Results – Rankings of hospitals by death rate are sensitive to severity adjustment and the use of persons rather than episodes. The numbers of deaths from specific conditions are often small and the corresponding confidence intervals are wide. There are important questions about whether any case-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 a political rather than scientific ground.

Poster presentations

METHODOLOGY

Leicestershire mortality list – a population-based mortality information system

J D LANGLEY,1 D M JACKSON,2 J L BOTHA1
(1Department of Epidemiology and Public Health, Faculty of Medicine, University of Leicester; 2Department of Information Management and Technology, Leicestershire Health, Leicester)

The Leicestershire Mortality List (LML) is a computerised register of the deaths of residents of the county of Leicestershire, which is the county area of Leicestershire Health Authority. LML has been in operation since 1988, and was developed by staff of the Department of Epidemiology and Public Health in association with Leicestershire Health Authority. The Leicestershire Mortality List (LML) is compiled from notifications of deaths sent by registrars of deaths to the director of public health; (ii) is intended to be a complete record of all deaths of Leicestershire residents since 1 January 1988; (iii) contains the deceased’s name, sex, date of birth, date of death, postcode, and causes of death (as text); and (iv) includes deaths of Leicestershire residents outside Leicestershire, whether in the UK or abroad.

In addition, the full LML data set includes: full address of deceased, cancer and tuberculosis notification, and recording 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 Leicestershire Diabetes Register and the Leicestershire Learning Disabilities Register. LML contains the necessary keys to link to the Office of Population Censuses and Surveys (OPCS) mortality data for Leicestershire residents.

Comparison of LML (registrations in 1991) with the corresponding OPCS data shows that (a) LML contains 98.6% of the death records found on OPCS (LML:8776, OPCS: 8942), (b) 96% of the LML records are directly linkable to OPCS death records using year and month of registration, district of registration, registrar, and register entry number. Of the remaining 4%, approximately 2% are linkable using record linkage techniques. The remaining 2% is estimated to be complete for at least 97% of the Leicestershire population and contains named data, with ICD9 coding of underlying cause of death plus full test 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,2 R S BHOPAL,3 S RAYBOULD,4 K G M M ALBERTI,5 HARRINGTON1
(1Department of Medicine, 2Department 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 study; (ii) to identify subgroups 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 using a name analysis of the family health services authority (FHSAs) register for Newcastle, and in response to publicity aimed at the Chinese community. Subjects identified from the FHSAs register were invited to attend for cardiovascular screening and non-respondents were followed up.

Results – A total of 368 Chinese adults with Chinese-sounding names were identified from the FHSAs register. A total of 368 residents 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 FHSAs and non-FHSAs subjects. Men from the FHSAs 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 FHSAs register is inaccurate for the Chinese population of Newcastle and is likely to be inaccurate for other Chinese populations in the UK. We found no differences in sociodemographic variables or in selected risk factors for coronary heart disease in subjects identified from the register and those identified from other sources. This suggests that subjects identified from the FHSAs register are a representative sample of the whole Chinese community. Name analysis of the FHSAs 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 biases by improving sampling on lifestyle related 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 55 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 control was selected. Patients were phoned to recruit 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. Forty of the 125 stroke patients (34%) were managed at home rather than in hospital. No stroke patient (or their relative/ friend) declined to be assessed. Eighteen per cent of registered patients who were initially selected as controls had either moved from the area or died. Altogether 198 of the 207 eligible controls agreed to the assessment – a response rate of 96%. From the 198 included controls, a record on the following had been made in general practice or local hospital notes; cigarette smoking – 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 relevant to health are incomplete in general practice records but allow assessment of possible recall bias. Specific assessment of cases and controls from a general practice network can offer a convenient and valid case-control methodology.

Maximising postal survey response rate

C J HARDY,1 K R MURR,2 R J POWELL1
(1Department of Public Health Medicine and Epidemiology, and 2Department of Immunology, Queen’s Medical Centre, Nottingham)

J Epidemiol Community Health: first published as 10.1136/jech.48.5.509 on 1 October 1994. Downloaded from http://jech.bmj.com/ on September 15, 2023 by guest. Protected by copyright.
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 (Perloth, 1991). Methods to maximise response rates from survey participants and thereby 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. One factor that was used in a concurrent postal survey on the aetiology of systemic lupus erythematosus, a multisystem disorder characterised by an overactive immune system. A three factor, eight “cell” randomised design was used to investigate the three aspects of questionnaire design. The eight cells represented all possible combinations of the following three factors. Factor 1: The covering letter accompanying the survey that was returned completely. The covering letter must be either 20 or 30 minutes. Baker (1985) found that a longer questionnaire significantly increased the time respondents took to return the completed return forms. The aim was to investigate the effects of perceived length of completion time upon response rate. Factor 2: Related to the colour of paper that the survey was printed on, either yellow or white. Seaman and Verhoek (1982) found that coloured paper elicited the most survey returns. Factor 3: 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. Seity (1944) and Robinson (1952) advocate that illustrations increase response rates, whereas Erods (1957) found that illustrations elicit helpful returns. A total of 750 of 1000 (75%) questionnaires were returned after one postal reminder, over 13 weeks (mode = seven postal days). The total, which postal surveys will be returned, although they did not ultimately affect the total response rate.

Measuring change over time: a comparison of results from a global single item of health status and the multidimensional short form—36 health status survey questionnaire

VIV PETO,1 CRISPIN JENKINSON,2 ANGELA COULTER3 (1 Health Services Research Unit, University of Oxford; 2 King’s Fund Centre for Health Services Development, London) Objectives—This paper compares the sensitivity to change of a multi-item, multidimensional health status measure with a single global health status question, in the assessment of treatment for menorrhagia.

Design—A cohort study of patients recruited by GPs, with health care 3 months before and 18 months after randomisation to hysterectomy, general practice follow-up, or surgical treatment.

Setting—General practices in Berkshire, Buckinghamshire, Northamptonshire, and Oxfordshire.

Sample—Three hundred and nine women who reported heavy menstrual bleeding and received either drug or surgical treatment (endometrial resection or hysterectomy) during the 18 months between the two administrations of the questionnaires.

Main outcome measure—Eight dimensions of the short form—36 (SF-36) health survey questionnaire, together with a global question asking patients to rate their overall health status as “excellent”, “very good”, “good”, “fair”, or “poor”.

