The Social and Public Health Sciences Unit (SPHSU) is jointly funded by the UK Medical Research Council and the Chief Scientist Office at the Department of Health at the Scottish Executive. The Unit’s aim is to:

**Promote human health by the study of social and environmental influences on health.**

Specific objectives include:

- Studying how people’s social positions, and their social and physical environments, influence their physical and mental health and capacity to lead healthy lives;
- Designing and evaluating interventions aiming to improve public health and reduce social inequalities in health, and
- Influencing policy and practice by communicating the results and implications of research.

In 2003 we were involved in a quinquennial review of the Unit, conducted jointly by both funding partners. The review covered the period from May 1998 (when the Unit was formed from a merger of the MRC Medical Sociology Unit, and the CSO-funded Public Health Research Unit) to 2003. We therefore take this opportunity to describe our research over the past 5 years.

During this period we have continued to collect and analyse data on existing studies, including two major longitudinal community-based surveys (the West of Scotland Twenty-07 study, which has been following three cohorts, born in 1932, 1952 and 1972, since 1987; and the 11 to 16 study, which has been following up children from the age of 11 in 1994); and two trials (SHARE, an RCT of teacher led sex education in schools; and GMTF, a controlled trial of peer led sexual health promotion in gay bars). We have also set up major new and complementary studies, including DASH, a survey of 11-12 year olds from a range of ethnic groups in 53 London schools, and a number of evaluations of naturally occurring community-based interventions (such as new housing provision, as part of the SHARP study).

The Unit has also collaborated in setting up major new research platforms such as the Scottish Longitudinal Survey (linking 5 percent of the Scottish population between censuses and with morbidity and vital registration data), and the Aberdeen-based Children of the 1950s study (a follow-up of some 12,000 children first studied by the MRC Obstetric Medicine Research Unit at ages 7 -12 in Aberdeen in 1962).

Over the past five years we have hosted an increasing number of international visitors. In 2003 these included Lindsay McLaren from Canada, Cate Burns and Fran Baum from Australia, SV Subramanian from the USA, and Øyvind Næss from Norway. We very much welcome these collaborations.

Our web site (www.msoc-mrc.gla.ac.uk) contains copies of this report and previous annual reports, and other information about SPHSU, including full reports of projects and feedback leaflets we send to study participants. Any inquiries about our research or other activities, or requests for copies of publications, should be directed to the named researcher(s) or to our librarian, Mary Robins.

Sally Macintyre
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Staff, students and co-workers, 2003-2004

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Staff, students and co-workers, 2003-2004

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The West of Scotland Twenty-07 Study: ‘Health in the Community’ is a resource for all Unit programmes. Its aim is to investigate the social processes producing or maintaining differences in health by key social positions (in particular, social class, gender, area of residence, age, ethnicity, and family composition). Three age cohorts (born in 1932, 1952 and 1972, and aged 15, 35 and 55 at first contact in 1987/88) are being followed up using home-based interviews and postal questionnaires, and we hope to continue this until 2007 (i.e., for twenty years).

The study design has two components:

1. Regional Samples. Around 1,000 people in each age group were sampled from 52 postcode sectors in the Central Clydeside Conurbation, which includes the City of Glasgow. This is a socially heterogeneous region with a population of 1.7 million, and the postcode sectors were chosen to reflect a continuum of social deprivation. The interviews (in 1987/8, 1990/1, 1995/6 and 2000/1) are wide-ranging, and include questions on paid and unpaid work, housing, income, family composition, social support, stress, life events, leisure activities, health promoting and health damaging behaviours, beliefs and values, and many other material, cultural and psychological factors, along with measures of physical and mental health and well being. Other measures include height, weight, girth, blood pressure, respiratory function, reaction times, and (in 1995/6 only), cardiovascular reactivity and salivary immuno-globulin-A.

2. Locality Samples. Two localities in Glasgow City with contrasting socio-residential characteristics were chosen for more intensive study. The aim is to collect data both on the residents and on the area, and to explore processes by which place of residence might influence health and the ability to lead a healthy life. The diagram shows the (approximate) location of our study localities, the NW and SW, and of the four more homogenous neighbourhoods into which we have split them for further analysis. It also indicates some of the socioeconomic characteristics of these neighbourhoods. The West End is a middle class Victorian urban neighbourhood, and Garscadden is an adjacent inter-war high status local authority housing estate. Mosspark is a similar estate but located near the poorest area, Greater Pollok, which is a deprived peripheral housing scheme. Data were collected from residents in the three age cohorts (initial sample sizes around 300 per cohort per locality) in 1987/8, 1992, and 1997. Both regional and locality samples (including those who have moved elsewhere in the UK) were re-interviewed in 2000-2003, using computer-based personal interviews administered by trained nurses.

Randomly or purposively selected sub-samples from the region and localities have been used for more intensive studies on particular topics. Recently these have included studies of educational and labour market trajectories (see page 38), identity and health among people of Irish and non-Irish descent (page 26), the social construction of gender and health (page 44), and influences on GP consultations (page 45).
Aims and objectives
The aim of this programme is to study socio-economic and spatial inequalities in health across time, the lifecourse, and place. The objectives have been to examine:

- the socio-economic and spatial patterning of changes in health and functioning across three key phases of the lifecourse;
- age and gender differences in exposure or vulnerability to personal, household or neighbourhood disadvantage;
- the relative importance for health, and for changes in health, of socially and spatially patterned early life circumstances, exposures in adulthood and cumulative life experiences; and
- the social meanings, and significance over time and the life course for health and health behaviours, of material and psychosocial resources.

Since 1999 we have expanded our historical and geographical coverage; focused on more specific pathways between the social or physical environment and health; examined the social meaning, and significance for health, of commonly used socio-economic indicators; and collaborated in setting up new data platforms.

Background
We, and others, have argued that although there is a wealth of information about the magnitude of health inequalities, less is known about the pathways through which these are generated and maintained, and even less is known about the effectiveness of interventions to reduce them.271 In the Social and Spatial Patterning Programme our goal is to develop a better understanding of pathways between the social and physical environment and health. We focus on pathways where there are plausible hypotheses to link the environment and health (for example, that environmental barriers to healthy exercise might impact on patterns of physical activity and hence influence obesity, mental health and respiratory function). We also aim to build on existing strengths by focusing on exposures (e.g. housing, transport, local amenities), behaviours (e.g. physical activity, diet, GP consultation), and biological or psychosocial processes (e.g. cardiovascular reactivity, immune function, cognition) which are relatively tractable to empirical study, have not been widely studied elsewhere, and in which we or our collaborators have particular expertise.

Key findings
The physical and social environment: Neighbourhood resources and problems
We previously suggested the existence of a deprivation amplification pattern, whereby areas with more deprived households have more health damaging exposures and fewer health promoting resources. Our more recent work suggests a more differentiated picture of exposures and vulnerability:

- We updated information about facilities in our Twenty-07 localities to 1997. The NW Locality continues to be better served, as it was in 1987, but for some services the gap between the Localities has been slightly reduced (e.g. number of shops per 1,000 population), whereas for others the gap has widened (e.g. the opening of a new sports centre in the NW, and closure of bowling greens in the SW).440
• Females, those in lower social classes, the unemployed, public housing tenants and those living in the poorest neighbourhood were more likely to report neighbourhood problems such as litter, graffiti, vandalism, and burglaries. Males and females were equally likely to report some types of problems (e.g. burglaries, disturbances by youngsters) but females were more likely to report others (e.g. lack of recreational facilities, and safe places for children to play). The most negative perceptions were in women with children or who were not employed outside the home, suggesting that such women may be more exposed or sensitive to features of their local neighbourhood. Poor opinions of the neighbourhood were associated more strongly with mental health among males, and more strongly with physical symptoms amongst females.

• In the Transport, Housing And Wellbeing (THAW) study (an ESRC-funded postal survey \(n=2867\) of car ownership, housing tenure and health) we found that while the number of area problems such as litter and graffiti increased linearly from best to worst types of area, perceptions of access to amenities showed little variation by type of area.

• An MRC PhD project (Goonetilleke) studied young women of South Asian origin who lived either in an inner city area with a high concentration, or a suburban area with a low concentration, of South Asians. Although women in the more affluent area reported better housing and schools and more attractive surroundings, women living in the inner city reported better access to community centres, shops and other resources.

We have previously argued that it is important to assess neighbourhood characteristics directly, since respondents’ reports may be subject to affect bias or socially patterned expectations. We undertook a pilot study which involved identifying, mapping, photographing and classifying racist and sectarian graffiti in Glasgow. While graffiti seem to be used to mark sectarian territory, there were few racist graffiti in an area with a high concentration of South Asians. Sectarian or racist graffiti were outnumbered by other graffiti, even in areas with high concentrations of Catholic, Protestant, or South Asian residents. We have also used photography as a powerful way to describe positive and negative features of the environment in the Twenty-07 localities.

**Opportunities for and barriers to physical activity**

Current health promotion advice recommends increasing physical activity via routine everyday activities rather than the vigorous activity required to promote fitness. We have reported local environmental barriers (e.g., lack of sports and play facilities, fear of crime) to health-promoting physical activity, particularly in deprived areas. In contrast, a collaborative study in Perth, Australia, found no association between neighbourhood socioeconomic status and access to facilities, although overweight was associated with living on a highway, streets with no sidewalks or sidewalks on one side only, poor access to recreational facilities, and perceiving no shop within walking distance. We mapped all the outdoor play areas \(n=608\) in the Greater Glasgow area, and preliminary analyses suggest that there are more playgrounds per 1,000 children in more deprived areas.

**Retail food outlets**

We found in the Twenty-07 study that although most grocery shopping was done in supermarkets, poorer people, and people living in more disadvantaged areas, were more likely to shop for basic foods such as bread, milk, fruit, and vegetables in smaller local shops. It has been suggested that food might be more costly and more difficult to obtain in poorer areas, and that this might help to explain why diet tends to be worse in such places. An MRC PhD project (Cummins) investigated this supply-side explanation by systematically examining area variations in the price and availability of a basket of standard food items in Greater Glasgow in 1997, in all multiple stores (Safeway, Asda etc: \(n=79\)) and a random 1
in 9 sample of non multiple food stores (n=246). Contrary to expectation, food shops, especially the major multiples, were more likely to be located in more deprived areas, and there were few price differences between more and less affluent areas.

**Social capital, social cohesion, and perceptions of the neighbourhood.**

Recent research on the determinants of differences in health within and between countries has drawn attention to the potential role of social capital. Social cohesion, collective efficacy, social trust, and community participation are frequently hypothesised to be health promoting elements of social capital. However, these are often inferred from other evidence (for example income inequalities) rather than directly measured. We have tried to measure them more directly, in various ways and using various scales. We have used a standard measure of neighbourhood cohesion in the **Twenty-07** localities in 1997. Reported social cohesion was higher among older people, retired people, owner occupiers, and longer term residents; but there was no difference by gender or social class. Residents in the poorest neighbourhood reported least neighbourhood cohesion, but there was little difference between the other three neighbourhoods. Perceived cohesion was not associated with self-assessed health or longstanding illness, but high cohesion predicted better mental health and lower symptom scores. Personal participation in local associations was not related to self-reported health, but higher aggregate rates of participation in the local area predicted better individual self reported health (controlling for age, sex and social class). This supports the suggestion that social capital may operate through contextual (collective) rather than compositional (individual) mechanisms. In order to examine this further we have conducted a postal survey of social capital on a sample of residents (n=2347) randomly selected from the electoral roll in the **Twenty-07** localities.

We examined various features of social capital, and of neighbourhood resources and problems, in a study funded by an MRC grant under the Health of the Public (**HoP**) initiative. This project involved data on the same 425 postcodes from three independent sources:

- a postal survey on social capital administered by collaborators at UCL to a separate, random, sample of residents (n=12403)
- information collected in SPHSU about material and social infrastructure (e.g. housing stock, investment in health and education, availability of food stores, recreation facilities etc). We based our selection of indicators on a framework of what humans need from their environment in order to lead a healthy life.

We are thus able to examine relationships between independently collected data on health and health risks, social capital, and social and material infrastructure. Analysis is underway. Results from the social capital survey confirm that not all 'desirable' elements of social capital go together. For example, neighbourhoods with greater participation in social clubs tend to have higher levels of trust, attachment, and practical help, but lower levels of tolerance and respect.

**Relative inequalities**

Some authors have suggested that social comparisons with others may contribute to inequalities in health but there is little evidence about what social comparisons are actually made and what effects they might have. We have examined this issue in three studies.
Social and Spatial Patterning of Health

- In 1997 we asked Twenty-07 localities respondents to compare their standard of living with that of other people in their neighbourhood. Those in the poorest neighbourhood were more likely to describe themselves as ‘better off’ than neighbours than were those in the richest neighbourhood (34% v 13%, p <.001). There was no association between these perceptions and self-rated health or longstanding illness, but there were fewer mental health problems among those who rated themselves ‘better off’ (after adjusting for socio-demographic characteristics).167

- In THAW we asked respondents to rate the worth of their homes in relation to others in their street. There was a linear relationship with neighbourhood type (as measured by ACORN (www.caci.co.uk/pdfs/acorn2001.pdf), with 23% in the most well-off areas saying their home was worth more than their neighbours’, and only 8% saying this in the poorest areas (p<.001). Those who thought their homes were worth more had higher self-esteem and mastery scores (after adjusting for socio-demographic characteristics).169

- In an MRC PhD project (Davidson), lay beliefs about inequalities in health were discussed in 14 focus groups. Those from lower SES groups were often very aware of their status compared to others and expressed frustration, anger and helplessness about their health.492

**Housing**

We undertook a qualitative study of local authority tenants’ perceptions of their environment, health, and housing improvements. Tenants blamed poor housing for asthma and ‘constant coughing’ in children, mothers feeling ‘run down’, depression and anxiety, and frequent consultations with health professionals. They reported significant health gains following housing improvements, including reduced use of asthma inhalers and tranquillisers, reduced smoking, and improved general wellbeing.163, 437 We tested research instruments, and the feasibility of carrying out a longitudinal study of housing improvements, with funds from Scottish Homes,451 and the main study (SHARP) is now being taken forward as part of the Evaluation Programme.

Twenty-07 data showed that tenure is significantly associated with health after controlling for income or social class.275 In THAW we developed and tested innovative measures of ontological security as a potential pathway linking tenure and health.228 We found that tenure predicts health not only because it is associated with socio-demographic characteristics (e.g. age, sex, income) which independently predict health, but also because it is associated with:

- psychosocial benefits (e.g. protection, autonomy, prestige, mastery, and self-esteem).228, 497
- specific features of the dwelling and local environment (e.g. housing fixtures, housing problems, access to area amenities, exposure to local environmental problems).39, 56, 229, 243, 276, 454

**Transport**

The aim of current transport policy in most developed countries is to reduce reliance on private motor vehicles in order to promote public health and reduce environmental degradation. However, epidemiological studies have consistently shown that private motor car access is associated with longevity and better health. We examined this paradox in THAW, and found that those with access to a car appear to gain more psychosocial benefits than public transport users from their habitual mode of transport.230 Being a car driver conferred more of these benefits than being a passenger. Self-esteem was associated with type of car among
men but not women. This study identified a number of barriers to public transport use which need to be taken into account if people are to be encouraged to reduce private motor vehicle use.

Migration and health
We undertook a comprehensive review of primary studies of migration and health. We identified 362 papers, of which 136 met our inclusion criteria. The results suggest a more complicated picture than is often supposed: whether or not migrants are healthier than counterparts in the original or host country depends on the health measure, reasons for and age at migration, and characteristics of the sending and receiving environments and of the migrants.

Twenty-07 longitudinal analyses
We have taken forward a number of longitudinal analyses, using the Twenty-07 study, of specific behaviours and biological and psychological processes which might help to explain social and spatial patterning in health across the lifecourse.

Health and illness related behaviours:
Physical activity
Sporting and team activities were uncommon among the older two cohorts, especially among women or people from more disadvantaged circumstances. Walking was the most popular mode of leisure time physical activity, followed by swimming, social dancing, keep fit/aerobics and golf. Only a third achieved current recommendations for active living (men, and younger people, being more likely to do so). More men in manual than in non-manual classes achieved the active living targets, and achieved this via work activity rather than leisure activity. Although in general non-employed people engaged in more active leisure time activities, when older manual workers retired they did not increase non work activity enough to compensate for the loss of work activity. Vigorous leisure activity was negatively, and vigorous housework was positively related to self reported depression.

