The Society for Social Medicine
38th Annual Scientific Meeting
Leeds: 14–16 September 1994

PROGRAMME
AND
ABSTRACTS OF PAPERS
# Contents

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## Programme

### Wednesday 14 September

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| 13.30-14.45 | **FIRST PLENARY SESSION** (Rupert Beckett Lecture Theatre)  
Chair: Professor Gerald Richards |
| 13.30      | **Welcome to Leeds** – Professor Gerald Richards                     |
| 13.45      | Birthweight and later socioeconomic disadvantage: evidence from the 1958 British cohort study – C Power et al (abstract on p 5) |
| 14.15      | Hospital care for diseases of the female genital organs and breast during young adult life: admissions, treatment and social variation in a national cohort – D Kuh et al (abstract on p 5) |
| 14.45      | Coffee/tea and poster show (Parkinson Court)                        |
| 15.15      | **THE COCHRANE LECTURE** (Rupert Beckett Lecture Theatre) Taberculosis – yesterday and today – Professor G S Kilpatrick |
| 16.15      | Coffee/tea and poster show (Parkinson Court)                        |
| 16.45      | **ANNUAL GENERAL MEETING** (Rupert Beckett Lecture Theatre)         |
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| 21.30      | Disco and late bar (Senior Common Room)                             |

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| 14.00 onwards | **VISITS AND WORKSHOPS**  
Workshops (venues to be announced) will be held on: Opportunities for health in the new South Africa – introduced by Anthony Zwi  
Generic measurements – the way forward for health outcomes? – introduced by Paul Dixon  
Demographic entrapment: how many more Rwandas? – introduced by Maurice King  
"Hey ref – you’ve got mud in your eyes!” How to improve our own quality as referees for journals and research proposals – introduced by Stuart Donnan and James Owen Drif |

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| 14.00-15.30 | **SECOND PLENARY SESSION** (Conference Auditorium)  
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Deprivation and changing mortality in Scotland – P McLoone et al (abstract on p 5) |
| 14.30      | Insulin and coronary heart disease in middle-aged British men – I J Perry et al (abstract on p 5) |
| 15.00      | A randomised controlled trial and economic evaluation of laparoscopic versus open inguinal hernia repair – K Lawrence et al (abstract on p 6) |
| 15.30      | Close of meeting                                                     |
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<td>E Whitley et al (10)</td>
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| 10.25–10.45             | Resource allocation | 10.25–10.45       | Allocating resources to health authorities: a small area analysis of inpatient utilisation | R A Carr-Hill et al (8) | Comprehensive assessment of the outcome of a hip fracture to one year including the impact on the health and social services | S M Shepherd et al (10) | 09.45–11.05 |
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|                         | J Cade et al (7)   |                   |                             |                   |                  |                  | 09.45–11.05 |

| Case-control studies of diabetes in Yorkshire | P A McKinney et al (7) |                   |                             |                   |                  |                  | 11.30–11.50 |

| 11.50–12.10             | Major trauma workload within the Yorkshire health region | 11.50–12.10       | Implementing the findings from systematic overviews: has information on the effectiveness and cost effectiveness of selective serotonin reuptake inhibitors changed practice? | N Freerantie et al (9) | Using cancer registry data to examine variations in the management of breast cancer and set standards in a region | I Basnett et al (11) | 11.50–12.10 |
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PLenary presentations

Birthweight and later socioeconomic disadvantage: evidence from the 1958 British cohort study
C. POWER, M. BARTLEY, D. BLAKE, G. DAVEY 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)

Objectives – 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, household amenities, 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 subjects 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 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 etiological 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 KUSH, 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, have been examined. Socioeconomic variation in the rate 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 age-specific person-years of observation. 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 15% at least one D & C. Disorders of menstruation, without other indications, were the most common diagnoses, accounting for one third of hysterectomies and 60% of D & Cs. There was a strong inverse gradient in hospital admissions for disorders of the genital system according to educational experience. The differential risk was striking for disorders of menstruation, where only 1% of the most highly educated women compared with 20% of those with minimal qualifications had been admitted to hospital. Those with no qualifications had a significantly increased risk of admission for cervical cancer. There was a significant social gradient in the hysterectomy rate (from 1% to 15%) and a twofold difference in the risk of having a D & C. Conclusions – The study has shown the large number of women admitted to hospital for genital disorders and who have undergone a D & C or hysterectomy during their young adult lives. These findings, and the socioeconomic variation, are a challenge to those responsible for women’s health care, particularly as the appropriate use of some surgical procedures is being questioned. Socioeconomic differences in the risk of hysterectomy in this study are stronger than those found in other studies. It may be that less educated women are admitted to hospital or treated at an earlier age than those with more education and that the differences will become less noticeable as the cohort ages. Other explanations for the social gradients are discussed.

Deprivation and changing mortality in Scotland
PHILIP McLOONE, B A BODDY (Public Health Research Unit, 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.

Method – Variables derived from 1981 and 1991 censuses were combined according to the method devised by Carstairs and Morris to obtain a Carstairs score for 1010 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 Scotland became 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 162% difference between the most and most deprived categories in 1991–92. However, both area types experienced an absolute fall in mortality and the age standardised mortality rates for ages 0–84 in Scotland declined from 400 to 311 per 100 000 (a fall of 22%) during the 1980s. This fall was not shared equally in either absolute or relative terms by all DEPCAT categories and varied by age and sex. Although absolute reductions for ages 30–59 were higher in DEPCATs 6 and 7 than in DEPCATs 1 and 2 the relative (or proportional) reduction for males aged over 40 in affluent areas was approximately half that experienced in affluent areas.

Conclusions – Relative differences in mortality experience linked to relative poverty increased in the 10 years between the 1981 and 1991 censuses. Although mortality is improving overall and deprived areas can show falls that are greater than those in affluent areas, there is still an increasing distinction between the experience of the majority and that of a substantial minority of the population. When translated into the health care needs that this excess mortality represents, these differences regardless of the absolute changes that have occurred, have important implications for the policies of the NHS in Scotland, particularly with regard to equity of service provision.

Insulin and coronary heart disease in middle aged British men
J PERRY, S WANNAMETHEE, P H WHINICUP, A SHAPER, M K WALKER, K G M M ALBERTJ (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 heart disease.

Objectives – 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 commenced with 5665 men (aged 40–59 years), recruited from 18 towns throughout the UK. Known diabetics at screening were excluded.
Main outcome measures – CHD event rates (fatal and non-fatal myocardial infarction and CHD death) followed 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 for 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 mU/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 (RR 1.9; 95% CI, 1.3, 2.8). Additional adjustment for high density lipoprotein cholesterol produced further attenuation of the association, though it remained significant (RR 1.6; 95% CI, 1.3, 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 analyses suggest that raised insulin concentrations may be a marker for common 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 LAWRENCE,1 DOUGLAS MCGWennie,2 ALASTAIR GRAY,3 JOHN STORIE,4 HELEN DOLL5 (1Health Services Research Unit, Department of Public Health and Primary Care, University of Oxford; 2Department of Surgery, University of Oxford; 3Wellcome, University of Oxford; 4Nuffield Department of Anaesthetics, University of Oxford)

Introduction – Whether benefits will arise from minimally invasive approaches to inguinal hernia repair is unclear. This study examines 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 assessed by patient questionnaire at three months. Outcome measures used were the complication rate, pain scores, and return to work.

Results – No complications were experienced in the open surgery group but six arose in the laparoscopic group (13%; 95% CI 8, 18%; p<0.1). Pain scores showed a benefit in the laparoscopic group in the first postoperative week. Survival curves of return to normal activity, however, were comparable. (Lee–Desu statistic = 1.37, DF = p = 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 open operating time only 2.1% 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 £555, £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 time; costs were not sensitive to assumptions about longer term recurrence, even using high estimates of recurrence in the open group. Seventy two per cent 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 efficiency of recurrence and 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, 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

MAKONNEN ASEFA,1 ROBERT DREWRETT,2 JENNY HEWISON1 (1Division of General Practice and Public Health Medicine, University of Leeds; 2Department of Psychology, University of Durham; 3Department of Psychology, and Institute of Epidemiology and Health Services Research, University of Leeds)

Objective – To evaluate growth and mortality over the first year of life to environmental influences and to feeding and health care practices in a birth cohort in Jimma, south west Ethiopia. (Ethiopia has an estimated infant mortality rate of 13/1000 live births). Design – A birth cohort study. The infants are recruited within a week of birth and then visited every two months for the first year of life. Maternal health and health care behaviour are assessed at these interviews, and placed in the context of economic, sanitation, and environmental variables. Topics of particular interest are the frequency and duration of breast feeding, supplementation with food introduced in the traditional health care practices used with the infant; and the handling of episodes of diarrhoea, cough, and fever by the mother.

Subjects – The source population comprises all residents of Jimma town, estimated to be 80,000. This gives an estimated one year birth cohort of 2500-3000 infants. The infants are recruited through a network of traditional midwives.

Main outcome measures –Height and weight, morbidity, and deaths in the first year. Morbidity is assessed by questionnaire at each visit, and height and weight by an anthropomorphic tape. The cause of all deaths is investigated.

Results and conclusions – Descriptive data will be presented on independent variables at each visit, differences over time, and the impact of the socio-economic factors. Whether benefits are associated with facenal contamination of children's hands in reception classes of selected Leeds primary schools

D A BRAUNHOLTZ,1 A M ELSWORTH,2 E C KALFENTHALER,2 D D MARA, 3 A SCHWEIGER (1Public Health Medicine, University of Leeds; 2Department of Civil Engineering, University of Leeds; 3Public Health Medicine, Leeds Health and Care)

Objective – 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 63 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, one per week. Kenner fecal monitoring 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 condition were also noted.

Principal outcome measures: Presence or absence of faecal streptococci on hand plates.

Results – A total of 2285 hand plates (150 positive) were taken from 560 children. Some 3000 plates (230 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 home hand-washing practice.
Inheritance of familial breast cancer: haplotype sharing in affected sib-pairs

ALAN S RIGBY, JENNIFER H BARRETT (Division of Public Health, Nuffield Institute for Health, University of Leeds; Public 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 mother or sister affected have a 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. 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 <45 years, while one third had at least one case of ovarian cancer.

Six polymorphic genetic markers (D17S250, D17S579, D17S588, NIME, D17S74, and GH) had been typed in the families from which it was possible to assign chromosome 17 (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 haplotypes in the affected sib-pairs which indicated genetic linkage between the markers on c17 and the putative BRCA1 gene.

Informant based 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, A VAAL (Nuffield 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 Southamptont and Portsmouth.

Subjects – Altogether 255 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 (1990-92).

Main outcome measures – Diagnosis of breast cancer.

Methods – Potential risk factors for breast cancer were assessed by interview and postal questionnaire. In particular, diet 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 2.68 (1.08, 6.65)). Polyunsaturated 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 of diet and 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. Polyunsaturated fatty acids seemed to be protective. Surprisingly, sugars and vitamin E were positively associated with an increased risk. These relationships need to be investigated further in epidemiological studies in relation to 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 1600 cases. 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 services has shown variability 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, A J FRANKS (Nuffield Institute for Health, Institute of 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.

Altogether 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 blunt in nature, with 67% (645) 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 (0-082% of the region’s annual accident and emergency workload). 75% arriving outside of normal office hours. Eleven per cent (72) died before ward admission and 34% (213) were immediately transferred to a secondary medical referral centre. Three quarters of the transfer activity was for medical reasons, while 25% had sustained multisystem trauma that required the services of orthopaedic and general surgical specialties. A total of 367 patients (38%) survived to be discharged from acute care while 188 (19%) died as inpatients. Major trauma was distributed throughout the region in rough proportion to distinct population areas, with a regional incidence of 27 cases/100,000.

This study has quantified a group of patients with very specific and specialised needs. How these needs are best met is a matter for further research and debate.

Pooling data to improve the validity of cost-utility estimation: a case study of acetylsalicylic acid for primary prevention of myocardial infarction

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

Introduction – To determine the effect 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 £274 for those treated within six hours of the onset of their symptoms. 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 death was for those without treatment, by age; (3) the valuation of the quality of life among survivors; (4) life expectancy among survivors; and (5) variations in the effectiveness of treatment by age. In addition, there were two costs of which the original model had omitted: those due to increased incidence of haemorrhagic stroke with thrombolysis, and the extra cost of the continuing medical care of survivors.
The effect of a single factor was an increase of the CPQ ranging from 20% to 120%. When all the changes were modelled together, the CPQ increased by 15% five times, to £4001 for all patients and £3615 for those presenting within six hours.

Conclusions - The original model gave a more optimistic of the costs-until-threshold than is suggested by subsequent data. The revised figures are still subject to a number of assumptions. Cost-utility estimates need regular review in the light of new data.


CHALLENGES FOR THE NHS (1)

The consumer and the market

ALLISON 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 scientific 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 consulted local residents over the rate 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 deemed excellent. It seemed to escape members that the 12% of householders who voted in the final council tax rate does not constitute a majority. While the Hackney study had good response rates of over 80%, the 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 way 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 cannot be a model for allocating public goods or 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, E B Brazier (Medical Care Research Unit, University of Sheffield)

If exercise reduces the incidence 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 exercise 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 these major diseases for which there is evidence that exercise can be beneficial include 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 impact exercise could have on health and treatment costs in a total exercising population.

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 that previously 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 latter take up exercise 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 A JONES, R R WEST (University of Wales College of Medicine, Cardiff)

A study designed to monitor the NHS reforms 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 access and 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 out-patient 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 amongst those waiting for cataracts, orthopaedic, and heart operations. The number 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 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

R A CARR-HILL, P SMITH, T A SHELTON, S MARTIN, S PEACOCK (Centre for Health Economics, Department of Economics and Related Studies, Institute for Research in the Social Sciences, York Health Economics Consortium; University of York)

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 resources to health authorities.

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 speciality/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. The instrumental variable (IV) 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 upon 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 the 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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Objective - To explore the possibility of using routine data to derive a weighted capitation formula as an equitable basis for setting GP fundholding budgets for the purchase of hospital inpatient services.

Design - An analysis of the hospital episode statistics in 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. Analysis of the differences 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 simultaneously a two stage least squares (2SLS) regression technique was used.

Results - No simple and sensible model could be derived for GP fundholding. The most parsimonious but 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.

Conclusion - 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 risks 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?

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

Objective - 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 areas with different socioeconomic characteristics. Examination 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 Health Board area.

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 that served 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 reviews: has information on the effectiveness and cost effectiveness of selective serotonin reuptake inhibitors changed practice?

N FREEMANTLE, J WATTS, J MASON (NHSCentre for Reviews and Dissemination, Centre for Health Economics, University of York)

Objective - In 1993–94 all UK GPs received advice based on a systematic overview of all 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 SSRI prescribing, 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 the drug and practice press. Setting - UK primary care. Subjects - GPs who prescribed antidepressants (dispensing and non-dispensing), in England. Main outcome measure - Previously un-published English language articles and 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 SSRI 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 promote 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 results of the marketing strategies of the pharmaceutical industry, whatever the perceived practice which is not cost effective for the NHS. Implementing the results of systematic reviews requires far greater effort and resources than is currently available.

Impact of obligatory histological examination of GP-excised tissue

G LOY, D WILLS (Department of Epidemiology and Public Health, University of Leicester)

Introduction - GPs are currently free to decide whether to send for obligatory histopathological examination. It has been suggested that failure to send specimens results in important diagnoses being missed, and that histological examination should be obligatory. 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 pathologists reviewed all excised lesions. 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 to their local pathology department a biopsy specimen of every skin lesion removed during a six month period. Pathological diagnoses were compared with those made by the pathologist of the GP practice who had excised the lesion. Results - Over 80% of GPs approached agreed to participate. Study GPs increased their use of histopathology 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 9 to 10; the intervention was associated with large increases in confirmation of inconclusive diagnoses. Conclusions to date - The finding of disproportionate increases in the most trivial lesions confirms the findings of observer studies. Further observer studies overestimate the benefit of examining tissue which GPs currently discard. The intervention placed considerable additional burdens 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 histology will be discussed.

Cancer incidence

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

G L HART, J HOLE, M SHIPLEY, G DAVEY SMITH, C M WATTS, C R GILLIS, M G MAR- MOTT, D A LEON, V M HAWTHORN (West of Scotland Cancer Surveillance Unit, Department of Epidemiology and Public Health, University College, London; Department of Public Health, University of Glasgow; Department 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 peculiar to the west of Scotland.

Data Sources and study population – Mortality data were obtained from the Scottish Cancer Registry for the years 1972 and 1975.

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 exsmokers. Age adjusted lung cancer mortality rates were higher in the Renfrew and Paisley study for each category.

Conclusions – The increases in smoking cancer, liver cancer, and leukaemia are unlikely to be caused by radon. The association between cumulative radon exposure and pancreatic cancers seems likely to be a chance finding, while the association between cumulative radon exposure and other unspecified cancers seems unlikely to be a chance finding that would be significant after correction for multiple comparisons. The recent rise in pancreatic cancer incidence is consistent with a role for radon exposure, although the rise may have at least two causes, one being the increase in the number of death certificates with radon-related cancers and another the increase in the number of death certificates with radon-related deaths.

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

A SIEBER, DERERE, D J HOLE, D W LAMONT, C R GILLIS (West of Scotland Cancer Surveillance Unit, Glasgow)

Objectives – (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 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 involvement categories. (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 – The west of Scotland.

Methods – A comparison of breast cancer incidence rates in the 1961–1970 and 1971–1980 periods was made. The 1961–1970 period was used as the baseline period. The incidence rate was calculated by dividing the number of new cases of breast cancer in a 1-year period by the population at risk, and multiplying by 100 000.