Results—The dimensions of the SF-36 identified only small levels of improvement for patients who received drug treatment, but on many dimensions of the SF-36, a moderate to large improvement was detected for the surgical group. However, small changes were reported in overall health status for both groups.

Conclusions—Single item measures of health status may not provide a sufficiently accurate indication of health status for use in longitudinal studies.

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 patients whose characteristics (age, gender, area of residence, previous hospital care, and seasonality) accurately reflect distributions in the real world. Although 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 (SMR1) 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, occurrence rates are derived from the count and the proportionate population. The geographical basis for the rate that is used in the simulation is determined by the proportion 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 SMR1 data fields that conform to patient characteristics. Additionally, other useful information can be derived, such as small area and age specific diagnostic rates. The model provides accurate estimates of the demand for acute inpatient care reflecting the epidemiological characteristics of a local population and can be used to simulate the effects of demographic, epidemiological, and management induced changes on the demand for care. The simulation enables a more accurate prediction of the effects of such changes than is possible from historical records and, provides a valuable adjunct to the purchasing and providing of appropriate acute inpatient care.

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

Y G DOYLE, P C CRYER (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 (SEIIPH) on behalf of WHO.

Design—Indicators covered the areas of health, health services, environment, and social trends within the city. Indicators were judged against an index of health and the 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 SEIIPH judged the indicators in a unidisciplinary and a multidisciplinary forum, and indicators were scored and qualified.

Main outcome measures—A validation of the indicator and tool to 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 the indicators for the 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 BOSS, Z H KUBROWSKI, A MUNRO 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 post-operatively. 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></td>
<td></td>
</tr>
<tr>
<td>Perfect</td>
<td>66 (93)</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>61 (90)</td>
<td></td>
</tr>
<tr>
<td>Normal</td>
<td>30 (43)</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>5 (7)</td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>7 (10)</td>
<td></td>
</tr>
<tr>
<td>Patient's activities compared to the operation (%):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 12</td>
<td>17 (2)</td>
<td></td>
</tr>
<tr>
<td>Same as</td>
<td>35 (57)</td>
<td></td>
</tr>
<tr>
<td>Less than</td>
<td>40 (63)</td>
<td></td>
</tr>
</tbody>
</table>

Main outcome measures – Changes in ratios of male to female age standardised mortality rates over time.

Results – Male rates are higher than female rates currently, but have not always been so except for infants under 1 year of age, for whom the ratio of male to female death rates has stayed fairly constant, at about 1.25, from 1841–1991. Between 1841 and 1900 there was little change in sex ratios, nor were there differences from unity of more than 15% for any age. Men were affected more than women during the influenza epidemics in the first half of the 20th century, but apart from this the major changes in sex ratios occurred just after the second world war, since when the age group 15–24 years has seen a sharp rise until the mid 1960s, a decline until the early 1970s, and a continuing but slightly less steep climb that continues to the present, where it currently stands at around 2.7. The group aged 25–34 has seen more gradual increases since the war, but the trend has accelerated since the late 1980s and stands at around 2.7 for males currently. For ages 35–44 the increasing trend is less pronounced, but there has also been an acceleration since the late 1980s. For older age groups the ratios have peaked and are now declining, which means the mid 1990s may be the peak for those aged 45–54 and 55–64, and mid 1980s for those aged 65–74. Trends will also be described by ICD chapter, and cohort trends will be shown.

Conclusion – These analyses help to make assumptions about future trends, contributing to predictions of life expectation for men and women.

Changes in premature mortality differentials by marital status in Hungary and in England and Wales

PIROSKA HAJDU, MARTIN MCKEE, ANDERSON BOGDANS, DEPARTMENT OF SOCIAL MEDICINE, UNIVERSITY OF EDINBURGH, SCOTLAND; AND THE HEALTH SERVICES RESEARCH UNIT, UNIVERSITY COLLEGE LONDON, UK

Background – During a time in which death rates have been falling in western Europe, the former socialist countries of central and eastern Europe have experienced decreasing life expectancy, especially among males. There have been few attempts to explore the factors associated with these diverging trends or to identify groups in central and eastern Europe who are most at risk or who have been protected. There is evidence from many countries that those who are married have lower mortality than those that are single, widowed, or divorced but, as yet, no evidence as to how any protective effect of marriage has changed during the time that life expectancy has been declining.

Objective – To compare patterns of mortality by marital status in Hungary and in England and Wales.

Design – Analysis of published age standardised data on death rates in relation to marital status in England and Wales and in Hungary.

Results – The increased death rate among men in Hungary has been greatest among those who are divorced, widowed, or never married, with married men appearing to have been relatively protected. Among women, the greatest increase has been among widows.

Conclusion – Selection and social causation hypotheses are explored. The latter include four possible mechanisms. Firstly, that dis-solution of marriage is associated with a considerable worsening in material well being. Secondly, that marriage protects against stress by providing a well defined socially acceptable role that is congruent with the expectations of society. Thirdly, that marriage acts to prevent individuals indulging in risky negative health behaviours. Fourthly, that better health of married people is mediated through their increased levels of social support. The evidence available strongly supports the view that several mechanisms are involved but that economic decline is likely to have been of major importance. This is confirmed by more recent evidence on the economic decline in the mid 1980s in neighbouring countries and its exacerbation since market based reforms were put in place in the 1990s.

Analysis of factors that widen mortality differences in an urban area in Japan

Y TAKASHIMA, T TAKATORIGE, N NAKANEHISI, T YIDA, H FUJIMARA, K TASHIMA (Department of Public Health, Osaka University Medical School, Japan)

Objective – To identify the factors that contribute to widening mortality differences in electoral wards in a Japanese city, so as to improve health promotion in urban areas.

Setting – To estimate a range of mortality differences among the wards in Kobe City, standardised mortality ratios (SMRs) in 1983–87 and 1988–91 were calculated for each ward. To analyse the contributions of age and cause of death to the mortality differences, mortality ratios were ranked in relation to group, and SMRs in relation to cause of death and ward were calculated. Kobe City, in mid-western Japan, has a population of approximately 1.4 million living in nine wards ranging from 160,000 to 200,000 residents. The causes of death examined were gastric cancer, liver cancer, cancer of the trachea and bronchus, ischaemic heart disease, cerebrovascular disease, chronic liver diseases, accidental and poisoning, and suicide. Data were derived from annual vital statistics of Kobe City, Hyogo Prefecture, and Japan from 1983–91, and the 1985 and 1990 censuses. The figures for SMRs in 1983–87 and 1988–91 were standardised to the national mortality by age in 1985 and 1990 respectively.

