessing admissions and days of hospital stay in terms of the potential for caring for patients in lower technology forms of care. In addition, the ISD-A was found to be valid for this purpose when a full range of alternative forms of care is assumed to be available. This is useful in identifying the potential for changing patterns of care. It was not found to be valid, however, for routine assessment of hospital utilisation within the NHS at the current time, when alternatives are often not available or accessible.

Saving lives by removing ovaries

JEREMY JONES, AILEEN CLARKE, JOHN HAMM Health Services Research Unit, London School of Hygiene and Tropical Medicine

Background – Oophorectomy removal of the ovaries – is currently undertaken during about 50% of abdominal hysterectomies as prophylaxis against ovarian cancer. Twenty per cent of women in the UK undergo hysterectomy before the age of 60, and 70% of these have abdominal hysterectomies, which suggests that approximately 7% of women currently undergo prophylactic oophorectomy. Removal of the ovaries is unusual, however, in that it is rare to remove healthy ovaries routinely, especially where there is no familial or individual predisposing risk factor, and where the risk is low (1:2500 women under 65). There has been some controversy about the relative roles of prophylactic mastectomy and the removal of healthy testes to treat an intractable sexual offender. We aimed to estimate the number of life years saved for women undergoing prophylactic oophorectomy.

Methods – Thames Cancer Registry data were used to ascertain the age adjusted registration and survival rates for ovarian cancer. Routine activity data from two Thames health regions were used to calculate age adjusted oophorectomy rates during hysterectomy. Cases with any mention of ovarian or uterine malignancy were excluded. Finally, expected survival was calculated for women with and without oophorectomy after hysterectomy, using data from published reports, and taking into account differences in the risk of death from cardiovascular disease, osteoporosis, and ovarian cancer.

Results and Discussion – Life years saved per woman undergoing prophylactic oophorectomy will be presented and the discussion will consider the potential reasons for and against age adjusted oophorectomy during hysterectomy. We discuss the extent to which gynaecologists’ recommendations for undertaking oophorectomy during hysterectomy are informed by epidemiological evidence of benefit to the population.


Cholesterol lowering trials corroborate epidemiological evidence on total and cause specific mortality

R R WEST (University of Wales College of Medicine, Cardiff)

The strong threshold-free association between the cholesterol concentration and heart disease mortality (and non-fatal cardiac events) has been confirmed in many cohort studies in many countries. These provided the background for the population approach to heart disease prevention by cholesterol reduction and to many large randomised controlled trials (22 trials, >40000 individuals).

Statistical overview (or meta-analysis) of these trials shows that mortality is unchanged; relative risk (RR) of death=0:99 (95% CI 0.94, 1.04). Significant but modest reductions in cardiovascular disease deaths, RR=0.95 (0.88, 1.02) were balanced by increased other causes deaths; RR=1.09 (0.99, 1.20). Several overview have been published, and while the findings of statistical overview depend somewhat on inclusion criteria, they are consistent. Writing and producing, all published overview to dates concurred.

Statistical overview of cohort studies shows that the relationship between cholesterol and mortality is gently U shaped; through most of its distribution cholesterol is not a "risk
factor” for death but rather a “risk marker” for cause. Thus, the experimental finding might have been anticipated, since change of cause without an overall reduction of mortality corroborates the epidemiological evidence of the cohort studies (32 studies, >5,000 individuals) that gave rise to the trials.

Effectiveness of (population based) preventive medicine programmes should be judged not on an ability to alter cause but on ability to reduce total mortality. Both epidemiological and clinical evidence suggest that treating the middle of the cholesterol distribution (3.0–6.5 mmol/l) is ineffective in this respect.

CARDIOVASCULAR AND RENAL DISEASE

FEV1 – an important but neglected risk factor for coronary heart disease?