We undertook a review (currently being written up) of the literature on physical activity among children and the provision and use of outdoor play areas. There is little published work on the health effects of active play for children, but the limited research available suggests that active play is beneficial to child development and future health, and that play facilities may encourage physical activity and community wellbeing.
Diet
We are examining changes over time in diet and in weight, and the relationship between food variety (known to protect against chronic disease) and socio-demographic and lifestyle characteristics, in the oldest two cohorts. Among the middle cohort, in multivariate models men and current drinkers were less likely to consume 20 or more biologically different food items per week than women and non alcohol users, but food variety was not associated with class, marital status, smoking, physical activity or body shape. Preliminary analyses suggest that diet improved between 1991 and 1995, in both sexes and cohorts, with more improvement (for example, in fruit and vegetable consumption) being seen in those from lower social classes.

Consulting in general practice
Poor socio-economic circumstances predict frequent GP consultations. This may be mediated through high burdens of illness, or greater social isolation, but few population-based studies have sufficiently detailed data to investigate this. Using our detailed self-reported morbidity data we found that socio-economic circumstances or social support no longer predicted frequent attendance once the greater burden of ill-health in poorer and less well-supported groups was taken into account. Even models with very detailed indicators of morbidity, social position and social support left over 70% of variation in consulting unexplained. This suggests the importance of exploring other influences. In an MRC PhD project (Townsend) we are interviewing a purposively selected sub-sample of Twenty-07 participants with high levels of morbidity, to compare people who are infrequent users of primary care (0-3 consultations in the previous year) with those who are high users (7+ consultations).

Biological and psychological processes and outcomes:
Cardiovascular reactivity
It has been suggested that heightened blood pressure reactivity (BPR) to acute psychological stress may be implicated in the development of cardiovascular disease. Few analyses have been conducted on studies large enough to establish whether there are gender or social class differences in reactivity. In 1995/6 we collected data on heart rate (HR) and BP at rest, and twice during a mental stressor (the PASAT mental arithmetic test). People in non-manual social classes had higher HR and diastolic BPR than those in manual social classes, and men had higher HR and systolic BPR than women. Systolic, but not diastolic, BPR in 1995/6 correlated positively with resting BP in 2000/2002 after age, body mass index and baseline BP were taken into account. The predictive value of reactivity was greater for people from manual class households and for men.

Secretory immunoglobulin-A
Low levels of secretory immunoglobulin-A (sIgA) have been associated with increased vulnerability to upper respiratory illness and to stress, but most studies have been on small and homogeneous samples (e.g. students). We measured sIgA in saliva in all Twenty-07 cohorts in 1995/6. sIgA secretion rates and salivary flow were significantly lower in lower social classes, women, and the two older age cohorts. Smokers had lower secretion rates than non-smokers, and part of the social class effect was explained by smoking. After adjusting for sex, age, social class and smoking, stress was inversely related to sIgA secre-
Social and Spatial Patterning of Health

tation rate, which was in turn inversely related to total symptoms and malaise symptoms but, unexpectedly, not to respiratory symptoms. Salivary volume, rather than sIgA concentration, was the strongest component of sIgA secretion rate in predicting symptoms.

Cognitive function
Reaction times have been measured since the beginnings of experimental psychology and are frequently used in cognitive gerontology, but, as with sIgA, there have been few studies in large representative populations and none of changes over time in such populations. Cognitive functioning, including reaction time, is increasingly recognised both as an aspect of health in itself and as a predictor of mortality and morbidity. We examined the associations between scores on a test of general mental ability (Alice Heim 4: AH4) and reaction times in the oldest cohort. AH4 total scores correlated -0.31 with simple, and -0.49 with 4-choice, reaction time, with no variation in this correlation by sex, social class or education. Among all 3 cohorts simple and choice reaction times slowed, and intra-individual variability in choice reaction time increased, over seven years of follow up. Women showed greater intra-individual variability in choice reaction time, consistently across age and cohorts. All cause mortality between the ages of 56 and 70 in the oldest cohort was associated with AH4 score but also with simple and choice reaction times. After adjusting for reaction time indices, the influence of AH4 on mortality was no longer significant. During 2004 David Batty will begin a Wellcome fellowship examining the relationship of cognitive factors to morbidity using a variety of datasets, including the Twenty-07.

Disability
We have been analysing predictors of the acquisition of disability among the oldest cohort. After adjusting for several measures of morbidity, sex and social class, frequency of pain from cardiovascular conditions (OR 5.49, 95% CI 2.64-11.39) and from musculoskeletal conditions (OR 2.79, 95% CI 1.64-4.65) were the most important predictors of locomotor disability. Inclusion of frequency of pain greatly increased the association between chronic conditions and locomotor disability. Poverty and lifetime exposure to certain adverse working conditions largely explained the higher prevalence of disability in those from manual social classes.

Comparisons of socio-economic indicators
A number of socio-economic indicators are commonly used as if they are interchangeable. We have examined the social meaning and significance for health of a range of socio-economic indicators including different measures of social class, housing tenure, income, type of area of residence and car access. While social advantage as measured by any of these indicators generally predicts better health, they are not identical and may represent different specific pathways between social position and health. In THAW, for example, of respondents resident in areas classified as ‘poorest council estates’, 7.5% were in social classes I and II, 2.6% in the highest income quintile, 16.6% owner occupiers, and 29.8% had household access to a car. These findings suggest caution about the common practice of using area characteristics to sample for individuals with particular

Fiona McDonald,
PA to Professor Macintyre
socio-economic characteristics. We have also shown that the specific picture one observes of the relationship between social position and health depends on the particular measure of social position used (including different measures of social class), the health outcome, and gender.279

We also need to take historical context into account. We compared the older two Twenty-07 cohorts in terms of when they said their families had first owned a car. 23% of the 1932 cohort had never owned a car, compared to 8% in the 1952 cohort. In each social class car ownership was achieved at a younger age in the younger cohort; for example the mean age at which households in SC V in the 1952 cohort acquired a car was the same as for those in SC II in the 1932 cohort.168 Whereas in most studies those who cannot be classified into a social class have the highest mortality, in the Healthy Old People in Edinburgh longitudinal study the lowest mortality rates were among the non-classified occupational group; this was because these were mainly middle class women who had never been in employment.353, 473

**Evaluating the effectiveness of interventions to reduce inequalities in health**

In addition to trying to explain pathways between socio-economic and spatial factors and health, we have been contributing to reviews of evidence on the effectiveness of interventions. Our disappointing conclusion is that while in the UK and internationally there is a huge volume of information about the magnitude of inequalities in health, there is surprisingly little information about the effectiveness of any interventions (either at a broad policy level or more narrowly in terms of locally or individually focused interventions), and even less evidence about their cost-effectiveness.270, 271, 281, 453, 457, 460

**Contribution to the establishment of new data-sets**

We were involved in establishing the Scottish Longitudinal Survey (SLS). This is a 5 percent sample of the Scottish population linked between the 1991 and 2001 (and subsequent) censuses and to vital registration data and the system of Scottish morbidity records (SMRs). The SLS, which we hope will be available for analysis from early 2005, will therefore be an enhanced version of the England and Wales Longitudinal Survey.

We have also collaborated in developing the Children of the 1950s study.96 This involves people born in the early 1950s in Aberdeen, Scotland, who took part in the Aberdeen Child Development Survey, a study undertaken by this Unit of “mental subnormality” among children attending 47 Aberdeen primary schools in 1962. We have ascertained the vital status and whereabouts of 98.5% of the 12,150 subjects with full baseline data. 477 are known to have died, and 81% of study participants still live in Scotland. Linkages to their own birth records, to the 7928 deliveries in Scotland occurring to female members, and to the SMR system, have been completed. A postal questionnaire to all surviving and traceable cohort members was distributed and achieved a response rate of 65%. The more favourable the childhood circumstances
(higher paternal occupational social class at birth, birthweight, childhood height and IQ) the more likely the subject was to have moved (and moved further) from Aberdeen. IQ measured at 7 was negatively and linearly related to mortality, smoking, binge drinking, and short stature in adulthood after controlling for individual confounders. There have been a number of analyses of reproduction among female cohort members. An MRC studentship (Johnston) is being used to study the characteristics of Aberdeen, and Aberdeen schools at the time of the original study.

**Collaborators**

**Disability:** Dr. Joy Adamson and Professor Shah Ebrahim, Department of Social Medicine, University of Bristol

**SLS:** Professor Paul Boyle, Department of Geography, University of St. Andrews

**Cardiovascular reactivity:** Professor Doug Carroll, School of Sports and Exercise Science, University of Birmingham

**Physical activity:** Professor Nanette Mutrie, Centre for Exercise Science and Medicine, University of Glasgow: Dr. Billie Giles Corti, Department of Public, University of Western Australia

**Cognitive functioning:** Professor Ian Deary, Department of Psychology, University of Edinburgh

**Housing and Neighbourhoods:** Professor Ade Kearns, Department of Urban Studies, University of Glasgow

**Aberdeen Children of the 1950’s study:** Professor David Leon, Drs. Susan Morton and David Batty, Department of Epidemiology & Population Health, London School of Hygiene and Tropical Medicine

**Social capital and social and material infrastructure:** Professor Sir Michael Marmot and Ms. Mai Stafford, Department of Epidemiology and Public Health, University College London

**Diet:** Dr. Jane Scott, Department of Human Nutrition, University of Glasgow

**Healthy Old People in Edinburgh study:** Dr. John Starr, Department of Clinical and Surgical Sciences, and Professor Ian Deary, Department of Psychology, University of Edinburgh

**sIgA:** Professor Phil Evans, Division of Psychology, University of Westminster, London

**Consultations:** Professor Sally Wyke, Scottish School of Primary Care, Edinburgh
Measuring Health and Variations in Health

Objectives

- to explore the social and spatial patterning of priority health outcomes and associated life circumstances;
- to develop innovative ways of measuring and explaining change over time in priority health outcomes and their major social determinants;
- to identify and develop valid ways of measuring factors influencing rural disadvantage;
- to improve the measurement, at local and national level, of life circumstances influencing priority health outcomes, and of the links between life circumstances and health;
- to improve the measurement, at local and national level, of inequalities in health and life circumstances; and
- to further the understanding of the impact on human health of the social and physical environment.

Background

The health of the Scottish population is poorer than that of the UK population as a whole. This programme seeks to monitor the health of people in Scotland and devise better ways of measuring and monitoring health and its determinants. In particular we aim to improve our understanding of health inequalities in Scotland and the means by which health gains can be realised. The programme is core-funded by the Chief Scientist Office of the Scottish Executive Health Department. Results are presented relating to work on socio-economic inequalities in health, urban/rural inequalities in health, trends and inequalities in mortality, environmental influences on health, geographical patterning of disease and methodological development.

Key findings

Health services research

We completed a number of projects in this area, mainly developing methodology appropriate for, and innovative uses of, the linked system of Scottish morbidity records.

Hospital outcomes

As the trend for publishing comparisons of hospital performance grew, there was some concern that there had been limited research into the validity of the methods used for making comparisons. We concentrated on the appropriate use of routine NHS hospital discharge data in the evaluation and comparison of hospital performance.

‘Failure to rescue’ (the proportion of patients who develop complications that die) is a complex outcome with the property of being influenced more by hospital than patient characteristics. Difficulties defining complications among certain patient subgroups using routine data has led to attempts to develop a ‘failure to rescue’ measure based on length of stay. We examined this measure for different patient groups. The results showed the new measure to be stable with regards to its precise definition but inconsistent across different diagnoses within hospitals.
We have also participated in international comparative research on hospital admissions and related utilisation, focusing on a mixture of medical and surgical conditions. We showed that the general trend was that patients who were subsequently readmitted to hospital had longer initial stays, suggesting a link with the severity of the initial condition.

**The use of routine data in randomised controlled trials (RCTs)**

RCTs are sometimes not ethical, not feasible, or are limited in the generalisability of their results. In such circumstances routine data can be used to conduct pseudo-trials, to estimate the likely outcomes and required sample sizes to help design and conduct trials, or to examine whether the expected outcomes observed in an RCT will be realised in the general population. This project, funded by the NHS Health Technology Assessment programme, used Scottish hospital discharge records to investigate three case studies. Firstly, we estimated the effect sizes that a trial on the timing of surgery for subarachnoid haemorrhage would need to be able to detect. Secondly, we found re-operation rates to be higher among patients undergoing transurethral as opposed to open prostatectomy for benign prostatic hyperplasia. Finally, we considered long term outcomes and found higher re-intervention rates among patients receiving percutaneous transluminal coronary angioplasty compared to coronary artery bypass grafting.

**Asthma admissions**

This project looked at hospital admissions for asthma in Scotland between 1981 and 1997. We showed that while hospital admissions had increased by 70%, admissions among children had begun to fall after 1992. This fall was due to a decline in first hospital admission and readmission rates.

**Heart failure in Scotland**

Heart failure has a bleak prognosis yet recent RCTs have raised the hope that matters may be improving. Patients selected for trials represent only a small subset of all patients with heart failure. A literature review demonstrated an improvement in the prognosis of heart failure in a community setting. We also used routinely collected hospital discharge data to identify patients with a first admission for heart failure and found three year survival improved from 33% in 1984 to 39% in 1992.

A further study examined the effect of previous, concomitant and subsequent diagnoses on the progression of heart failure. Of the surviving patients 61% had at least one cardiovascular readmission, with half of these occurring within six months. We concluded that recurrent ischaemic events and atrial fibrillation may be the predominant mechanisms leading to exacerbation and progression of heart failure and death.

**Infertility management in primary care**

This project investigated the effect of clinical guidelines on the management of infertility across the primary/secondary care interface. 214 general practices in Greater Glasgow Health Board were assigned to receive locally developed guidelines (intervention) or not in a cluster randomised trial. We found that referrals from intervention practices were significantly more likely to have all relevant investigations carried out (OR 1.32). No difference was found in the proportion of referrals in which a management plan was agreed within one year or in the mean duration between first appointment and date of management plan.

**Socio-economic inequalities in health**

Work on this theme has focused on measures of small area deprivation, their relationship with individual socio-economic status and how these impact on a variety of health outcomes.
and processes, ranging from death and long-term illness to teenage pregnancy and the provision of chemotherapy.

**Income and health**

This study explored the utility of postcode sector income data produced by a commercial company and modelled its relationship to health. Comparison of the ability of an area deprivation measure (Carstairs scores) and the income data to predict mortality and long-term illness revealed that Carstairs scores explained around 80% of variation in postcode sector mortality ratios compared to 70% for the income data. We found no added effect of income above the effect of deprivation. Similar results were found for limiting long-term illness. Compared to an already available deprivation measure, whose derivation is publicly available, the income data performed less well in explaining the variation in health. We also noted a great deal of uncertainty in how the income data were derived.

**Socio-economic deprivation and health**

Activities concentrated on associations between measures of deprivation and health at a small area level. This has involved looking at the types of variables used to categorise areas in terms of levels of deprivation and the technical ways in which these variables are combined. We concluded that a multidimensional perspective was more insightful. We have also explored the associations between neighbouring areas in terms of whether the levels of deprivation in neighbouring areas influence the health of adjacent areas. This illustrated a weak association between mortality in an area and deprivation in neighbouring areas, but concluded that this was probably due to levels of deprivation within neighbouring areas providing a more secure estimate of the true level of deprivation within an area. We have shown the poor sensitivity of area-based approaches to the selective targeting of resources, finding that more than 60% of the population of Scotland would need to be targeted to include 74% of low income households. Moreover we have illustrated some of the pitfalls in using area of residence as a proxy for an individual’s social class. Initial exploration of the changing pattern of mortality within small areas suggests that inequalities in small area mortality associated with deprivation have increased between 1991 and 2001. At the same time the populations in the most deprived areas of Scotland have fallen, suggesting that part of the increase in area inequalities could be due to differential migration. At this stage we require more secure population estimates (to be released with the 2001 Census results) before continuing.