Results – Between 1961 and 1970, there was a 72% decrease in the incidence of breast cancer in women aged 20–49 years. The decrease was 31% in women aged 50–64 years and 60% in women aged 65–69 years. The decrease in incidence was similar in all socioeconomic groups.

Conclusion – The introduction of mammographic screening has resulted in a significant decrease in the incidence of breast cancer in women aged 20–69 years.

TRAUMA OUTCOME

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

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

To follow up a previously described 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 1/1/91 to 30/4/92. Interviews were performed within a week of the hip fracture and then at one, six, and 12 months afterwards.

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. Two patients refused to participate and one withdrew during the course of follow up.

Methods – The main outcome measures were assessed at 1, 6 and 12 months after discharge.

Results – The mean (SD) age was 81 ± 8 (1 ± 8) years, and 53% were women.

Conclusion – A comprehensive assessment of the outcome of a hip fracture is feasible and valuable in assessing the impact of each patient's injury and the outcome of their subsequent treatment.
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 overall 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 injuries. 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 the Royal London Hospital. Information has been collected about the incident scene, the severity of injuries using the AAAM Abbreviated Injury Scale (1990), inpatient stay, disability, and general health outcomes using the Office of Population Censuses and Surveys disability questionnaire and the Nottingham Health Profile.

The overall prevalence of PTSD symptoms at six months in this group 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 as a result of their injuries have a higher risk of developing PTSD, as do those with higher disability scores at six months. Other possible risk factors which will 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, ALLISON M POLLOCK (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 data at the Office of Population Censuses and Surveys (OPCS). Compared with other registries where DCOs - 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 connect 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 up DCOs on colorectal cancer to ascertain a date of diagnosis. Case notes 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. Four hundred and sixty five sets of case notes were retrieved. Twelve of the cases were excluded because of missing dates of diagnosis or death. The overall retrieval rate on DCO registrations was 58% and for case notes registrations 72.3%.

Cumulative rates of five year survival rates in relation to district health authority of residence were calculated first for cases registered by case note only and then for all cases including those 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 80.0% 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 the DCO registration as 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

J BASSETT, B CHIPPERFIELD, M CHOUILLER (Camden and Islington Health Authority, London; Thames Cancer Registry, Sutton, London)

Objectives - To help examine the process of cancer care in a health region and to see whether previously demonstrated variations from 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 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 percent 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 auxiliary sampling or clearance as part of their initial treatment. Although the numbers were small (a maximum of 27 in any one district) there were wide variations in management by district. 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 surgery in some districts (74%, 20/27), whereas in others this was the exception (13%, 2/15). These and other data from the study were used as part of the 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 1980s, although some practice has changed with time. Using a large population based sampling frame has stimulated the formation of regional standards which will involve clinicians, and can be audited.

Psychosocial factors influence the decision to stop smoking after myocardial infarction

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

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.

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 stopping smoking. Of the clinical variables, a diagnosis on discharge of definite myocardial infarction, and having suffered complications in hospital, were both associated with smoking cessation.

Conclusions — 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. In this way psychosocial factors may influence prognosis. Health professionals should give particular attention to survivors with no spouse or those who are especially "stressed" because such people are likely to find it harder to stop smoking.

Randomised trial of practice nurse dietary advice in primary care

P RODERICK, V RUDDOCK, P HUNT, G MILLER (MRC Epidemiology and Medical Care Unit, Medical College of St Bartholomew's Hospital, London; MRC Primary Health Care Unit, Churchill Hospital, Oxford)

Background — The importance of dietary factors in the aetiology of major adult chronic disease is well recognised. Primary prevention of these diseases has included the provision of dietary advice to the general population as part of the recent expansion of health promotion within primary care. This has mostly been undertaken by practice nurses. Recent reviews have questioned the effectiveness of this policy. This paper presents data on a study of dietary advice in the primary care setting.

Design — Eight general practices in England and Wales were grouped in pairs by geographical area and randomised to "dietary intervention" or "usual care". Subjects were men and women aged 35-59 years recruited opportunistically by their GPs to attend a health check.

Measures — Baseline health survey including food frequency questionnaire (MRC Cardiff) and serum cholesterol, body mass index, blood pressure and fibrinogen measurements. Follow up measures at one year.

Interventions — The "usual care" group was given standard health education leaflets at baseline. GPs were informed of serum cholesterol results. The "dietary intervention" group was given structured advice by practice nurses incorporating negotiated changes and action plans, with repeat visit for all and up to two further visits for those with hypercholesterolaemia, or multiple risk factors.

Results — A total of 969 subjects were recruited, 477 (49%) in dietary intervention and 492 (51%) in usual care.

The mean age of the total group was 47.3 years, with 49% men, and there were no significant differences between the two study arms. The paper will present data on the main outcomes at annual follow up which will be comparisons of changes in the "dietary intervention" and "usual care" practices in (1) serum cholesterol; (2) Body mass index; (3) Dietary intakes, for example the % energy as total fat, % energy as saturated fat, fibre intake, frequency of fresh fruit consumption; (4) Smoking prevalence, exercise frequency, and mean systolic and diastolic blood pressure. The implications for dietary advice in primary care will be discussed.

SEX EDUCATION

Sexual health education for teenagers in Grampian, Scotland

VAL WAREHAM, MARGARET MURISON, GRAHAME CRONKSHAW, PETER GILES, MARY SEDGWICK, 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 unwanted 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 — Non-randomised controlled pragmatic approach. Each selected school was assigned to one of the two 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 semistructured interviews conducted with selected pupils and
GEORGE DAVEY SMITH, CAROLE HART, DAVID HOLZ, CHARLES GULLIS, GRAHAM WATT, VICTOR HAWTHORNE (Department of Public Health, University of Glasgow)

Background and objective – In the UK, studies of socioeconomic differentials in mortality have generally relied upon occupation, social 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, social class can change throughout 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.


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 education 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 associations with social class and education. In all cases, men in manual social classes who terminated full time education at an early age had higher mortality rates. Within education strata, graded associations between social class and all cause mortality are seen, whereas within social class groups no differences exist in 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.


A STAINES, R A CARTWRIGHT (Leukemia 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 Regional Health Authority area 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 basic 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 local 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 scores, and a combined deprivation score for deprived and non-deprived areas (UDA-P) 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 deprivation score was 1.076 (95% CI 1.067, 1.088) in 1981–83, but had increased to 1.100 (95% CI 1.090, 1.110) 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 FEENEY, F NORTH, J HEAD, R CANNER, A MACHETA, MG MARMOT (Department of Epidemiology and Public Health, University College London Medical School)

Objectives – Large socioeconomic differences exist in disease and mortality. This paper describes the distribution of specific medical 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 5620 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 disorders accounting for a further 20–30% of absences. There was an inverse association with employment grade: the lower the grade the higher the rate of absence. For short spells (< 7 days), there was also a noticeableness for gastrointestinal, headache and migraine, neurosis ill-defined, musculoskeletal, injury, and digestive disorders, with rates found 16 times higher in clerical/office support grade. For long spells (> 7 days) there was a similar grade gradient, with rates four to eight times higher.
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 in 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 to the delivery and organization of care. It will highlight key issues and problems 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 for health services research in primary care and for research into the effectiveness of dissemination strategies in producing research based improvement in primary care.

How can we ensure that the research agenda reflects the perceived needs of patients, health care professionals and managers, as well as addressing fundamental long-term issues of 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 distribution 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 and mortality in primary care level, and for other health care issues.

The cost of maintaining and updating the database, currently held at the Office of Population Censuses and Surveys, is being financed by the Health and Social Services of Health until 31.12.94, while arrangements are considered for its long term operational and financial future. The long term arrangements will be the subject of an open debate over the next six months and will begin 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 present 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 computerised, there is an opportunity to obtain directly in machine readable 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 usable for formal drug safety research, the following is required: (1) All practices which form the research resource must own the relevant data in a standard manner. (2) The information must be sent (anonymised) to a research centre. (3) The files from each participating practice must be merged into a single file. (4) The files must be reorganised to give access suitable for research activities. (5) When this has been accomplished, it is next essential that the critical data information be evaluated for quality and completeness.

(6) Anonymised clinical paper records must be available to determine the relevant history and findings which confirm the clinical diagnosis as well as to obtain additional information on relevant risk factors.

(7) A trained, experienced research staff must be present to design and implement particular research projects.

All of the requirements noted above have been met in relation to the VAMP Research Database, and a large output of research meetings. The standards and principles standards has already been accomplished.
JOHN HEADY

Factors their a working system this.

Design – A graphical presentation system was designed, modelled on the NHS Management Executive’s Health Service Indicator Graphical Presentation System. Routinely collected and centrally held data were used and analysed for 105 individual practices in the Kensington & Chelsea and Westminster District Health Authority. The data included items of service for various activities (such as health promotion, cytology screening, immunisation and preschool boosters, family planning, night visits, etc.) and patient list information (turnover, deprivation, temporary residents, etc.). A system of “box plots” was used to show a practice’s position in relation to all other practices in the authority area, giving each individual practice’s value, the lowest value in the area and indicating the mid-80 centile range to identify “outliers”. Three years of data were analysed and represented for each practice to show the trend. A mode was calculated for each item to provide practices within a given locality area a relational activity comparison with neighbouring practices.

A computer system was designed to automate the generation of the data and box plots. Each practice was sent the series of box plots of their activity and an overall summary of all activity showing frequency distributions for each item, total area and locality mean, and a commentary which included information on national and regional overall activity. GP’s were encouraged to comment on this method of activity analysis.

Discussion – For Kensington & Chelsea and Westminster GPs, this was the first time that routine data had been analysed and presented to them to give an indication of practice performance and to show variance between the practice’s populations. Generally, this graphical presentation system was well received, but it was noted that most positive comments were from practices which were “high” performers. Most positive comments were given when practices were visited by Family Health Services Authority (FHSAs) staff and the feedback box plot form was interpreted with them. Many comments came from practices which found discrepancies between the data presented and those held at the surgery. This enabled the FHSAs to check for errors and to correct any faults in the system. The medical advisor was able to identify patterns and discuss with them any factors which affected performance and any ways of improving this. The main advantage of this system is that practices are not working in isolation and can use data as a benchmark to evaluate change and thereby improve their performance.

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

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.
4. Exploration of practice held information: primary care records, facilitated by GPASS computer software.

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

Conclusions – A mixture of qualitative and quantitative methods may best identify and describe needs in a neighborhood. 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 WATERSTON² (¹Department of Community Child Health, University of Newcastle upon Tyne; ²Newcastle 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, requires little equipment or time, and 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 66% 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. However, the yield of cases identified by the programme over a two year period was 230 children, 63% of the expected number, suggesting 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, adjustments 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.

OED COMIUNITY HEALTH: first published as 10.1136/jech.48.6.1 on 1 December 1994. Downloaded from http://jech.bmj.com/ on September 16, 2023 by guest. Protected by copyright.
instrument is a self-administered general health questionnaire, which generates a profile of current eight multi-item dimensions of health. It is being increasingly used in clinical trials and health services research. SF-36 has been found to perform better than many other general measures, independently developed by economists, in terms of conventional psychometric criteria of reliability and validity.

SF-36 is not suitable for use in economic evaluations, firstly because its scoring algorithm is based on people’s utilities (utility).

Secondly, it does not provide a method for combining the eight dimensions and survival into a single measure. This is not only a problem for economists. The scores as they stand do not have any intuitive meaning. For example, a 10 point change in one dimension is not comparable with another dimension.

This study aimed to examine whether it was possible to derive a single index measure from the SF-36 which could be used in economic evaluations, while retaining its psychometric advantages over existing economic measures.

A multidisciplinary research team has derived a six-dimensional matrix of uniquely defined health states from the SF-36. A sample of the health states generated by the matrix, obtained from respondents, health professionals, and administrators using rating scale and standard gamble questions. A model has been derived from these health state values in order to estimate values for all possible six-dimensional states.

The results have been tested from both economic and psychometric perspectives. Single states valuations and the extrapolated valuations have been tested in terms of their consistency, and differences between respondents have been explored. The psychometric properties of test re-test reliability, construct validity, and sensitivity to change of the new single index measure will be tested and compared with the original SF-36 and Euroqol (a current economic measure) using existing data sets.

This study provided an important opportunity to examine whether it is possible to combine features of the two perspectives of economics and psychometrics in order to improve the overall methodology of health services research.

Epidemiologically-led health care needs assessment for rheumatic disease

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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 orthopaedic services are to be maintained it is imperative that purchasers be well informed, but time and money for this process is limited. To respond to this problem a multi-stage probability sample approach, using postal questionnaires, has been developed.

Method—A first-stage questionnaire designed to assess arthritic hip and knee problems was sent to a stratified probability sample of 18,827 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 questionnaire. 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 osteoarthritis: 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 hip, and 54/1000 (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 for hip arthroplasty, and 20/1000 for knee arthroplasty, including 4/1000 with very severe disability. Although most of those with severe knee problems reported having seen their GP during the last year because of this, typically fewer than half had seen a specialist. There were currently under the care of a hospital doctor because of their joints, and only one in 20 was currently on the waiting list for surgery.

Conclusion—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 method 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 entering the sample. 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. Although not all would elect for surgery, meeting these levels of need could reduce the future burden of care, both in the health and social care sectors.

Recalled versus contemporary patient reports of preoperative symptoms in men undergoing transurethral prostatectomy for benign disease

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Objective—To investigate the reliability of patients’ recalled pre-intervention symptom status and the impact of those symptoms compared with contemporary symptom reports, and to test the stability of recalled views.

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

Setting—(A) Tuxton diagnostic urological unit in the Chesterfield and North Derbyshire Royal Hospital NHS Trust. (B) Sample from the National Prostate Cancer Audit.

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

Main outcomes—Measures to distinguish for the American Urological Association (AUA) symptom index, impact index (a score of symptom impact), and 14 constituent questions; association assessed for the 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, although higher for the symptom index (r=0.6, K (w)=0.3) and impact index (r=0.6, K (w)=0.3). 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 symptoms were less severe. A two week test re-test of recalled health status showed good to excellent stability.

Conclusions—Rcollected reports of preoperative symptom severity and impact differ from contemporary reports, but remain comparable several months before surgery. It is not clear which of the two reports are more appropriate for outcome assessment. When reporting outcomes it is important that the timing of obtaining views on pre-intervention health is clearly stated.

CHALLENGES FOR THE NHS (II)

What has become of the invisible priorities?

ALLISON 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 services".

This Department of Health press release in October 1993 from Brian Mawhinney (minister for health) flies in the face of economic reality. The report cited by the press release showed that acute service spending is still increasing relative to community services and provision for priority groups such as 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 initiatives will obscure the ability to track community care spending.

The Community Care Act, 1993 has consolidated the enormous shift of provision for the priority groups over the past decade. Since 1988, there has been a 50% reduction in NHS residential care provision for the elderly, the mentally ill, and people with learning difficulties. But contrary to popular belief, local authority residential and social services provision such as home care has also decreased by around 30%. The gap has been only partially filled by the huge expansion in private sector residential and nursing home provision, made possible by changes in the early 1980s to the supplementary benefit system.

In addition to transferring community care provision to the local authority the Community Care Act has closed the so-called loophole in income support benefits.
 EVALUATION

Doing it the American way: are American methods for assessing acute care appropriate?
A INGLES, J COAST, S GRAY, R MORGAN, S KAMMERLING1 (Health Care Evaluation Unit, University of Bristol, 1Research and Development Directorate, South Western Regional Health Authority, 2Department 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 was not previously used or validated in the UK.

Interobserver reliability for a sample of admissions and days was evaluated by comparing assessment made by the usual reviewer with those made by 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.

Results – 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 protocol (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, between hospital clinicians and the ISD-A was measured. This panel did not assume that alternatives other than those currently available in the NHS would be available. All forms of agreement in these tests were measured using overall agreement and Cohen’s kappa statistic.

Conclusions – Both the interobserver and intraobserver reliability of the instrument were high. The ISD-A produced highly comparable results to the AEP. Furthermore, 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.

Background – Oophorectomy – removal of the ovaries is currently used by 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 are 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 organs 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 concern about the removal 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.

Results – Thames health regions were used to calculate age adjusted oophorectomy rates during hysterectomy. Cases with any mention of ovarian or uterine malignancy were excluded.

Discussion – Life years saved per woman undergoing prophylactic oophorectomy will be presented and the discussion will cover some of the reasons for and against undertaking surgery in this context. We discuss the extent to which gynaecologists’ recommendations for undertaking oophorectomy during hysterectomy are informed by epidemiological evidence of benefit to the population.

1 North West Thames Regional Health Authority.

Cholesterol lowering therapy: corroboration of epidemiological evidence on total and cause specific mortality

R R WEST (University of Wales College of Medicine)

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 provide the background for the population approach to heart disease prevention by cholesterol reduction and to many large randomised controlled trials. 340,000 patients, 10,000 deaths, 12 years.

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 = 0.88 (0.82, 0.95) are balanced by increases in other cause deaths; RR = 1.09 (0.99, 1.20). Several overview studies have been published, while the data from individual trials. Overviews depend somewhat on inclusion criteria and relative weighting, all published overviews to date concur.

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, >550,000 individuals) that has preceded this study.

Effectiveness of (population based) preventative medicine programmes should be judged not on an ability to alter cause but on ability to reduce total mortality. Both epidemiological and experimental 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

FEV, an important but neglected risk factor for coronary heart disease?

G C M WATT, C L HART, D J HOLE, G DAVEY SMITH, C R GILLIE, 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 cause and 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 7058 men and 8353 women aged 45-64 years at baseline in 1972-76, followed for an average of 17.5 years. Altogether 3724 men and 4678 women had repeated measurements after five years.