G C M WATT, C L HART, D J HOLE, G DAVIE SMITH, C R GILLIS, V M HAWTHORNE (Departments of Public Health and General Practice, University of Glasgow)

Objective – To assess the importance of respiratory impairment as a risk factor for all coronary heart disease mortality.

Design – General population, prospective cohort study.

Setting – Paisley and Renfrew, two urban burghs in the west of Scotland.

Subjects – A total of 7,058 men and 8,535 women aged 45–64 years at baseline in 1972–76, followed for an average of 17.5 years. Altogether 3,724 men and 4,678 women had repeat measurements after five years.

Main outcome measure – Time to and cause of death in relation to quintile of FEV1, (taking into account age and height), after stratifying by or adjusting for the conventional risk factors cigarette smoking, diastolic blood pressure, cholesterol, body mass index, and social class.

Results – Significant increases in risk with decreasing FEV1 were found for all cause mortality, coronary heart disease (CHD) (p<0.001), lung cancer (p=0.001), stroke (p=0.001), respiratory disease (p<0.001), and other causes of death (p<0.001). Similar risk gradients were seen for men and women. All cause and CHD mortality were raised in those with low FEV1, among subjects who showed no sign of CHD at initial screening. In addition, all cause and respiratory mortality risk were associated with the FEV1, in individuals who were free of respiratory signs and symptoms at initial screening. The FEV1 was also a significant indicator of mortality risk among subjects who were lifelong non-smokers. Similar relative relationships existed to those seen for the whole population, although, in general, the magnitude of the risks were slightly lower. Analysis of change in FEV1, between baseline and repeat examinations amplifies these findings.

For CHD, the population attributable risk associated with a low FEV1 is ranked below that of smoking and blood pressure and above that of plasma cholesterol. Low FEV1, smoking prevalence, and social class are the principal factors associated with the large difference in CHD mortality between the Paisley and West Renfrew whitehall study.

Conclusions – A low FEV1 is an important indicator of increased premature mortality for a wide range of causes of death. It is also an indicator of increased risk for lifelong non-smokers. Its contribution to CHD risk is additional to that provided by the conventional risk factors.

Age and sex differences in the utilisation of hospital services for ischaemic heart disease

F A MAJED, D G COOK (Department of Public Health Sciences, St George’s Hospital Medical School, London)

Objective – To investigate age and sex differences in the utilisation of hospital services for ischaemic heart disease (IHD).

Design – Analysis of routine mortality data and hospital activity data.

Setting – South West Thames Regional Health Authority.

Subjects – Residents of the South West Thames Regional Health Authority who, in 1991, either died from IHD or were admitted to an NHS hospital in England and Wales with a main diagnosis of IHD.

Main outcome measures – Ratio of consultant episode to deaths from IHD (as a proxy measure of the utilisation of hospital care), and the percentages of consultant episodes in which further investigation (angiography or catheterisation) or reperfusion treatment (coronary artery bypass graft or angioplasty) were carried out.

Results – The ratio of episodes to deaths was similar in men and women (OR for men versus women 0.96; 95% CI 0.90–1.03). The percentage of episodes in which further investigation was carried out was higher in men than women (OR for men versus women 1.46; 95% CI 1.25–1.70) as was the percentage of episodes in which reperfusion treatment was carried out (RR for men versus women 1.70; 95% CI 1.20–2.17). The ratio of episodes to deaths, the percentage of episodes in which further investigation was carried out, and the percentage of episodes in which reperfusion treatment was carried out all declined with age (all p values<0.001).

Conclusions – Women with IHD are as likely as men to be admitted to hospital, but after admission are less likely to undergo further investigation and reperfusion treatment. Elderly patients with IHD are less likely than younger patients to be admitted to hospital after admission, they are also less likely to undergo further investigation and reperfusion treatment. Further research is needed to determine whether these age and sex differences in the use of hospital services are real or artefactual, and if real, whether they are clinically justified.

Increasing hospital admissions for ischaemic heart disease in Scotland: are more people being treated?