**Health inequalities: decennial supplement**

Little is known about the magnitude of social class variations in mortality in Scotland and how these have changed. The broad purpose of the work, funded by a CSO grant, is to document patterns of health in Scotland and the ways they have changed over time. The analysis is centred on output from the 2001 census, but for some purposes it considers trends in the period covered by the last four censuses 1971–2001. We are focusing on two main themes; firstly, what is the magnitude of social class inequalities in mortality and how have they changed? Secondly, how have small area inequalities in mortality changed? So far we have shown wide social class variations in mortality, and we have contrasted social class differences in large geographical areas containing large proportions of deprived populations with
areas containing smaller proportions of deprived populations. This has revealed that for individuals with the same social class, those from areas with large concentrations of deprived populations have higher death rates than those from areas with low proportions of deprived populations. We have further shown mortality within every social class to be higher in Scotland than in England (see: www.msoc-mrc.gla.ac.uk/Publications/pub/Carstairs_MAIN.html).

Variation in the provision of chemotherapy
This project considered the impact of patient, area and hospital characteristics on variations in the provision of chemotherapy for colorectal cancer in Scotland between 1990 and 1994 based on routine hospital discharge data. Whilst by 1990 there was some evidence that chemotherapy for advanced colorectal cancer may improve survival and reduce recurrence, the efficacy of adjuvant chemotherapy was still not established. About 8% of 7852 incident cases received chemotherapy within six months of their first hospital admission; age and deprivation were both significantly and independently associated with the treatment. The odds ratios of chemotherapy relative to patients aged 64-74 were 2.13 and 4.50 for patients aged 55-64 and under 55 respectively. Relative to patients from the most affluent areas, the OR of chemotherapy for patients from the most deprived areas was 0.73.

Teenage pregnancies in Scotland
The UK has relatively high rates of teenage pregnancy; this study aimed to measure the impact of socio-economic deprivation on teenage pregnancy rates in Scotland. Data on births and pregnancies resulting in abortion or miscarriage were obtained from routine hospital discharge records and were aggregated over small areas. Between the early 1980s and the early 1990s the annual pregnancy rate in the most affluent areas remained unchanged (3.8 per 1000 13-15 year olds and 28.9 per 1000 16-17 year olds) whilst that in the most deprived areas increased from 7.0 to 12.5 and from 67.6 to 84.6 per 1000 respectively. We showed that the amount of small area variation explained by deprivation more than doubled over this time. The proportion of pregnancies resulting in a maternity decreased in the 16-17 year olds but not in the 13-15 year olds; the adjusted odds ratio of a maternity in the most deprived areas relative to the most affluent was 3.0 for 13-15 year olds and 4.1 for 16-17 year olds.

Urban/rural inequalities in health
We have been conducting a series of projects with the aim of understanding differences in health between urban and rural populations and the influence of deprivation on these differences. This work is continuing, to be completed in September 2004.

Defining rurality in health research
Several indicators of rurality have been created and used in various fields of research. We are investigating the need for a robust indicator in the field of public health. We have shown that a comparison of urban and rural health is partly dependent on the way in which rurality is defined. An 8-category rurality classification describing a type rather than a gradient of rurality has been created for postcode sectors based on the Scottish Household Survey rurality indicator. This indicator benefits from being simple, easily updated, descriptive and of use within several fields including small-area health research, and its validity is being tested further.

Urban/rural differences in self-reported limiting long term illness in Scotland
Previous research has suggested significant differences in health between urban and rural areas. This study is describing urban/rural variation in health in Scotland and examining the
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Factors associated with health inequalities in limiting long term illness (LLTI) using socio-economic data from the 1991 Census. A variety of socio-economic factors were investigated for each type of rurality within Scotland. Areas with the highest Standardised Illness Ratios (SIRs) (>125) are predominantly urban whilst the lowest SIRs (<75) are found in both urban and rural areas. Rural communities are more heterogeneous than urban areas in terms of the relationship between their social make-up and health. Our findings suggest that rural areas do not form a homogeneous group and reinforce our view that they should be subdivided into different rural types.257

Measuring rural deprivation

The Scottish Household Survey was split into categories of rurality using their rurality indicator and the effect of several variables on limiting long term illness was investigated within each. The factors found to be significant vary by rurality type. In remote and rural areas the odds of illness were significantly higher for those who: reported no bus service, rated the area as a “bad” place to live, had financial worries and had moved in the previous 2 years. These factors were not significant in urban areas, where car ownership, educational qualifications and overcrowding were associated with limiting long term illness. The differences between rural and urban areas reflected differences in lifestyle, culture and economy.

Urban/Rural Inequalities in Suicide in Scotland, 1981-1999

Although suicide accounts for a small percentage of deaths in Scotland (1.4% in 1999), it has been steadily increasing over the last two decades. In the US, Australia and England and Wales the greatest rises in suicide for this time period, were shown to occur in rural areas. This study describes the pattern and magnitude of urban/rural variation in suicide in Scotland, examines methods of suicide within differing geographies and looks at trends in suicides over time.256 Scotland is split into four rurality types. Suicide data for all areas of Scotland (apart from Grampian which underwent changes in postcode sector boundaries in 1996) are investigated using Standardised Mortality Ratios and multilevel Poisson modelling, adjusting for age, sex and deprivation. Models show higher risk of male suicide in remote rural areas relative to urban areas and lower risk of female suicide in accessible rural areas. The method of suicide varies across ruralities for both men and women. The steepest rises in suicide amongst men, adjusting for age and deprivation, were in accessible rural areas; however, the highest rates remain in remote rural areas.

Urban/Rural Inequalities in Ischaemic Heart Disease in Scotland, 1981-1999

Ischaemic heart disease (IHD) mortality has been declining in the UK since the 1970’s. Nevertheless, it accounted for 22% of deaths in Scotland in 2000. Until recently rural areas were regarded as healthy. However, results from studies using health indicators are easy to misinterpret. One solution might be to incorporate a range of health measures when assessing urban-rural inequalities. This study describes the pattern and magnitude of urban/rural variation in IHD in Scotland using three health indicators over time and examines the relationship between health, rurality and deprivation. Three IHD health indicators – mortality, hospital stays and mortality within 28 days of discharge from hospital (MWDH) – were investigated using multilevel Poisson modelling of data on IHD for the Scottish population aged between 40 and 74 years (1981-1999), adjusting for age, sex and deprivation. Approximately equal IHD mortality rates and low hospital rates in rural areas mask cause for concern regarding the health of rural populations. Higher hospital mortality and MWDH in remote rural areas suggest that there may be differences in diagnosis and/or the provision of care between urban and rural areas. Over time absolute and relative differences between urban and rural MWDH have diminished slightly; however, rates of MWDH remain highest in remote rural areas.
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Trends and inequalities in mortality
We have been looking at the trends in mortality in Scotland by age group and cause of death, and also at the changing geographical patterning of mortality in Great Britain.

Trends in mortality in Scotland
We aimed to describe the change in overall and cause-specific mortality in Scotland between the early 1980s and late 1990s, with particular reference to the mortality experience of young adults. Between 1981-83 and 1989-91 death rates in Scotland began to rise among young men (20-24) while for those aged over 25 rates declined. During the 1990s death rates among 20-34-year-olds continued to increase, with a slight rise also at ages 35-44. At older ages overall mortality continued to decline but the greatest fall was at ages 60 and over. Trends among women were similar to men's. For both men and women falls in mortality from heart disease, stroke, and cancers were being differentially offset by increases in other causes of death across all age groups. The causes of death that contributed to the increased death rate among young adults include suicides, drug deaths, alcohol and violence. We concluded that in Scotland changes in mortality result from a complex combination of different trends in mortality from various causes of death. The rate of decline in mortality among men aged 59 and below is slowing down, and death rates among young men aged 15–44 are increasing. If these trends continue death rates may begin to rise at older ages.

Inequalities in premature mortality in Great Britain
We have been assessing the changing patterns of mortality in Great Britain from 1979 to 1998, separating regional variation in mortality rates from district variation within regions. Mortality is higher in Scotland than in other parts of Great Britain, and this difference has changed little over 20 years. The variation between districts within regions – a description of geographical inequalities in mortality rates – shows substantial differences between regions, with inequalities in premature mortality being highest in Scotland. This variation between districts is not related to the regional mortality rate. We found a general upwards trend in inequalities in all regions over the 20 years, with by far the sharpest increase occurring in Scotland. Further work has explored the relative importance of age, period and cohort and has shown that inequalities in “avoidable” mortality are greater than those from other causes in Scotland.

Environmental influences on health
We have considered the ways in which the environment – including the home and school environments – may affect health and its determinants.

Winter deaths 1981-1993
We found significant seasonal variation in death rates in Scotland with a difference of about 30% between summer and winter. This variation was most pronounced in respiratory, cerebrovascular and coronary artery disease. There was no clear evidence of a relationship between socio-economic status and seasonal mortality. We concluded that seasonal variations in mortality and in the relationship between temperature and mortality are a significant public health problem in Scotland.

Housing and health
A relationship between damp housing and health has been well recorded, and recent evidence has suggested that an inability to keep a house warm may impair health. We used the Twenty-07 study to examine the relationship between housing condition and ill health. We showed that employment status and housing tenure were associated with long term and limiting long term illness. Respondents living in a house that was cold ‘most of the time’ in
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winter had increased odds of one or more limiting conditions (OR 3.48). Social class, car ownership, employment status, overcrowding, tenure, type of bedroom heating and whether the house was cold in winter were all associated with ‘fair’ or ‘poor’ self-assessed health. ‘Fair’ or ‘poor’ health was more likely when the house was cold in winter (OR 4.80). The presence of mould or damp in the home was not associated with either measure of poor health.191

The home environment and smoking cessation

Recent studies have examined predictors of smoking cessation but few have focused on the role of the home environment. This work aims to identify factors associated with smoking cessation, in particular features of the home environment using data from the British Household Panel Survey (BHPS). The relationship of socio-economic, demographic, environmental and health-related variables to smoking cessation was studied in 1441 smokers aged 16 or above in 1991 and present in 1999. After 9 years 28% of males and 23% of females had quit. Baseline light smokers had over twice the cessation rate of heavy smokers (OR 2.49). Cessation was more common when couples gave up and lower among those living alone. A subject whose spouse also quit smoking had an adjusted OR of 4.41 of quitting compared to those whose spouse continued to smoke. Subjects who lived alone had an adjusted OR of 0.65.

We are extending this work to a longitudinal analysis, with data from 10252 subjects over 9 time points. Male gender, smoking behaviour of spouse and living alone are all positively associated with smoking. This work will further examine regional differences in patterns of smoking and cessation and will consider the relationship between smoking status and pregnancy.

Long term effects of schools on health

The 1998 follow-up to the Aberdeen Schools Study of the 1950s has provided the opportunity to study childhood and school influences on adult disease risk. Multilevel modelling was used to assess the effect of primary school attended on adult health and determinants of adult health. Intraclass correlation coefficients (ICCs) were calculated to summarise the extent to which adult health outcomes and determinants, in addition to childhood influences, varied across schools. Adult health outcomes and behaviours include self-rated health, prevalence of high blood pressure, general wellbeing, smoking, alcohol use and obesity; childhood influences include father’s social class, birthweight, reading test scores at ages 7, 9 and 11, age leaving secondary education, adult social class and income.

The geographical patterning of disease

Much of the above work has considered, inter alia, ways in which health varies over geographically defined regions; we have also been conducting projects where this is the primary concern. The international studies included will help us view Scotland’s health in a wider context.

Patterning of coronary heart disease (CHD) in Finland

Earlier research on CHD mortality in Finland has shown clear socio-economic and geographical differences. This study is making use of the linkage of the Hospital Discharge and causes of Death Registers to the longitudinal database of the 1975-1990 population censuses, providing detailed information about the denominator population at risk as well as the cases. Early work has described the regional patterning of CHD morbidity in Finland in terms of the
mortality rate, and the incidence, case fatality and recurrence rates of myocardial infarction (MI). We are also estimating the contribution of the incidence, case fatality and recurrence rates to regional differences in CHD mortality. We explored how an increase in the supply of coronary surgery in Finland affected socio-economic and gender equity in their use, and found that inequalities decreased between 1988 and 1996. This work is ongoing.

Spatial patterns of cancer mortality in Europe
Geographical variations in cancer mortality can reflect differences in demographic structure, socio-economic factors, lifestyle (e.g. diet, smoking), or genetic predisposition to cancers. In a PhD project (Davies) we are using data from the World Health Organisation’s recently published atlas of mortality in Europe. Mortality and population data cover the periods 1980/81 and 1990/91 and were reported at a sub-national level by age and gender. We have collated a complementary data set reflecting the different population characteristics, and are using spatial multilevel models to analyse the data, presenting the results as spatially smoothed maps. We have shown that although a large part of the variation between countries is accounted for by known risk and protective factors, variation still exists between and within these countries. Adjusted cancer mortality appears to be lower in Northern Europe. Around two thirds of the variation between regions in the EU can be explained by taking into account fairly crude measures of exposure to risk and protective factors (e.g. per capita consumption of tobacco or fresh fruit). About 85% of the remaining variation between regions is spatially patterned, suggesting that there are other factors which are spatially patterned also influence cancer mortality (such as genetic predisposition to cancer). Given that relationships vary for different cancers we will consider the major cancers individually. We will generalise the results further by including more countries and data from other years.

Regional variation in birthweight, 1958-2000
This study aims to investigate associations between birthweight and country of birth across three time points and to determine whether the predictors of birthweight had changed over time. It uses birth data from three cohort studies: the 1958 Perinatal Mortality Survey, the 1970 British Cohort Study and the Millennium Cohort Study. Both mean birthweight and percentage low birthweight (<2.5kg) are considered as outcomes.

Methodological development
We have been actively developing statistical methodology, with particular reference to methods for resource allocation, spatial modelling and multilevel modelling.

Development of methodology for small area resource allocation
As part of the ongoing review of health service resource allocation in Scotland, research was commissioned by the Scottish Executive into the development of formulae for the acute and maternity hospital services and geriatric long stay specialties. The acute sector was broken down by the principal hospital diagnosis in an attempt to develop an approach which more accurately reflected regional differences in health and which was responsive to funding priorities for health. Our involvement in the review continued through written and oral evidence submitted to the Scottish Parliament Health and Community Care Committee meeting on the Report of the National Review of Resource Allocation, membership of the
Reference Group for the Review of Resource Allocation, and commissioned research into the use of shrinkage estimators and principal components analysis for resource allocation. A further project, funded by the Department of Health, concerned the estimation of the supply and demand determinants of healthcare utilisation in England using a model which captured the influences of provider, general practice and population characteristics. Supply-side influences were modelled to capture the effects of distance, waiting times, capacity and accessibility to other providers. Population characteristics were chosen using a range of criteria including stability in definition over time, the extent to which the formula could be updated on a regular basis, their plausibility and ability to predict healthcare utilisation, and we allowed for the multilevel nature of the data and the interactions amongst the determinants of use.\textsuperscript{204, 474}

Spatial multilevel models
We have been examining ways in which estimates of disease incidence, prevalence or mortality may be enhanced for small areas, taking into account the geographical patterning of disease. This has involved conceptualising the problem as a multilevel model and has served as an aid to both exploratory and influential analysis.\textsuperscript{49} We applied the method to all cause mortality in postcode sectors within Greater Glasgow Health Board and prostate cancer incidence in local government districts in Scotland. Once seen in a multilevel framework it has been possible to expand the methodology to the analysis of multiple causes of death – for example, deaths from neoplasms and deaths from diseases of the circulatory system – enabling us to consider the relationship between causes of death simultaneously to the geographical patterning of disease.\textsuperscript{264} We have recently reviewed Empirical Bayes methods for disease mapping.\textsuperscript{260} A further extension has been the addition of a temporal dimension, considering the ways in which mortality from specific causes, and the relationship between causes of death, are changing over time. A separate project led to the development of a hierarchical space-time model and applied the methodology to an influenza epidemic in Scotland between 1989-1990.\textsuperscript{305}

Multilevel modelling as a methodology appropriate for public health research
A theme running through much of the research in this programme has been the development and dissemination of multilevel modelling as a methodology appropriate for public health research.\textsuperscript{31, 245} This has included organising and teaching several courses on the subject, some funded by the ESRC, ranging from one to five days. The courses have been held in the UK and abroad and have attracted around 300 participants from many countries. We have also been involved in an ESRC-funded project resulting in the development of internet-based training materials.\textsuperscript{455} We have introduced multilevel modelling to policy-makers,\textsuperscript{263} and have co-edited the first book on the subject devoted to health sciences.\textsuperscript{7} Methodological developments have included multilevel spatial modelling,\textsuperscript{253} and work on methods of inference: approximating the likelihood for multilevel Poisson regression models and testing for the significance of random parameters in generalised linear multilevel models. This work is ongoing.
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Aims and objectives
The aim of this programme is to describe and explain inequalities in health between ethnic groups. Our objectives have been:

- To establish how far the health advantage or disadvantage of all Britain’s main ethnic minorities (Irish, Caribbeans, South Asians) varies between minorities, over the life course and between the migrant and British-born generations;
- To see whether the timing of the emergence of health advantage or disadvantage is linked to turning points in individual or collective socio-economic careers; and
- To see whether the timing of the emergence of health advantage or disadvantage is related to changing cultural responses within each minority (e.g. in gender roles or health behaviour), or in its relation with the ethnic majority (e.g. patterns of hostility or discrimination).