Main outcome measure - Time to and cause of death in relation to quintile of FEV, (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 FEV were found for all cause mortality (p<0.001), coronary heart disease (CHD) (p<0.001), lung cancer (p<0.001), stroke (p<0.01), respiratory infection (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 FEV, amongst subjects who showed a fall in FEV at initial screening. In addition, all cause and respiratory mortality risk were associated with the FEV, in individuals who were free of respiratory signs and symptoms at initial screening. The FEV, was also a significant indicator of mortality risk among subjects who were lifelong non-smokers. Similar relationships existed to those seen for the whole population, although, in general, the magnitude of the risks were slightly lower. Analysis of change in FEV, between baseline and repeat examinations amplifies these findings. For CHD, the population attributable risk associated with a low FEV, is ranked below that of smoking and blood pressure and above that of plasma cholesterol. Low FEV, smoking prevalence, and social class are the principal risk factors, with the large difference in CHD mortality between the Paisley/Renfrew and Whitehall studies.

Conclusions - A low FEV, is an important independent risk factor. Although a fall in FEV is 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

P A MAJEDER, 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 controversial episodes of deaths from IHD (as a proxy measure of the utilisation of hospital care), and the percentage of hospitalisations and reperfusion episodes which further investigation (angioplasty or catheterisation or reperfusion treatment (coronary artery bypass graft or angioplasty) were carried out.

Results - The ratio of episodes of deaths 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 1.46, 95% CI 1.20, 1.77). The ratio of episodes of 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 MCCOOGGAN (Public Health Research Unit, University of Glasgow)

Objective - To determine whether the increase in rates of hospital discharge for ischaemic heart disease (IHD), sets aside a decline in mortality, is a result of improved survival and a change in pattern of patient 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 main diagnosis of IHD (ICD 410-414). The data are from the linked SMRI 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 have 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 about 70% of admissions admitted this year had no previous admissions. 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 a diagnosis of angina. The decline in the proportion of "new" cases suggests that this increase is likely to be in the rates of investigation and reperfusion treatment, 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, London)

Background - Waiting lists for cardiac surgery are already long and demand for this 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 waiting time was compared with the clinician's own method of prioritising patients, and a method that used a medically 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 scale would ensure a more appropriate use of resources. It also
Selection for coronary artery bypass graft are smokers a disadvantaged group?

R W MORRIS, A K McCALLUM, M WALKER, P H WHINCUP, S EBBRAHIM (Department of Public Health, Royal Free Hospital School of Medicine, London)

Objective – 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 11-3 years. Initial screening involved completion of a detailed questionnaire, physical measurements, and blood sampling for biochemical and haematological tests. The study was 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 (CHD) death rates 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. Cox’s proportional hazards model was used to assess the effects of various factors including their smoking status; social class; geography; parental 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 (1-16%) 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; pre-existing, subsequent onset, and family history of ischaemic heart disease; blood pressure; and serum cholesterol.

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 cardiologists to offer surgical treatment to smokers.

Quality of life in treated hypertensives – a community based study

C BATTERSBY, H K HARTLEY, A E FLETCHER, H J L MARKOWE, W STYLES, H SAPPER, C J BULPETT (King’s College Hospital, London; The Grove Health Centre, London, London; Health Education Centre, Cambridge; London; Health Education Centre, London; University of Liverpool; Royal Free Hospital, London; London; London; London)

Objective – To determine the variability of reported QoL in hypertensive patients treated with antihypertensive drugs.

Design, setting and subjects – A prospective study of 960 hypertensive patients (3161 men; 560 women; median age 56 years; median duration of hypertension 8 years) treated with antihypertensive drugs in general practices in the UK.

Conclusions – A significant variability was observed in the measured QoL in hypertensive patients. A full scale assessment of treatment efficacy should include QoL measurements.
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 underlining disease.

Results – The following will be presented: (1) For England, crude, age-sex specific, ethnic specific, and age-sex ethnic specific acceptance rates (2) for regional and district health authorities, crude, age-sex standardised and age-sex ethnic standardised 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.

CHILD HEALTH

Dummies and the health of Hertfordshire infants, 1911–30

C. GALE, C. MARTYR (MRC Environmental Epidemiology Unit, Southampton General Hospital)

Many medical and child care experts in the early years 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 deleterious to their characters.

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

L. K. SMITH, J. R. THOMPSON, G. WOODRUFF (Department of Ophthalmology, University of Leicester)

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. Anisometropia 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 anisometropic amblyopia on the relationship between the age of presentation and social deprivation.

Design – Two cohorts of children treated for anisometropic amblyopia before and after the introduction of vision screening services in the catchment area of one orthoptic department. Subjects – Forty one patients treated for anisometropic amblyopia at the Leicester Royal Infirmary in 1993, and 68 who first attended in 1992.

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 presenting earlier. 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 anisometropic 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.

Long term impact on height: the role of childhood psychosocial illness, chronic illness, and asthma

CHRIS POWER, ORLY MANOR ("Division of Pub- lic Health, Institute of Child Health, London; School of Public Health and Community Medicine, Hebrew University, Jerusalem)

Objective – To determine whether common conditions in early childhood, such as asthma and psychosocial illness (mainly enuresis), affect height during childhood and subsequently in adulthood.

Design – Longitudinal follow up of subjects in the 1958 birth cohort study. Data from the birth survey and ages 7, 11, 16, and 23 are used.

Setting – Great Britain.

Subjects – Altogether 125373 subjects remaining in the study at age 23 years, representing 76% of the target population, cohort members still alive and resident in Britain.

Results – The heights of children with allergic, acute, or psychosomatic illness, or asthma/ wheezy bronchitis by age 7 years did not differ significantly from those who were free of these illnesses. When asthma was graded by severity, the severe group tended to be shorter at ages 16 and 23, but this was not statistically significant. Although children with a chronic illness by age 7 were, on average, almost 0.5 cm shorter than children without these illnesses, this was reduced by half and was not significant after adjusting for maternal height, birthweight, parity, and social class at birth. However, a marked and longlasting effect was found for children with psychosocial illness, who at age 7 were significantly shorter by 0.77 cm. While the height deficit attenuated with age and after adjusting for other factors, significant height effects were found to age 23 for enuretic children within the psychosocial illness group.

Conclusions – Common childhood illnesses do not seem to affect height, either in the short or long term, although exceptions include chronic illness and enuresis. The value of height as an indicator of child health status in an industrialised country such as Britain requires further reassessment.

INFECTIOUS DISEASE

Injecting drug use and amateur tattooing are risk factors for hepatitis C infection in UK blood donors: relevance for health promotion advice on the spread of blood borne viruses

K. R. NEAL, D. A. JONES, D. KILLEY, J. JAMES (ON BEHALF OF THE TREN T HEPATITIS C STUDY GROUP, Department of Public Health Medicine and Epidemiology, University of Nottingham; Trent Region Blood Transfusion Service)

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 detected between September 1991 and December 1993, 114 of whom were interviewed. Altogether 150 other donors, matched for blood group, age and blood donors, 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 20,500, p<10⁻⁴). Analyses of the remaining cases and controls showed independent associations for HCV with a history of amature ear, self tattooing (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 a 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 tattooing, 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 among blood donors, a group who are less likely to have
Mortality league tables: informing purchasing or political dogma?

MARTIN MCKEE, DUNCAN HUNTER (Health Services Research Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine)

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 resources. 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.

Objectives – To examine methodological issues related to the publication of mortality rates league tables, with particular reference to severity adjustment, sample size, and the use of finished consultant episode data.

Methods – A retrospective analysis of inpatient hospital records.


Subjects – All hospitalisations with a principal diagnosis of aortic aneurysm, carcinoma of colon, peptic ulcer disease, cholecystectomy, fracture of femur, ischaemic heart disease, and hepatic ulcer.

Main outcome measures – Crude in-hospital mortality rates, and rates adjusted by disease severity and calculated on the basis of both persons and episodes.
**Results** – Rankings of hospitals by death rate are sensitive to severity adjustment and the use of precision rather than episode data. The numbers of deaths from specific conditions are often small and the corresponding confidence intervals are wide. There are important questions about whether any cases mix system based on routine data can adjust adequately for severity for this purpose.

**Conclusion** – There are major methodological problems associated with the publication of hospital death rates. Some, but not all, of these are susceptible to methodological improvement. The major barrier to using them in a meaningful way is the scope for manipulation of data that is an inevitable consequence of the clinical variation and uncertainty surrounding the process of diagnosis and definition of an episode of care. Any decision to publish them will be on political rather than scientific grounds.

**Poster presentations**

**Methodology**

Leicester mortality list – a population-based mortality information system

J D Langley,\(^1\) D M Jackson,\(^2\) J L Botha\(^1\) (\(^1\)Department of Epidemiology and Public Health, Faculty of Medicine, University of Leicester; \(^2\)Department of Information Management and Technology, Leicester Health, Leicester)

The Leicester Mortality List (LML) is a computerised register of the deaths of residents of the county of Leicester, which is the catchment area of Leicester Health Authority. LML has been in operation since January 1988, and was developed by staff of the Department of Epidemiology and Public Health in association with Leicester Health Authority. The Leicester Mortality List (i) is compiled from notifications of deaths sent by registrars of deaths to the public health officer; (ii) is intended to be a complete record of all deaths of Leicester health authority residents since January 1988; (iii) contains the deceased’s name, sex, date of birth, death, postcode, and causes of death (as text); and (iv) includes deaths of Leicester Health Authority residents outside Leicester, whether in the UK or abroad.

In addition, the full LML data set includes: full address of deceased, cancer and tuberculosis flags, ICD9 coding of all child deaths and coding of place of death. From September 1993, LML also captures occupation of deceased, informant’s name, address and relationship to deceased, and deceased’s maiden name or alias. The median time elapsed between death and entry on LML is 65 days.

LML is a valuable source of linkable mortality information, and has been used successfully to help maintain local disease registers such as the Leicester Diabetes Register and the Leicester Learning Disabilities Register. LML contains the necessary keys to link to the Office of Population Censuses and Surveys (OPCS) mortality data for Leicester residents.

Comparison of LML (registrations in 1991) with the corresponding OPCS data shows (a) LML contains 98% of the death records found on OPCS data (LML:8776, OPCS: 8942), (b) 96% of the LML records are directly linkable to OPCS death records using year of death, month of registration, district of registration, registrar, and register entry number. Of the remaining 4%, approximately 2% are linkable using record linkage techniques. The resulting linked data set (OPCS + LML) is estimated to be complete for at least 97% of the Leicester population and contains named data, with ICD9 coding of underlying cause of death plus full text of all causes of death, coding of occupation and coding of place of death.

Identifying a representative sample of UK Chinese for epidemiological research

J Harland,\(^1\) M White,\(^1\) R S Bhopus,\(^2\) S Raybould,\(^1\) K G M Albert,\(^1\) B Harrington\(^3\) (\(^1\)Department of Medicine, \(^2\)Department of Epidemiology and Public Health, \^3Centre for Urban and Regional Development Studies, University of Newcastle upon Tyne)

Objectives – (i) To identify Chinese adults in Newcastle upon Tyne, for an epidemiological survey, (ii) to compare the characteristics of groups identified using different sampling methods, and (iii) 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 – Altogether 217 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. Fifty nine per cent of these 367 attended for screening.

There was no difference 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 England. 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. Name analysis of the FHSA register, despite its inaccuracy, provides a feasible, practical method for identifying a Chinese sample for epidemiological research.

A locality based general practice network for case-control studies

Roger Shinton (Department of Geriatric Medicine, University of Birmingham)

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 minimise these problems in a study on lifestyle and risk factors for stroke.

Methods – Expected incidence rates were used to estimate the total population required over the 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 age/sex registers in the practices. If a selected control was found to have moved outside the area or died, a replacement was recruited. Patients with a new, first time stroke and controls were offered an assessment involving a questionnaire and simple anthropometric measurements. General practice and local hospital notes were also examined for details of relevant risk factors.

Results – All the practices approached agreed to participate. Some practices used a weekly computer search to identify incident cases. Most did not. A total of 253 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 were made in general practice or local hospital notes; cigarette smoking – 116 (59%), alcohol consumption – 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 more variables than a 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

C J Hardy,\(^1\) K R Muir,\(^1\) R J Powell\(^1\) (\(^1\)Department of Public Health Medicine and Epidemiology, and \(^1\)Department of Immunology, Queen’s Medical Centre, Nottingham)
The aim of a sample based survey is to gather information about a population by collecting information on only a part or "sample" of that population. Frequently, the responses received are unrepresentative because the completed and returned questionnaires may not be representative of the target population due to poor response rates from selected subgroups (Pertroth, 1991). Methods to maximise response rates from survey participants are important to reduce possible response rate bias. The aim of this particular study was to investigate three factors of questionnaire design in relation to the rate of return and the total number of questionnaires returned.

Results: A coding letter accompanying the survey reported the completion time to be either 20 or 30 minutes. Baker (1985) found that a longer questionnaire significantly increased the time respondents took to return the survey. An aim was to investigate the effects of perceived length of completion time upon response rate. Factor 1: Related to the colour of paper that the survey was printed on, either yellow or white. Seaman and Verhonick (1982) found that coloured paper elicited the most survey returns. Factor 2: The survey "attractiveness" was manipulated, so that the survey had either written questions only or text with graphics appropriate to the survey questions. The use of graphics to alter response rates has been investigated, with contradictory findings. Seiny (1944) and Robinson (1952) advocate that illustrations increase response rates, whereas Erdos (1957) found that illustrations seldom help returns. A total of 750 of 1000 (75%) questionnaires were returned after one postal reminder, over 13 weeks (mode = seven postal days). The total number of questionnaires returned did not change with any of the design variations. However, on each of the first nine days, questionnaires returned with graphics exceeded those with graphics. Furthermore, on each of the next seven days surveys with graphics exceeded those without. Thus, a significantly greater proportion of questionnaires with graphics were returned promptly (a priori defined as within 10 postal days) compared with questionnaires without graphics (χ² test, x² = 64.4, p<0.001).

These results suggest that use of graphics in survey design can significantly alter the rate at which postal surveys will be returned, although they did not ultimately affect the total response rate.

Simulating the demand for acute inpatient care using routine discharge data

M A DE RIDDER (Public Health Research Unit, University of Glasgow)

This paper describes a simulation model representing the demand for acute inpatient care, which forms one element of a complex, hierarchical system that constitutes the basis of a software package which provides decision-support to both purchasers and providers. The model aims to generate patient whose characteristics (diagnosis, age, sex, area of residence, hospital, previous hospital care, and seasonality) accurately reflect distributions in the population of the whole. Although in the general nature of the model enables an application to any area in Scotland, it is being developed in close collaboration with the Lanarkshire Health Board and their hospitals.

Discharge summaries from Scottish national routine data (SMRI) are used to "count" the numbers of occurrence of patient characteristics. Because of the need to deal with small numbers and small populations, this count is performed at four different geographical levels: (a) postcode sectors, (b) postcode sectors with similar socioeconomic characteristics within Lanarkshire, (c) postcode sectors with similar socioeconomic characteristics within Scotland, and (d) Scotland as a whole. For each of the four levels, percentage of occurrence rates are derived from the count and the appropriate population. The geographical basis for the rate that is used in the simulation is determined by the significance of the count in respect of both the actual number of occurrences and the number of residents in the area.

Simulation of the model consists of generating patients on each day of the simulation through sampling from the rates in two steps: (i) the diagnosis is determined from aggregated rates, and (ii) the patient characteristics are derived by cumulative (sub)sampling from detailed rates. The simulation output consists primarily of data records that correspond to the information in the SMRI data fields that conform to patient characteristics. Additionally, other useful information can be derived, such as small area and age specific diagnostic rates.

Analysis of 43 indicators used in the World Health Organisation European Cities project

Y G DOYLE, P C CYTER (South East Institute of Public Health, Tunbridge Wells)

Research objectives – To validate the 43 indicators used in the WHO Healthy Cities Project as part of an analysis of questionnaires from cities in the project undertaken by the South East Institute of Public Health (SEIHP) on behalf of WHO.

Design – Indicators covered the areas of health, health services, environment, and social trends within the cities. Indicators were judged against an index of criteria comprising measures of face validity, empirical validity, and relevance of the indicators to the aims of the project. Each criterion was given a score. A multidisciplinary team from SEIHP judged the indicators in a unidisciplinary and a multidisciplinary forum, and indicators were scored and qualified.

Main outcome measure – A valuation of the indicator as a tool to (a) measure health within the city, (b) provide a baseline measurement from which future trends could be evaluated, and (c) provide comparable information between cities across Europe, which was reproducible should the indicator be used in future.

Results – The most useful indicators related to health measurements, although there were few of these. Other indicators which satisfied most of the criteria were those from the environmental and social aspects which had clear definitions and standard measurements. Certain low scoring indicators were potentially very useful in providing a wider picture of health, but were difficult to interpret in the light of differing cultural and administrative arrangements in the cities. Qualitative information provided was useful and revealing.

Conclusions - This project is unique in that coordinators from one project across western and eastern Europe have provided information about health for analysis by an international agency. There remain major challenges in providing a wider picture of health using indicators, and careful thought should be afforded to the definitions used in health services for comparative purposes.
Who should assess surgical outcome: surgeons, patients, or general practitioners?

S J ROSS, Z H KRUKOWSKA, A MURNO ON BEHALF OF THE SCOTIA STUDY GROUP (Health Services Research Unit and Department of Surgery, University of Aberdeen)

Introduction – The outcome after surgical operations is usually assessed by surgeons. This report compares the patient, GP, and surgeon assessment of outcome.

Design and setting – As part of a multicentre pragmatic randomised trial comparing two surgical procedures, data were collected on patient outcome. Postal questionnaires were sent to patients and GPs four months postoperatively. Surgeons were asked to complete follow-up forms at the first clinic review after hospital discharge.