KEVIN MCGREECHAN (Public Health Research Unit, University of Glasgow)

Objective – To determine whether the increase in rates of hospital discharge for ischaemic heart disease (IHD), set alongside a decline in mortality, and of survival and a changing pattern of inpatient care for individuals with this disease.

Design – Analysis of linked hospital discharge records for all patients aged 40–79 years admitted to Scottish hospitals between 1984 and 1991 with a diagnosis of IHD (ICD 410–414). The data are from the linked SMR1 data set created by the Record Linkage Team of the Information and Statistics Division of the National Health Service in Scotland.

Results – Over this period, rates for “episodes” (discharge records completed), the “continuous inpatient stay” (hospital events), and “patients” (individuals with a hospital admission within a year) all show increases of around 30% for both men and women. The greatest rate of increase was in patients aged between 55 and 69 years. The method of linkage makes it possible to identify those who had previous admissions for this diagnosis in earlier years of the linkage period; by 1991, the trend in the proportion of patients without previous admissions was still decreasing but about 70% of patients admitted in this year had no previous admission.

The trends for specific ICD rubrics showed different patterns and there are also area variations. The paper will explore these differences and will link them to changing patterns of mortality.

Conclusions – Over the past 10 years there has been a 30% decline in IHD mortality in Scotland, but over this period discharge rates from Scottish hospitals have increased, and have doubled for cases admitted with diagnosis of angina. The decline in the proportion of “new” cases suggests that this increase in rates of inpatient care is a result of changing patterns of care rather than the need to treat more patients. The implications of these changes for the provision of services will be discussed.

Cardiac waiting lists: moving away from methods of random allocation to appropriate waiting list management

S LANGHAM, C NORMAND, M THOROGOOD (Health Services Research Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine)

Background – Waiting lists for cardiac surgery are already lengthy and it appears that the current procedure is increasing. Purchasers are developing protocols and guidelines to ensure that scarce resources are being appropriately allocated among those in need. This study aimed to audit current prioritisation methods for patients awaiting coronary artery bypass grafting and to evaluate and adapt a potentially more appropriate method using guidelines developed by a consensus panel in Canada.

Methods – Data on 1500 coronary artery bypass graft patients were collected retrospectively from three provider units in the London area. The actual system was compared with the clinician’s own method of prioritising patients, and with a nominally optimal waiting time, using an urgency score developed in Canada. This score was based on the principle that patients with a higher risk of ischaemia related adverse events should get priority. Associations between actual waiting times and other social factors were also examined.

Results – Using the clinicians’ prioritisation method, most patients (61%) were treated within the optimal period: one third were treated sooner. Using the Canadian prioritisation system, the urgency score, only 38% of patients were treated within the optimal time, but one third were treated sooner. No significant relationships were found with other factors, such as age, sex, and smoking status.

Conclusions – The study has shown that patients are currently allocated surgery on a random basis. A large number are being treated earlier than their risk indicates, and consequently patients with higher ischaemic risk are being delayed. The use of a standardised urgency rating score would ensure a more appropriate use of resources. It also
provides valuable insights into the dynamics of cardiovascular disease and therefore would be an invaluable tool for purchasers when making rationing decisions.

**Selection for coronary artery bypass graft – are smokers a disadvantaged group?**

R W MORRIS, A K MCCALLUM, M WALKER, P H WRENCH, S E RAEHAN (Department of Public Health, Royal Free Hospital School of Medicine, London)

Objectives – To investigate the relationship between selection for coronary artery bypass graft surgery in British men and their clinical, social, and personal characteristics.

Design – A prospective general practice based cohort study of British men aged 40 to 59 years at screening in 1978 to 1980, and followed up for at least 11-5 years. Initial screening included completion of a detailed questionnaire, physical measurements, and blood sampling for biochemical and haematological profiling (291) by biennial review of general practice records.

Setting – One randomly selected general practice from each of 24 towns that were representative of the social class and coronary heart disease incidence in Great Britain.