Background
Research into ethnic differences in health is a much younger field in the UK, and still more so in Europe, than research into socio-economic inequalities in health (in this respect differing from the USA, where the reverse is probably true). A major problem is the paucity of data sources. Information on ethnic identity has rarely been collected in social or health surveys or in routine government statistics (for example birth and death registration records), and was not collected in the UK decennial census until 1991. By contrast, measures of social class or deprivation have been standard features of UK surveys and censuses since the early twentieth century. Two major initial tasks for research in this field were therefore to improve data availability and to document the direction and magnitude of ethnic differences in health in the UK and Europe.

Our strategy over the last five years has been to move beyond our earlier empirical studies of people of South Asian (Indian, Pakistani and Bangladeshi) or Irish descent in the West of Scotland, to cover a wider range of ethnic groups and to do so in varying national and international contexts. As planned, Rory Williams retired in 2002, and Seeromanie Harding was appointed in 2001.

Key findings
Excess mortality and morbidity among the Irish in Great Britain:
Mortality
In 1998 we reported that our analyses of the Midspan Study (a work-place health screening survey in the early 1970s which had mortality follow up until 1994) had shown for the first time a pattern of high Irish mortality in the West of Scotland (adjusted OR 1.22 {95% CI 1.08,1.38} for all-cause mortality and 1.53 {95% CI 1.27,1.83}) for coronary heart disease mortality), probably linked to deprivation. High mortality has also been reported for the Irish living in England and Wales but deprivation does not explain all of the excess. We assessed three candidate historical explanations (economic, cultural, and interactions...
between these) for high Irish mortality in England and Wales, using the ONS LS. We found that only the cultural model was supported, and suggested that research should be directed to political and religious divisions as a source of Irish disadvantage in wealth and health in England and Wales.402

**Socio-economic careers, and ethnic majority responses**

There has been a recent debate in Scotland about whether Irish Catholics (c.30% of the Clydeside population) are still socio-economically disadvantaged. We have shown that they are 80 and that this has had health consequences.88 Using the Scottish Election Survey in 1990s (1992 n=957, 1997 n=882) and the Scottish Social Mobility Survey in 1975 (n=4887), we found that young Scottish Catholics (age 20-42), who were seriously disadvantaged in 1975, were close to socio-economic parity by the 1990s. Older Catholics (age 43-64), however, were experiencing increased disadvantage in the 1990s; and a comparison of the surveys in 1992 and 1997 suggested that there might be an age effect, starting around age 40.80 Using the **11 to 16** study (n=2586), we showed that compared with their peers, Catholic 11-year-olds had similar health, but were in more socio-economically disadvantaged households. If they do not achieve socio-economic parity as young adults, they may experience health disadvantage in the long run.85 The apparent equality in health between Catholic and Protestant 11 year-olds masked an interaction by religiosity for mental health. Catholics who attended church, and Protestants who did not, had better mental health outcomes.84 This was hypothesised as being related to peer group norms.

We examined political/religious divisions as a cultural factor in producing this disadvantage, using in-depth interviews with a sub-sample (n=72), from the older two cohorts of the **Twenty-07** study, of people whose childhood background was Catholic or Protestant, subdivided into groups of Scottish and Irish descent. Both Catholics and Protestants reported that in employment there was a persistent tendency for people who had attended Catholic schools or had Irish names to have experienced discrimination, particularly for middle-class jobs. There were some Protestant perceptions of a Catholic backlash, but the evidence was poor or self-contradictory. Cases of mistaken assignment to the Catholic/Irish name group (both false positives and false negatives) were revealing, because accidental correction of false negatives had often resulted in discrimination. There was agreement that discrimination was not as common now as in the past, but incidents continued to be reported dating to the 1990s.381 Within work, Catholic and Protestant accounts of perceived health effects of stress were different. Only Catholics reported stress so unmanageable that they were unable to continue working. They also reported permanent blocks to getting promotion in employment. These experiences were never articulated as having a religious or ethnic basis. Part of the explanation may lie in images of competence which are framed around a ‘somatic norm’ (where personal appearance or sociable behaviour are taken as cues for competence, in place of tests of competence itself). This could reflect an indirect and institutional form of sectarian discrimination. Alternative explanations which seek to account for Catholic lack of career success by recourse to either low qualifications or problems within Catholic culture itself were examined and discounted.380 Issues related to family and communal life are being analysed.

**Health behaviours**

We looked at aspects of health or illness behaviour among Irish Catholics in the **Twenty-07** Study. We found an excess of smoking among older Catholics, although it explained very little of their health disadvantage except for lung function.89 They also consumed less fruit, yoghurt and vegetables and more snacks and processed foods than others. Differences were not substantial, but were mediated through educational and class disadvantage.307
South Asians (of Indian, Pakistani, Bangladeshi descent): Socio-economic careers, and ethnic majority responses

Decennial analyses using census and deaths data have previously showed an absence of class gradients in 1970-73 for migrant South Asians but in the 1990s these were evident for the older working ages. We found corroborative evidence of class gradients in morbidity comparing our 1987 survey of 30-40 year old South Asians with middle cohort from Twenty-07 study (then aged 35 years). We pioneered the explanation that the emergence of class gradients was due to the redistribution of class chances after migration.404 We suggested in a review of CHD among South Asians that the unequal effects of poverty, racism and stress were important factors contributing to the emerging socio-economic gradients.78 In young second generation South Asians, however, class gradients in health are not yet apparent. In 1992 we recruited a sample of 824 pupils aged 14-15, composed of similar sized groups of South Asians and non-South Asians in 9 schools in Glasgow. 86% of the South Asians had been born in Britain. We followed up this sample (n=492) when they were 18-20 years. Young Asians were not disadvantaged in socio-economic position compared with the non-Asian population, nor was socio-economic disadvantage associated with health disadvantage among young Asians or non-Asians.

Health related behaviours

Differences in health behaviour are a major influence on health risk and are strongly associated with religious and cultural patterns. In our South Asian youth study, South Asian males and (especially) females were much less sexually active than non-Asians, and sexually active South Asian males reported less frequent use of condoms than non-Asians.103 Young South Asians were also much more abstinent in use of alcohol, tobacco and drugs at age 14-15 and at age 18-20, except for smoking at age 18-20.

Differences in family culture affect use of services. The South Glasgow Child Psychiatry Team includes a high proportion of families of South Asian origin, yet few are referred for services. We collaborated in a review of all available case notes of South Asian families attending the service in the preceding year (n=17) with the aim of identifying barriers to referral, assessment and treatment. Assessments were complex and often unsatisfactory, although around half of families eventually reached consensus on diagnosis and treatment with the clinician(s). Similarly a larger proportion of South Asian children were diagnosed with and treated for Attention Deficit Hyperactivity Disorder compared to the general population of children being seen at that time.296

On the related theme of family social control, an MRC PhD (Goonetilleke) project based in Glasgow explored the health and neighbourhood perceptions of women of South Asian origin living in an inner city area with a high concentration, and a suburban area with a low concentration, of residents of South Asian origin. For some women life in the inner city ‘enclave’ involved high levels of support but also high levels of family and community surveillance which they found stressful, whereas some women in the more suburban area felt isolated and lacking in social support.
An earlier MRC PhD project (Bradby), an ethnographic study of 32 young South Asian women aged 20-30, found that on occasions involving kin and community networks, reputation and honour were more important than health as a criterion in food choice. For example a wedding meal must feature meat and be plentiful. It is strictly sanctioned by considerations of honour and family reputation, through the mechanism of gossip, but the content of the meal also reflects religious identity. Final conclusions from our ESRC-funded dietary study comparing South Asian and Italian with general population women were that adverse anthropometric indicators of cardiovascular risk were substantially explained by lifestyle factors, mainly low physical activity and high parity, and, to a lesser extent, high fat intake. South Asian women’s health beliefs, tending to equate large size with health, encouraged resistance to slimness, despite slim figures being linked with marriage and job success. In all these aspects a limited convergence with the general population is occurring in the second generation, but clear differences remain. As first and second generations of South Asians converge with the general population in access to material goods, our results suggest, perhaps paradoxically, that religious and cultural differences will play an increasing role in health.

On methodological issues in research on South Asians, we exposed problems with translation of questionnaires that tend to be based on the assumption of a single pure mother tongue. Among South Asian groups in the UK there is a complex strategic switching between English terms and varying terms available from subcontinent dialects, and this switching is used to negotiate identities. Translation which adapts to this process is more easily understood. We described the strategic use of multiple identities by young Punjabi women in Glasgow in the context of marriage and relations between the sexes and reviewed the effect of all these variables on communication between patients and health service providers.

Women of Chinese descent
An ESRC grant-funded qualitative interviews with a purposive sample of 42 Chinese women aged 29-60 who had experienced mental distress or used traditional Chinese medicine. These revealed linguistic or conceptual problems with NHS services (especially because the NHS did not treat mind and body as an indivisible whole). The absence of routine multilingual services met the recent Lawrence inquiry definition of collective failure to provide an appropriate service because of ethnic origin. Some Chinese women were successful in negotiating their way around, and sometimes out of, their initial family and social position, while others bore disproportionately the cost and labour of family strategies of advancement.

National and international data sets
There is a scarcity of national and survey health data on ethnic groups in the UK, and what is available has many limitations. We have used the ONS Longitudinal Survey for a range of studies. Our work has shown that (1) mean birth weights of babies born to UK-born minority mothers are not greater than that of those born to migrant minority mothers in the same ethnic group, independent of differences in socio-economic position; (2) CHD and
cancer mortality among migrant South Asians increased with increasing duration of residence in Britain; among migrant Black Caribbeans, this trend was not observed for CHD or cancer mortality but there an effect for stroke mortality in the oldest age cohort; there was an increase in adult mortality between first generation and UK-born Caribbeans and South Asians, though estimates for these latter two groups were imprecise due to small sample sizes; downward social mobility had a disproportionate impact on morbidity among Caribbean migrants relative to the majority population. We are currently investigating differences in prevalence and survival among the largest minority groups. This is only possible for the main cancers – e.g. breast, lung, prostate, colorectal – and we are examining whether differential incidence or survival is related to socio-economic circumstances. We are also examining how different social trajectories in family structure, socio-economic status, and place of residence between 1970s and 1990s relate to the health of the largest ethnic minority groups. These projects are ongoing and with the incorporation of the 2001 Census data and longer follow-up over the next few years will provide valuable opportunities to confirm our earlier findings.

We have also been using the Health Survey for England (1999) to investigate cardiovascular risk profiles of UK-born minority groups. We attempted direct comparisons between foreign-born and UK-born but unfortunately these could not be made reliably because of differences in age distributions and also because of very small numbers. Most of our analyses are restricted to Irish and Black Caribbeans and comparisons are with same aged British-born Whites rather than foreign-born counterparts. Nevertheless, the findings, though not definitive, are interesting. For example, there were no significant differences in mean systolic and diastolic blood pressure, lipid levels, fasting glucose or body mass index between second generation Irish born and living in England and British-born (non-Irish) White, after adjusting for socio-economic circumstances. Over the past 18 months we developed international collaborations to investigate the health of migrants in different countries. Finnish migrants in Sweden, a group known to be susceptible to CHD, independent of socio-economic circumstances, continue to have high CHD mortality but this declines with increasing duration of residence in Sweden (with D Vagero). This is at odds with the suggestion that their high CHD mortality is due solely to genetic differences. Another interesting feature of our Swedish work is that Iraqis and Iranians are the most disadvantaged group but are more likely to have completed university education and have the lowest mortality in Sweden. This is possibly due to the strong healthy migrant effects associated with forced migration. In Portugal, the ethnic differences in health have never been examined. In collaboration with P Santana, we are investigating differences in mortality and birth outcomes among migrant groups. Preliminary findings from the births data suggest that there is no significant difference in birth weight (a sensitive indicator of health in childhood and later life) between African origin and Portugal-born White babies in Amadora and Sintra provinces. This contrasts with findings reported for Britain and USA, where babies born to African origin mothers are generally lighter than those born to local White mothers.

Reviews
Given the relative paucity of research on ethnicity and health, we felt it important to establish what is already known and where the gaps are. We undertook, collaboratively, a review of UK ethnic inequalities in health, which pointed to serious gaps for morbidity and service use and highlighted the need to explore the explanatory power of socio-economic position. We completed a commission from the DoH to review opportunities for and barriers to good nutritional health in ethnic minorities. We found extensive literature for South Asians, but on highly limited problems like rickets and vitamin D deficiency. There was poorer
coverage for African Caribbeans, despite the need to investigate high rates of obesity and stroke, and for the Irish, despite evidence of generalised high mortality and short stature.\textsuperscript{417}

We examined the literature on access to health-related services among minority groups. Research in this area suffers from many methodological limitations. Much of the literature referred to access and utilisation issues and patient/provider interactions. Few studies examine the quality of medical management. South Asians appear to use primary health services more than Whites but report higher dissatisfaction, related to lack of access to female doctors and linguistic difficulties. Ethnic elders continue to use relatives as interpreters, which may reflect some level of unmet need. Black Caribbeans use services less than expected and report high levels of mistrust in doctors. Studies focusing on specific conditions provided some information about differences in referral patterns and in severity of disease at presentation. For example, Black Caribbeans with schizophrenia are more likely than Whites to be admitted to services via contact with the police, with little involvement from a GP and more frequently under a section of the Mental Health Act.\textsuperscript{79, 413}

We examined the epidemiological literature on the health status of UK-born Black Caribbeans. Over 40 papers were found, and around half were on the incidence of schizophrenia and psychotic conditions in this population. The others covered autoimmune conditions, sexual health, diet and alcohol intake and children’s health. Although there are many methodological limitations on the research on schizophrenia and psychotic conditions, the findings were consistent in that UK-born Black Caribbeans are more likely to be diagnosed with these conditions than Whites, and also more so than the first generation migrants. Poorer sexual health and the high prevalence of autoimmune conditions were also consistent features. These findings suggested a continuity of risk of these conditions across generations and that environmental factors, rather than genetic susceptibility, played a major role in resulting in their outcomes. The focus in the literature on excess schizophrenia and psychotic conditions ignored the importance of investigating changes in chronic diseases, such as hypertensive related conditions, between generations.\textsuperscript{94, 413} Our current and future work seeks to re-balance this focus.

**DASH – Determinants in Adolescent Social well-being and Health**

Britain now has substantial numbers of UK-born minority people but little is known about their health or susceptibility to diseases that are prevalent in the migrant generation, mainly because of scant or absent data. We initiated the largest school study of ethnic minority adolescents ever designed in the UK to examine the impact of social influences on early differences in ethnic health. Currently in progress, it involves about 7,000 pupils from different ethnic backgrounds living in London. The overall aim of the study is to investigate the effects of family life and socio-economic conditions on a range of health indices among adolescents from different ethnic groups living in London; and to provide a basis for determining whether adverse effects in adolescence can provide early indicators of chronic disease in later life. In our future programme we plan to follow-up these pupils.