Subjects – Seventy-three patients who survived for more than four months after operations for emergency, left-sided colonic malignant obstruction were included in this study: 38 had been randomised to subtotal colectomy and 35 to segmental colectomy after intraoperative irrigation.

Table 1 Outcome and postoperative level of activity

<table>
<thead>
<tr>
<th>Patient</th>
<th>GP</th>
<th>Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment of outcome of operation (%)</td>
<td>Good</td>
<td>66 (93)</td>
</tr>
<tr>
<td>Assessment of operative condition (1)</td>
<td>Excellent</td>
<td>5 (7)</td>
</tr>
<tr>
<td>Poor</td>
<td>2 (3)</td>
<td></td>
</tr>
<tr>
<td>Patient’s activities compared to before the operation (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than</td>
<td>12 (17)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Same as</td>
<td>25 (35)</td>
<td>37 (54)</td>
</tr>
<tr>
<td>Less than</td>
<td>34 (47)</td>
<td>30 (43)</td>
</tr>
</tbody>
</table>

Table 2 Patient bowel movements (Median daily frequency (IQ range))

<table>
<thead>
<tr>
<th>Patient</th>
<th>GP</th>
<th>Surgeon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subtotal colectomy</td>
<td>2.5 (1-8)</td>
<td>2.6 (1-2)</td>
</tr>
<tr>
<td>Segmental colectomy</td>
<td>1.5 (1-3)</td>
<td>1 (2-1)</td>
</tr>
<tr>
<td>Mann-Whitney Z</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p = 0.004</td>
<td>p = 0.03</td>
<td></td>
</tr>
</tbody>
</table>

Main results – Outcome and postoperative level of activity were similar for the two operations, although differences were noted among patients, GPs, and surgeons (table 1). There were differences between patients, GP, and surgeon reports of patient bowel frequency (table 2). There were also significant differences between the operations for each group of respondents.

Conclusions – The results of this study have shown that although patients, GPs, and surgeons gave different responses to comparable questions, their replies led to similar conclusions: where there was a significant difference between outcomes for the two operations, this was demonstrated by the responses from each category of respondent. Surgeons have a more critical view of outcome than patients and GPs. In a study of this kind, where the outcome has implications for patients, GPs, and surgeons, data should be collected from each of these sources.
Introduction – A series of needs assessment interviews with teenage women attending Aberdeens Royal Hospitals Trust for termination of pregnancy indicated substantial deficiencies in current service provision. In particular, the women felt they were not provided with enough information and had inadequate time at the clinic, and in some cases felt they were harshly treated by clinic staff. They also felt that confidentiality was a problem. Subsequently, a dedicated clinic service has been introduced for teenagers who request termination of pregnancy.

Objectives – To evaluate an enhanced termination of pregnancy service dedicated to meet the needs and concerns of teenagers. The innovation consists of a specially designed information booklet, evening appointments of 30 minutes’ duration, immediate ultrasound scanning if required, and a small team of doctors and nurses conducting the service.

Design – Interrupted time series design. One hundred teenagers consecutively attending the mainstream clinic received self completion questionnaires and a short semi-structured interview in hospital. The enhanced service was then introduced and 100 teenagers consecutively attending this clinic were similarly surveyed.

Setting – Aberdeen

Participants – A total of 200 teenagers attending for termination of pregnancy.

Main outcome measures – Satisfaction with staff attitudes, time spent in clinics, absence from school/work, costs to the patient, satisfaction with information provision.

Conclusions – Findings will be presented upon completion of the analysis. The implications of an enhanced termination of pregnancy service for patients, hospital staff, and GPs will be discussed.

Psychosocial stress and smoking in pregnancy: obstetric complications and birth outcomes

C. DOUGLAS, E. S. MASON (Department of Epidemiology and Public Health, University of Leicester)

Objectives – A review of studies measuring the effects of smoking during pregnancy was carried out to highlight areas of concern upon which further research should be focussed.

Design – A search of the published reports indicated 25 American and European studies investigating smoking and stress in pregnancy, published in the period 1972-93. Several scales measuring psychosocial stress through reactions to major life events were assessed, and a wide range of negative outcomes possibly related to stress during pregnancy were identified – including “complications and abnormalities” in pregnancy and childbirth, pre-term, low birth weight, and small for gestational age.

Results – Overall results of the review showed consistent findings that stressful events and anxiety during pregnancy could lead to a number of complications and abnormalities, including prematurity and low birthweight. Key areas identified included the concept of “preparedness for stress,” which was seen to lessen the psychological impact of stressful life events, and the idea that social support could have a “stress-buffering” effect. Maternal weight emerged as a key factor, and thin women (with a body mass index (BMI) of 22 or less) were identified as being at increased risk from smoking and stress, whilst the two factors together showed a synergistic interaction. Women with a BMI of 22 or more were less at risk despite smoking.

Discussion – Overall, the results show that smoking is by far the greatest predictor of low birth weight outcomes, with stress increasing the risk still further. As the scales assessed relied on the type and number of major life events that occurred during pregnancy, there were no allowances for the complexities of individual perceptions of these events, the difficulty of measurement and the need for a standardised methodology. The inter-relationship between smoking and stress during pregnancy should be examined further, considering the buffering effects of increased social support on the stress of major life events, the possible increase of distress caused by stopping smoking during pregnancy, and the role stress plays in increasing risk taking behaviour in pregnant women.

Who uses neonatal services and what becomes of them?

LISA HILDER, STEPHEN KEMPLEY (Department of Epidemiology and Medical Statistics, The London Hospital Medical College)

Background – The recent review of specialist neonatal services concluded that information available about neonatal admissions was often limited and incomplete, reducing the scope for proper contracting. Particular difficulties were noted in marrying information about inpatient and community services.

Aim – The study aimed to assist local clinicians with information for audit of neonatal services; in particular, who uses neonatal inpatient services and whether follow up data could be obtained from community child health system information.

Methods – Records for all events related to neonatal admission to hospital and details of all births between 1987 and June 1992 were obtained from three urban hospitals. Birth details for infants transferred for inpatient care were obtained from the obstetric data base, while birth details for infants born elsewhere were obtained from the neonatal ward admission register. Records relating to infants born in or to residents of the local districts were obtained from the Regional Interactive Child Health System (RICHS). A file of chronological events for each infant was constructed using all the event records provided. Admission records were linked to obstetric records using hospital record numbers. Records not matched were checked against ward admission registers and additional details recorded for infants transferred to hospitals in another hospital. Records for infants born in the hospital have been linked with community child health records using date of birth, time of birth, and birthweight to match records.

Results – The results presented relate to the infants born in one hospital from 1987-91. For 763 of the 906 neonatal admissions, a matching record of birth in the hospital was found. Of the remaining 143 admissions, 131 neonates were identified as having been born in another hospital, and in one case at home.

Trends in rates of admission were studied for women with and without a history of smoking during pregnancy. Women who smoked during pregnancy had higher birthweights and gestations at birth and birthweight. In this hospital, 95% of liveborn infants weighing

PREGNANCY AND CHILD HEALTH

Abortion in Liverpool: a review of the last 10 years

M J PLATT, J M CARTER (Liverpool Health Authority)

Objective – To review data on abortion in Liverpool to see if the recent contract changes in respect of abortion services are reflected in routinely collected data.

Design – Analysis of routinely collected data pertaining to fertility 1983-92.

Setting – Liverpool District Health Authority.

Main outcome measures – Total and age specific abortion rates, and numbers of abortions in relation to marital status, parity, and gestational age.

Results – Liverpool’s abortion and conception rates are higher than the national average, particularly in women aged 20-24 years of age. Since 1990, the proportion of abortions performed before the ninth week of pregnancy has increased by 65%, and the proportion carried out in NHS premises has increased by 50% over the same period, but the overall abortion rate has fallen by 15%.

Conclusions – Changes in contracts for abortion services have brought about the expected improvement, and these improvements can be seen in the routinely collected statistics.

Termination of pregnancy service for teenagers

VAL WAREHAM,1 NEIL DRUMMOND2 (1Department of Obstetrics and Gynaecology, and 2Health Services Research Unit, University of Aberdeen)

1.25 for men and 0.93-1.13 for women in 1988-91. The SMRs for both genders living in the three wards in the centre of the city were higher than those of the other six wards for both 1983-7 and 1988-91. The SMR for men in these three central wards was more than 1.2 in 1988-91, and appreciably higher than those in the other six wards. Moreover, the SMRs for men in these wards have increased while those in other wards have tended to fall. Mortality ratios for middle aged men (aged 30-59) were noticeably higher in the three central wards (more than 1.4 in 1988-91) than in the others, which suggests that differences in SMRs in relation to ward were more apparent in those age groups. Chronic liver diseases and liver cancer show the largest differences in mortality ratios by ward for both genders (more than 2 for men and 1.5 for women in the three central wards).

Discussion – One of the most crucial targets of health promotion programmes in urban areas such as the “Healthy cities project” is an elimination or, at least, reduction in health inequalities among the residents. In this study, we identified the mortality differences by ward in a large city in Japan and analysed the main contributing factors, focusing on age by gender and cause of death. In Kobe City, the ecological differences in relation to wards were identified predominantly in middle aged men when analysed by age and gender, and in chronic liver diseases and liver cancer when analysed by cause of death. For the elimination of health inequalities in urban areas, a community oriented health promotion programme should be set up to identify particular target age groups by gender and specific leading causes of death.

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less than 1500 g were admitted (28% of admissions); 21% weighing 1500–2499 g were admitted (69% of admissions); and 2% of infants weighing over 2500 g admitted account for the remaining 39%. Length of stay and highest level of care show strong inverse relationships with birth weight at gestation. While very small, very premature infants are more likely to use higher levels of care and are admitted for longer periods, infants of moderately low birthweight and prematurity account for more bed-days. At this stage 465 of the 466 records for infants born locally since 1989 have been matched with a local child health record. Matching infants transferred after birth is continuing. Fewer than 10% of infants admitted were identified as such in child health records.

**Conclusions** — Prediction of needs for neonatal services should take into account rates of admissions for infants of moderately low and normal birthweight. Information currently held in child health systems grossly underestimates the number of neonates admitted, but could be improved if hospital discharges are notified to community child health systems.

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**Evaluation of the implementation of infant feeding guidelines**

G M BLEAKNEY, S MCERALN (Department of Public Health Medicine, Eastern Health and Social Services Board, Belfast)

**Objectives** — To evaluate the impact of implementing infant feeding guidelines on the knowledge of health professionals and to assess the penetration of the guidelines.

**Design** — A postal survey of all health professionals in the Eastern Health and Social Services Board (EHSSB) who gave advice on infant feeding was undertaken before and after implementation. These surveys were undertaken in 1991 and 1993 respectively; the same questionnaire was used for both surveys but specific questions were added to elucidate the penetration of the guidelines were included in the second survey. Knowledge and attitude scales were developed for the questionnaire.

**Subjects** — A total of 1497 health professionals who included all midwives, health visitors, dietitians, clinical medical officers, general practitioners and pharmacists were surveyed.

The response rate was 57%.

**Results** — Knowledge scores were significantly greater in all the professional groups in 1993 (p<0.0001). Having read the infant feeding guidelines was an independent variable for knowledge score (eta^2=0.20, p<0.0001). Profession was the independent variable with the greatest effect on knowledge score (eta^2=0.31, p<0.0001): health visitors exhibited the highest and general practitioners the lowest mean knowledge score. Attitude scores in the 1993 survey were almost identical to those found in 1991: having read the guidelines was an independent variable for attitude score (p<0.0001), however the size of the effect was small (eta^2=0.04). The penetration of the infant feeding guidelines was good; 81% of respondents had read them.

**Conclusions** — Although the impact of the guidelines could not be elaborated in absolute terms, it was concluded that they would be useful in increasing the knowledge of health professionals on infant feeding but not in improving attitudes to breastfeeding.

**Monitoring educational ability and health in 7 year olds from different birth weight groups: a feasibility study**

A JOHNSON, F ALDERIDGE, T PETTY, A MACFARLANE (National Perinatal Epidemiology Unit, Oxford)

**Objective** — To measure the rate of learning problems and common health disorders in 7 year old children and to compare these rates across birth weight groups.

**Subjects** — Infants born in 1985 to residents of the Oxford health region area, including all children who weighed under 1500 g at birth, a sample of children from each 500 g birth weight group from 1500 g up to 4999 g, and all who weighed 5000 g or more at birth.

The children were selected from Office of Population Censuses and Surveys birth registration records.

**Methods** — Of the 1319 children in the sample, 1169 were identified as alive and living in England and Wales at the age of 7 years. On a questionnaire sent to the 1071 parents who were located, permission was sought to send postal questionnaires to the child and Guardian. The main outcomes were extra help at school, the child's ability in six areas of function at school as rated on a five point scale, the rate of chronic respiratory disease, eye defects, learning disabilities and deafness. The rates were weighted in order to generalise findings from the sample to the population.

**Results** — Of 757 questionnaires sent to teachers, 696 (91.9%) were completed and returned. The prevalence of below average function in all the areas assessed, particularly in fine motor and mathematics skills, was inversely related to birthweight. Between a third and a half of the children who weighed less than 1500 g at birth were rated below average in one or more areas but this group contributed only 10% of all children with below average function at school. Of 772 questionnaires sent to GPs, 733 (95%) were completed and returned. Similar differences were seen between birthweight groups in the rate of vision/ocular problems but not in chronic respiratory disorders and deafness.

**Conclusions** — In this feasibility study, we have used a very simple method of ascertaining the frequency of learning problems and common health disorders in 7 year old children identified through birth registration. This method needs validation, but it is possible that it could be used to monitor the demands made by successive cohorts of low birthweight babies on educational and health services.

**CANCER AETIOLOGY AND CONTROL**

**Cancer mortality after x ray treatment for ankylosing spondylitis**

HELEN WEISS, SARAH C DARBY, RICHARD DOLL (Imperial Cancer Research Fund Cancer Epidemiology Unit, University of Oxford)

**Objective** — To study the long term effect of ionizing radiation on cancer mortality among irradiated ankylosing spondylitis patients.

**Design** — Case–control study.

**Study members** — A total of 15 577 ankylosing spondylitis patients diagnosed between 1953 and 1957 in the UK, of whom 14 556 had received x-ray treatment. Over 80% of the cohort were male and the mean age at exposure was 34 years.

**Main outcome measure** — Cancer mortality up to 1 January 1992.

**Results** — Among the irradiated patients, cancer mortality was significantly greater than expected from national rates for England and Wales with the ratio of observed to expected deaths exceeded (relative risk, RR: 3.01, CI: 2.30–3.97). A significant increase in excess of 20% was observed in the 10–19 year age group with 15% of deaths due to leukaemia, non-Hodgkin's lymphoma, multiple myeloma, and cancers of the oesophagus, colon, pancreas, lung, and soft tissue. Bones, connective and soft tissue, prostate, bladder, and kidney. There was no excess cancer mortality among the unirradiated patients (RR: 0.79).
Among irradiated patients, the RR for leukaemia, lung cancer, and all other neoplasms decreased significantly with increasing time since exposure after an initial increase. By 35 years after the first treatment, the radiation related excess for lung cancer had completely disappeared, and only leukaemias and other neoplasms the RR remained significantly raised, although at a lower level than in earlier periods. Significant decreases in RR with time since first treatment were also seen for cancer of the colon, female breast, and oesophagus, and lymphoma.

Most irradiated patients received several courses of treatment within a five year period. Based on a one in 15 random sample, the median dose at which leukaemia developed was 2.64 Gy, with the highest dose (18.56 Gy) to the vertebral. A linear dose-response model for all neoplasms except leukaemia gave an excess RR of 0.18 Gy$^{-1}$ in the period of 5-24.9 years after first treatment, which decreased significantly to 0.11 Gy$^{-1}$ in the period more than 25 years after first treatment. There were significant dose-response relationships individually for leukaemia in the period 5-24.9 years after first treatment, and for cancers of the oesophagus, colon, pancreas, prostate, bladder, and kidney.

Conclusions - This study confirms previous suggestions that the relative risk associated with a x-ray exposure in the period more than 25 years after exposure may be less than in the 5-24.9 year period. The trend of the excess risk with time was not the same for all types of cancer and for some types the excess relative risk was greater 25 or more years after exposure than before.

Is the identification of geographical areas with joint excesses of childhood and adult leukaemia a way forward in exploring the aetiology of leukaemia?

R T BROGAN, D HOLE, D LAMONT, C R GILLIS (Department of Public Health, Greater Glasgow Health Board, West of Scotland Cancer Surveillance Unit)

Study objectives - To investigate an apparent excess of leukaemia in children and adults in a population in south Glasgow and explore possible links with exposure to chromium waste.

Design - Retrospective examination of hospital case records, slides of peripheral blood and bone marrow on a listing of possible cases obtained from the West of Scotland Cancer Registry. Comparison of rates of leukaemia in relation to siting of chromium waste.

Setting - Two areas in south Glasgow, Cambuslang and Rutherglen (control), with similar sociodemographic characteristics.

Subjects - All patients with leukaemia in the postcode districts of Cambuslang and Rutherglen between 1975 and 1988.

Main results - The study confirmed the excess of leukaemia in young people under 25 years of age in Cambuslang during the time period 1975-88: observed cases 9, expected 3.6, p = 0.012. This is of the same order of magnitude in terms of probability as that observed around Dounreay: observed cases 5, expected 1.57, p = 0.022. A concurrent excess in those aged over 25 in the same period was also confirmed. This was more noticeable in those aged 25 to 64 years: observed cases 15, expected 7.86, p = 0.023. The control area, Rutherglen, had no excess of leukaemia in any age group. The prevailing winds and siting of contaminated land suggest that both areas are equally exposed to environmental chro- mium. In the study area only 36% of cases had diagnostic slides available for further depth studies. Less than one fifth of cases had stored marrow specimens suitable for immunological, cytochemical, or genetic in- vestigations. This means that future investigations concerning the aetiology of leukaemia would not be feasible. An excess of thyroid cancer in those aged under 65 was also found in Cambuslang.