Results – SMRs by ward ranged from 0.95–
1.25 for men and 0.93–1.13 for women in 1988–91. The SMRs for both genders living in the central area 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 one in the others. 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) 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 age and gender in Japan and pointed out the main contributing factors, focusing on age by gender and cause of death. In Kobe City mortality differences in relation to wards were identified predominantly in middle aged men 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.

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 the admission data.

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

Setting – Liverpool District Health Authority.

Main outcome measurements – 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 30% over the same period, but the overall abortion rate has fallen only 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, NEIL DRUMMOND
(1Department of Obstetrics and Gynaecology and 2Health Services Research Unit, University of Aberdeen)

Introduction – A series of needs assessment interviews with teenage women attending Aberdeen 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, had inadequate time at the clinic, and in some cases felt that 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.

Objective – 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. 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, time spent in clinic, 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 and stress in 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-maturity, 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 20 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 experience of psychosocial stress, or both. The risk of negative outcome was seen to increase in proportion to the amount smoked, and the negative effect of stress was small in comparison.

Discussion – Overall, the results show that smoking is by far the greatest predictor of low birth weight outcomes, with stress increasing the risk further. As the authors point out, reliance 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 measuring stress emphasises 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. The possibility of measuring the value of neonatal care was not rated in many 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 health systems 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 born in these three hospitals were provided from the maternity data set, 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 Infant 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 added for infants transferred after birth in another hospital. Records for infants born in the hospital have been linked with community child, child records using date of birth, time of birth, and birthweight to match records.

Results – The results provided relate to the infant 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 neonatal records had been identified as having been taken in another hospital, and in one case at home.

Trends in rates of admission were studied for infants categorised by transfer status, birth weight, gestation at birth and weight and birth. In this hospital, 95% of liveborn infants weighing...
Evaluation of the implementation of infant feeding guidelines

G M BLEAKNEY, S MCBRAN (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 and attitudes 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 give 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 additional questions to elucidate the penetration rates were added. The knowledge and attitude scales were developed for the questionnaire.

Subjects — A total of 1497 health professionals, which included all midwives, health visitors, district nurses, physicians, general practitioners and pharmacists were surveyed.

The response rate was 75%.

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 (eta²=0.20, p<0.0001). Profession was the independent variable with the greatest effect on knowledge score (eta²=0.31, p<0.0001). The 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 (eta²=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 had been 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 — Children born in 1985 to residents of the Oxford area, aged 7, selected from 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 teachers and GPs. The main outcome measures were ability to 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 disorder, vision/ocular defects, and deafness. The results were weighted in order to get 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 in all areas assessed in school, 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 scored 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 adapted to monitor the demands made, by successive cohorts of low birthweight babies on educational and health services.

Losing control: experiences of the Scottish low birthweight study in assessing motor development

N McLEOD, C COUNSELL, A HALL, L THOMPSON, L MUCKET (Public Health Research Unit, University of Glasgow)

Objective — To assess the rate of motor impairment in very low birthweight (VLBW) children (<1500 g) at 8 years of age and compare results with those found at 4 years.

Design — Population based cohort study with follow up at 4 and 8 years, controlled at the latter stage.

Subjects — A total of 324 children weighing ≤500 g at birth, born in 1984 and still resident in Scotland at age 8, were assessed, together with 590 classroom controls matched for age and sex.

Main outcome measure — Movement ABC test (Henderson and Sugden, 1992), comprising eight tasks of motor functioning, administered to all children at 8 years, and cases alone at 4. Test standards were used at both 4 and 8 years to identify children experiencing poor motor competence (test score ≤10th centile).

Results — Altogether 289 cases and 587 controls completed the test, excluding referrals and children with a known physical disability. Using the test standards, 172 (60%) cases and 167 (28%) controls were identified as impaired. The high percentage of motor impairment controls implied the normative data were inappropriate for our sample. Re-standardising cases' results using Scottish controls, 104 (36%) VLBW children were found to be motor impaired, a significantly larger proportion than their heavier birthweight peers (χ²=81.5, p<0.0001). No Scottish controls were available at 4 years, and using test standards, 23% of the preschool VLBW population were found to be motor impaired.

Discussion — From our 8 years results, serious discrepancies have been found between test and control standards. These differences in motor competence may be attributed to three factors: age at measure, cultural and socioeconomic status. Without controls at 4 years, we are unable to assess the applicability of test standards to our preschool VLBW children. While the figures seem to show an increase in the rate of motor impairment in the VLBW population, the reference population has changed between 4 and 8 years; thus the true pattern of motor development remains unclear.

Conclusions — Standardised tests are often considered an economical and reliable alternative to motor controls; however, the normative data may be inappropriate for our sample. Test standards are not infallible, however, and in order to assess developmental patterns, it is necessary to include a control cohort to provide normative data over time.

CANCER AETIOLOGY AND CONTROL

Cancer mortality after x ray treatment for ankylosing spondylitis

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

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

Design — Cohort 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 deaths to expected (relative risk, RR) 1.30 based on 1677 deaths, and significant increases individually for leukaemia, non-Hodgkin's lymphoma, multiple myeloma, and cancers of the oesophagus, lung, bone, 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 dose since exposure after an initial increase. By 35 years after the first treatment, the radiation related excess for lung cancer had completely disappeared. For 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 non-Hodgkin's lymphoma.

Conclusions - This study confirms previous suggestions that the relative risk associated with radiation exposure in the period more than 25 years after exposure may be less than in the 5-24 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 J HOLLE, 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 sitting 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 sectors relating to 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 in 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 Donanay: 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 most noticeable in those aged 25-64. The study 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 chromium. In the study area only 36% of cases had diagnostic radiation, while for the controls 90% had depth studies. Less than one fifth of cases had stored marrow specimens suitable for immunological, cytochemical, or genetic investigations. This lack of biological material means that future investigations with this study population relating to hypotheses 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 study confirms previous suggestions that the relative risk associated with radiation exposure in the period more than 25 years after exposure may be less than in the 5-24 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.