This study, conducted in 2003, includes self-completed questionnaires by pupils and their parents and physical measurements of pupils. The recruitment of schools involved the invaluable help of civic leaders in ethnic minority communities, teachers and school nurses and community organisations. Pupils in 53 schools, from Years 7 and 8 (aged 11-12), in randomly selected mixed ability classes are joining the study. The following topic areas are covered in the questionnaire: migration history and ethnicity of self and family; behavioural issues – including diet, smoking and exercise; psychological issues – including sense of control, self-esteem and self-image, and aspirations; social circumstances – including family life, school life, social networks, parental occupation, housing and neighbourhood features; physical and psychological health. Each pupil has height, weight, arm circumference, waist, hip, blood pressure and respiratory function measured.
The hypotheses addressed in this study are: (1) There are differences in health related behaviours, health status and well-being between and within ethnic groups in adolescence. (2) If there are differences, they are associated with measures of social deprivation and/aspects of family life and school life. (3) Psychosocial stress is a mediating factor between underlying factors (social deprivation, family life, school life) and health indices (4) The effects of social deprivation and school life are attenuated or amplified by aspects of family life within ethnic groups.

**Methodology**

We were invited by ONS to be part of an expert group to investigate the feasibility of projecting future age distributions of ethnic populations. This report highlighted the methodological complexities involved because of the lack of relevant data on minority groups. The overall view, however, was that producing projections is a feasible option using some form of the cohort component model, and that there are sufficient data to make main assumptions.

**Cancer related knowledge, beliefs and attitudes among Irish people living in Britain**

We were awarded a grant from Cancer Research UK in 2002 to carry out a qualitative study into the knowledge, beliefs and attitudes of Irish people relating to cancers, and to adapt cancer prevention materials to be culturally relevant. Working with Irish community organisations has been an important part of this study. Focus groups and individual interviews with respondents living in London, Manchester and Glasgow are completed. These areas were chosen to ensure representation from different parts of the country and to capture issues related to differences in the history of Irish migration and regional differences in cancer survival rates.

**Maternal and postnatal care needs among UK-born minority**

In collaboration with Gowridge, MacFarlane and Ahmed, we have been awarded a grant from the Community Fund to explore experiences of care during pregnancy, childbirth and postnatally, perceived generational differences in support for mothers and childcare practices, perceived barriers to access and uptake of maternity care, and health care providers’ perception of the needs of UK-born minority mothers. This project started in June 2003 and finishes in May 2005.

**Collaborators**

**ESRC dietary study:** Professor M. Lean, University of Glasgow  
**Chinese study:** Dr G. Green, Essex University.  
**Access to psychiatric services among South Asians:** Dr Helen Minnis, South Glasgow Child Psychiatry Team.  
**Review of epidemiological literature on ethnic minorities:** Professor George Davey Smith, Bristol University; Dr James Nazroo, University College London, London; Professor Nish Chaturvedi, Imperial College.  
**National data set analyses:** Professor Balarajan, National Institute of Ethnic and Social Research; Dr Kennedy Cruickshank, University of Manchester.  
**International data sets:** Alison Reid, University of Western Australia; Professor Paula Santana, Universidade de Coimbra, Portugal; Dr O Hemstrom and Professor D Vegero, University of Stockholm.  
**Perinatal support among UK-born minorities:** Professor A MacFarlane and S Ahmed, City University; C Gowridge, Maternity Alliance
Introduction

Our concepts of youth, and of the influences associated with this life-stage, are changing all the time. In the UK and other Western societies, a range of social, economic and educational changes have resulted in an extended period of dependency for young people. Definitions of youth now incorporate both the adolescent period, which we refer to as ‘early youth’ (age 11 to 16), and an increasingly lengthy transition to adulthood (‘later youth’) which may not be fully achieved until the mid-late 20s when entry into stable occupational and other adult roles is secured. It is possible the extension of youth, via associated experiences such as prolonged dependency on parents, may itself be implicated in the widely reported deterioration in young people’s mental health.

Throughout this period, young people are subject to a range of influences, some associated with social structures such as social class, others with the stage of youth itself (e.g. youth culture) which may either mediate broader structural influences or cut across them to promote common experiences, behaviours and attitudes. As such, youth occupies a pivotal theoretical position in the debate about the relative importance of traditional social structures, which on some judgements are breaking down, and ‘postmodern’ influences (e.g. consumer culture) in shaping people’s life-chances, lifestyles and identities. In early youth, of particular importance are the school, peer group and youth culture; in later youth, influences associated with the peer group and youth culture persist and may have increased in recent times, precisely because of the extended nature of the youth-adult transition. In combination, this range of influences involves both direct and indirect risks to health which in turn have consequences for future health and social position.

The aims of the Youth programme are framed within the context of this central question about the relative importance of social structural and ‘postmodern’ influences, and the manner in which the balance between them, and their effects on health, are changing over time.

The aims are:

- To describe levels of health (particularly mental health) problems and health behaviours in early and later youth, their relationship to social structure (particularly social class and gender) and youth specific contexts (school, peer group and youth culture), and the underlying processes involved;
- To enhance significantly our understanding of mental health in youth by identifying the prevalence of specific psychiatric disorders, and their antecedents and consequences for young people’s lives;
- To examine changes in young people’s health and health behaviours and their social patterning over time, with particular reference to changes in the nature of youth-adult transitions;
- To investigate processes by which secondary schools produce health ‘gains’ and health ‘losses’ relative to their intake; and
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• To identify the relationship between particular types of youth-adult transition and health, health behaviours and lifestyles

Datasets

Over the last 5 years, we have drawn on three main datasets: the West of Scotland 11 to 16 (now 16+) study, the youngest cohort of the Twenty-07 study and a new study called the ‘Teenage Health in School’ (THIS) study. Brief details of relevant surveys conducted during this period are outlined below.

The third and final wave of 11 to 16 was conducted in 1999. 2,196 (79% of issued sample) 15 year-olds in 43 secondary schools completed questionnaires, with nurses taking physical measures. A computerised psychiatric interview (Voice-DISC), added at wave 3, was completed by 1,860 (67%) 11 to 16 respondents.

The 16+ study, which is a continuation of 11 to 16, began in July 2002. By late February 2004, 1,073 (49%) of target 18/19 year-olds had been interviewed in a range of settings comprising central and local fieldwork stations or home. This involves a computerised personal interview, Voice-DISC, self-complete questionnaires and physical measures.

Surveys of 9 candidate schools for THIS study were conducted in 2001/2002, involving self-complete questionnaires administered to whole year groups of 13 and 15 year-olds (n=3779).

Findings

Prevalence of physical and mental health problems (and changes over time)

Findings from 11 to 16 continue to confirm those of the earlier Twenty-07 study that being young and being healthy are not synonymous.

• At age 11, 20% reported longstanding illness, 20% migraine or frequent headaches, 13% asthma, and physical and malaise symptoms were common. Rates were lower when based on parental reports, child-parent agreement being highest on visible conditions, lowest on malaise symptoms.362
• While the prevalence of some health measures (e.g. longstanding illness) remained constant between ages 11 and 15, physical and malaise symptoms increased with age. A measure of ‘depression caseness’ tripled from 4% at age 11 to 12% at age 15.357
• A comparison with 15 year-olds in the Twenty-07 study (1987) revealed that while rates of (limiting) longstanding illness and self-rated health showed little change over time, mean BMI increased in both sexes as did most physical and malaise symptoms, particularly among females.
• Rates of ‘psychological distress’ (GHQ caseness) increased among 15 year-old females between 1987 (19%) and 1999 (33%), but not among males. Worries about personal identity and performance also increased, a gender gap emerging for worries about school performance. While the effect of personal worries (e.g. ‘looks’) on GHQ persisted over time for both sexes, that of performance worries only emerged for females in 1999, strongly implicating educational stressors as a factor in this decline in mental health.387

Prevalence of psychiatric disorder

The addition of Voice-DISC at 15 has enabled the identification of psychiatric disorder as defined by DSM-IV criteria, thereby considerably adding to the evidence base for current
mental health policies. Though the DISC (Diagnostic Interview Schedule for Children) has been used in several studies of adolescents, to date it has been administered by highly trained interviewers. 11 to 16 is the first study in the world to use a self-administered computerised voice version in a large community sample.\textsuperscript{486} The findings\textsuperscript{388} include the following:

- 21% of 15 year-olds met the criteria for psychiatric disorder, 31% if substance abuse/dependence is included. The prevalence of any disorder with ‘severe’ impairment was 13%.
- Of the emotional disorders, anxiety disorders (9%) were the most prevalent. 2.3% had depressive disorder. Among behaviour disorders, conduct disorder (CD) was by far the most prevalent (12%).
- Co-morbidity was common between emotional disorders, less so between emotional and behaviour disorders. It was particularly strong between CD and substance abuse/dependence.

Overall, these prevalence rates are similar to those found in other studies and testify to the high levels of serious mental health problems experienced by young people. Of particular interest is the finding of a higher rate of CD in 11 to 16 (based on a single, youth, informant) compared with other studies (multiple informants), which suggests the Voice-DISC may compensate for the absence of other informants by facilitating greater disclosure of deviant or illegal behaviour.\textsuperscript{388}

**Psychiatric and sociological perspectives on conduct disorder**

This PhD project (Harvey) is examining the extent to which psychiatric definitions and explanations of anti-social behaviour are shared, and similarly interpreted, by young people with and without a diagnosis of CD. Individuals are being sub-sampled from 16+ on the basis of their previous (age 15) and current (age 18) Voice-DISC profiles in order to identify those with ‘persistent’ and ‘adolescent limited’ CD and those with no history of CD, each stratified by gender. The researcher, who is blind to their CD diagnosis, is currently interviewing young people about their experiences and views.

**Social class (the equalisation hypothesis)**

One of the major hypotheses driving 11 to 16 refers to the possibility that in the course of the transition from childhood to youth a process of equalisation in health occurs. We hypothesised: that (a) social class gradients in health would be observed at age 11 and would be reduced, removed or even reversed by age 13 or 15, and (b) this would apply more to health state measures (physical and malaise symptoms) and accidents than health status (e.g. limiting longstanding illness). The analysis used a measure of social class based on parents’ and child reports of parental occupation at age 11, which we have shown to be reliable.\textsuperscript{391} The results partly confirmed the hypothesis:

- A social class gradient in physical symptoms for males aged 11 disappeared by age 13, no relationship being found at any age for females.
- A reverse class gradient for malaise symptoms emerged for males between ages 11 and 13 and strengthened between ages 11 and 15 for females.
- A gradient for pedestrian road traffic accidents (ever) at age 11 disappeared at age 15 (last year) for males, a similar change in pattern occurring for burns/scalds and sports injuries for females.
- No significant relationship with social class was found in either sex for limiting longstanding illness at any age.
As we have previously shown in the Twenty-07 study, in youth most health measures do not conform to the usual health inequalities pattern. For health state measures, the evidence is consistent with a process of equalisation for some types of accident in both sexes and physical symptoms in males. The malaise findings suggest the need to extend the hypothesis to account for the unexpected finding of reverse class gradients at 11. This may be because in contemporary society ‘childhood’ is already over by age 11, especially for females who mature earlier. Most of the evidence of no class patterning or reverse class gradients at age 11 applies to females rather than males. 

**Religion**

Several analyses have been conducted on religious affiliation, the most notable finding being the similarity in health between 11 year-old Catholics and non-Catholics despite the fact that the former remain disadvantaged in terms of social class and other indicators of SES. (see page 26).

**Gender (changes in patterning with age)**

A second hypothesis underlying 11 to 16 is that gender differences in health increase during adolescence. We hypothesised that between age 11 and 15 (a) a female excess of poorer physical health would emerge, and (b) a female excess in poorer mental health at 11 would magnify by 15. The results confirmed the hypothesis:

- Rates of physical and mental health problems exhibited greater increases with age among females than males. By age 15, a female excess in general ill-health and depressive mood had emerged, and a small excess in both physical and malaise symptoms observed at 11 had strengthened.
- Worries about putting on weight increased for females, but not males, between 11 and 15. At 15, weight worries partly explained higher rates of depression among females.

A qualitative PhD project to investigate these issues commenced in October 2002 (McLean).

**Family**

Earlier analyses from the Twenty-07 study demonstrated a complex set of relationships between various dimensions of family life and health, health behaviours, educational and labour market outcomes. However, because most studies are based on single informants, they are open to the criticism that any observed association may be attributable to reporting bias. At age 11, data were collected about family life from both children and parents. The results showed:

- The level of child/parent agreement about family processes (time and conflict) was quite low.
- While the stronger associations between family processes and health occurred in respect of same informants, cross-informant associations were also found, demonstrating that the relationships (particularly with family conflict) are real rather than artefactual.
Comparison between children’s and parents’ reports of family structure also revealed disagreement, but rather than representing random mistakes, children’s ‘errors’ made sense in terms of their definitions of who was a family member, e.g. including an absent ‘dad’.475

A qualitative PhD study (Seaman) investigated the ways in which experiences of family equipped young people to negotiate the transition to adulthood. The key result was that parenting aimed to create value consistency between the privatised sphere of the family and the external world.347, 503

The Teenage Health in School (THIS) Study
THIS developed directly from the 11 to 16 study. The aim was to select two schools from a broader sample of secondary schools with ‘high’ and ‘low’ rates of smoking relative to their intake, and to explore what characteristics of the schools and/or peer processes might explain such differences. Following a pilot study 199 surveys were conducted with 13 and 15 year-old pupils in six 11 to 16 schools serving deprived areas, from which two (one ‘low’ and ‘one high’ smoking) were selected for further qualitative investigation. The researchers (Gordon and Turner), who were blind to the schools’ smoking rates, used a combination of focus groups (n=25) with 13 year-old pupils and parents (n=4) together with interviews with teaching and non-teaching staff (n=27) to collect data on key dimensions of school life. The survey was repeated in 3 affluent schools but failed to identify a pair with significantly different smoking profiles. Sociometric data were also collected in all 9 schools with the aim of extending earlier work on friendship networks in one Glasgow school.320 The key findings from the qualitative study were:

• The goals of each school differed, particularly in the emphasis placed on education compared with health and welfare, staff in the ‘low’ smoking school subscribing to holistic values and a child-centred philosophy, those in the ‘high’ smoking school prioritising educational matters over health in a constant effort to maintain high educational expectations. One consequence of this adherence to an educational ethos was that less academic pupils were overlooked.198
• No differences were found in the extent to which staff enforced restrictions on smoking. Staff in both schools were ‘officially’ signed up to a policy of prohibition while in practice making decisions based on personal and professional values together with contextual factors.197
• Although pupils endorsed the view that staff responses to smoking were largely individualistic and context dependent, they also described a firmer (more punitive) line in the ‘high’ smoking school, which paradoxically might have encouraged pupil smoking.374, 375
• Pupils’ access to cigarettes, from both commercial outlets and an internal social market, was easier in the ‘high’ smoking school.
• Peer structure was important in both schools, smokers often being depicted as ‘trouble-makers’, but in the ‘high’ smoking school they were also described as ‘popular’ while no such references were made in the ‘low’ smoking school.

The peer group (and bullying)
Evidence from 11 to 16 testifies to the pressures young people feel to conform to mass media images of desirable social identities, and the more proximal pressures experienced in the peer group:
High levels of worries about ‘looks’ and ‘weight’ were reported at age 15, particularly among females,\textsuperscript{387} 26\% of whom said they were on a ‘slimming diet’.\textsuperscript{359}

Nearly half of 11 and 13 year-olds reported being bullied and/or teased at some time, 10\% indicating this occurred most days. This was unrelated to social class and race, but was more likely among males, those rated by nurses as less physically attractive, who were overweight, had a sight, hearing or speech problem, and who performed poorly at school.\textsuperscript{360}

The experience of victimisation was associated with poorer mental health.

Using a ‘gender diagnostic’ approach to assess gender-typical behaviour/interests, gender atypicality was associated with victimisation, and ‘femaleness’ with psychological distress and depression irrespective of sex. ‘Masculinity’, measured by items from the Bem Sex Role Inventory was positively, and ‘femininity’ negatively, associated with being a bully.\textsuperscript{410}

Using sociometric data from 5 of the schools in THIS, we found friendship group size was protective of smoking and other substance use, the highest rates occurring among ‘isolates’.

In a series of analyses on an earlier longitudinal dataset, also using sociometry to identify friendship networks, the importance of peer processes for smoking (particularly a drift of ‘hangers-on’ to smoking groups) was demonstrated.\textsuperscript{320,321} All these findings highlight the importance of the peer group in shaping identities and behaviour in youth.\textsuperscript{74}

**Lifestyles and health behaviours**

Although lifestyles and health behaviours are often equated, we conceptualise lifestyles more broadly to refer to leisure activities. Analyses (some with collaborators Ossi Rahkonen and Sakari Karvonen) have focussed on identifying types of lifestyles, their relationship to social class, gender and health behaviours, and variations in these relationships over time and space.