Conclusions - This seems to be the first de- monstration of a concurrent excess of leuk- emia in children and adults in an area with no obvious radiation source, but the lack of biological material available will not allow this study to be taken further. No link with exposure to environmental chromium was found. Future studies into the aetiology of leukaemia can only be possible if improvements are made in the storage of bio- logical material.

MRC study of the economics of breast screening programmes

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Objectives - To conduct an economic evalu- ation alongside the UKCCCR randomised trials of yearly versus three yearly mammographic screening (frequency trial) and annual mammographic screening starting at age 40 (age trial).

Methods - NHS resource use data are being collected from a sample of screening centres participating in the trial. Women's resource use is being identified by randomly dis- tributing a self completed questionnaire to women at each stage of the screening pro- gramme. Databases from outside the trial are being used to estimate the unit costs of treatment and a regression model is being devised to predict cost variation in treatment costs. Quality of life is being assessed by asking women to value health states associated with breast screening, assessment, and treatment. The national variation in NHS and women's costs is being investigated using by an sample of UK screening centres stratified according to factors influencing their cost structure.

Subjects - Two centres from the age trial and three centres from the frequency trial are being used to estimate the NHS resource use. Six hundred women aged 40-44 and 600 women aged 50-64 attending screening, as- sessment, biopsy, and treatment at the age trial sites are being given the women's resource use questionnaire. For the quality of life study, 250 women aged 40-44 (from the age trial) and 250 women aged 50-64 are being interviewed.

Main outcome measure - These are to be average incremental cost per woman screened, per additional cancer detected, and per advanced cancer avoided (for both trials) and the average incremental cost per life year saved, per additional life year gained, per quality adjusted life year gained, and per healthy year equivalent (for the frequency trial only). The difference in the health state valuations and women's resource use between the younger and older age groups is also to be examined.

Effect of local and practice characteristics on uptake rates for cervical screening in general practice

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Objectives - To investigate the uptake of cer- vical screening in general practice in relation to practice structure, the way in which screening is organised, and the deprivation level of the area the practice serves.

Design - All general practices in Greater Glas-gow Health Board were asked to participate in the study. They were stratified by the level of deprivation in the local area (measured by Carstairs deprivation categories according to postcode sector), and by the number of prin- cipals in each practice. We identified one GP per practice with whom to liaise in arranging data collection.

Main outcome measure - Cervical screening uptake rates as reported to the Health Board in the quarter in which we collected other data.

Results - Ninety general practices from all over Greater Glasgow Health Board agreed to participate (45% of all practices). This proportion varied by both size of practice (only 32% of single handed practitioners agreed to take part compared with 47% of two/three partner practices and 55% of group practices) and by deprivation level of the area the practice serves (only 38% of practices in areas of low deprivation agreed to take part compared with 46% of practices in areas of medium deprivation and 54% of practices in areas of high deprivation). Uptake rates for cervical screening in a given quarter will be analysed in relation to the ways in which cervical screening is organised, the structure of the practice, including personnel, and the deprivation level of the area the prac- tice serves.

Conclusion - The results from these analyses will have implications for the best ways to organise cervical screening in a general prac- tice, given its structure and the deprivation characteristics of the local area.

CARDIOVASCULAR DISEASE

Production and use of a spreadsheet model to predict the effects of risk factor alterations on coronary heart disease and stroke deaths

K R NEAL (Department of Public Health Medicine, Sheffeld Health Authority)

Objective - To produce a model for desktop computers which would predict the results of changes in risk factor death rates from coronary heart disease (CHD) and stroke.

Design - Simulation spreadsheet model.

Setting - Sheffield District Health Authority.

Main outcome measure - The model predicted the reduction in death rates after risk factor interventions (only, or combined) for the whole population or any 10 year age group by sex and also for targeted risk factor reductions after screening.

Results - With changes in risk factor the num- bers of deaths from CHD could be substantially reduced. Combined risk factor interventions are the most effective approach.
to reducing deaths from CHD. Any combi-
nation of interventions can be run in the
model, by age, sex, and risk factor. Thus
rapid comparison of different strategies
is possible. This comparison of different
strategies was found to be particularly useful.
Consent and Compliance. The models are an effec-
tive tool for public health. They allow more
informed decisions to be taken and stimulate
discussion with regard to the prevention of
CHD and stroke deaths.

Dying from heart disease: symptoms and hospital care in the last year of life
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(Department of Epidemiology and Public Health,
University College London)

Objectives – To describe the symptoms ex-
perienced in the last year of life by people
with heart disease; their use of, and their
informed carers’ satisfaction with, hospital ser-
VICES; their quality of life; and the cir-
cumstances of death.

Design – Secondary analysis of data drawn
from the national study of care for the dying,
a retrospective interview survey of healthcare
need and provision in the last year of life.

Setting – Twenty English health districts.

Subjects – A total of 675 decedents aged 15
and over dying from heart disease in 1990.

Informants – Thirty four per cent were spouses
or common law partners, 35% close relatives,
12% other relatives, 11% officials, and 8% friends or neighbours.

Results – Pain, dyspnoea, and low mood
were reported to have been experienced by more
than half the patients in their last year of life.
Hospital doctors’ symptom control was often
considered inadequate: 35% of decedents
were said to have gained little or no relief
from pain and 24% little or no relief from
dyspnoea. Care from hospital doctors was
rated as fair or poor by 19% of respondents,
as was hospital nurses’ care by 17%. Twenty
nine per cent thought the deceased did not
have enough choice about treatment. Fifty
per cent of deaths occurred in hospital,
and 39% were judged by two or more family
care not to have enough choice about the
place of death and 41% thought the deceased
did not have enough choice about this.

Conclusions – There is room for improve-
ment in symptom control and a need for awareness
of the psychological well being of patients
dying from heart disease. Ways of increasing
patient choices in treatment and place of
death should also be explored.

Demographic risk factors for stroke
N AUB, C D A WOLFE (Department of Public
Health Medicine, UMDS, St Thomas’s Campus,
London)

Background – Surveys in the US have shown
a higher incidence of stroke in black people
than in whites and the effects of age and sex
are well described. The relationship between
these risk factors has not, however, been ex-
amined in a population based study in the
UK.

Objectives – To examine the effects of age,
sex, and ethnic group on the overall stroke
incidence among under 75 year olds.

Subjects and setting – Population based re-
gistration of all first over strokes in
people under age 75 in two inner city and
one predominantly rural health district in

Methods – Population figures specific to loc-
ality, age, sex, and ethnic group from the
1991 census were used to calculate incidence
rates, and logistic regression was used to
examine the relationships and interactions of
these risk factors.

Results – A total of 639 strokes were recorded.
Crude annual incidence rates for people un-
der 75 years per 100 000 population were 68
(95% CI 62, 74) for whites and 51 (95% CI
39, 66) for African/Caribbean. How-
ever, the African/Caribbean population
was generally younger than the whites, and
adjusting for all factors, there was an ex-
ponential increase in incidence with age (for
10 year age intervals OR = 1.95; 95% CI
2.0-3.4), and a higher incidence in men
compared with women (OR = 1.4; 95% CI
1.2, 1.7) and in Africans/African Caribbeans
compared with whites (OR = 1.6; 95% CI
1, 2, 2.2). Although there was no overall evidence of interaction
between the risk factors, there was a sig-
nificant interaction between sex and ethnic
group comparing Africans/AfroCaribbeans
with whites (p = 0.006), indicating a sig-
nificant age adjusted effect in women (OR
= 2.5; 95% CI 1.7, 3.7) but not in men
(OR = 1.1; 95% CI 0.7, 1.7).

Conclusions – A large unstratified survey of
risk factors in different ethnic groups with
follow up for stroke is needed to determine
the reasons for variation in stroke incidence.
A detailed knowledge of these variations
would be important for health planning in
the context of the targets for stroke specified
in the “Health of the Nation” strategy.

Body fat and stroke: unmasking the
hazards of overweight and obesity
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Background – It is widely accepted that
overweight causes hypertension and diabetes but
it often fails to feature in lists of risk factors
for stroke as many epidemiological studies
have failed to show an association. This
apparent inconsistency has not been clarified to
date. This study aimed to explore the lifelong
relationship between body fat and the risk of
stroke.

Design – Case-control study.

Setting – Eleven general practices in west
Birmingham.

Subjects – A total of 125 men and women
who had just had their first stroke and were
aged 35–74 and 198 controls, frequency
matched for age and sex, recruited over 24
months during 1988–90.

Main outcome measure – Relative risk for
stroke by quartile of BMI compared with both
maximum lifelong body mass index (BMI) and
BMI aged 21, current BMI, and subcutaneous
skinfold thickness.

Results – There was no clear relation between
current BMI and the risk of stroke. There
was a close correlation for recall of maximum
lifelong weight between stroke patients and their
relatives or peers (r=0.95). When long
life-long maximum reported BMI was assessed,
the hazards of obesity were seen – relative
risk for the highest tertiiou lowest quartile: aged
adjusted, 1.54 (95% CI 0.8, 3.0); multiple
risk factor adjusted 2.25 (1.1, 4.5). This
risk seemed to be established early – the relative
risk for the highest tertium lowest quartile
of reported BMI aged 21: age adjusted, 2.18
(1.1, 4.4); multiple risk factor adjusted 2.13
(1.1–4.2). There was a doubling of the risk
of stroke for those in the thinnest quartile of
subscapular skinfold thickness. The risks of
both maximum reported BMI and reported
BMI aged 21 were more clearly seen in those
who had never smoked cigarettes: test for
trend in odds ratio p = 0.009 and p = 0.02
respectively. The appropriateness and effect
of adjustment for hypertension and diabetes
will be discussed.

Conclusions – Potentially important risks of
excessive body fat for stroke can be obscured by
both a history of cigarette smoking and thinness associated with deteriorating health.
Obesity related to poor diet and excessive
fat has previously been consistently related to
hypertension and diabetes mellitus but less
consistently to stroke. Avoiding overweight
during adult life seems to protect against stroke.

Nutritional influences on the emergence of hypertension and diabetes in Afro-
origin populations in Cameroon, Jamaica, France, and the UK –
A developing preventive trial
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WILKS, J C BAN'YA, B BALKAU. (University of
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West Indies, Jamaica; University of Yaounde,
Cameroon; Inserm 21, Paris, France)

Objectives and setting – Our four nation project
is establishing the role of nutrition in the
rapidly evolving problems of high blood pres-
sure and diabetes in these four large Afro-Ameri-
can populations. The progressive increase in
frequency of both conditions, from source
populations to first generation migrants and
their descendants in Europe, allows us, using
highly standardised methods and observa-
tions, to test the hypothesis that in-
creasing energy (particularly fat) and Na +
take, and decreased K +, Ca +, and an-
tioxidant intake, are associated with increasing
blood pressure and diabetes mellitus.

Morbidity data (determined by 75 g glucose tolerance
test) both within and between these centres.

Design and subjects – Random samples of com-
munity based populations are being taken, with
the same size (age range 25–74 years),
stratified by sex, set at 1500 per centre to
generate sufficient index cases of “high” blood
to pressure (>140 or 90 but <160 or 95 mmHg)
and impaired glucose tolerance for the in-
tervention trial and incident phase.

Measures – During the two hour glucose tol-
erance test a food frequency questionnaire,
built up from local food diaries and 24 hour
calls, was administered and repeat 24 hour
urine samples are collected. These establish
average energy, fat, carbohydrate, fibre, and
protein intakes, validated by further food re-
cords in subsamples.

Initial results – To date, some 650 people (250
AfricanCaribbean) have been seen in Man-
chester, with 100 glucose tolerance tested;
240 Jamaicans and 214 Cameroonians (126
urban, 98 rural), were seen, and a pilot study
has been completed in Paris. The rates for
impaired glucose tolerance and diabetes mel-
litus are approximately 15% for each in Man-
chester, 12% and 14% respectively in
Jamaica, and 4–8% in Cameroon, with hyper-
tension rates ranging from 12–24% from
Cameroon through to Jamaica to Manchester.
Those at risk of hypertension (>140 and/or
90 mmHg) are similarly distributed. Results
Effect of prompt treatment of hypertension on onset and severity of cerebrovascular disease in subjects using blood pressure check up
KOZO TATARU, FUMIKI SHISHIO, KAZU NAKAJIMA, HIDEKI FUKUDA, NOBUO NISHI
(Dept of Public Health, Osaka University Medical School, Japan)

Objective – To identify effects of prompt treatment of hypertension on the onset and severity of cerebrovascular disease in subjects using blood pressure check ups.

Setting – A study was done with the cooperation of all 174 physicians, 17 hospitals, and four welfare homes in N City. All patients aged 65 years and over, and treated during the study period were included – a total of 970.

Results of hypertensive control before the onset of cerebrovascular disease were available for analysis in 664 cases.

Main results – The percentages of subjects with cerebral bleeding in the groups that were normotensive when checked or promptly treated after detection of hypertension was about half of those in the groups that were checked or untreated. The mean age of subjects at the onset of cerebrovascular disease was 66 years for the normotensive group, 67 years for the promptly treated group, 66 years for the untreated group, and 64 years for the untreated group.

Discussion – Among our subjects with cerebrovascular disease, the percentage of those who received prompt treatment after detection of hypertension was 47%. N City is typical of Japanese cities in its promotion of health check up programmes for residents. Thus, in Japan, the proportion of people with hypertension that is "detected and promptly treated" is expected to be almost half of patients with cerebrovascular disease. Because of the limitations in the design of the study, we hesitate to state that early detection and treatment of hypertension reduced the morbidity of stroke. However, one interpretation consistent with our results is that for almost half of Japanese patients with cerebrovascular disease, the onset of cerebrovascular disease is delayed and the severity of the disease is decreased by prompt treatment after early detection of hypertension. These results suggest indirectly that preventive measures promoted by the Health Services for the Elderly Act, 1982, in Japan have contributed to the improvements in the health of residents.

Changin asthma treatment in response to symptoms: a qualitative study of adult asthma patients in the community
SUB ROSS (Health Services Research Unit and Department of Medicine and Therapeutics, University of Aberdeen)

The British Thoracic Society "Guidelines for the Management of Asthma in Adults" were published in 1990 (BMJ 1990;301:651), recommending a "stepwise approach to asthma treatment". Results of a large community study (Br J Gen Pract 1993;43:236), qualitative interviews were carried out in 1992 with 75 mild to moderate adult asthma patients who were treated solely by their GPs, to investigate whether this approach was being used in practice.

Patients tended to contact their GP only when their symptoms deteriorated. Increases in drug treatment normally occurred as a result of the consultation, and management by the GP usually followed the stages recommended by the British Thoracic Society guidelines. If an inhaled bronchodilator did not control symptoms, an inhaled steroid was introduced. In some cases a sodium cromoglicate inhaler had been tried. Spacers or other devices were useful for patients who had trouble using metered dose inhalers. The dose of inhaled steroid was increased if a lower dose was ineffective. In patients already taking an inhaled bronchodilator and inhaled steroid, an oral bronchodilator (either long acting beta, agonist or xanthine) or a longer acting inhaled bronchodilator was introduced. Courses of oral prednisolone were used at any stage to control exacerbations of asthma. Patients did not see their GP when asthma symptoms improved but were retained for subjects to be reviewed regularly by their GP, and they did not consult the GP when they were well. The patient was usually responsible for reducing or stopping medications with these treatments. Change in management in future guidelines, so that treatment is maintained at the minimum level for effective control of asthma symptoms.

Measuring health change in adults with chronic obstructive pulmonary disease
R HARPER, J E BRAZIER, N JONES, J C HOUSE, T F HARRARD
(Medical Care Research Unit, Sheffield Centre for Medical Genetics and Related Research, and Department of Medicine, University of Sheffield)

Aim – To compare the performance of general and disease specific measures of health outcome in adults with chronic obstructive pulmonary disease (COPD).

Method – During a four month period, adults (aged 35 or over) attending a chest clinic with minimally reversible airways obstruction were invited to participate in the study. Clinical measures included spirometry, pulse oximetry, six minute walk test, and Fletcher grade. Patient perceived health was assessed using two disease specific measures (St George’s Hospital respiratory questionnaire (St Georges), and Guyatt’s chronic respiratory quality of life questionnaire (CRQ)) and two general health measures (short form 36 (SF-36) and Euroqol (EQ)) at recruitment, six months, and at one year. These measures were compared in terms of internal consistency, test retest reliability, construct validity, and sensitivity to change.

Results – A total of 156 patients agreed to participate while 13 refused. The mean age of respondents was 64 and the mean PEV was 48% of predicted. At baseline, 150 patients completed the SF-36, 137 St George’s, 140 EQ, and 68 CRQ. By dimension, completion rates were 81% for SF-36, 78% for CRQ, 90% for EQ, but 27–67% for St George’s. Two follow
Health of the Nation targets for mentally ill patients and people with learning difficulties in long stay NHS hospitals.

**Healthcare for the elderly and frail**

**Discussion and conclusion.** The SF-36 performed well compared with the disease specific measures and was better able to measure general aspects of health. However, to cover all aspects of the health consequences of COPD, researchers may consider using it alongside a disease specific measure.

**Healthcare for the elderly and frail**

**Objective.** To compare the health status of patients with mental illnesses and people with learning difficulties living in long stay NHS hospitals in Surrey with that of the general adult population of Surrey.

**Methods.** Self completion postal questionnaire of a random sample of the general population and interviews of a random sample of inpatients or their proxies using the same survey tool.