MRC study of the economics of breast screening programmes J BROWN, K JOHNSTON, M O'HALAN, M BUXTON, K L MORTON (Health Economics Research Group, Brunel University, Uxbridge; Department of Epidemiology and Public Health, The Medical School, University of Newcastle upon Tyne)

Objectives - To conduct an economic evaluation alongside the UKCCCR multicentre randomised trials of yearly versus three yearly mammography, and to estimate the associated costs 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 trials. Women's resource use is being identified by randomly distributing a self completed questionnaire to women at each stage of the screening programme. Database from outside the trial are being used to estimate the unit costs of treatment and a regression model is being devised to predict 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 by using a 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, assessment, 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 measures - These are to be average incremental cost per woman screened, per additional cancer detected, and per advanced cancer avoided (for both trials) plus the average incremental cost per life year saved, per additional life year gained, per quality adjusted life year gained, and 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.

Objectives - To investigate the uptake of cervical 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 Glasgow 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 principals 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 82% of two or 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 practice serves.

Conclusions - The results from these analyses will have implications for the best ways to organise cervical screening in a general practice, 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, Sheffield Health Authority)

Objectives - To produce a model for desktop computers which would predict the results of changes in risk factor on 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 (whether singular or combined) for the whole population or any 10 year age group(s) and also targeted risk factor reductions after screening.

Results - With changes in risk factor the numbers of patients dying from CHD could be substantially reduced. Combined risk factor interventions are the most effective approach.
to reducing deaths from CHD. Any combination 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. Conclusions - Computer models are an effective 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

M LAY, J ADDINGTON-HALL, M MCCARTHY (Department of Epidemiology and Public Health, University College London)

Objectives - To describe the symptoms experienced in the last year of life by people with heart disease; their use of, and their informal carers' satisfaction with, hospital services; their quality of life; and the circumstances of death.

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

Setting - Twenty English health districts.

Subjects - A total of 675 decedents aged 15 and over with documented heart disease in 1991.

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 93% died alone. Forty-two per cent felt the family did not 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 improvement 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 A TAYB, C D A WOLFE (Department of Public Health Medicine, UMDS, St Thomas' 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 been fully examined 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 registers collected details on all first ever strokes in people under age 75 in two inner city and one outer suburban health districts of south east England between 1989 and 1991.

Methods - Population figures specific to locality, 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 639 strokes were recorded. Crude annual incidence rates for people under 75 per 100,000 population were 68 (95% CI 62, 74) for whites and 51 (95% CI 39, 66) for Africans/AfroCaribbeans. However, the African/AfroCaribbean population was generally younger than the whites, and adjusting for all factors, there was an exponential increase in incidence with age (for 10 year age increase, OR = 3:1; 95% CI 2:9, 3:4), and a higher incidence in men compared with women (OR = 1:4; 95% CI 1:2, 1:7) and in Africans/AfroCaribbeans 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 significant interaction between sex and ethnic group comparing Africans/AfroCaribbeans with whites (p = 0.006), indicating a significant age difference 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 population based 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

ROGER SHINTON,1 GIAN SAGAR,2 GARETH BEEVERS1 (1Department of Geriatric Medicine, University of Birmingham; 2Department of Radiology, Dudley Road Hospital, Birmingham; 1University Centre Department of Medicine, Dudley Road Hospital, Birmingham).

Background - It is widely accepted that overweight causes heart disease and diabetes, and it often fails to feature in lists of risk factors for stroke as many epidemiological studies have failed to show any relation. This apparent inconsistency has not been clarified to date. This study was set up to evaluate the 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 measures - Relative risk for stroke by quartile of recall of both maximum lifelong body mass index (BMI) and BMI aged 21, current BMI, and subcapsular skinfold thickness.

Results - There was no clear relationship between current BMI and the risk of stroke. There was a close correlation between maximum lifelong weight between stroke patients and their relative or friend (r = 0.95). When lifelong maximum reported BMI was assessed, the hazards of obesity were seen - relative risk for the highest versus 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 versus lowest quartile of reported BMI aged 21: age adjusted, 2:18 (1:1, 4:4); multiple risk factor adjusted 2:13 (1:0, 4:4). There was a doubling of the risk of stroke for those in the thinnest quartile of subcapsular 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: 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 excess body fat for stroke can be obscured by both a history of cigarette smoking and thinness associated with deteriorating health. The results seem to explain why excess body fat has previously been consistently associated with 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-African populations: A comparison of Jamaica, France, and the UK - developing a preventive trial

J K CRUICKSHANK, J C DADE, T FORRESTER, R WILKS, J C M'NAYTA, B BUMBA (Department of Public Health Medicine, TMRU, University of West Indies, Jamaica; University of Vaouande, 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 pressure and diabetes in these four black African 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 observations, to test the hypothesis that increasing energy (particularly fat) and Na+ intake, and decreased K+, Ca++, and antioxidant intake, are associated with increasing blood pressure and decreasing glucose tolerance (determined by 75 g glucose tolerance test) both within and between these centres. Design and subjects - Random samples of community based populations are being taken, with sample size (age range 25-74 years), stratified by sex, stationed at 1500 per centre to generate sufficient index cases for blood pressure (>140 or 90 or >160 or 95 mmHg) and impaired glucose tolerance for the intervention trial and incident phase. Measures - During the two hour glucose tolerance test a food frequency questionnaire, built up from local food diaries and 24 hour recall, is administered and repeat 24 hour urine samples are collected. These establish average energy, fat, carbohydrate, fibre, and protein intakes, validated by further food records in subsamples. Initial results - To date, some 650 people (250 AfroCaribbean) have been seen in Manchester, with 100 glucose tolerance tested; 240 Jamaicans and 214 Cameroonians (126 urban) have been seen, and a pilot study has been completed in Paris. The rates for impaired glucose tolerance and diabetes mellitus are approximately 15% for each in Manchester, 12% and 14% respectively in Jamaica, and 4%-8% in Cameroon, with hypertension rates ranging from 12%-24% from Cameroon through Jamaica to Manchester. Those at risk of hypertension (>140 and/or >90 mmHg) are similarly distributed. Results
are related to other lifestyle factors and measures of anthropometry, glucose tolerance, and insulin secretion.

Conclusion - As baseline prevalence rates are established, the nutritionally based intervention programme will be piloted as a randomised trial. Such efforts offer the promise for primary prevention of high blood pressure, diabetes, and their complications in these populations, before these developing countries face an epidemic from them.