We compared the structure of leisure activities in three studies of 15 year-olds (11 to 16, Twenty-07 and the Helsinki SHPS), using confirmatory factor methods to test for temporal (1987/99) and cross-cultural (Glasgow/Helsinki) equivalence. The results supported a 4 factor model (sports/games, conventional, commercial and street-based leisure) for the two West of Scotland studies, the street-based factor not being so distinct in Helsinki.\textsuperscript{488}

Similar relationships between lifestyles and social class were found in Glasgow and Helsinki. In both locations, neither commercialised leisure nor sports/games were associated with class; conventional (more middle-class) and street-based (more working-class) were. Lifestyles were strongly related to smoking, drinking and drug use (street-based and commercial leisure elevating rates, sports/games reducing them) while class was unrelated to health behaviours.\textsuperscript{242}

Gender differences in lifestyles also changed over time, those for street-based (previously more males) and conventional (previously more females) lifestyles disappearing between 1987 and 1999, while a male excess in watching sports and computer games increased.\textsuperscript{358}

Between 1987 and 1999, levels of drinking and drug use among females reached, and that of smoking overtook, those of males. These changes were to some extent explained by the changing pattern of lifestyles adopted by males and females.\textsuperscript{358}

These results are central to the core programme question and suggest that in relation to...
lifestyles and health behaviours the influence of social class is diminishing. However, the relationship between class and health behaviours depends on the definition used for the former, a stronger association occurring with higher levels of smoking and more frequent drug use. Substance use was also associated with features of local areas such as facilities and safety independently of class. The results for gender also point to a rapid change in gender roles, in particular the greater public visibility and reduced restrictions on activities among females, together with a domestication of leisure among males.

**Labour market transitions**

Despite considerable theoretical debate about the changing nature of youth-adult transitions, remarkably little data exist on young people’s labour market transitions beyond age 20. With a grant from the Scottish Executive and Scottish Enterprise, we were able to investigate the types of transition made by the **Twenty-07** cohort between the age of 15 and 23 and the consequences of those transitions for labour market position, occupational success and life satisfaction.

- Analysis of a monthly labour market diary of occupational status from 15 to 23 identified two distinct types of transition: a linear transition characterised by a smooth movement from education (school or university) to employment, and a non-linear transition characterised by periods of unemployment and numerous status changes. About half the sample followed linear transitions, these young people generally having more successful outcomes than those following non-linear transitions.
- Although non-linear transitions occurred among young people from all social classes, they were rather more likely among those from manual backgrounds, one component (unemployment) being strongly related to deprivation. A small core of young people (6%) were identified with transitions best described as chaotic.
- In a qualitative sub-study of 60 respondents with diverse transitions, the importance of personal resources such as determination and persistence together with strong family support emerged as key factors in successful transitions.

**Health behaviours in later youth**

Much less evidence exists about the prevalence and social correlates of health behaviours in later compared with early youth. We conducted analyses on smoking and physical activity.

- Contrasting with prevalent assumptions that the uptake of smoking occurs in early to mid-adolescence, regular smoking (1+ cigarette per day) more than doubled between age 15 and 23. While family members’ smoking had negligible effects during this period, friends’ smoking remained a significant predictor, a pattern found in both sexes and all social classes. At age 23, smoking was unrelated to social class.
- Higher levels of participation in a greater range of physical activities were found among 15 year-olds in Dunedin (New Zealand) compared with Glasgow, a pattern even more apparent at age 18. Gender differences were also much greater in Glasgow, especially at 18 when a third of females did almost no exercise. In neither location was social class related to overall levels of activity, the major distinction between them being the superior sports provision in New Zealand.

**Conclusions**

These analyses, focussing predominantly on early youth, continue to demonstrate high levels of health problems in young people, and we now have evidence of deterioration over a 12-year period. These findings underpin the priority status accorded to mental health in the
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policy arena. There is also evidence, confirming earlier Twenty-07 findings, that social class is not strongly related to health, health behaviours or lifestyles in youth, and that equalisation (on some health measures) does occur between age 11 and 15. Gender differences in health behaviours and lifestyles have also diminished, which along with the social class findings is consistent with the view that traditional social structures are less important than they were. By contrast, there is continuing evidence attesting to the importance of the family for health and some evidence that schools approximating the health promoting school model can have health benefits. In addition, several sets of findings testify to the importance of age-based (youth) influences associated with peer group and commercialised and street-based lifestyles. On the evidence to date, ‘postmodern’ influences appear to considerably outweigh those associated with social structure. The crucial question, however, is whether the pattern of ‘relative equality’ in health in youth will (re)emerge as one of health inequalities in adulthood, or whether in contemporary society it now extends into adulthood. This will be addressed with the completion of wave 4 of the Twenty-07 study.

Collaborators

Psychiatry (Voice-DISC): Dr Joanne Barton, Dept of Child and Adolescent Psychiatry, University of Glasgow; Dr Christopher Lucas, Division of Child Psychiatry, Columbia University, New York

Peer group (Sociometry): Mike Pearson, Dept of Mathematics and Statistics, Napier University, Edinburgh

Lifestyles: Drs Ossi Rahkonen and Sakari Karvonen, Dept of Social Policy, University of Helsinki and STAKES, Helsinki

Labour market transitions: Prof Andy Furlong and Fred Cartmel, Dept of Sociology, University of Glasgow, and Dr Andy Biggart, School of Social Sciences, University of Ulster

Physical activity: Drs Anthony Reeder, Barry Milne and Richie Poulton, Dunedin Multidisciplinary Health & Development Research Unit, Dunedin, New Zealand

Helen Sweeting, Senior Scientific Officer
Gender and Health

Objectives
The objectives of this programme are:

- To establish a clearer understanding of gender differences in health, taking into account different dimensions of health, and different historical and cultural contexts;
- To further understanding of factors mediating men’s and women’s recognition, reporting, and experience of ill health, and their decisions about seeking medical help;
- To examine acquired risks of ill health (including work related and domestic roles, and health related behaviours such as smoking and diet) and how these are distributed among and between men and women;
- To develop understanding of the complex interplay between lay constructions of gender and health; and
- To investigate certain gender specific health issues.

Key findings
Our research continues to take a critical view of gender and its links with health.\(^2\), \(^9\), \(^235\) We have challenged two deep-rooted assumptions: first, that there are universal patterns of difference between men and women (as often captured in the aphorism that ‘men die quicker but women get sicker’), and secondly, that issues of ‘gender’ are concerned with, or relevant to, women but not men. In reaction to this, the majority of our research has deliberately focussed on systematic comparisons between the health and experiences of women and men, questioning where there are similarities as well as differences.

Gender blindness in research on patterning of health and risk factors for disease
Non-communicable diseases (NCDs) such as heart disease and lung cancer account for around 19 million deaths annually world-wide, with 46% occurring in the developing world. In response to a call for experts to summarise available evidence on gender and NCDs initiated by WHO, we undertook a scoping review of literature reporting evidence on gender and two major NCDs, coronary heart disease (CHD) and lung cancer. \(^432\) This review covered studies published in English between 1996 and 2000, and showed that current evidence is heavily dominated by studies from particular countries. 88% of over 300 relevant papers on CHD (identified from nearly 4000 abstracts) were based in countries falling in the highest two quintiles of sex difference in life expectancy (generally more developed countries), and a third of all papers were from the United States. All papers from seven countries ranging across the quintiles of sex difference in life expectancy were examined in more detail. Although all selected studies had to include both men and women to satisfy one of the inclusion criteria, few authors systematically reported or commented on sex differences and similarities in their results. The lack of focus on broader aspects of gender (e.g. addressing gender disparities in work-related or domestic risks resultant from cultural expectations of division of labour) was even more striking.\(^432\) A more detailed review of sex, gender and lung cancer is ongoing, and shows similar results. Although the gendered distribution of risk factors (such as smoking) for these NCDs varies strikingly world-wide, much of the epidemiology and understanding of diseases such as CHD and lung cancer are dominated by the

Kate Hunt, Programme leader
aetiological models that pertain in the more developed world. However, the risks for and consequences of these diseases for men and women may be very different in different economic and cultural settings.

**Gender and dimensions of inequality**

Much research on socio-economic status (SES) in the developed world and health has also been gender blind: for many years studies of inequalities focused only on men or, when both sexes were included, failed to examine whether SES gradients were similar in men and women. We have shown that sex differences in SES inequalities vary by life course stage, disease, measure of SES, historical period, and country. Further analysis of the interaction between sex and SES is ongoing using two Unit data sets (THAW, Twenty-07). Gender blindness in inequalities research may hinder attempts to understand the causal mechanisms which create and maintain social patterning of health.\(^{42, 50}\)

**Gender and acquired risk:**

**Gender and work**

Most existing research on gender differences in health has compared men and women in the aggregate, without taking full account of their different occupational distributions. We conducted two studies which examined men’s and women’s perceptions of paid employment, and their experiences of minor morbidity, when working full-time in two white-collar organisations, a bank (n=2176) and a university (n=1641). Within these two organisations men reported their jobs to be more stimulating than women did, whilst women reported poorer physical working conditions.\(^{181}\)

In both settings women reported more malaise symptoms in the last month than men (University mean numbers for women, men 1.4, 1.1, p<0.001; Bank 1.5, 1.3, p<0.001). They also reported more physical symptoms than men in the University (2.0,1.7, p<0.001), but not in the Bank. However, gender differences were not great (and smaller than often observed in general population studies) and gender alone explained 1% or less of the variance in physical and malaise symptoms, whilst working conditions explained far more. In the University, adjusting for occupational grade, working conditions and orientations to gender cumulatively eroded gender differences in both symptom measures, and gender was no longer significant in the regression models. Generally, similar relationships between predictors and morbidity were observed for men and women.\(^{180, 182}\)

We compared psychological health (GHQ12 scores, Goldberg and Williams, 1988) in men and women in the Bank, the University and another white collar organisation (the British Civil Service in London). Mean GHQ scores did not differ by gender in either the University or the Bank.\(^{180}\) Gender differences in GHQ ‘caseness’ (controlling for age, marital and parental status, car and home ownership, and job grade) were also non-significant in the Bank and University, and much smaller in the Civil Service (which included both part-time and full-time employees) than those commonly reported for general population samples. The lack of, or reduced, sex difference in psychological illness in these white-collar employees illustrates the importance of studying gender differences in health in particular contexts rather than assuming that there are some essential, constant, differences in psychological functioning between men and women.\(^{175, 180}\)

This research also illustrates the problems of trying to compare ‘like with like’ in studies of gender and health. Whilst these samples were selected to minimise differences between men and women in working conditions they highlighted differences in other areas. Thus, amongst these full-time white-collar employees, women were much less likely to be married or to
have children than their male counterparts, and these differences were most apparent at higher levels of the organisation.175, 180

There is increasing policy interest in the intersection between paid work and home life, and the consequences that failure to achieve ‘balance’ between these domains might have for health. Until recently most studies of ‘work-life balance’ have focused solely on women. We compared perceptions of work-home conflict amongst men and women working in the Bank and found no gender difference. However, predictors of work-home conflict were different for men and women. For example, being in a senior position and having children at home were both associated with conflict for women but not men, whilst working unsociable hours was more strongly associated with conflict for men. Finally, work-home conflict was associated with self-assessed health, physical symptoms, and GHQ-12 scores, and these associations were equally strong for both men and women. Our results suggest that work-home conflict should not be considered a ‘women-only’ problem.177

If policy interventions to reduce adverse consequences of work-home conflict are to be developed it is important to recognise how burdens of unpaid work shift over the life-course. For example, ongoing analysis on the Twenty-07 study demonstrates that dimensions of unpaid work vary across the generations. Women in the 1950s cohort carry similarly heavy burdens of housework to women twenty years older, yet also have substantially higher levels of paid work, childcare and other caring to accommodate. Men in this cohort also bear the highest burden for paid work, chores and maintenance, childcare and other caring in comparison with those from the 1930s and 1970s cohorts. Men and women in the oldest cohort bear the highest workload for unpaid caring for children resident in other households (presumably mainly grandchildren).

By their late fifties over a quarter of the 1930s cohort of the Twenty-07 study had some evidence of locomotor disability. People from manual social classes were more likely (OR 2.63, 95% CI 1.88-3.67, adjusted for gender) to have locomotor disability than those from non-manual social classes. Adjustment for cumulative exposures to physical occupational hazards substantially attenuated the association between social class and disability (adjusted OR 1.63, 0.91-2.11), suggesting that most of the observed association between social class and locomotor disability, in early old age, is explained by a combination of degree of affluence and occupational exposures. However, women’s increased risk of having a locomotor disability in comparison with men (OR 1.39, 1.02-1.90, adjusted for household social class) was strengthened after adjustment for additional measures of socio-economic position and for cumulative occupational exposures (OR 2.26, 1.47-3.49). While locomotor disability towards the end of working life is better explained by occupational factors for men than women, it is probable that adverse non-occupational factors play a role in explaining gender differences in locomotor disability.92 As the kinds of jobs available currently are very different to those which were experienced by this cohort in the second half of the twentieth century, these associations should be re-examined in subsequent cohorts.

Gender and health behaviours
A PhD project (Elliot) examined how smoking changed from the late nineteenth century from being a male habit and physical delineator of gendered social space, to being salient for women too by the end of the century, both in terms of health and constructions of female identity.26, 171, 172, 494 This project aimed to integrate women into the history of tobacco, and to historicise existing sociological literature on smoking. It drew on a wide range of sources including archival material (e.g. papers on smoking in the British Medical Journal and in the Public Records Office, and tobacco advertisements), interviews with key epidemiologists,
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social researchers and health professionals, and oral history interviews with women aged 40-85 years. From the late nineteenth century onwards smoking among women has been constructed as a social and moral question in a way in which smoking amongst men has not. When women first began to smoke in polite society in the late nineteenth century, their behaviour was interpreted as a challenge to the patriarchal status quo. As the cigarette grew in popularity among men it was redefined as a necessity rather than a recreational luxury, and as something which could be shared between the sexes. Smoking thus became allied with constructions of femininity which complemented rather than threatened the existing masculine associations of smoking, rather than a marker of gender difference. Advertising images in the inter-war years represented both women’s independence and her role as man’s partner, and portrayed women smokers as glamorous or athletic, self-sufficient or dependent, but never masculine. The Second World War was crucial in establishing smoking amongst women as more than a minority habit. The oral history interviews with women demonstrated a close relationship between smoking and the social roles of women. These interviews are currently being complemented with similar oral history interviews with men of the same age.

We have conducted contemporary analyses of the relationship between smoking and gender role orientation in three large studies. Amongst full-time employees in the Bank and University there were no significant gender differences in current smoking, but clerical employees were twice as likely as their more senior colleagues to smoke. Both men and women with high masculinity scores (range 1-7 as measured by the Bem Sex-Role Inventory, a well-validated measure of gender role orientation (GRO)) were significantly more likely to smoke. For each unit increase in masculinity score the odds of smoking were elevated by 1.25 (95% CI 1.08-1.45) in the Bank and 1.31 (1.10-1.56) in the University (ORs adjusted for sex, occupational grade, work conditions, marital and parental status). In the Twenty-07 study the relationships between smoking and GRO (and class) differed in each of the sex/age groups. These differences are perhaps to be expected given that we were examining this relationship amongst people born in the early 1930s (who reached adulthood when smoking was at its height), the early 1950s (who reached adulthood as active promotion of smoking, particularly to women, continued despite wider acceptance of smoking-related disease), and the early 1970s, reflecting the complex and changing ways in which smoking has been linked with changing gendered identities throughout the twentieth century (see above).233, 241

An analysis of the imagery of smoking presented in Thunderbirds, a cult TV children’s puppet show originally made in the 1960s and re-screened from 1999 onwards, revealed instances of smoking in over 80% of episodes. Depictions largely associated smoking with success, wealth, health, glamour, leisure, and, for a main female character, chic rebellion; these images are close to those which the tobacco industry still seeks to promote despite an increasingly restrictive advertising environment.234

Analyses of drinking amongst full-time Bank and University employees showed that men were significantly more likely than women to report drinking ‘heavily’ (and clerical employees significantly less likely than those at higher grades). Both men and women with high masculinity scores were more likely to report ‘heavy’ drinking in the Bank (OR 1.25, 95% CI 1.08-1.45), and, to a lesser extent, in the University (1.17, 0.99-1.37). A positive association between alcohol consumption and masculinity was also seen in the 1950s but not the 1930s cohort of the Twenty-07 study.233 These associations with high masculinity and health damaging behaviours in men and women point to the importance of considering gender role orientation and contemporary constructions of masculinity and femininity in understanding health behaviours.178
Recently concerns have been expressed about the effect of media images which equate female attractiveness with extreme thinness, although most research has focused on young women. In our studies of full-time employees, women were less likely than men to be overweight (BMI over 25 kg/m²) in both the Bank (OR 0.39, 95% CI 0.32-0.48) and the University (0.83, 0.62-1.11). However, even after controlling for job grade, self-esteem and BMI, women were more likely than men to consider themselves to be too heavy for their height in both organisations (Bank 10.03, 7.28-13.82; University 3.68, 2.48-5.47).