**Setting.** Surrey community and long stay NHS hospitals for mentally ill patients and people with learning difficulties in Surrey in 1993.

**Subjects.** A total of 10 200 Surrey adults aged over 17 years and 98 long stay patients.

**Main outcome measures.**- Prevalence of lifestyle risk factors, such as smoking, lack of exercise and obesity, prevalence of chronic physical and mental health problems, preventive health behaviour, health beliefs, prevalence of accidents, and demographic and socioeconomic data.

**Results.** The response rate was 54% for the postal survey and 98% for the in-patient interviews. The average age of long stay patients was greater than that of the general Surrey population. The prevalence of age and sex standardised risk factors such as smoking and inadequate levels of activity was significantly higher in the long stay patients than in the general Surrey population. The same was also true of the prevalence of mental health and physical problems.

**Conclusions.** The health status of institutionalised NHS patients is worse than that of adults living in the Surrey community. A lack of access to professionals trained in primary care may be a contributory factor to the higher prevalence of certain lifestyle risk factors in long stay patients. The effects of mental illness and learning difficulties may also explain some differences in lifestyle. Institutionalised patients are emotionally or have learning difficulties may have limited capacity to acquire knowledge about healthy lifestyles and assimilate any choices available to them. Therefore, those who provide care need to accept the responsibility for improving the lifestyle of long stay patients, as well as those who are resettled into the community as part of the care plan for each person.

The information from the survey will enable managers to alter current practice in long stay mental hospitals in order to improve the lifestyle of residents and achieve "Health of the Nation" targets for this vulnerable and disadvantaged sector of the population. The results will also enable the health status of people who are being resettled to be known. This will ensure more targeted use of resources in the community and the monitoring of improvement.

**Acknowledgements.** The authors would like to thank all those who took part in the survey and those who encouraged them to do so. They would also like to thank Mrs. M. D. W. R. Kay (Centre for Health Services Research, Department of Epidemiology and Public Health, and MRC Neurochemical Pathology Unit, University of Newcastle upon Tyne) for her help in the study.

**References.**

1. **Dependency and community care in present day Alzheimer's disease.**

2. **M. J. DOYLE, J. M. ALDRED and M. G. H. S. KAY (Centre for Health Services Research, Department of Epidemiology and Public Health, and MRC Neurochemical Pathology Unit, University of Newcastle upon Tyne)**

**Objectives.** To investigate functional dependency in patients with present day Alzheimer type (PDAT) in relation to the time since diagnosis and place of residence; the time between diagnosis and entry to permanent care; and the use of community and support services.

**Design.** Follow up of prevalent cases of PDAT of usual cases and carers, and use of life table methods in the analysis of time since diagnosis and entering permanent institutional care.

**Setting.** The northern health region of England.

**Subjects.** A total of 109 cases of PDAT, initially diagnosed in hospital before the age of 65, and their carers.

**Main outcome measures.** The need for assistance in six activities of daily living (ADL) in relationship to the mini mental state examination (MMSE) scores, time since diagnosis, and residence at home or in an institutional setting; contacts with GPs and use of relevant community health services.

**Results.** Bathing, dressing, and use of toilet were activities requiring the earliest need for assistance after diagnosis, with transfer from bed or chair being the last ADL to require help. At five years after diagnosis, 57% of patients remained at home, and while the need for assistance in each of the ADL categories was significantly different between those patients at home and those in permanent care, 11 of 54 (20%) of those at home required some assistance in all six ADL. No significant differences were found in the MMSE scores was found between home and institutional cases. Sixty nine of 109 cases (63%) had previously been offered respite care, although only 49 of these (45%) had accepted. Forty three (39%) patients or their relatives had been visited by a community psychiatric nurse and 47 (43%) were reported to have seen a GP less than once a year.

**Conclusions.** Patients with PDAT who have a living relative are generally cared for in the community for a considerable period of time despite severe cognitive impairment and loss of independence in ADL. The reports of carers suggest there is scope for improvement in the organisation and coverage of supportive community services.

**Linkworker project: referrals after annual over 75 years assessment.**

M. J. JOFFE, R. ALDRED, M. H. KAY (Academic Department of Public Health, St Mary's Hospital Medical School, London)

All people aged 75 years and over are now supposed to receive an annual health check. This is an important group in terms of health and social care needs, and is increasing in numbers. There is little information on the
nature of the action stemming from these assessments, especially within London.

In the London Scheme in Kensington, Chelsea, and Westminster was set up with the dual aims of providing a sensitive health check for older people, and of collecting data that could be aggregated locally. Linkworkers visit all their clients annually at home, and use a specially designed assessment form recording the health and social status, services currently received, and any interventions or referrals (either direct referral to an agency, or advice for the person to do so).

At present, the database contains information on 60,000 people, a result of a total of 4644 interventions (ranging from 0 to 10 interventions per person): advice was given in 2253 instances, and 2391 referrals were made. Of the latter, 872 were to agencies within the health service, mainly to GPs or chiropodists; 839 were to local authority services, for example for occupational therapy, home help, etc; 292 were to a voluntary organisation, such as Age Concern or Pensioners’ Link; 105 were to commercial services, mainly opticians; and 283 were unclassified.

For people receiving their first assessment (n = 5872), the mean number of referrals or advice per assessment was 0.85. This increased with age from 0.6 (70–75 years) to 1.5 (>90). The living circumstances of the elderly person (for example, whether living alone, with spouse, or with other relatives made little difference to the number of referrals. The mean number (0.88) was similar for people receiving their second assessment.

Health check ups and prevalence of disabled elderly in a city in Japan

H Fujitani, T Takatoruge, N Nakarnshi, F Shinrno, K Kuroda, H Taira
(Department of Public Health, Osaka University Medical School, Japan)

Objective – To study the prevalence of disabled elderly people (bed or chair bound) in relation to activities to keep fit and use of health check ups.

Setting – A questionnaire was mailed in October 1992 to 11,270 people aged 65 years or more (about 30% of the whole population of that age group), randomly chosen from the resident registration list of a city with a population of 100,000 in Osaka. Survey subjects were asked about self-rated health status, daily activities to keep themselves fit, and whether they had had health check ups in and before middle age.

Main results – Altogether 9104 subjects returned completed questionnaires (response rate 80%), 3051 of whom were 75 years and over. In this group 4% of men and 6.1% women were bed or chair bound. In people aged 75 + years, the prevalence of disability was 3.9% in men and 3.9% in women who had been trying to keep themselves fit, and 8.9% if they had not been trying. There was a significant difference in the prevalence in both men (p<0.05) and women (p<0.001). Among those of 75 who had been trying to keep themselves fit, a high prevalence of disability in those who had had health check ups was more than once in middle age and younger was 3.1% for men and 4.0% for women, while the prevalences in those who had not had check ups were 3.9% in men (NS) and 10.5% in women (p<0.001). Among those who had not been trying to keep themselves fit, the prevalences of disability in those who had had health check ups were 14.3% for men and 3.6% for women, and in those who had not had check ups the prevalences were 18.6% for men (NS) and 20.0% for women (p<0.001).

Discussion – The proportion of people aged 75+ is increasing by 250,000 annually in Japan, so it is very important to consider how to keep their life healthy. Although the result of this survey does not necessarily prove the effectiveness of health check ups directly, because of some limitation in the survey methods, it suggests that individual health promotion and health check ups in and before middle age are of some use in preventing disability later in life.

Prevalence of dementia in those over 60 and health and social services for them: a survey of residents in a Japanese city

T Takatoruge, K Taira, H Hau, N Nakarnshi, K Kuroda, F Shinrno
(Department of Public Health, Osaka University Medical School, Japan)

Objective – To determine the prevalence of dementia in the elderly in a Japanese city.

Setting – A survey of the mental and physical health of those aged 60 years or more was done by means of self-administered questionnaire in a city in Osaka prefecture in June 1992. The questionnaire was mailed and collected by city welfare commissioners. The number of subjects in this study was 16,394, and 16,155 questionnaires were collected (98.5% of subjects). The demented elderly were defined by the presence of "cognitive impairment to such an extent that they need help by others in their daily living". Three months after the first survey a second survey was done, on patterns of use of the health and social services by those demented elderly who needed daily support by others.

Results – Altogether 4.1% of those aged 60 or over had a dementing illness. The proportions in the age groups 60–64, 65–69, 70–74, 75–79, and 80–84 years were 1.1%, 1.7% (1.1%), 2.3% (2.7%), 5.5% (5.2%), 11.4% (11.0%), and 20.3% (20.9%) respectively (the figures in parentheses are the national estimates of prevalence). The proportion of demented people who needed daily support by others was 2.8%. The second survey covered 89% of the demented people who needed daily support. Fifty five percent of them were seen regularly by doctors, of whom 87% were internists and only 3% were psychiatrists. Twenty two percent per cent were seen by welfare workers. The proportions of demented subjects or their family members who wished to use respite services, day services, and home help services were 24%, 18% and 17% respectively.

Discussion – The number of elderly people with dementia is increasing in Japan: it was estimated to be 340,000 persons in 1990. Although our survey method has some disadvantages, such as problems of validity and reliability since we did not try to obtain a formal psychiatric diagnosis, the prevalence of dementia for each age group was almost the same as the national estimates of prevalence based on the 11 surveys from nine prefectures in Japan. A simple screening method for dementia in the community is urgently needed to enable the planning and provision of health and social services for these people. This survey might suggest a practical method.

Depression in hip fracture patients does not influence success of their subsequent rehabilitation or predict mortality

S M Shepherd, R J Prescott
(Department of Public Health Sciences, University of Edinburgh)

Study objectives – To determine the prevalence of depression beforehand in hip fracture patients and to investigate whether this influences their outcome.

Design – This study forms part of a cohort study involving 270 patients. The patients were recruited from 1/1/91 to 30/4/92 and were followed up for 12 months, looking at a broad range of outcome variables. Interviews were performed within 6 weeks of hip fracture and then at one, six, and 12 months afterwards. A series of standardised assessment scales and ad hoc questions were used based on the recommendations by the British Geriatrics Society and the Royal College of Physicians for the assessment of the elderly.

Setting – The city of Edinburgh.

Results – Twelve patients were admitted to hospital with an osteoporotic hip fracture, who were aged 60 or more, who had no substantial cognitive impairment as gauged by the abbreviated mental test, and who lived in a community setting (that is, private homes, sheltered housing or residential care) were recruited into the study. This represented 98% of the eligible study population. Two patients refused to participate in the study and one withdrew during the course of follow up.

Main results – Using the geriatric depression scale, 31% of the hip fracture population were classified as being depressed at baseline using the standard cut off score of 5. The average ages of patients were 79.8 years (SD 7.7) in the depressed and 79.0 years (SD 8.0) in the non-depressed groups. Thirty two per cent of women and 28% of men were depressed. Forty five per cent of single people were depressed compared with 34% and 17% of widowed and married people respectively (these differences attained statistical significance). Poorer self-rated general health, morale, walking ability, and dependency were all significantly associated with depression at baseline. Using logistic regression, baseline depression was found to be predictive of depression at both one and 12 months after the hip fracture but had no significant bearing on the subsequent place of residence or dependency as measured by the Barthel index throughout the period of follow up. Nor did baseline depression predict 12 month mortality or hip function as gauged by the Harris score.

Conclusions – Depression is common in community residing patients who sustain a hip fracture but it does not influence their outcome other than predicting the presence of depression at one and 12 months after the fracture.

Objective criteria for the prediction of early discharge of hip fracture patients to the community: a tool for discharge planning and audit

S M Shepherd, R J Prescott
(Department of Public Health Sciences, University of Edinburgh)

Study objectives – To identify the variables which enable the prediction of an early return to the community in hip fracture patients.

Study design – This study forms part of a cohort study involving 270 patients and looking at a broad range of outcome measures.
The patients were recruited from 1/11/91 to 30/4/92. A series of standardised assessment scales and hoc questions were used based on the recommendations of the British Geriatrics Society and the Royal College of Physicians for the assessment of the elderly. The specific scales reported here are the clinical cognition basis, homes patients using prognostic fracture. Subjects – Over 2000 patients who had a THR between 1967 and 1982, performed by one surgeon at three hospitals in Portsmouth. The patients received one of seven different implants. Results and discussion – (1) Comparison of outcome measures: The three most important factors of all outcome measures assessed with regard to the percentage of patients who required a "revision" procedure were (a) pain, (b) stiffness, (c) signs of loosening on x ray. The parameters "strength" and "sensitivity" were found to yield little information. The measures of "pain", "stiffness" and "deteriorating x ray" were compared with the patients' own opinion scores at each follow up session and "pain" was found to be linked with worse average opinion. Pain was therefore considered to be the most satisfactory outcome measure. (2) Reliability of pain as an outcome measure: A marked shift in the pain distribution occurred from the preoperative to the first postoperative assessment. There was a clear association between degree of pain preoperatively and postoperatively. It was found that pain levels became increasingly worse in the years preceding revision. An increasing risk of requiring reoperation was found according to early postoperative pain, suggesting some predictive power of using "pain" as an outcome measure. (3) Use of pain as an outcome measure: The end point for joint replacement survival curves is usually revision surgery. The use of different pain levels as end points in survival analysis shows the extent to which patients suffer from pain despite being classed as "successes" by traditional analysis. A comparison was made between seven types of implant using survival analysis and log rank tests with different pain levels as end points. This showed differences which would not have been detected by using revision as the only outcome measure. Conclusions – Of the outcome measures assessed, pain was found to be the most satisfactory as well as the most sensitive to patient opinion and outcome of the THR. Pain was found to be a reliable outcome measure and the use of different levels of pain as outcome measures was a sensitive way of discriminating between prostheses.

Development and evaluation of an intervention designed to facilitate the management of patients for total hip replacement EDWARD CLODE-BAKER (Department of Epidemiology and Public Health, University of Leicester) Giving appropriate information to patients before surgery yields many benefits. The timing with which this information is provided is also of great importance. This study developed an intervention for patients awaiting total hip replacement. The intervention was then evaluated in a clinical setting and refined for routine use in patient management.

The intervention consisted of a video, booklet, and use of plastic models. The video and booklet were sent to patients several weeks before surgery and plastic models were shown to them on admission. The video described the process of total hip replacement by following a patient through the period from before surgery to after discharge home. The booklet explained many aspects of the operation. The series of models was used to demonstrate the operative changes of total hip replacement. Evaluation of the intervention took the form of a prospective randomised control trial. Seventy eight patients were randomised within three age strata into control or intervention groups. All patients completed the series of questionnaires before intervention. Over the operative period, all patients completed a further series of questionnaires evaluating stress, arousal, pain, and sleep disturbance. After discharge patients completed a further set of questionnaires which focused on their satisfaction.

The intervention was well received by patients and their families. Ninety four per cent of the intervention group had read all of the booklet before coming into hospital and 78% of them referred to it while in hospital. All except three of the intervention group watched the video at least once and over half of the group asked to see the model bones. No significant differences were found between the intervention and control groups for anxiety, depression, stress, arousal, perceived illness, and sleep disturbance, or number of postoperative days to discharge. However, patients from the intervention group were more likely to know as much as they wanted to know before admission to hospital (p<0.001) and felt less concerned by information on arrival for the hospital stay. Hospital staff also found benefit from the intervention, being able to offer information rather than new information to patients. In an era where patient satisfaction is of paramount importance in the NHS, this design of intervention has applications in many settings.

MISCELLANEOUS DISEASES

Risk factors for Campylobacter gastroenteritis: differences between travel and non-travel associated cases K R NEAL, R C B SLACK (Departments of Public Health Medicine and Epidemiology, and Microbiology, University of Nottingham)

Objective – To determine risk factors for Campylobacter gastroenteritis.

Design – Case-control study using a postal questionnaire.

Setting – Nottingham Health Authority.

Subjects – Six hundred consecutive, notified cases of Campylobacter infection and suspected food poisoning in subjects aged 18 and over.

Main outcome measures – Two by 2 tables were used to calculate the relative risk (RR) and 95% CI bracket with statistical and social factors, χ^2 for trend to find the risks with particular foods, and logistic regression to estimate the interaction of risk factors.

Results – A total of 245 cases and 247 controls returned their questionnaires and a further six were excluded, a response rate of 98%. For the UK, independent associations were the consumption of chicken (RR 1 9, CL 1 0, 2 5, p = 0 05) and handling raw poultry (RR 1 6, CL 1 0, 2 5, p = 0 03) in the two weeks before infection, and there was a negative association with antibiotic therapy in the month before infection (RR 0 50, CL 0 3, 0 9, p = 0 03). No association was seen with contact with dogs, cats, or...
of other animals; a history of gastric or colonic surgery; or antilulcer therapy. Sixty cases and 60 controls were included from a total of four general practices (25%). In this group there were positive associations with eating poultry other than chicken (RR 3.7, CL 1.3–10.7, p = 0.01) in the two weeks before the event of gastro-oesophageal reflux (RR 3.7, CL 1.4–9.9, p = 0.01), and a negative association with antibiotic therapy in the month before infection, (RR 0.1, CL 0–0.6, p = 0.01).

Conclusion – The consumption of chicken may explain half the cases of campylobacter infection in the UK. Risk factors for people while abroad seem to follow a different pattern.

Risk factors for vertebral deformity in women: an ecologic analysis in 36 European centres

T W O’NELL, J VARLOW, D FELSENBerg, A J SILMAN ON BEHALF OF THE EUROPEAN VERTEbral OSTEOPOROSIS STUDY GROUP (ARC Epidemiology Research Unit, University of Manchester)

Background – Vertebral deformity is the classic hallmark of vertebral osteoporosis; however, little is known about the risk factors associated with it. The European Vertebral Osteoporosis Study (EVOS) is a large multicentre screening survey of vertebral osteoporosis in Europe.