Effects of prompt treatment of hypertension on onset and severity of cerebrovascular disease in subjects using blood pressure check ups
KOZO TATARA, FUMIARI SHINSHO, KAIZU NAKAJIMA, HIDETAKI FUKUDA, NORIO NISHI (Department 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 30 and treated during the study period were included - a total of 970. Records 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 in a check up were about half of those in the groups that were unchecked or untreated. The mean age of subjects at the onset of cerebrovascular disease was 68 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. Proportions of subjects who were bed-bound increased in the order of the normotensive, promptly treated, untreated, and untreated groups; proportions of subjects who were house-bound or with almost no disability were roughly vice versa. Hemiplegia was most uncommon for subjects of the normotensive group, and increased in the order of the promptly treated, untreated, and untreated groups.

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" can be estimated 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.

Asthma and occupation in east London
SARAH MARSH, E. DOUGLAS P. CULLUM (Department of Epidemiology and Medical Statistics, London Hospital Medical College; Department of Occupational and Environmental Medicine, National Heart and Lung Institute, London)

Objective - To assess the aetiologic role of occupation in asthma.

Design - Cross sectional survey with case-control analysis.

Setting - Seven general practices in east London.

Participants - All adults (16 to 64 years, 32,000 people) registered with these practices and listed as having asthma (1430 persons).

Methods - A postal questionnaire was sent to all subjects asking the age of onset (or worsening) of their asthma and detailed occupational and smoking histories. Home visits were conducted on a 20% random sample of non-responders. Cases were selected as those whose asthma had started or worsened after leaving school and within defined periods (<6, <2, and <1 year) or defining a new job; for each comparison controls were those who had not developed asthma within the period. High risk occupations were defined on the basis of the SWORD project results as those associated with at least three times the average risk of asthma. The proportions of cases and controls in these occupations at the time of onset of their asthma were compared.

Results - A net response of 71% was obtained. The prevalence of registered asthma was 4.4%, with little difference by age or sex. Half of the men (50%) and 64% of the women reported onset of asthma after the age of 16 years. Of those with childhood onset, 41% reported a worsening in adulthood (35% of men and 47% of women). There was a trend of an increasing proportion of cases compared with controls with high risk occupations as the gap between change of job and onset of symptoms narrowed. The pattern was more evident in men, those under the age of 45 years, and in persons whose asthma worsened in adulthood. Further analyses are required of the potential confounding effects of age and smoking, and of those in very high risk occupations.

Conclusions - There was evidence of a temporal association between employment in a high risk occupation and onset or worsening of symptoms; the strength of this association suggests that occupational asthma in this population of registered asthmatics is uncommon.

Changing asthma treatment in response to symptoms: a qualitative study of adult asthma patients in the community
SUE 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 management and, in particular, larger community study (Br J Gen Pract 1993;43:236), qualitative interviews were carried out in 1992

UK Society for Social Medicine

J Epidemiol Community Health: first published as 10.1136/jech.48.5.509 on 1 October 1994. Downloaded from http://jech.bmj.com/ on September 15, 2023 by guest. Protected by copyright.
Health of the Nation targets for mentally ill patients and people with learning difficulties in long stay NHS hospitals

A A Khakoo, L Durman, G Radford, M Leicesters, C Victor

Department of Public Medicine, Mid Durham Health Authority, West Park Hospital, Easington, Durham; Department of Public Health Medicine, SW Healthcare Authority, Easington, Sunderland; Department of Public Health Sciences, St George’s Hospital Medical School, London

Objectives - To compare the health status of patients with mental illnesses and people with learning difficulties living in long stay NHS hospitals in South East England with the general adult population of Surrey.

Design - 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 102000 Surrey adults aged over 17 years and 98 long stay patients.

Main outcomes measures - Prevalence of lifestyle risk factors, such as lack of exercise, smoking 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 significantly higher 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 population. There 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. Institutionalised patients who are mentally ill 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 enable more targeted use of resources in the community and the monitoring of improvement.

Cash or care: the uses of the Independent Living Fund by people with disabilities in South London

V G Doyle (South East Institute of Public Health, Tunbridge Wells, Kent.)

Study objectives - To describe the uses of the Independent Living Fund (ILF) in south east London and to highlight users' views about the system of cash versus care provision for people with disabilities.

Design - Face to face interviews between users of the ILF and an interviewer to discuss cash for care, using a structured questionnaire.

Setting - Interviews took place in the person's home.

Participants - The database at the ILF head quarters in Nottingham of all recipients of the fund was used. People were entered into the study on an opt-in basis.

Results - A total of 95 people were interviewed of whom 72 (76%) had a modified Barthel score of less than 10. Before the ILF award, 31 (32%) people received no community services, although it seems that social services were targeted at those living alone among the remaining 64 people. After the award, 23 of the 64 (36%) had their community services reduced or withdrawn. Sixty-eight people (71%) did not receive their care package with their award. Forty two people (44%) used the ILF money as a top up to care, of whom one quarter had complaints about quality of care. Seventy four (78%) overall and 93% of those from ethnic minorities would opt for a system of cash for care again.

Dependency and community care in presenile Alzheimer's disease

A J P Jones, S Hargreaves, N Chinnery, I M Davison (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 presenile dementia of 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 identified by 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 services.

Results - Bathing, dressing, and use of toilet were activities requiring the earliest need for assistance after diagnosis, with transfer from bed or chair 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 institutional settings, 54% (20%) of those at home required some assistance in all six ADL. No significant difference in MMSE scores was found between home and institutional cases. Sixty nine of the 99 cases (63%) had previously been offered respite care, although only 49 of these (71%) 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 Jofe, I Aldous, M Ramsay, S Hargreaves (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 1990, the Linkwork 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 useful 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 made (either direct referral to an agency, or advice for the person to do so).