Subjects – A total of 7735 men from the 24 general practice registers.

Main outcome measures – Survival analysis was carried out on the incidence of coronary artery bypass graft surgery, which was proportional hazards model used to assess the effects of various factors including their smoking status; social class; geography; paternal death from heart trouble; pre-existing, subsequent onset, and family history of ischaemic heart disease; blood pressure; and serum cholesterol.

Results – GP reports identified 90 men (1.6%) who had undergone bypass surgery by the end of 1991. Survival analysis showed that the probability of a coronary artery bypass graft was independently related to pre-existing and subsequent onset of ischaemic heart disease, serum cholesterol, and smoking status. Smokers were more likely to have undergone this operation (hazard ratio 1.97; 95% CI 1.19, 3.25), and so were non-smokers (hazard ratio 1.35; 95% CI 0.89, 2.35), after adjusting for the variables specified above.

Conclusion – While use of coronary artery bypass grafting was strongly influenced by clinical need, smokers were less likely to receive a graft than either non-smokers or ex-smokers for equivalent levels of clinical need. This may reflect reluctance of some cardiothoracic surgeons to offer surgical treatment to smokers.

Quality of life in treated hypertensives – a community based study

C BATTERSBY, K HARTLEY, A E FLETCHER, H J MARKOWE, M STYLES, H SAPPER, C J BULPITI (*Epidemiology Research Unit, Division of General Practice, Royal Postgraduate Medical School, London; †London School of Hygiene and Tropical Medicine; ‡University College, London; §The Grohe Health Centre, London; ¶Acorn Health Centre, London)

Objectives – To investigate the benefits and risks of drinking alcohol in treated hypertensives.

Design, setting and subjects – A prospecative study of 6369 hypertensive patients (3161 men) most attending hospital hypertension clinics in the UK and followed for mortality for an average of 11 years.

Main outcome measures – Relative risk (RR) of cardiovascular and total mortality in drinkers compared with non-drinkers.

Results – At presentation, 76% of men and 48% of women reported recent alcohol consumption. Compared with drinkers, non-drinkers were older (p<0.0001), were less likely to smoke (p=0.0001), and had a higher untreated blood pressure (p<0.002). After adjustment for age, smoking, and untreated systolic blood pressure, men and women drinkers had a reduced risk of stroke (RR=0.57; 95% CI 0.37, 0.88) and their ischaemic heart disease (IHD) rates tended to be lower (RR=0.79; 95% CI 0.59, 1.04). Similar results were seen in treated hypertensives. For moderate drinkers, there was a inverse J-shape for mortality, with men and women drinkers having lower risks than non-drinkers. However, alcohol intake and cardiovascular mortality in hypertensives – a report from the Department of Health Hypertension Care Computing Project

A J PALMER, A E FLETCHER, C J BULPIT, D G BEEVERS, E COLES, J G LEDINGHAM, J C PETRIE, J W GIBBON, C T DOLLEY (Royal Postgraduate Medical School, Hammersmith Hospital, London)

Objectives – To investigate the benefits and risks of drinking alcohol in treated hypertensives.

Design, setting and subjects – A prospective study of 6369 hypertensive patients (3161 men) most attending hospital hypertension clinics in the UK and followed for mortality for an average of 11 years.

Main outcome measures – Relative risk (RR) of cardiovascular and total mortality in drinkers compared with non-drinkers.

Results – At presentation, 76% of men and 48% of women reported recent alcohol consumption. Compared with drinkers, non-drinkers were older (p<0.0001), were less likely to smoke (p=0.0001), and had a higher untreated blood pressure (p<0.002). After adjustment for age, smoking, and untreated systolic blood pressure, men and women drinkers had a reduced risk of stroke (RR=0.57; 95% CI 0.37, 0.88) and their ischaemic heart disease (IHD) rates tended to be lower (RR=0.79; 95% CI 0.59, 1.04). Similar results were seen in treated hypertensives. For moderate drinkers, there was a inverse J-shape for mortality, with men and women drinkers having lower risks than non-drinkers.
authority, age, sex, ethnicity, and underlying cause in England. (2) To determine the contribution of these factors and access to renal units to the variation in the acceptance rate.