We analysed data from women in this study to determine if there were associations between lifestyle and gynaecological variables and vertebral deformity at a population level.

Methods – Thirty six centres from 18 European countries took part in the study. Each centre was invited to recruit a stratified random sample of 300 men and women aged 50 years and over from an appropriate population with sampling frames. Subjects were invited to attend for an interview administered questionnaire and lateral spinal radiograph.

The definition of vertebral deformity was based on a comparison between observed morphometric measurements of vertebral shape and reference values. The association between the age standardised prevalence of vertebral deformity and the age standardised prevalence of specific patterns of lifestyle and gynaecological risk factors was explored with correlation analysis.

Results – Altogether 17 342 subjects took part in the study, 7% (6 3 43) of whom were men. A history of confinement to bed for a period of two months or over during life was positively correlated with vertebral deformity (r = 0.4, p = 0.05). Increased levels of activity, (r = 0–3, p<0.05) and walking for more than an hour per day (r = 0.4; p<0.05) were negatively correlated. Other lifestyle variables including smoking history, alcohol and coffee consumption, and gynaecological variables including age at menopause, number of fertile years were not associated.

Conclusions – In this ecologic analysis, indices of physical inactivity throughout life were associated with an increased prevalence. By contrast, the between-population variation in vertebral deformity was not explained by population difference in the other risk factors studied.

Perceptions of health needs and desirable outcomes for intervention voiced by chronic low back pain patients in general practice

M REID, M PYE (Health Services Research Group, Department of Community Medicine, University of Cambridge)

Objective – To examine the relationship between the impact of chronic low back pain on patients’ function and their views on needs for treatment, and to describe a model for assessing these needs and choices within a primary care setting.

Setting – Focus groups of patients were formed from survey data with chronic low back pain patients in which their perceptions of illness and its impact, their experiences with treatment at primary and secondary levels, and their goals for recovery were assessed.

Main outcome measures – Specific ways in which patients are affected by chronic back pain, in their own experience, and other parameters of illness experience; priorities for addressing the needs created by their own experiences and preferences for treatment, in terms of types of interventions offered within a consultation or types of service made available at different levels of treatment; beliefs about the causes and progression of their condition.

Results – Chronic low back pain patients can specify problems associated with their distress. This information is useful in that it presents identifiable and solvable problems that can be remedied by GPs or other practice staff whose specialist knowledge or role may be more appropriate. Relationships were found between problem areas associated with illness, illness beliefs, and priorities regarding treatment or management strategies.

Although the constellation of needs presented by the most deprived variable in this population, patients do not often simply identify “pain relief” among their top priorities for intervention. More information about causes of chronic pain and treatment effectiveness (including surgery, manipulation, bedrest, exercise) were desired, as well as having a whole programme of care available that might give access to different types of help, especially on an as-needed basis. These included physiotherapists, back school staff, exercise and movement therapists, and counsellors. As a group, patients were also frequently concerned about being seen as fraudulent by their GPs or other practice staff.

Among the most frequent requests for additional or more accessible services were physiotherapy, and complementary therapies like osteopathic or chiropractic manipulation.

Conclusions – Having access to individually-sensitive information about the way in which illness affects patients’ ability to function can be useful in planning management strategies, particularly for relatively chronic conditions whose treatment guidelines are less than clear.

While chronic low back pain patients are satisfied with their primary care staff, they are at least moderately dissatisfied with the level of help they are offered, and can identify types of assessment and treatment they would like offered within a local setting. Their preferences, gathered within a specified area, also should be viewed by purchasers as they consider plans for service development.

Differences in oral health of English and Japanese people working at Japanese firms in the UK

S TAKASHIMA, F SHINNO, H FUKUDA, K TATARA, S GELBIER (‘Department of Public Health, Osaka University Medical School, Japan; Department of Dental Public Health and Community Dental Education, King’s College London)

Objective – To describe the differences in oral health of English and Japanese people who work in the same company and who were undertaken at 12 Japanese firms in the UK.

The numbers examined were 340 English (159 men and 181 women) and 369 Japanese (205 men and 164 women). Dental examination was made by two qualified dentists.

We measured the number of decayed, missing, and filled teeth (DMF) by the standardised criterion of the British Association for the Study of Community Dentistry (BASCD) as an index of caries experience, the community periodontal index for treatment needs (CPTN) as an index of periodontal condition, and calculus index (CI) and debris index (DI) as indices of oral hygiene. (In this report, non-Japanese people are classified as “English”.)

Results – Percentages of people with subgingival calculus (CI max = 2, 3) in the age groups 20–34, 35–44, and 45–59 were 26%, 22%, 34% in English, and 33%, 41%, 48% in Japanese respectively. The figures were significantly lower in English than in Japanese in the group aged 35–44 years (p<0.01). Percentages of people with poor oral hygiene (CI max = 2, 3) in the same age groups were 30%, 33%, 34% in English, and 48%, 48%, 48% in Japanese respectively. There were significant differences in the proportions of people with poor oral hygiene in the English and Japanese aged 20–34 years (p<0.01) and 35–44 years (p<0.05). The percentages of people with periodontal disease (CPTN max = 3, 4) in the same age groups were 5%, 7%, 0% in English people and 16%, 15%, 4% in English, and 48%, 48%, 48% in Japanese respectively. Although the proportion of English with periodontal disease was signficantly lower than that of Japanese in the 20–34 year old group (p<0.001), it was significantly higher at 45–59 years (p<0.05).

The mean DMF in the same age groups were 7.9, 12.2, 15.4 in English, and 10.2, 10.9, 11.4 in Japanese respectively. The English value was lower than the Japanese in the 20–34 years age group. However, the figures were higher in English than Japanese in the 45–59 years groups.

Discussion – Current oral hygiene and periodontal condition indicated by the CI, DI, and CPTN were better in English than in Japanese, in general. As the DMF shows caries experiences in the past, the differences in the figures suggest that dental health services in the UK have changed in these years.

ENVIRONMENTAL AND BEHAVIOURAL INFLUENCES

Survey to obtain an indication of sun care behaviour and malignant melanoma awareness in Belfast

G M BLEAKEY, L CROTherS (Department of Public Health Medicine, Queen’s University, Belfast)

Objectives – To obtain an indication of sun care behaviour and malignant melanoma awareness in Belfast.

Design – An interviewer administered a questionnaire to a quota sample.

Subjects – A total of 50 people, 24 males and
26 females, were interviewed in three street locations in Belfast. Results - Thirty people (26%) were unaware that the sun could be harmful. Of those who did know that the sun could be harmful 27 (75%) said they modified their behaviour in the sun because of this knowledge. The most common preventative measure taken was to wear a sun cream. Sixteen people (32%) had been sunburnt (defined as more than 1% of the total body area going red several hours after exposure to the sun) during the last year. This compares with 38% in a much larger survey of children in England. Only 15 people (30%) use sun creams when in Ireland/UK. Twenty seven respondents had children, and 10 of these (37%) do not use sun creams on their children when in Ireland/UK.

Conclusion - This small survey would suggest that there is a need for a greater awareness of "the care in the sun message" and particularly with respect to sun care in the UK/Ireland.

Social causes of ill health: an explanation

ALI MONTAZERI (Department of Public Health, University of Glasgow)

There are several approaches to explain social causes of ill health. According to WHO, ill health may be classified into three categories: physical, mental, and social. A clear distinction should be maintained between "social illnesses" and "social causes of ill health". The former refers to social disabilities whereas the latter implies the causes of a range of illnesses not only social but also physical and mental. To explain the social basis of ill health, two models can be established: pragmatic and behavioural.

In a pragmatic model at least the following issues should be recognised:
(1) Inequalities: this can either be at regional, national, or international level. Delivery and access to health care may explain the existing inequalities.
(2) Poverty: economic situation of individuals and communities under which they live forms a contributory factor to this explanation.
(3) Overcrowding: this factor especially becomes operational in those parts of the world where population growth is rapid together with scarce resources.
(4) Health policy: this can be a problem in areas where there has not been assessment of the population needs before adapting and implementing the health policy.

To describe social causes of ill-health from a behavioural point of view, it is necessary to consider health behaviour theories.

This paper attempts to elucidate the above mentioned issues and to present a model for such explanations.

Explaining variations in dimensions of health status as measured by the short 36 questionnaire

D O REILLY, S MCLARAIN, D MCDADE (Department of Public Health Medicine, Eastern Health and Social Services Board, Belfast)

Objectives - To explain sociodemographic variations in health status dimensions as measured by the short form 36 (SF36) questionnaire and to measure the impact on health service provision in terms of health status.

Design - A postal survey of 5000 residents in the Eastern Health and Social Services Board area stratified by age and sex. The achieved response rate was 70%.

Results - This paper will present the findings of the SF36 with regard to health service policies. Multivariate analytic techniques were used to explain these results. Special reference will be made to the influence of deprivation and urban/rural dimensions on health status and the utilisation of health services including GP consultations and hospital inpatient and outpatient services.

Impact of rural deprivation on primary care needs

MALCOLM COLINNIE (Department of General Practice, University of Glasgow)

This paper aims to explore the relatively neglected area of rural health and health care, with special reference to deprivation, needs, and resource allocation. A recent editorial in the British Medical Journal1 raises these issues and calls for more focussed research to assess how health needs vary between rural and urban areas, especially for the most geographically isolated populations. The authors call to an examination of the population imagery of the "rural idyll" which has hindered the questioning of the received wisdom that life is better in the countryside than in the city. My concerns arise from the findings of a study in Argyllshire and Arran that looks at needs assessment in primary care health. The framework for the research is based on a locality approach that explores rural/urban differences on the basis of affluence or deprivation respectively.

The paper explores the problems of defining rurality and the suitability of recent measures of deprivation, need and resource allocation, and argues for the use of qualitative methods to improve our understanding of the specific issues of need assessment that are found in the countryside. To address these issues a case study is presented that looks at the impact of rural deprivation on general practice and primary health care in the Cumnock and Doon valley.

From the research findings, it is argued that a tilt towards qualitative analysis will construct the case for more localised care. This does not suggest a single rural type of health service, rather, that patterns of provision should be adapted to local needs wherever they are situated.


Environmental factors influencing health status

S MCLARAIN, J GINGLES, 1 J McPake, 1 L Reavie1 (Department of Public Health Medicine, Eastern Health and Social Services Board, Belfast; 1Northern Ireland Housing Executive, Belfast)

Background - A collaborative project between the Department of Public Health Medicine (EHSSB) and the Northern Ireland Housing Executive (NIHE) was undertaken with the auspices of the "healthy cities initiative".

Objectives - To measure attitudes to housing, mortgage, and environmental conditions. To investigate the possible relationships between health status of residents in public sector housing and environmental conditions.

Design - The study examined six different public housing environments built after 1900 in the Belfast Urban Area. Approximately 700 respondents were identified for the sample, producing a response rate of 76%. The data were collected in June 1992.

Results - These report the findings of the impact of housing environment on health with particular reference to the general health questionnaire (GHQ) and Nottingham Health Profile (NHP). Respondents showed higher levels of deprivation in all of the areas selected than in the Belfast Urban Area. The main effects on GHQ scores and NHP dimensions were examined across sociodemographic and environmental factors. Analysis of variance procedures identified the main effects on the generic measures. The main effects on the GHQ scores were long standing illness (9.6%, p<0.01) presence of asthma (27.3%, p<0.01), satisfaction with home (1.8%, p<0.01), and marital status (1.1%, p<0.01). Other environmental problems have been identified as having an impact on the NHP dimensions.

Discussion - The findings will be presented with particular reference to the estates identifying environmental problems and how these impacted the generic measures used in the study. The findings will be used to inform policy in the future for the EHSSB and NIHE.

Dying in hospital or at home: the influence of South Asian ethnicity on place of death

J ALDous1, J Higginson, N Robinson, J Whittaker1 (1Academic Department of Public Health, St Mary's Hospital Medical School, London; 1Health Service Research Unit, London School of Hygiene and Tropical Medicine; 1Department of Public Health, Nuffield Institute for Health, Leeds)

Background - The health and health care of black and ethnic minorities in the UK is increasingly attracting specific mention in NHS policy and there is recognition among policy makers that the variations in the health needs, life style patterns, and use of health services between different ethnic groups require tailored approaches. One important area of health care in which significant differences between ethnic groups might be expected is the process of dying as there are well recognised cultural and ethnic differences in attitudes towards death and dying. The aim of this study was to describe the relationship between South Asian ethnicity and place of death in four London health districts.

Objectives - To determine the association between South Asian ethnicity, as estimated by country of birth, and place of death.

Design - Analysis of routine information derived from death certification.

Subjects - All 47 902 residents of four London health authorities who died aged 15-74 between 1990 and 1999. These were identified as 18 369 (80.1%) people who were born in the UK and Eire, 3139 (6.6%) who were born in South Asia (India, Sri Lanka, Pakistan, and Bangladesh) and 1694 (13.3%) who were born in other countries.

Main outcome measures - Place of death as recorded on the death certificate.

Results - Overall, a lower proportion of people of whose country of birth was in South Asia died at home (16.5%; 95% CI 15.3, 17.7) compared with those born in Eire (22.9%; 95% CI 22.5, 23.3), other Asian (18.5%; 95% CI 17.9, 19.7), and White British (27.1%; 95% CI 26.3, 27.9).

When age, sex, cause of death, social class, and health authority of residence were included in a logistic regression model, South
Asian birthplace was associated with a significantly decreased proportion of deaths at hospital (odds ratio 0.55; 95% CI 0.58, 0.70) compared with those of UK origin.

Conclusions - We found that a greater proportion of deaths in people born in South Asia occurred in hospital and a lower proportion occurred at home when compared with deaths in people born in the UK and Eire. These differences were most noticeable for people dying of circulatory diseases. There are many possible explanations, including differences in illness behaviour, access to and management within primary and secondary care, and differences in the natural history of disease between the ethnic groups. Further research is needed to explore these findings.

"Racism" as a variable in health research - can it be measured?

H PARKER, J L BOTHA, C HASLAM (Department of Epidemiology and Public Health, Faculty of Medicine, University of Leicester) Racism is difficult to define. For people who are "at risk" of the experience, it is a form of stress with a multitude of potential manifestations. It may affect their health. These include anger (suppressed or verbalised), feelings of helplessness, impaired self image as a result of continuously being regarded as "different/inferior", and discriminatory practices inhibiting access to and appropriateness of health services.

Differences in disease rates, inequality in access to and utilisation of health services for black* people compared with white people have been documented. Some researchers have suggested that, after controlling for other confounding variables such as socioeconomic status and class, the effect of racism could help to explain these differences. However, health researchers rarely, if ever, attempt to quantify and include the experience and subsequent impact of racism on the health of black people. Were researchers prepared to include racism as a variable, how would they go about it?

This paper reports an exploratory qualitative study conducted by the authors to examine the personal characteristics which may affect the experience or impact of racism. Findings from the study confirm that racism is a form of stress that can affect health and the population included in health research. As with stress measurement, quantifying the experience of racism is complicated and based on individual perception, which in turn is influenced by factors such as coping mechanisms, individual awareness of racism and understanding of ethnocentrism, age (generation), educational qualifications, and whether a person lives in an area where they are part of a minority group. These issues and data from the qualitative study are incorporated in a racism measure in checklist format and methodological guidelines, developed to enhance the inclusion of racism as a variable in health research.

Difficulty in measuring human experience does not justify ignoring the potential effect on health. In the case of racism, failure to consider the impact of racism in health research, may result in incomplete understanding of other determinants of ill health and ineffective intervention. This omission could itself be considered a discriminatory practice.

* Black is used as a political term and describes people, regardless of ethnic origin, who have the experience of racism in common

Sexual health needs assessment of young people in Macclesfield

M J PLATT, T TAYLOR, L BATCHelor, B M REGAN (Public Health Department, South and East Cheshire Health Authority; East Cheshire (NHS) Trust, Macclesfield, Cheshire)

Objective - To assess for sexual health services and estimate current provision among adolescents in Macclesfield.

Design - Cross sectional study, collecting data by an anonymous self-completed questionnaire, distributed by teachers during classes.

Setting - Teenagers aged 14 plus years attending schools in Macclesfield health district.

Main outcome measurements - Knowledge of local medical services and contraceptive methods, levels of sexual experience and contraceptive use, barriers to obtaining and using contraception, and levels of smoking and drinking.

Results - A total of 816 adolescents completed the questionnaire. Ninety one per cent knew the whereabouts of their GP and 54% a family planning clinic. Significant differences by gender and age were observed. Altogether 243 respondents were sexually experienced, 86% of whom had used some method of contraception, usually condoms. Sexually experienced adolescents were older and smoked and drank regularly. Confidentiality was the main requirement of health service provision for adolescents.

Conclusions - Thirty per cent of the sample were sexually experienced. Teenagers in Macclesfield had a good knowledge of contraceptive options, but limited knowledge on accessing them. Fear of lack of confidentiality was the main barrier to accessing health services. Extrapolation of the results suggest that about 130 teenagers (under 16 years) have unprotected sexual intercourse annually, with implications for provision of contraceptive services and teenage pregnancy rates.

How much does social deprivation contribute to accident and childhood mortality in England?

MARGARET EAMES, MICHAEL HENLEY, YOAV M-SHOMO, MEREDITH DAVIES (Health and Safety Statistics Research Group, University of Herfordshire; Hatfield; Department of Epidemiology and Public Health, University College London)

Objective - This study aims to compare in relation to health regions all infant deaths, deaths under 15, and accidental deaths (of all ages) aggregated by electoral ward and to model mortality from related census social deprivation scores and environmental ward factors, for all England.