At present, the database contains information on 4983 assessments which resulted in a total of 4444 interventions (ranging from 0 to 10 interventions per person); advice was given in 2253 instances, and 2391 referrals were made. Of the last, 3,852 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 community organizations, 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=387), a common 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 another person, 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 Fujisawa, T Takatori, N Nakashino, F Shinno, K Kubota, T Takahashi, H Tatsuno (Department of Public Health, Osaka University Medical School, Japan)

**Objectives** – 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 over (about 30% of the whole population of that age group), randomly chosen from the resident registration list of a city with a population of 400,000, in Osaka. 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 4.6% of men and 6.1% of women were bed or chair bound. In people aged 75+ years, the prevalence of disability was 1.0% in men and 3.9% in women who had been trying to keep themselves fit, and 8.2% and 13.0% respectively in those who had not been trying. There was a significant discrepancy in the prevalence in both men (p<0.05) and women (p<0.001). Among those over 75 who had been trying to keep themselves healthy, 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 Takatori, K Tatsuno, H Zaito, N Nakashino, K Kubota, F Shinno (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 prevalence study of mental and mental 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" as of other causes than the one 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, 80-84 and 85 years or over were 1.1%, 1.7% (1.1%), 2.3% (2.7%), 5.2% (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 per cent of them were seen regularly by doctors, of whom 87% were internists and only 3% were psychiatrists. Twenty two 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 about 744,000 persons in 1990. Although this 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 Shephard, 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 1/11/91 to 30/4/92 and were followed up for 12 months, looking at a broad range of outcome variables. Interviews were performed within 48 hours of hospital discharge, and then at one, six, and 12 months afterwards. A series of standardised assessment scales and ad hoc questions were asked 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** – Altogether 166 consecutively admitted hospital patients with an osteoporotic hip fracture, who were aged 60 or more, who had no substantial cognitive impairment as gauged by the abbreviated mental test, 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, which was significantly lower than 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 a community planning tool for discharge planning and audit**

S M Shephard, 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, looking at a broad range of outcome measures.

518  UK Society for Social Medicine
The patients were recruited from 1/11/91 to 30/4/92. A series of standardised assessment scales and ad hoc questions were used based on the recommendations of the British Geriatrics Society and the Royal College of Physicians of the United Kingdom. The specific outcome variable reported here is the place of residence at one month which was dichotomised into community and institutionalised.

Setting – The city of Edinburgh.

Patients – A total of 166 consecutively admitted hospital patients with an osteoporotic hip fracture, aged 60 or more, with no noticeable cognitive impairment, and who lived in a community setting (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, and there was no loss to follow up.

Main results – The average age was 79-2 years (SD 7-9) and there was a 4:1 female predominance. Altogether 87% resided in their own home or that of a relative or friend before their fracture, and 13% lived in sheltered housing or residential care. Fifty one per cent lived on their own. Thirty nine per cent reported moderate difficulty prior to their fracture. Fifty nine per cent sustained an intracapsular fracture. Fifty per cent of the patients had returned to the community at one month after the fracture; 38% were in rehabilitation units; 8% were in nursing homes or hospital care; and 5% had died. A younger age, ability to manage on a day to day basis, an intracapsular fracture, better cognitive abilities and less abbreviated tests of self-care were statistically significant factors in returning to the community in descending order of importance using logistic regression. All of these variables can be determined at the time of admission, with the possible exception of mental state.

Conclusions – Predictor variables have been identified for early discharge to the community, and, when considered in conjunction with clinical judgement, will facilitate the discharge planning of hip fracture patients. The pro-operations index, derived from the logistic regression model may also be of use in clinical audit by permitting adjustment for case-mix.

Justification and use of pain as an outcome measure after total hip replacement

A BRITTEN, 1 C BULSTRODE, 1 R DENTHAM, 2 K MCNEIGHT, 3 DAVIES, 3 MURRAY 1 (Nuffield Department of Orthopaedic Surgery, University of Oxford; 2Health Promotion Sciences Unit, London School of Hygiene and Tropical Medicine)

Objectives – To assess the relative importance of various health status measures in terms of predicting re-operation and patient satisfaction for the age group of hip replacement (THR) and then to determine which is the best at discriminating between implants.

Design – Analysis of data from follow up sessions. Pain and activities were reported using clinically and radiographically six months after operation and then at one year, two years, and every two years thereafter – some until 16 years after the initial operation. Patients were asked questions about their pain, movement, functional activity, strength and sensibility of the joint, and opinion of their progress. Responses were graded on a scale of one to six. A radiographic impression was also included.

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 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 “satisfaction” and “sensibility” 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 and the ability of patients to walk.

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 points for joint replacement surgery 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 and as it correlated best with the 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 hip replacement management.

The intervention consisted of a video, booklet, and series of plastic models. The video and booklet were sent to patients several weeks before their operation. The 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. The intervention took the form of a prospective randomised control trial. Seventy eight patients were randomised within three age strata into control intervention groups. All patients completed a series of preoperative questionnaires before intervention. Over the operative period, all patients completed a further series of questionnaires evaluating stress, arousal, pain, and comfort. At the three month interview, all patients completed a final series 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, perception of illness, pain, sleep, 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=0.01) and felt less confronted by information on arrival for the hospital stay. Hospital staff also found benefit from the intervention, being able to offer reassurance 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)

Objectives – 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 two tables were used to calculate the relative risk (RR) and 95% CI associated with medical and social factors, y2 for trend to analyse 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 83%. For infection acquired in the UK, independent associations were the consumption of chicken (RR 1.8, 95% CI 1.0-3.2, p=0.04) and handling of 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 use in recent years. For infection acquired abroad, an association with drinking raw milk (RR 0.1, 95% CI 0.0-0.5, p=0.02) and hand washing (RR 0.5, 95% CI 0.3-0.8, p=0.001) was found. No association was seen with contact with dogs, cats, or
other animals; a history of gastric or colonic surgery; or anticoagulant therapy. Sixty cases and 60 controls gave a history of foreign travel (25%). In this group there were positive associations of idiopathic hip dysplasia (RR 3.7, CI 1.3, 10.7, p = 0.01) in the two weeks before infection and recreational walking (RR 3.7, CI 1.4, 9.9, p = 0.01), and a negative association with antibiotic therapy in the month before infection (RR 0.1, CI 0.0, 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’NEILL, J VARLOW, D FEISENBERG, A J SANCAN ON BEHALF OF THE EUROPEAN VERTEBRAL OSTEOPOROSIS STUDY GROUP (ARC Epidemiology Research Unit, University of Manchester)

Background - Vertebral deformity is the classic hallmark of 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. With a large number of women in this study it is possible 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-based sampling frame. 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 and morphometric measurements of vertebral shape and reference values. The association between the age standardised prevalence of vertebral deformity and the age standardised frequency of specific lifestyle and gynaecological risk factors was explored with correlation analysis.