Current health promotion emphasises the value of integrating activity into daily life, yet popular attention continues to focus on sporting excellence and team sports. Analysis of physical activity in the 1930s and 1950s cohort of the Twenty-07 study showed that even in early middle age, team and individual sports and outdoor activities were undertaken more by men, whilst swimming, social dancing and walking/rambling showed relatively little differentiation by sex. Consistent health promotion messages stressing the value of more accessible forms of exercise such as swimming and walking may thus begin to redress sex differences in activity levels.

**Gendered constructions of health and disease**

One criticism of the prevailing paradigm of research on gender and health in the latter part of the twentieth century has centred on the ahistoric and decontextualised way in which much evidence for gender differences has been used, despite substantial changes in gender relations which have affected the experience, opportunities, and attitudes of different cohorts of women and men. Analysis of Twenty-07 data, which includes unusually rich longitudinal data on gender, including occupany and experience of gender-related roles, attitudinal data on gender equality, and measures of GRO, showed substantial differences in the experiences of women born in the early 1930s and early 1950s, and a lack of consistency between measures of GRO and health. For example, curvilinear relationships between masculinity score and anxiety (p<0.001), depression (p<0.05) and malaise (p<0.05) measures were seen for the 1930s cohort but not the 1950s cohort, whereas associations between masculinity and smoking and alcohol consumption were seen in the 1950s but not the 1930s cohort. The fact that these differences are apparent even within a relatively confined geographical locale and between generations just 20 years apart points to the need to take more account of the broader (social, historical or political) context.

We went on to conduct detailed qualitative interviews with a subsample of 70 men and women from the three Twenty-07 cohorts to explore how social constructions of gender influence health, and to examine differences (and similarities) in respondents’ accounts of their lives by age and gender. Half were selected because they had ‘typical’ biographies for their gender and generation (in terms of age of marriage and birth of first child), while the other half had ‘atypical’ biographies. Our data suggest the importance of conceptualising gender roles as being constantly constructed across the lifecourse, rather than fixed at an early age. Analysis is ongoing.

Analyses of qualitative interviews with men and women in their forties who were subsampled from another cohort study in the west of Scotland (the Midspan Family study) suggested the profound extent to which people consider CHD to be a ‘male’ disease. The language and metaphors used to describe the heart and its functioning were highly gendered. Furthermore, people’s accounts of those who were likely and, more surprisingly, unlikely ‘candidates’ for heart problems all centred on men. Only when specifically asked about particular relatives did people talk about women with heart problems. While accounts of male ‘victims’ focused on sudden, fatal heart attacks, accounts of female ‘victims’ usually
concentrated on long-term illness caused by heart problems. The group who were most ambivalent about whether they had heart disease in their family were those at highest epidemiological risk, i.e., men from less affluent backgrounds. Allied quantitative analyses showed that women were more likely to report having a family history of heart disease than men.

As part of an ongoing health technology assessment (HTA) of the use of troponin testing in acute coronary syndrome (NHSScotland Quality Improvement Scotland), we have conducted a review of qualitative research studies (using such methods as in-depth semi-structured interviews or focus groups) of people's experiences of heart disease. Following electronic searches the abstracts of 569 potentially relevant papers were reviewed. Seventy-four papers met the inclusion criteria. Our finding that people in the general population have a strong perception of CHD as a 'male' disease has also been reported in recent studies of people with cardiac problems. This suggests that it is important to investigate how assumptions about the behaviour of men and women may influence the perceptions and behaviour of cardiac patients. Although many earlier studies included men as subjects there was a paucity of literature on how men's experiences of CHD affected their gendered identity. Since the mid-1990s there has been rapidly increasing interest in female cardiac patients.

It has been suggested that 'practices of masculinity' may partially explain men's greater risk of premature mortality. Yet, although health science has often preferentially included men as research subjects, the relationship between men's health and men's gender remains under-researched. Complementing other analyses, a PhD project (O'Brien) explored men's perceptions of 'maleness', their identity as men, whether the 'practices of masculinity' undermine men's health, and how illness may challenge masculinity among fifty-nine participants in fifteen focus group discussions. These include men from a range of occupations, men not currently in work, and men who had experienced serious illness (CHD, prostate cancer, mental illness and ME). The groups highlighted a number of ways in which men's concerns to demonstrate their masculinity could threaten their health or act as barriers to change.

**Gender differences in reporting illness and seeking medical care**

It is often assumed that women are more ready to recognise and report ill health, and to seek medical care than men. Analyses of Twenty-07 data challenge these assumptions. The Twenty-07 study includes very detailed data on self-reported chronic illness. In addition to the standard question on longstanding illness included in the General Household Survey, a series of additional prompts were also included. On the hypothesis that women are less inhibited about reporting ill-health in our society, we speculated that they might report more conditions in response to the initial GHS question, whilst men might require more prompts to encourage them to report conditions. However, our analyses of the reporting of longstanding illness, provided no evidence that women had a lower threshold for reporting chronic conditions; there were no differences in the mean number of conditions reported in response to the initial GHS question (1950s cohort mean for men 0.65, women 0.59, p=0.28; 1930s cohort men 1.19, women 1.22, p=0.67). A similar proportion of these conditions in both sexes (men 36%, women 35% 1950s cohort; 54% for both 1930s cohort) were classified as 'serious' using an external classificatory system (devised by the Royal College of General Practitioners, 1986). Prompts about 'serious' and 'mental' health problems did not elicit substantially more additional conditions from either sex. However, a 'card' prompt (listing 45 specific conditions) elicited considerably more conditions for both men and women, suggesting that a substantial fraction of experienced morbidity may be missed by global questions in comparison with checklists.
Further analysis of Twenty-07 data also showed that women and men in their early 60s had similar consultation rates over the past year (4.38 vs. 4.21 respectively), whilst women in their early 40s consulted their GP on more occasions than men (3.48 vs. 2.34, p<0.01). However, an analysis of consultations for the most commonly reported groups of chronic conditions (musculo-skeletal, respiratory, digestive, cardiovascular, mental health) showed that women were no more likely to consult than men at a given level of reported severity for a given condition type, except in the case of mental health problems.

A PhD project (Townsend) is exploring other factors which influence the decisions of chronically ill men and women about consulting in mid-life using two in-depth interviews and a symptom diary, following on from questions raised by quantitative analyses. Respondents who reported 4 or more chronic conditions in wave 4 were selected from the 1950s cohort of the Twenty-07 study; half were ‘high’ and half ‘low’ consulters (7 or more consultations and 3 or less in the last year respectively). Early analysis shows that all respondents (10 men, 13 women) constructed themselves as moral and appropriate users of their GP’s services in the interviews. However, there was a tendency for women to stress that they would only go to the GP as a last resort, whereas men did not appear to feel it was necessary to justify their service use so explicitly. Long-term poly-pharmacy was central to the daily management of symptoms amongst these chronically sick people, but both men and women expressed a number of tensions around medication use.

Methodological work:
Gender in the interview process

Technical aspects of the interview process (e.g. number conducted, length and content) are more likely to be included in scientific papers than reflections about the context (e.g. setting, characteristics of the interviewer and respondent). Following earlier research we have been concerned about gender issues in fieldwork. These were particularly apparent in O’Brien’s work on masculinity and health. Fieldwork was often conducted in ‘male’ settings, exaggerating her ‘outsider’ status. One advantage of the participants’ perception of her as ‘subordinate’ was that it often decreased her ‘visibility’ in the interview, although observations of groups before and after the formal focus group showed that men to some extent continued to manage their performance of gender ‘front-stage’ in the interview. In contrast to prior expectations, pilot work demonstrated that it was easier to explore the construction and negotiation of men’s gender identities in focus groups than in individual interviews. We also compared the experience of two female researchers with different professional backgrounds (sociology/general practice) working on similar qualitative studies and found that their professional backgrounds influenced the tone, and to some extent the content, of the interview.
Collaborators

Disability: Dr Joy Adamson, Department of Health Sciences, University of York, & Professor Shah Ebrahim, MRC HSRC and Department of Social Medicine, Bristol University

Gender and health book: Dr Ellen Annandale, Department of Sociology, University of Leicester

Gender and NCDs: Professor Lesley Doyal, Department of Social Policy, University of Bristol

Gender and smoking: Dr Marguerite Dupree, Centre for the History of Medicine, University of Glasgow

Gender and consulting: Professor Sally Wyke, Director, Scottish School of Primary Care

Gender and CHD: Professor Graham Watt, Department of General Practice, University of Glasgow

HRT: Carla Long, Professor Michel Coleman, London School of Hygiene and Tropical Medicine
Aims and objectives
This programme has had the following aims:

- to undertake fundamental research to determine the social causes and consequences of unwanted sexual outcomes;
- to investigate reproductive careers and choices in UK and other populations;
- to continue to develop interventions to reduce unwanted sexual outcomes in populations at greatest need; and
- to rigorously evaluate these interventions.

Background
Both the global and UK incidence of HIV/AIDS and sexually transmitted infections is increasing. Transmission of HIV is facilitated by other sexually transmitted infections (STIs), but STIs carry a significant health burden, independently of HIV. In the period 1991 to 2001, new episodes of STIs seen at clinics in England, Wales & Northern Ireland rose from 0.67 to 1.3 million, with corresponding increases in clinic workloads and diagnoses. In the UK there are Sexual Health and HIV Strategies in development (Scotland) or implementation (England, Wales) which seek to address these problems. Yet we are faced with a limited evidence base for health care delivery, relatively few successful interventions for key populations at risk and a paucity of research on the social dimensions of sexual and reproductive health. This programme has aimed to fill some of these gaps.

Key findings

Introduction
In our evaluations of interventions we have completed data collection in schools for the SHARE sex education trial, for the evaluation of the Gay Men’s Task Force, and for a randomised controlled trial (RCT) of different approaches to antenatal testing for HIV. Explanatory analyses and further follow-up of the SHARE cohort and of gay men attending bars were undertaken, and a new tranche of research on gender and sexual health began. We undertook this programme’s first systematic review, on sexual health interventions for heterosexual men. There were new projects on the occupational health of male and female sex workers. We built on our experience of work in developing countries by appointing a new member of staff (Allen) via DFID grant support in collaboration with the London School of Hygiene and Tropical Medicine. Over the past five years we asked five primary research questions:

- Do sexual and reproductive health interventions result in changes in behaviour?
- What factors are associated with sexual risk in young heterosexual people and gay men of all ages?
- What is the relationship between gender and sexual health, and how do women and men understand and experience threats to sexual health?
- What is the nature of occupational health risk exposures of female and male sex workers?
Are sexual and reproductive health interventions deliverable in resource-poor countries, and how can they be made more effective?

The following sections answer these questions in turn.

Evaluation of interventions

**RCT of SHARE:** Our RCT of the impact of the Sexual Health and Relationships (SHARE) sex education programme in Scottish schools was the first RCT to be conducted of school sex education in the UK, and one of the largest internationally. It was powered to provide interim results for its effect on young people’s sexual risk-taking behaviour 6 months post-intervention, and a final outcome of differences in rates of termination of pregnancy at age 19/20. Balanced randomisation allocated 25 schools to an intervention arm delivering the new programme, or to continued current sex education. Two successive cohorts of pupils aged 13/14 were recruited in 1996 and 1997 (n=7616), and followed up in school until age 15/16 in 1998 and 1999 (n=5854). Questionnaires were administered at baseline and six months post-programme. Using ‘intention to treat’ analysis for interim outcomes we found: no effect on condom use amongst respondents who are sexually active; more positive evaluation of SHARE compared to conventional sex education; greater practical sexual-health knowledge; no effect in encouraging or delaying early sexual activity or on cognitions. ‘On treatment’ analysis indicated that the lack of behavioural effects was not due to the differential quality of delivery of SHARE between schools.

A process evaluation investigated the extent and quality of delivery of sex education in both programme and comparison schools. At baseline there was considerable variation in sex education provision both between and within schools, attributable primarily to the school’s ethos, the role of key individuals responsible for sex education, and the cohesion of the Guidance team. Teacher interviews suggest that it is difficult to deal with issues of sexual orientation because of teacher discomfort, lack of support from senior management, worries about making value judgements and fear of negative pupil reactions. The SHARE teacher training programme was evaluated extremely positively by teachers. The greatest constraints on delivery of SHARE related to competition for curriculum time, brevity of lessons, teachers’ limited experience of skills-based lessons and the low priority accorded to sex education by senior management. Interviews with pupils found that the majority felt uncomfortable in sex education lessons due to gender dynamics, resulting in disruptive behaviour, and a reluctance to ask questions and participate fully. Factors reducing pupil discomfort were: protective and friendly teachers, trust between pupils, and fun sex education. Teacher interviews pointed to methods for creating a positive atmosphere in sex education lessons. Interviews with female pupils found that school was a useful source in learning about sex, but only as a supplement to others (friends, magazines and mothers). Lessons to develop skills were particularly valued and thought likely to influence behaviour positively in the future, though sex education was viewed as coming ‘too late’.

A PhD project (Harper) is investigating how research evidence on the effectiveness of sex education, including the
MRC SHARE outcomes, has been used in policy-making, and the roll out of the programme in Scottish schools.

**Evaluation of the Gay Men’s Task Force**

The GMTF aimed to reduce HIV-related risk behaviour amongst gay and bisexual men, and increase their uptake of sexual health services. The 9-month intervention was based on a “diffusion of innovation” model. This required contact with peer educators in gay bars to begin spreading a safe sex message, but the main aim was diffusion of the message throughout the community, influencing wider social and sexual networks. Multiple evaluation methods were employed to assess intervention effectiveness, including a quasi-experimental design in which Glasgow (intervention city) was compared with Edinburgh (comparison city). From October 1997 - June 1998, 42 trained peer educators reported 1484 contacts with men in all five of Glasgow’s gay bars, and the gay-specific GUM services observed an increase in new clients. Comparing Glasgow and Edinburgh, pre- and post-intervention, no impact on gay men’s sexual behaviour was demonstrated; effects were limited to those men who had direct contact with peer-educators i.e. they were not evident at the community level, and so no diffusion occurred. The changes that did occur were an increased up-take of HIV testing and hepatitis B vaccination. Of men who reported speaking with peer educators, 49% reported thinking about changing their sexual behaviour and 26% reported sexual behaviour change. There were dose effects: levels of HIV testing, hepatitis B vaccination and use of sexual health services were higher amongst men who reported talking to peer educators more than once. We had independent confirmation of increased uptake of HIV testing in Glasgow, compared to Edinburgh, from sexual health services in both cities. The GMTF succeeded in training volunteers to become indigenous health outreach workers, rather than peer educators; it was therefore successful in facilitating access to sexual health services, but not in changing community level norms or behaviour with regard to safe sex.

**An RCT of the uptake of HIV testing in an antenatal clinic**

This study was a multi-arm trial assessing different approaches to testing, compared with a control group, in a large Edinburgh clinic. It was found that any offer of the test (‘opt in’), regardless of the amount of information/counselling provided, resulted in similar uptake (about a third of women wished to be tested). The primary determinant of take-up of the test was the attitude of midwives, although women did wish to have the test offered routinely. A subsequent comparison of opt-in versus opt-out (‘routine’) testing demonstrated that levels of satisfaction with the service (high) and anxiety about testing (low) were similar, regardless of how the test was offered. Opt-out or routine testing generated an 88% uptake. The study suggested that it was possible to extend the provision of antenatal HIV testing without causing undue anxiety to the majority of women tested.