**Design** - Retrospective study of all patients accepted for treatment (n = 6257) at all renal units in the four Thames regions in 1991 and 1992, and at non-Thames renal units in England for the financial years 1991–2 and 1992–3. Each acceptance was defined by age, sex, postcode, district health authority of residence, ethnic group, and underlying disease.

**Results** - The following will be presented:

1. For England, crude, age-sex specific, ethnic specific, and age-specific ethnic specific acceptance rates.
2. For regional and district health authorities, crude, age-sex standardized and age-sex ethnic standardized acceptance rates. The geographical data will be mapped and related to the current provision of services.

**Conclusions** - The implications for the NHS for developing services which reduce inequity in acceptance rates, and which meet the need of high risk groups (for example, ethnic minorities) will be discussed.

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**CHILD HEALTH**

**Dummies and the health of Hertfordshire infants, 1911–30**

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Many medical and child care experts in the early part of this century viewed the dummy as a serious hazard to the health and development of babies. With the growth of the infant welfare movement, these beliefs were incorporated in health visitors’ advice to mothers. A unique set of records made by health visitors in Hertfordshire has been used to explore the determinants and consequences of dummy use in infancy.

The prevalence of dummy use nearly halved between 1911 and 1930, which indicates the power of the anti-dummy campaign. These records show that babies in Hertfordshire were more likely to use dummies if they were boys and if their mother was young or had herself been born in the county. Although the incidence of infections and nutritional deficiencies was higher among dummy users, the absolute size of the difference was very small.

The intensity of feeling aroused by the dummy in medical and child care experts is not justified by any evidence from these records concerning the consequences of dummy use. Perhaps part of the explanation for the hostility towards the dummy lies in the conviction, common among child experts at this time, that indulging babies’ desires for comfort and pleasure would be detrimental to their characters.

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**Social deprivation and age at presentation of anisometropia amblyopia: effect of introducing a screening service**

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**Objectives** - Amblyopia is the most common visual disability in children. Early treatment is thought to be more effective, and therefore factors affecting the age at presentation are important. Anisometropic amblyopia is the most difficult type of amblyopia to detect, and we showed that the age at presentation with this condition was related to social deprivation before vision screening was introduced. We have now investigated the effect of the introduction of vision screening for anisometric amblyopia on the relationship between the age of presentation and social deprivation.

**Design** - Two cohorts of children treated for anisometric amblyopia before and after the introduction of vision screening services in the catchment area of one orthoptic department.


**Main outcome measures** - Age at presentation to the orthoptic department was the main outcome measure. Social deprivation was measured using the Townsend deprivation score for the electoral ward in which the child lived using 1981 and 1991 census data.

**Results** - Before the introduction of vision screening in Leicester in 1988 there was a significant relationship between social deprivation and age at presentation (p = 0.02, mean age = 6.9 years), with children from more deprived areas tending to be older. No similar association was found in children referred in 1992 after the introduction of screening (p = 0.94, mean age = 5.0 years). The mean age at presentation was also reduced by nearly two years.

**Conclusions** - A relationship between social deprivation and access to health care is well known. For anisometric amblyopia, a condition that depends upon surveillance for referral, the introduction of vision screening seems to have lessened the effect of social deprivation on access to health care.

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**INFECTIOUS DISEASE**

**Injecting drug use and amateur tattooing are risk factors for hepatitis C infection in UK blood donors**

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**Objective** - To determine risk factors for hepatitis C virus (HCV) infection amongst blood donors.

**Design** - Case-control study using an administered questionnaire enquiring about possible routes of transmission and risk factors.