Results - Altogether 17 342 subjects took part in the study (mean age 64 years, 54% of whom were female. 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, calcium and anabolic supplementation, and gynaecological variables including age at menopause, number of fertile years were not associated.

Conclusions - 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 differences in the other risk factors studied.

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

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

Objectives - To examine the relationship between the impact of chronic low back pain on patients’ functioning and their goals and preferences for treatment, and to describe a strategy for identifying unmet needs and choices within a primary care setting.

Design - Focussed interviews/survey data with chronic low back pain patients in which their perceptions of illness and its impact, their experiences of treatment at primary and secondary levels, and their goals for recovery were assessed.

Setting - Ten general practices located in Cambridgeshire and northern Hertfordshire. Respondents, recruited 140 patients with low back pain of longer than six weeks duration, or who had a history of repeated episodes (≥2) of low back pain, and who sought help at a general practice or local health centre for their back pain.

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 illness, expectations and preferences for treatment, in terms of types of interventions offered within a community service; the service manual available at the surgery; beliefs about the causes and prognosis of their condition.

Results - Chronic low back pain patients can specify problems associated with their distress. This study, however, found that the patient 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 patient is variable, for the majority of 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 health professional 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. These 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 TAKAHASHI, F SHISHIO, H FUKUDA, K TATARA, S GELBERG (Department of Public Health, Osaka University Medical School, Japan; Department of Dental Public Health and Community Dental Education, King’s College London)

Objectives - To describe the differences in oral health of English and Japanese people who work in the same firms in the UK.

Setting - A dental examination survey was undertaken at 12 Japanese firms in the UK. The sample comprised 356 English (159 men and 181 women) and 369 Japanese (286 men and 83 women). Dental examination was made by two qualified dentists. We measured the number of decayed, missing and filled teeth (DMFT) by the standardised criteria of the British Association for the Study of Community Dentistry (BASCID) as an index of caries experience, the community dental health index (CDHI) and the community periodontal index (CPITN) 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 30–34, 35–44, and 45–59 years were 26%, 23%, 34% in English, and 33%, 35%, 41% in Japanese, 24%, 24%, 26% in English, and 43%, 40%, 49% 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). Percentages of people with periodontal disease (CPITN max = 3, 4) in the same age groups were 5%, 7%, 8% in English, and 12%, 12%, 12% in Japanese, respectively. The English mean value was lower than the Japanese mean value in the 20–34 years age group. However, the figures were higher in English than Japanese in the 45–59 years group.

Discussion - Current oral hygiene and periodontal condition indices by the CI, DI, and CPITN 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

M J BLESSEY, J BROTHERS (Department of Public Health Medicine, Eastern Health and Social Services Board, 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 – Thirteen 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. Of 15 sun cream users (30%) use sun creams on 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 MONTAGUE (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 social disabilities whereby the latter alone may cause 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 the 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 findings of a study in Ayrshire and Arran that looks at needs assessment in primary health care. The framework for the research is based on a locality approach that explores rural/urban differences on the basis of affluence or deprivation respectively.
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 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 risk measured by the short form 36 questionnaire

D O BOLLY, S MCCLARN, D MACDADE (Department of Public Health Medicine, Northern Health and Social Services Board, Belfast) and M MCCLARN

Objectives – To explain sociodemographic variations in health status dimensions as measured by the short form 36 (SF36) questionnaire.

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 presents the findings of the SF36 with regard to health service policies. Multivariate analytic techniques were used to establish the main effects. 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 health care needs

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

This paper aims to explore the neglected area of rural health and health care, with special reference to deprivation, needs, and resource allocation. A recent editorial in the British Medical Journal 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 also call for further study of the sociodemographic implications of the “rural idyll” which has hindered the questioning of the received wisdom that life is better in the country than in the city. My concerns are sociological studies of a study in Ayrshire and Arran that looks at needs assessment in primary health care. 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 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 rural needs in health care service planning and practice should be adopted to local needs wherever they occur.


Environmental factors influencing health status

S MCCLARN, J JINGLES, J MCPARE, L REAVIE (Department of Public Health Medicine, Eastern Health and Social Services Board, Belfast; Northern Ireland Housing Executive, Belfast) (Background – A collaborative project between the Department of Public Health Medicine (EHSB) and Northern Ireland Housing Executive (NIHE) was organised under the auspices of the “healthy cities initiative”.

Objectives – To measure attributes to housing, estate, 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 – This paper will report the findings of the impact of housing environment on health with particular reference to the general health status and morbidity profile (NHP). The respondents showed higher levels of deprivation in each 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, NHP, and other environmental measures used in the study. The findings will also describe the impact on 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 ALDOUS, J HIGGISON, M ROBINSON, L WHITAKER (Academic Department of Public Health, St Mary’s Hospital Medical School, London; Health Service Research Unit, London School of Hygiene and Tropical Medicine; Department 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 1981 and 1990. These included 38 369 (81%) 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 6394 (13.5%) 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 whose country of birth was in South Asia died at home (16.5%; 95% CI 15.3, 17.7) compared with those born in UK and Eire (22.9%; 95% CI 22.5, 23.3) or born in other countries (18.8%; 95% CI 17.9, 19.7). Women were more likely to die at home, social class, and health authority of residence were included in a logistic regression model, South

Unsure - No additional information
Asian birthplace was associated with a significantly decreased proportion of deaths at home (odds ratio 0.65; 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 ill health behaviour, access to and management within primary and secondary care, and differences in the likelihood 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 Leicestershire)

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 that could 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 discriminating 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 have an independent effect on 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 of racism. Findings from the study confirm that racism is a form of stress that can affect health and therefore should be included in health research. As existing 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 into a 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 its effect on ill health 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 BATECHOLER, M REGAN (Public Health Department, South and East Cheshire Health Authority; East Cheshire (NHS) Trust, Macclesfield, Cheshire)

Objectives – To assess need for sexual health services and estimate current provision among adolescents in Macclesfield.

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

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

Main outcomes measured – 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 a GP and 58% had 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. 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 services. 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, M J HENLEY, N WAY (Bayesian Statistics Research Group, University of Hertfordshire, Hatfield; Department of Epidemiology and Public Health, University College London)

Objectives – 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 SASSPAC), 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 for explaining the variation in infant, child and adolescent mortality in England, using stepwise regression models.