Sources of data - Deaths from 1981-85 Office of Population Censuses and Surveys data were aggregated and relocated where necessary to 1981 ward boundaries for all of England. The 1981 census variables were available by ward (through SASPAC), and social deprivation scores (Townsend, Jarman, Carstairs, and Department of Environment) were computed from ward measures of car ownership, housing tenure, unemployment, overcrowding and social class, and other variables.

Methods - Both social deprivation scores and their components were investigated with population density and other ward factors as candidates. The interaction of the variation in infant, childhood, and accident mortality in England, using step wise regression models.

Results - Accidental death (for ages under 65) was less clearly associated with social deprivation than previous research has shown for adult mortality. Several areas of England with low mortality also were areas of low social deprivation. Most regional quintile plots for both male and female accidental death showed an upward trend with Townsend's index. However, the East Anglia, Wessex, Oxford, and Northern regions showed exceptions to this pattern. Similarly, for some regions childhood deaths were not strongly associated with social deprivation alone. Population density was a more powerful independent variable in explaining variation. Infant mortality was correlated negatively with social deprivation (−0.03 < r < 0.3) but the relationship seemed to be non-linear for both male and female mortality in 10 out of 14 regions.

Discussion - Despite aggregating 1981-85 deaths, numbers of infant deaths were small, and zero accidental deaths occurred in 1027 of 8464 wards. However, it was of interest to examine the social deprivation scores of wards with zero deaths. Alternative models were used to enable full utilisation of wards with zero deaths. The non-linearity of infant mortality was highlighted by the results of previous work on social deprivation and adult mortality and other factors may be responsible for this result. Recent research based on 500 wards was published. The South East Lowlands counties area by Barnes and Fordham has suggested that homes built upon waterlogged soil may be a possible contributing risk factor to infant mortality. This factor (ward index of degree of soil drainage) is now being investigated with others in this current project, but analysis of all England wards would test this hypothesis.

Health needs assessment in primary care

CAROLINE MCLNAY, SURRYIA GILL (Department of Public Health Medicine, Manchester Health Authority)

Objective - To answer the following questions: (a) Is needs assessment within primary care possible? (b) Do the benefits (to the patients and the practice) outweigh the costs? (c) Is there evidence that a sustainable activity in primary care?

Design - Analysis of all routinely available sources of data on practice demography and health using existing patient data, public health data on mortality, and morbidity and census data for the nearest geographical approach to the practice population.

Setting - A GP fundholding practice with a population of 9000, in inner city Manchester.

Conclusions - A practice profile was prepared and discussed with members of the practice team. This discussion highlighted areas of concern for the practice and raised a number of questions regarding the costs of unmet need and the quality of general practice data. Examples of these will be given. The cost of obtaining such data will be discussed with particular emphasis on the added value of these data. The conclusions and future health needs assessment strategy of the practice will be summarised.

Evaluating the provision of complementary therapies in primary care at the Liverpool Centre for Health pilot project

JULIE HOTCHKISS, ERICA SAUNDERS, PAUL KEELING, JOHN WHELAN (Liverpool Public Health Observatory, University of Liverpool)
Objective – To describe the effect on health status and utilisation of (some) health service resources of the patients referred to a group of practices offering complementary therapies (acupuncture, homoeopathy, counselling, remedial massage, and osteopathy).

Design – A prospective study of the patients who were referred to the centre by GPs. Patient health status was assessed by means of a self completion questionnaire, the short form 36 (SF-36), administered at first visit and following complementary therapy. Additional information was collected by means of a GP referral form, and open questions on the patient questionnaire.

Setting – An NHS primary care setting in an economically deprived area of inner city London.

Subjects – Patients referred by 15 GPs over a three month period; a total of 96 patients were seen, 35 of whom completed eight weeks’ therapy, or were discharged.

Results – Most patients referred experienced chronic health problems; only five of the 96 had a problem of three months or less duration. The chief problems were musculoskeletal (especially chronic joint pain) and various forms of psychological stress and/or depression. The 35 patients who completed therapy showed statistically significant improvements in four of the eight health dimensions measured (bodily pain, mental health, energy, and general health perceptions). In addition, very positive comments were written by patients in response to an open invitation. Without a suitable control it is impossible to state the effect on GP behaviour, but according to the referral forms, GPs hoped to prescribe less analgesia and non-steroidal anti-inflammatory drugs, as a result of the therapies. They also claim that in 55% of referred patients, they would have referred the patient to another service (physically orthopaedics, physiotherapy, and psychiatry).

Conclusions – Even after only eight weeks, significant improvements in health status could be detected in patients with a range of chronic problems referred to a centre offering complementary therapies. Now that the pilot project has been extended, we hope to collect further and better quality information on utilisation of health services, by patient interview and case note searching.

Community oriented primary care – developing public health skills in general practice

STEPHEN GILLAM (Department of Public Health, St Mary’s Hospital Medical School, London)

Aims – (1) To describe the King’s Fund’s community orientated primary care (COPC) project which display the COPC training materials; (2) To present an evaluation methodology and preliminary results of this method.

Methods – COPC is an approach to health care that attempts to merge the principles and practice of public health medicine and family practice. The use of epidemiology in the assessment of community health needs and the delivery of care in relation to those needs forms the basis of COPC. The approach has been developed and tested over several years in many parts of the world. The King’s Fund has piloted a training package in several sites around the country. Primary health care teams (PHCTs) are taken through a cycle that leads in turn through community diagnosis, prioritisation, detailed problem assessment, planning, implementation, evaluation, and back to community diagnosis.

COPC is being evaluated in terms of (a) its impact on the organisational development of both providers (PHCTs) and purchasers (family health services authorities/district health authorities (FHSAs/DHAs)), and (b) its potential for providing suitable data to inform purchasers’ assessments of need. Data are being collected using (i) postal questionnaires, (ii) semi structured interviews, (iii) participant observation and meeting site visits, (iv) project documents from practices, DHAs and FHSAs.

Results – Participation in the workshops has strengthened working relationships within PHCTs and with counterparts in commissioning agencies. COPC helps to develop skills in needs assessment, project management, epidemiology and evaluation. Parallel circles can be drawn between COPC and initiatives such as clinical audit, the HEA’s Multidisciplinary Team Workshop Project and certain forms of community development. Benefits to patients and costings are being assessed in later stages of the evaluation. While COPC can be absorbed within existing practice resources, most projects have required some extra support from the FHSAs/DHAs.

Conclusions – The COPC package is a useful practice development tool. COPC may provide a framework for fundholders or practice teams involved in locality-based alternatives developing needs-led purchasing plans. The training materials may be of value in undergraduate and postgraduate educational settings.

Patient satisfaction with general practice

D. MCDADE, S. MCRELAIN (Department of Public Health Medicine, Eastern Health and Social Services Board, Belfast)

Objectives – To identify and explain dimensions of patient satisfaction with general practice.

Design – A postal questionnaire of a stratified random sample of a health board’s population.

Sample – A sample of 1200 respondents.

Results – Factor analytical techniques identified three specific dimensions of patient satisfaction which explain 76% of the variability in the data. The three dimensions are summarised as GP consultations, reception staff, and GP Availability. Multivariate analysis of variance procedures were used to develop a series of explanatory models to explain variations in satisfaction levels.

Conclusions – The poster also comments on the impact of the study on general practice within the Eastern Health and Social Services Board area.

Hidden price of cost and volume contracts

ALASTAIR LEYLAND (Public Health Research Unit, University of Glasgow)

Objective – To consider whether health board A is subsidising health board B and whether teaching hospital X (in health board A) should vary the price of the cost and volume contracts for general surgery it has with the two health boards.

Background – Teaching hospital X has cost and volume contracts for general surgery with two health boards which include provision for some activities that can be considered as tertiary care. It feels that referrals from health board B include a greater proportion of more complicated cases. If this difference in case mix results in higher average costs, then cost and volume contracts at the same price for the two health boards means that health board A is seeing a smaller return for its expenditure.

Design and setting – Analysis of linked hospital discharge records for Scotland for 1990–91 with background information taken from the 1991 census.

Method – Multilevel modelling of 180,000
Provision of intensive care in England

M A METCALFE, K MCPHERSON (Health Promotion Science Unit, London School of Hygiene and Tropical Medicine)

Objectives – To examine the determinants of refused admission to intensive care.

Design – (A) A survey of all intensive care units (ICUs) in England; (B) a prospective three month audit of requests for admission in six ICUs, with follow up of patients admitted and refused admission 90 days after the first referral.

Setting – (A) England; (B) six ICUs in different types of hospitals.

Results – (A) Survey:

(1) The most powerful determinant of reported refusal rate was the staffed ICU bed provision per 1000 population (SBP): 1.5 beds/1000 000 in the low supply group and 5.2 beds/1000 000 in the high supply group.

The crude mean refusal rates for low, medium, and high bed provision respectively were 9.7%, 6.9%, and 4.5%. Relative to ICUs with low SBP, ICUs with high and medium SBP have lower refusal rates: odds ratios (OR) 0.28 (95% CI 0.24, 0.32), and 0.65 (95% CI 0.57, 0.73) respectively.

(2) Refusal rates were almost double in ICUs (a) with high numbers of nurse whole-time equivalents per staffed bed compared with low numbers: OR 2.22 (95% CI 1.91, 2.60); and (b) with medium numbers of allocated consultant sessions compared with ICUs with low numbers: OR 1.58 (95% CI 1.56, 2.16).

(3) Other factors affecting increases in refusal rates were: (a) high numbers of other hi tec beds compared with few: OR 2.16 (95% CI 1.81, 2.59); (b) ICU-only patients admitted with IC/corony care/high dependency patients: OR 2.11 (95% CI 1.80, 2.50); and (c) whether ICU-allocated consultant sessions were shared with other duties or not: OR 1.8 (95% CI 1.56, 2.07).

(B) Prospective audit. Crude refusal rates ranged from 12% to 62%. We shall compare survival rates 90 days after first refusal of patients admitted to the ICU with those of patients denied admission.

Discussion – A nearly fourfold difference in bed supply seems to result in only a halving in the crude refusal rate. Numbers of admissions are also strongly related to the supply of facilities (beds, medical and nursing staff), indicating the existence of different admission refusal rates. To test this hypothesis, the longitudinal study (B) will provide insight into the consequences of refused requests for admission to ICUs in geographical areas with varying levels of bed supply.

Conclusions – Supplying intensive care beds on the basis of the number of refusals is not a viable policy option. The cost of IC in the United States, where 1% of GNP is spent on IC, is ten times higher than in the UK. In England there is a perceived demand for IC which appears to exceed supply. Before considering allocating further resources to IC (already a more expensive than ward care), proper outcome assessments to guide purchasers should precede any rapid growth in provision that this comparison might imply.

An audit of forefoot surgery in Suffolk

C LASTON (Department of Public Health Medicine, Anglia and Oxford Regional Health Authority, Cambridge)

Aim – To demonstrate and improve the quality of services providing forefoot surgery.

Design – Multiprofessional audit. Participants agreed audit indicators and standards. Patients were sent questionnaires nine months after surgery, and medical records were reviewed.

Setting – Suffolk Health Authority.

Subjects – All patients who had undergone forefoot surgery in Suffolk between 1 October 1991 and 31 March 1992.

Main audit indicators – Clinical outcome, sentinel events, and patient satisfaction.

Results – A total of 353 nail and 238 other forefoot operations were identified, performed by orthopaedic and general surgeons, podiatrists, and GPs. Patient questionnaires resulted in 62% and 83% response rates respectively. Only podiatrists attained the agreed acceptable standards for nail surgery. Podiatrists performed a limited range of forefoot surgery. Podiatrists and orthopaedic surgeons attained similar standards in surgery on lesser toes for comparable case-mix (36 and 29 operations respectively).

Clinical interpretation – No group was deemed to have unacceptable or unsafe practices.

Recommendations by participants – These included: changing surgical practice in favour of effective techniques, increasing referral of patients needing nail surgery to podiatrists, and encouraging research into the effectiveness, efficiency, and appropriateness of podiatric surgery.

Recommendations for purchasers – Purchasing guidelines, including quality standards and contract monitoring, need to be developed for podiatric surgery.

Follow up – The implementation of recommendations and patients’ satisfaction with surgical outcome will be audited in 1995-96.

Evaluation of St Albans’s minor injuries unit

P NEWMAN (Department of Public Health Medicine, North West Thames Regional Health Authority, London)

Objectives – To evaluate a minor injuries unit (MIU) staffed by nurse practitioners and make recommendations for its development, including consideration of whether a doctor should be employed in the unit.

Design – A questionnaire survey and case note review using the nominal group technique.

Setting – A minor injuries unit established after rationalisation of acute and accident and emergency (A&E) services, and an A&E department seven miles away in Hertfordshire.

Subjects – A total of 994 new patients attending the MIU and A&E defined as “primary care attenders”.

Main outcome measure – Reasons for attendance, presenting diagnoses, waiting times, patient satisfaction, and proportion of participants who would choose the MIU.

Results – Twenty one patients attended the MIU and 27 the A&E department per day, of whom 43% were defined as primary care. Twenty five per cent of patients who attended the MIU were transferred to an A&E department, and 1% were transferred by ambulance. Patients most commonly presented...
Failure of the revised pre-donation guidelines to prevent people with a history of high risk behaviour from donating blood

K R Neal, D A Jones, V James (Department of Public Health Medicine, University of Nottingham, Trent Region Blood Transfusion Service, Sheffield)

Introduction - After the introduction of screening of all blood donors for hepatitis C it was noted that 50% of those confirmed as HCV positive had a history of injecting drug use. Investigation showed that the donor information, aimed at excluding potential HIV positive donors, was misleading and inadequate for excluding other blood borne viruses. The information given to blood donors was revised in Trent Region from 1 February 1993. We have evaluated the effectiveness of this new literature.

Design - All donors identified as anti-HCV positive by the ELISA (UBI) screening test are subsequently tested using a RIBA-2 (Ortho) for confirmation. All donors positive on the RIBA-2 test are interviewed by a trained member of Trent Region Blood Transfusion Service. The interview includes a structured questionnaire which covers risk factors and associations with HCV infection.

Setting - All blood donor venues in the Trent region.

Subjects - Twenty two donors were confirmed positive for HCV infection in the five month control period (1 September 1992–31 January 1993), 21 of whom were interviewed. In the study periods 1 February 1993 to 30 June 1993 and 1 July 1993 to 30 November 1993, respectively 16 and nine HCV positive donors were identified, all of whom were interviewed. Main outcome measures - Risk factors for blood borne virus infections ascertained at interview.

Results - The results are shown in the table. The total donations and number of first time blood donors were similar for each five month period.

Conclusion - There has been a reduction in the number of HCV positive donors identified since the introduction of the revised literature, although it is unlikely that this was the cause. Our results strongly suggest that alternatives to the current system need to be implemented. The introduction of the "medical assessment of donors" programme should be begun as soon as possible and properly evaluated to show whether this has improved the selection process of blood donors.

District nursing on the move: care in the community and the changing activity of the district nursing service

MARY STUDGION, GERALDINE BASKET (Department of Public Health, London)

Objectives - To gain comparable data across a district health authority about the work done by different members of the district nursing services and to investigate how care managed patients have affected the district nurses' workload.

Design - Two one day surveys of district nursing activity and caseload in autumn 1992 and autumn 1993.

Setting - An inner London health authority.

Subjects - All clinical members of the two district nursing services operating within the geographical boundaries of the health authority.

Results - A total of 170 (90.4%) of the eligible nurses completed the form in 1992, and 164 nurses (100%) in 1993. In both of the surveys, there was a wide variation in the reported activity between the localities in the district which could not solely be explained by the identified needs or characteristics of the local population. District nurses (qualified nurses with a diploma in district nursing) spent most of their time on assessments or non-clinical care. Most technical care was carried out by general trained nurses and personal care by nursing auxiliaries. In 1993, 15-2% of all patient visits were to care-managed patients. Comparison of the 1992 and 1993 data showed that in 1992 nurses saw an average of 8-5 patients on the day of the survey compared with 8-6 patients per nurse in 1993. The number of visits with more than one nurse had increased by 68%, and the number of visits lasting more than 30 minutes was 48% more than in 1992. Nurses in 1993 reported giving more items of care than in 1992, with significantly more medication, wound management, and carer support activities (p<0.01), but less patient and carer education (p<0.01). There was little change in the amount of non-clinical activity.

Conclusion - Nursing activity and caseloads seemed to be reflecting previous historical patterns of provision and the availability and access to alternative services. Since 1992 there has been a change in both the type and amount of clinical care being carried out by the district nursing service, which may be associated with the introduction of care in the community and care-managed patients.

Section 47, National Assistance Act 1948 and National Assistance (Amendment) Act 1951

J F Skons (Cardiff)

This presentation concerns the operation of the powers granted under the National Assistance Act 1948 and the National Assistance (Amendment) Act 1951 for compulsory removal to hospital or other institution, if necessary forcibly.

Under Section 47 of the National Assistance Act 1948, as amended, adults can be removed to secure "the necessary care and attention" if they: (a) are suffering from grave chronic disease or, being aged, infirm or physically incapacitated, are living in insanitary conditions; and (b) are unable to devote to themselves, and are not receiving from other persons, proper care and attention.

The history of the legislation is outlined, including details of debates in the House of Commons that modified the original proposals in the National Assistance Bill. Reasons for the failure of Section 47 in the National Assistance Act 1948 are put forward and the role of the late Sir Alfred Broughton in piloting the 1951 amendment through Parliament is described.

Published work on the operation of the acts in England and Scotland is reviewed. The author's experience of the practical problems in Oxford and Bristol is summarised.

Experience in Wales is contrasted with that in the Northern Regional Health Authority, including Cleveland, Durham, Northumberland, and Cumbria. Details are given of 29 cases in South Glamorgan between 1 April 1974 and 31 December 1989.

Proposals are made for the future deriving lessons from the operation of the Mental Health Act 1983.