**Setting** - All blood donor centres in the Trent region.

**Subjects** - A total of 114 blood donors detected by ELISA screening with confirmatory positive RIBA-2 tests were tested between September 1991 and December 1993, 114 of whom were interviewed. Altogether 150 other donors were randomly selected as controls, all of whom agreed to be interviewed.

**Main outcome measures** - Relative risks (RR) and 95% CI for patterns of behaviour estimated using logistic regression.

**Results** - A history of injecting drug use was given by 58 of 114 cases (51%) and 0 of 150 controls (RR 312; CI 20,5000, p<10⁻⁵). Analyses of the remaining cases and controls showed independent associations for HCV with a history of amateur or self tattoos (RR 3.7; CI 1.9–7.2, p<0.001), blood transfusion (RR 2.8; CI 1.5–5.3, p=0.001), sex with a drug user or HCV positive person (RR 2.9; CI 1.1–7.6, p=0.03), history of having worked in health care (RR 2.2; CI 1.0, 4.8, p=0.05) and place of birth outside Britain and Ireland (RR 2.5; CI 1.1–5.9, p=0.04).

No association was shown with a history of professional tattoos, pierced ears, acupuncture, foreign travel, family history of hepatitis or jaundice, multiple sexual partners, or sexual orientation, although numbers were small in some of these categories.

**Conclusions** - Injecting drug use is the major risk factor for HCV infection amongst blood donors, a group who are less likely to have
injected drugs than the general population. The associations seen with amateur tattooing suggest this is a significant route of transmission of blood borne viruses and should be taken into consideration when planning the content of a health promotion strategy.

The long term prognosis of AIDS patients treated and not treated with zidovudine

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Background – The one randomised placebo-controlled trial of the efficacy of zidovudine showed a beneficial effect of the drug on the incidence of opportunistic infections and death. However, the trial was stopped after an average follow up of 20 weeks. In consequence, we have no knowledge of the long term efficacy of zidovudine initiated after the time of AIDS diagnosis. Although susceptible to bias, non-randomised studies, which compare the prognosis of patients who happened to be treated with zidovudine with those who happened not to be, are the only means of attempting to assess the drug's long term effect.

Objective – To study the use of zidovudine and the association between time elapsed since starting zidovudine and the death rate in AIDS patients.

Methods – Follow up of patients from the time of AIDS diagnosis. Data collected retrospectively from patient case notes.

Participants – A total of 4484 adult patients diagnosed with AIDS (CDC, 1987 definition) between 1979 and 1989 who survived their initial AIDS defining disease and who had not started zidovudine before the AIDS diagnosis.

Main outcome measures – Use of zidovudine and mortality.

Results – Injection drug users and patients from southern Europe were less likely to receive zidovudine than other patient groups. There was a gradual increase in the use of zidovudine among patients from 1987 to 1989. Among patients who did not start zidovudine, the death rate was approximately constant for the first five years after diagnosis. Mortality in patients within the first year of starting zidovudine was appreciably lower than that in untreated patients who had developed AIDS at the same time (relative hazard 0.47; 95% CI 0.42, 0.51). For longer times since starting zidovudine, the association with a lower mortality became smaller and for patients surviving more than two years since starting zidovudine the death rate was higher than for untreated patients (relative hazard 1.55; 95% CI 1.15, 1.78). Adverse effects of zidovudine initiated factors which had developed AIDS at the same time (relative hazard 0.47; 95% CI 0.42, 0.51). For longer times since starting zidovudine, the association with a lower mortality became smaller and for patients surviving more than two years since starting zidovudine the death rate was higher than for untreated patients (relative hazard 1.55; 95% CI 1.15, 1.78).

Conclusion – Zidovudine was associated with a lower death rate, but for no more than two years after starting therapy. This is consistent with previous evidence that zidovudine has a limited duration of benefit.