Results – Accidental death (for ages under 65) was less clearly associated with social deprivation than previous research has shown for adult coronary heart disease mortality. Most regional quintile plots for both male and female accidental death showed an upward trend with Townsend’s Index of Deprivation. However, this index had a significant additional factor in explaining variation. Infant mortality was correlated negatively with social deprivation (r<–0.3) but the form of 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 is in contrast to 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 in Hertfordshire, Oxfordshire, and the home counties area by Barnes and Fordham has suggested that homes built upon water-logged soil may be a possible contributing risk factor to infant mortality. This factor (water index, degree of soil drainage) is now being investigated with others in this current project, but analysis of all England wards would test this hypothesis.

PRIMARY CARE RESEARCH

Health needs assessment in primary care

CAROLINE MCELMAYN, SURREYA GILL (Department of Public Health Medicine, Manchester Health Authority)

Objectives – 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 needs assessment a sustainable activity in primary care?

Design – Analysis of all routinely available sources of data on practice demography and health using existing data sources from public health data on mortality, and morbidity and census data for the nearest geographical approximation 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, both in terms 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 additional costs 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 HITCHMERS, 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 by patients referred to a centre offering complementary therapies (acupuncture, homoeopathy, counselling, remedial massage and osteopathy).

Design - A descriptive 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 after eight weeks 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 Liverpool.

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 principal problems were musculoskeletal (especially chronic joint pain) and various forms of psychological stress and/or depression. The 35 patients who completed eight weeks of 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 (physiotherapy, orthopaedic, physiotherapy, and psychiatry).

Conclusions - Even after only eight weeks, significant improvements in health status could be detected in patients with a range of chronic health 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 orientated 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) pilot project; (2) To display the COPC training materials; (3) To present an evaluation methodology and preliminary results of this.

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 form the basis of COPC. The approach has been piloted 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 (PCTs) 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 (PHTCs) 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 interview, (iii) participant observation and meetings/site visits, (iv) project documents from practices, DHAs and FHSAs.

Results - Participation in the workshops has strengthened working relationships within PHTCs and with counterparts in commissioning agencies. COPC helps to develop skills in needs assessment, project management, epidemiology and evaluation. Parallels 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 costing 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 FHS/A/DHA.

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 MCELAIN (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.

Subject - A sample of 1200 respondents.

Results - Factor analytical techniques identified three specific dimensions of patient satisfaction which explained 56% 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 do not meet the requirements 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 these activities 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 Sciences Unit, London School of Hygiene and Tropical Medicine, London)

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 refusals 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 staffing IC beds provision per unit population (SPP): 1.5 beds/100 000 vs 1 bed/100 000 in the low supply group and 5.2 beds/100 000 in the high supply group. The crude mean refusal rates for low, medium, and high bed provision respectively were 7.9%, 6.9%, and 7.7%. Relative to ICUs with low SPP, ICUs with high and medium SPP 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 for patients with double in ICUs (a) with high numbers of nurse whole-time equivalents per staff bed compared with low numbers: OR 2.22 (95% CI 1.91, 2.60); (b) with medium numbers of allocated consultant sessions compared with ICU's with low numbers: OR 1.85 (95% CI 1.56, 2.16). 3 Other factors affecting increases in refusal rates were: (a) high numbers of hi tec beds compared with few: OR 2.16 (95% CI 1.81, 2.59); (b) ICUs of patients admitted compared with IC/corony care/high dependency patients: OR 2.11 (95% CI 1.80, 2.50); (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 referral 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 nurse staffing), indicating the existence of different admission and refusal criteria in ICUs. The longitudinal study (B) will provide insight into the consequences of refused requests for admissions 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. Failure considering allocating further resources to IC (already 2–5 times 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 footfore surgery in Suffolk

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

Aim - To demonstrate and improve the quality of services providing footsurgery.

Design - Multiprofessional audit. Participants agreed audit indicators and standards.

Results - A total of 333 nail and 238 other footsurgery operations were identified, performed by orthopaedic 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 all the nail surgery and 50% of postoperative footsurgery. 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.

Conclusion - For purchasers - Purchasing guidelines, including quality standards and contract monitoring, need to be developed for podiatric surgery.

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

Evaluation of St Alban’s minor injuries unit

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

Objective - 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 patients that could be treated locally.

Results - Twenty one patients attended the MIU and 27 the A&E department per day, of whom 43% were defined as primary care. Twenty one 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
to the MIU with lacerations (24%), superficial injuries (18%), and sprains and strains (14%) and to the A&E with more sprains (32%) and possible fractures (20%) requiring x-ray. More patients waited less than 15 minutes to be seen in the MIU (87%) compared with the A&E (41%). Altogether 98% of patients treated at the MIU were satisfied with the unit and the care provided, compared with 83% of patients treated in the A&E. It was anticipated that the nurse practitioners would manage up to 17% of previous attendances to the A&E department the MIU replaced; in 1993 the nurse practitioners treated 30% and it was estimated that they might be able to treat safely up to 46% without on-site support. Up to 50% of previous attendances may be treated by a doctor.

Conclusion – The MIU provides a quick, accessible, acceptable local service for patients with minor injuries. Nurse practitioners are able to manage most local residents who could be safely treated in a minor injuries unit without on-site acute services support.

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 gave a history of injecting drug use. Investigation showed that the donor information, aimed at excluding potential HIV positive donors, was misleading and in adequate for excluding other blood borne viral infections. This report focuses on blood donors who were known to have donated blood in Trent region in the period from 1 February 1993. We have evaluated the effectiveness of this new literate.

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 the 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 January 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

Meryl Hudson, Geraldine Barrett (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.


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<0.001), 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 care. There seems to have 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 Skone (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 a 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.

Table Number of subjects in various risk factor groups

<table>
<thead>
<tr>
<th>Time periods</th>
<th>No HCV positive</th>
<th>Personalinjectingdrug use</th>
<th>Sex with risk group</th>
<th>Worked as a prostitute</th>
<th>Any specific exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.9.92–31.1.93</td>
<td>21</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>1.2.93–30.6.93</td>
<td>16</td>
<td>16</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1.7.93–30.11.93</td>
<td>9</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>0</td>
</tr>
</tbody>
</table>