Mortality data

Multicause mortality data in the Office of Population Censuses and Surveys: uses and dissemination

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Routine statistical tabulations of causes of death are usually based on a single underlying cause per death. This is the condition or event which initiates a chain of events directly leading to death. It is designed to identify the original cause, prevention of which would avoid death. Other conditions entered on the death certificate have not usually been coded, and so are not generally available for analysis. This information might be valuable for preventive intervention at other stages in the sequence, as well as for planning services, and improving understanding of the mortality burden associated with chronic diseases.

In this paper we outline the history of multiple cause coding in the OPCS system: how and when it has been done, what data are available from that form, and how they have been and could be used. We illustrate the uses and problems with analyses of mental health conditions in 1985 and 1986 deaths in Leicestershire and Wales.

A major part of the current redevelopement of OPCS systems is the automation of coding of cause of death. One result is that all conditions on death certificates will be automatically coded routinely, and both text and multiple cause codes will be easily accessible, as well as underlying cause. This presents enormous opportunities for both routine tabulations and research, despite methodological problems in analysing and interpreting the data. We will discuss ways in which the data can be exploited and made available for research and public health purposes.

Death certification: to mention or not to mention diabetes mellitus?

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Introduction – Officially published mortality statistics are generally considered inadequate when investigating diabetes related mortality, since diabetes is often not mentioned on death certificates. In Leicestershire, a diabetes register has been maintained and updated since 1988 and is also a local register of deaths of Leicestershire residents recording all data items from death certificates, including causes of death. The aim of this study was to use these registers to investigate diabetes related mortality and potential problems associated with death certification.

Methods – Record linkage was used to link the diabetes and deaths registers to identify deaths and causes of death of Leicestershire residents with insulin treated diabetes mellitus during 1990–92 inclusive. Uncertain linkages were checked manually. Underlying causes of death were locally coded using the International Classification of Diseases, 9th revision (ICD9). Further record linkage, to the Office of Population Censuses and Surveys (OPCS) deaths tapes, was performed to incorporate official underlying cause of death codes.

Results – A total of 370 deaths were identified by the linkage. There was 82% agreement between local and official coding of underlying cause of death. Diabetes was mentioned on 215 (58%) death certificates, and accounted for 195 (77%) of the underlying causes of death. When diabetes was mentioned, 48 (22%) mentions were in part I and 167 (78%) in part II of the death certificate. The underlying cause of death was coded as diabetes for 34 (71%) certificates with diabetes mellitus mentioned in part I and for 23 (14%) with mention in part II. The distribution of official underlying cause varied significantly according to whether diabetes was mentioned or not. Detailed comparison of death certificate entries and OPCS coded underlying causes suggested apparent inconsistencies in allocation of codes.

Discussion – With appropriate registers and record linkage, investigation of diabetes related mortality need not rely on published statistics and diabetes being mentioned on death certificates. The variation observed in figures in April 1993 described a sixfold variation, and in subsequent coding, led to anomalies in the assignment of an underlying cause of death. While such anomalies have little effect on patterns of mortality overall, diabetes mellitus as an underlying cause is undoubtedly underestimated in official statistics.

With automated coding of death certificates, coding inconsistencies may be curtailed, but the problem of what gets recorded where on death certificates likely has not been influenced by the pattern of diabetes related mortality even in studies where record linkage has been used to identify deaths.

Mortality league tables: informing purchasing or political dogma?

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Background – A front page article in The Times in April 1993 described a sixfold variation in death rates among general surgical patients in English hospitals. The newspaper quoted experts who argued that some of the variation reflected the competence of the surgeons concerned and the availability of sources. It concluded that “Going into hospital for a surgical operation is a game of chance in which some patients lose their lives”.

There is growing pressure from some quarters to publish league tables of hospital death rates with a common view being that there may be problems but publication will ensure that they are resolved. The paper will examine whether it is actually possible to solve them and, if so, how.

Objective – To examine methodological issues related to the publication of mortality rates league tables, with particular reference to several different methods and the use of finished consultant episodes.

Design – A retrospective analysis of inpatient hospital records.


Subjects – All hospitalisations with a principal diagnosis of aortic and cardiovascular diseases, colonic and cervical cancer, cholecystectomy, fractured neck of femur, ischaemic heart disease, and peptic ulcer.

Main outcome measures – Crude in-hospital mortality, deaths, and rates adjusted by disease severity and calculated on the basis of both person and episodes.
Identifying a representative sample of UK Chinese for epidemiological research

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Objectives — (i) to identify Chinese adults in Newcastle upon Tyne, for an epidemiological study; (ii) to study the characteristics of two groups identified using different sampling methods, and (ii) to compare the study sample with the Chinese population identified from the 1991 Census.

Design — Chinese adults aged 25–64 years normally resident in Newcastle were identified (i) from a name analysis of the family health services authority (FHSA) register for Newcastle, and (ii) in response to publicity aimed at the Chinese community. Subjects identified from the FHSA register were invited to attend for cardiovascular screening and non-respondents were followed up.

Results — Approximately 2% of individuals with Chinese-sounding names were identified from the FHSA register. A total of 638 students in halls of residence were excluded. Of the 1064 people remaining, only 367 (34.5%) were resident at the registered address. Thirty nine per cent of these 367 attended for screening.

There were no differences in the age and sex structure between the 217 respondents and 150 non-respondents. A total of 166 individuals identified from other sources were screened. There were no differences in age and sex, marital status, socioeconomic status, educational level, and smoking status between FHSA and non-FHSA subjects. Men from the FHSA register were more likely to be current drinkers than those not on the register (p<0.05). There were no differences in mean cholesterol concentrations, blood pressure, body mass index, waist hip ratio, or fasting plasma glucose concentration between the two groups. Subjects aged 30–64 years were compared with Chinese people of the same age group using national data from the 1991 census 10% sample. The study sample was older, and more were married and of a lower socioeconomic status than the Chinese population of England and Wales.

Conclusions — The FHSA register is inaccurate for the Chinese population of Newcastle and is likely to be inaccurate for other Chinese populations in the UK. We found no differences in sociodemographic variables or in selected risk factors for coronary heart disease in subjects identified from the register and those identified from other sources. This suggests that subjects identified from the FHSA register are a representative sample of the whole Chinese community.

A locality based general practice network for case-control studies

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Background — Concerns over bias in case-control studies mainly focus on selection of cases and controls, non-response, and differential recall of the relevant exposure. A population framework involving local general practice partnerships was established to minimize the effects of these biases on population related risk factors for stroke.

Methods — Expected incidence rates were used to estimate the total population required over a 24 month period of study (1988–90). Eleven large group practices in the neighbourhood were invited to participate. The practices were phoned weekly to help ascertain incident cases of stroke (aged 35 to 74). Controls, frequency matched for age and sex to the expected distribution of cases, were selected from sex registers in the practices. If a selected control was found to have moved outside the area or died, a replacement control was invited to attend.

Results — Altogether 198 of the 250 stroke patients (34%) were managed at home rather than in hospital. No stroke patient (or their relative/friend) declined to be assessed. Eighteen per cent of registered patients who were initially selected as controls had either moved from the area or died. Altogether 198 of the 207 eligible controls agreed to the assessment — a response rate of 96%. From the 198 included controls, a record on the following had been made in general practice or local hospital notes; cigarette smoking — 86 (43%), weight — 130 (66%), height — 53 (27%), and blood pressure within 5 years — 147 (74%). For cases the proportions tended to be higher.

Conclusions — A locality based general practice network for case-control studies minimises selection biases and can yield high response rates. Recorded data on many routine variables related to health are incomplete in general practice records but allow assessment of possible recall bias. Specific assessment of cases and controls from a general practice network can offer a convenient and valid case-control methodology.

Maximising postal survey response rate

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