**Sexual risk behaviour:**

**Young people**

We proposed in 1998 to transform SHARE – through follow-up to age 19/20 – into the first detailed longitudinal sexual behaviour study of a large cohort of young people in the UK. We have used a variety of methods to follow up the SHARE participants, including opportunities for respondents to reply to a questionnaire via mobile phone and the internet. Much of our time in the past five years has been spent analysing data collected whilst the sample was still at school. Baseline data provided the first detailed sexual histories from 13/14 year olds in Britain: 18% of boys and 15% of girls reported that they had had heterosexual intercourse. The most important correlate of sexual experience was low level of parental monitoring. For first and most recent intercourse approximately 60% of both sexes said they had used condoms, while 18% took no contraceptive precautions. The key predictor for
condom use was whether or not respondents talked to partners about protection before sexual intercourse. One fifth of girls and 8% of boys reported that they had been under some kind of pressure to have sex at both first and most recent intercourse. A third of girls and 27% of boys reported that first intercourse had happened too early while 13% of girls and 5% of boys stated that it should not have happened at all. For girls, regret was linked to lack of control over the sexual encounter. As age of first intercourse increases, the proportion reporting regret falls.

By follow-up at age 16 years, 31% of young men and 41% of young women reported sexual intercourse. Of these, 75% had used a condom the first time they had sex, but this drops to 62% at most recent intercourse. Pill use increased from 3% at first intercourse to 14% on last occasion of sex; 6% relied on withdrawal and 11% used nothing. These aggregate data conceal wide diversity in young people’s sexual experiences: 8% of males and 9% of females who lived with both biological parents, had high parental monitoring and low spending money reported sex without using contraception, versus 19% of males and 34% of females living with one or neither parent, with low parental monitoring and high spending money. A longitudinal analysis found that proportion of friends who smoke at age 14 is the strongest predictor of sexual experience two years later; parental monitoring is the second most important predictor. In a multivariate analysis ease of communication with parents about sex does not significantly predict sexual experience.

Differences in rates of sexual activity by school remained after (a) controlling for all known predictors of sexual activity and (b) weighting the results to allow for differential attrition between schools. This analysis showed that the social class composition of schools influences sexual behaviour over and above individual social class. However, the remaining ‘school effects’ could not be attributed to the ethos of or relationships within schools and are more likely to be attributable to features of the school catchment area rather than the school itself. Our data contrast with findings from the 11 to 16 study (Youth Programme), and further analyses of both data sets are planned.

A part-time PhD project (Williamson) explores contraceptive use by young women in the SHARE sample. At age 16, young women (n=447) report 122 different patterns of contraceptive use, over three separate episodes. This suggests that contraceptive use is event – and possibly relationship – specific.

Gay men
As part of the GMTF evaluation, we conducted repeat cross-sectional surveys in gay bars in Glasgow and Edinburgh in 1996 (n=2276), 1999 (n=2498) and 2002 (n=1734) (response rates: 78.5%, 77.5% and 62.0% respectively). Time and location sampling were used to recruit representative samples of gay men visiting bars in each city. These surveys are the largest undertaken with gay men in Scotland and provide data on sexual risk, safer sex, sexual health-seeking behaviour and associated social and demographic factors. Scotland has the lowest level of HIV testing amongst gay men in the UK and in 1999 half of the men surveyed had never been tested. Over a fifth of men who ‘knew’ their HIV status at their
last episode of unprotected anal intercourse (UAI), and over a quarter of men claiming sero-concordance with their partner, had never been tested. When we compared men in Edinburgh with those surveyed in gay bars by colleagues in London, we found that more London men reported UAI in the last year (35% vs 30%), and were more likely to have had an HIV test (63% vs 54%). Patterns of risk behaviour may account for the different prevalences of HIV in London and Edinburgh. In Scotland, UAI with casual partners was reported by 11% in 1996, 12% in 1999, and 18% in 2002, this recent increase being consistent with findings from throughout Europe and the USA.

Analysis of in-depth interviews on gay men’s use of public sex environments found that risk reduction, danger and safety figure frequently in men’s accounts. However, the risks reported related to the threat of attack or arrest rather than the avoidance of STI. Indeed, danger itself was occasionally something to be sought and enjoyed. There exist sexual cultures associated with locales such as the commercial gay scene, public toilets and public parks, sexual activity being directly affected by its specific location.

In an MRC grant-funded study, held jointly with UCL, of the sexual behaviours and sexual health needs of gay men with diagnosed HIV infection, we found that HIV positive men not receiving treatment were significantly more likely to report unsafe sexual behaviour than those who were on treatment. This may account for another of our findings: that HIV positive men not receiving treatment were more likely to have had an STI in the last year than those who were. In qualitative interviews men spoke of different approaches to risk assessment in relation to viral load and reinfection. This diversity is connected with various risk management ‘styles’ that reflected HIV transmission risk, partner characteristics and the context of sex. Disclosure of HIV status was also partner – and context – dependent, with non-disclosure common. Future interventions need to acknowledge the wider context of living with HIV, involve health care providers as well as patients and encourage further participation of people with HIV in intervention design and delivery. We have continued our work on the experience of being HIV positive in the HAART era with an ESRC-funded study (with colleagues at Glasgow Caledonian University, and UCL) of the management of HIV in two cities (Glasgow, London) and in a range of health service and voluntary organisations.

Finally, the Internet provides a new meeting ground for gay men that did not exist in the early 1990s. A recently begun MRC grant-funded project (to City University) seeks to measure the extent to which gay men seek sexual partners on the Internet, and to compare characteristics of men who do and do not seek internet sex. It also examines whether sex with Internet partners is less safe than with others, and contrast Internet-use with other risk environments. Men are being recruited through Internet chat rooms, in HIV clinics and in community settings, and quantitative data and qualitative data are being collected on- and offline.
**Gender and sexual health:**

**Women’s experience of Chlamydia**

In 1997, prior to the Chief Medical Officer’s report recommending that screening for *Chlamydia trachomatis* should be introduced in the UK, we began a qualitative study to investigate the social implications for women of chlamydia screening. Using individual interviews and focus groups with young Glaswegian women, we found that they were concerned about the perceived stigma of STI, their future reproductive health and informing partners of a positive result. In relation to stigma, further analyses revealed a perception of STI as a condition of ‘others’, and that while in prospect attendance at a sexual health clinic had been threatening, most women experienced clinic attendance positively. The study encouraged us to think more broadly about debates over screening, and the suggestion that there is increasing scepticism about the individual benefits of participating in such initiatives. We explored factors that may contribute to this scepticism, employing Bury’s concept of ‘risk to meanings’ to understand better the disruption to people’s sense of self subsequent to a diagnosis of STI.

**Men’s sexual health**

Heterosexual men tend to be ignored as a group in sexual health research and policy. STIs, including HIV, are more easily transmitted from men to women than women to men. Apart from increased biological risk of transmission, women may also be at high risk of STIs and HIV because of gendered power relations, and be unable to refuse sexual intercourse with their partners or insist upon the use of barrier methods for protection. The only previous review on the efficacy of interventions to reduce the sexual risk behaviour of heterosexual men was limited to US interventions, and there were no reviews of interventions to prevent the spread of STIs or HIV in this population. We undertook a systematic review which took account of the above limitations, and found that, of 1157 studies, 27 fitted our inclusion criteria, but only 5 of 8 studies reported on successful interventions: one was carried out in the workplace, one in the military, and 3 in STI clinics. Successful interventions included on-site individual counselling and testing, mass communication regarding risk reduction, and multiple component motivation and skills education in STI clinics. More research is needed into the effectiveness of interventions targeting heterosexual men, especially methodologically sound trials to assess their effects on morbidity.

In 2002 we undertook with colleagues at Glasgow Caledonian University a Greater Glasgow NHS Trust-funded study on the attitudes of young men to issues of sexuality, sexual health and STI. Over 40 men participated in one to one and focus group interviews. A number of themes relating to understandings of sexual risk were identified: alcohol use, perceived invulnerability to the negative consequences of sexual activity (most notably STI), the relationship between knowledge of partner, situational characteristics and perceived risk, and the specific place of youth in both understandings of risk and vulnerability. In addition, the social construction of gender roles was implicated in the formation, and maintenance, of attitudes to and communication about sexual health. The study provides the basis for local initiatives to increase young men’s engagement with sexual health issues. A PhD project (Lorimer) is investigating the acceptability to young men of community-based screening for sexually transmitted infections, compared to young women.

**Gender and sexual networks**

In Glasgow annual laboratory case reports of gonococcal infection increased 250% between 1994 and 2000. While incidence has increased, intervention opportunities have been limited by the lack of information about the social determinants of disease transmission. A new study, in collaboration with colleagues in public health and sexual health services locally,
seeks to measure the current magnitude and gender distribution of gonorrhoea in Glasgow and to investigate the feasibility of using social and sexual network interventions in future gonorrhoea control strategies.

**Occupational risks in sex workers:**

**Client violence against female prostitutes**

As part of the ESRC Violence Programme we investigated the prevalence and causes of client violence against female prostitutes in Leeds, Edinburgh and Glasgow. Eighty per cent of women working on the streets had experienced client violence at some point in the past, compared to just under half of women working indoors. Half of street-working women had experienced violence in the last 6 months, from being slapped, punched or kicked through to attempted kidnap and rape. Although women working in flats and saunas experienced less violence, a quarter of them had suffered threats of physical violence, robbery and attempted rape in the last 6 months. Working outdoors was associated with higher levels of violence than was the city, drug use, and duration of (or age that women began) prostitution. Prostitutes working outdoors in Glasgow were six times more likely to have experienced recent violence than those working indoors in Edinburgh. Only 34% of prostitutes who had experienced violence reported it to the police. We have also explored the strategies women adopt to reduce the risk of client violence and to defuse potentially violent situations. Confidence with clients, using sexual positions to ensure control, and spatial organisation of sex are all examples of such strategies.

**Male prostitutes**

In collaboration with colleagues in Australia, we extended our analysis of occupational risk in sex workers to male prostitutes in Glasgow, Edinburgh and Melbourne. The Scottish arm of this study highlights that the risk of acquiring and transmitting STIs is not the only significant health risk suffered by male sex workers. Other important factors relate to the mental health and personal/physical safety of male prostitutes. The majority of men have been the victims of verbal, physical and sexual attacks. Male sex workers are exposed to violence from clients and organisers of prostitution, other sex workers and the general public. There was a consensus among male sex workers that participation in prostitution had detrimentally affected their mental well being. Respondents referred to periods of depression, apathy, stress, anxiety and a lack of self worth. Discussions with male sex workers point to a gap in service provision for men involved in prostitution, with a clear need for services, including help to leave sex work, and long term support to prevent a return to selling sex.

**Interventions in resource poor countries:**

**Microbicides**

There have been calls, particularly from sub-Saharan Africa, to accord high priority to developing safer sex methods over which women have control. We investigated the practical acceptability of a range of formulations (including jellies, foaming tablets and films) among groups of women and their partners in rural, roadside and urban areas of Masaka district, south western Uganda. Women were extremely enthusiastic about the possibilities of increased control over both sexual and reproductive health afforded by these products, although circumstances did not always permit this. Men were somewhat less enthusiastic and wished to maintain control over or at least negotiate product use. This work proved useful in supporting the Mwanza, Tanzania, arm of DFID/MRC’s investment in Phase I/II trials. The Mwanza feasibility study focuses on high-risk women working in bars, restaurants, guesthouses, video halls and discos. There is a higher prevalence of HIV among women working in such recreational facilities than in the general population, and condom use is reported to be low among them. Three mobile teams in Mwanza City provide weekly repro-
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ductive health services for women who are surveyed at enrolment and every three months for socio-demographic information, gynaecological history and behaviours associated with risk for STI transmission. The study will determine the suitability of Mwanza as a site in a multi-centre Phase III trial of microbicides.

**MEMA kwa Vijana**

We are collaborating in an EU-funded randomised trial in Mwanza Region, to evaluate the impact of an adolescent sexual and reproductive health programme on STIs, HIV and unwanted pregnancy. Our main aims are to: evaluate how the intervention affects sexual behaviour; assess the relative effectiveness of its four main components; and analyse the relationships between reported sexual behaviour and STIs. We have followed a sub-sample of the main sample for three years, testing a novel hybrid of self-complete and face-to-face questionnaires (n = 6076). Data have been collected on the processes involved in each of the four main components of the intervention: community mobilisation; primary school-based sex education (teacher and peer led); youth friendly health services and condom distribution. The impact of the intervention on sexual behaviour is being evaluated using a combination of research methods, but preliminary analysis suggests that sexual data reported in large scale surveys are of limited validity, and therefore more reliance will be placed on biological outcome measures.

**Sexual behaviour of young people in Tanzania**

Qualitative methods used as part of the MEMA kwa Vijana study demonstrate that sexual activity is constrained by clearly articulated norms. However, these norms are incompatible with how people behave in practice. Sexual activity is regarded as inevitable, sex is a tradable resource for young women, and masculinity and esteem are expressed through male sexual experience. Analysis of sexual violence identified three categories of unwanted sex. Rape is a publicly disclosed violent sexual assault, subject to some quasi-judicial response; more common is undisclosed sexual violence. Sex under pressure is associated with blackmail or the threat of violence (sometimes from relatives). Further work is being done on the exchange of sex for material benefits; perceptions of and access to condoms; experiences of first sexual intercourse; and beliefs about HIV/AIDS causation.

**Mining and HIV/STI risk**

We investigated HIV/STI risk behaviour and social groupings in a mining community in Mwanza. We have found that the pervasiveness of sex work and multiple partnerships pose challenges to epidemiological models that posit distinctions between ‘core groups’, ‘bridging populations’ and the ‘general population’. Interventions that build on indigenous social classifications are likely to be more successful than those employing pre-conceived risk groups.

**Conclusion**

This programme seeks to combine social scientific and epidemiological methods in order to contribute to improved sexual and reproductive health. The failure of the SHARE and GMTF programmes to affect sexual behaviour, despite their other positive outcomes, is a key finding which encourages us consider issues of intervention design, the groups targeted and the transferability and sustainability of health promotion programmes. What is not at issue is the value of experimental designs in evaluating programmes: so often without them interventions are assumed to be effective, or at least benign.
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Collaborators

SHARE: Professor Gillian Raab, School of Community Health, Napier University, Edinburgh; Professor Charles Abraham, Department of Psychology, Centre for Research in Health and Medicine, University of Sussex; Professor Susan Scott, Department of Sociology, University of Durham

Antenatal HIV testing: Dr Wendy Simpson, Dr Frank Johnstone, Department of Obstetrics & Gynaecology, University of Edinburgh; Professor David Goldberg, Scottish Centre for Infection and Environmental Health, Glasgow

Gay Men: Dr Judith Stephenson, John Imrie, Dr Danielle Mercey, Department of Sexually Transmitted Diseases, Royal Free and University College Medical School, University College London; Dr Paul Flowers, Department of Psychology, Glasgow Caledonian University; Professor Jonathan Elford, Institute of Health Sciences, City University; Professor Lorraine Sherr, Department of Primary Care & Population Sciences, Royal Free and University College London Medical School, University College London

Gender & Sexual Health: Dr Barbara Duncan, Department of Psychology, Glasgow Caledonian University; Dr Sarah Hawkes, Department of Infectious Diseases, London School of Hygiene and Tropical Medicine, University of London; Dr Anne Scoular, Greater Glasgow NHS Trust; Dr Andy Winter, Sandyford Initiative, North Glasgow Primary Care Trust

Occupational Risk in Sex Workers: Dr Marina Barnard, Centre for Research on Drug Misuse, University of Glasgow

Interventions in Resource Poor Countries: Dr Gillian Green, Institute of Health Sciences, University of Essex; Dr Heiner Grosskurth, Professor Richard Hayes, Professor David Mabey, Dr Philippe Mayaud, Mary Plummer, Dr Robert Pool, Dr David Ross, Professor James Whitworth, London School of Hygiene and Tropical Medicine; Dr John Chagalaucha, Nicola Desmond, Gerry Mshana, Joyce Wamoyi, National Institute of Medical Research, Tanzania
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Objectives
The main objectives of this programme have been to:

- Undertake systematic reviews of the effectiveness of social or health interventions (policies, programmes and projects) in improving health (with priority initially being given to housing, urban regeneration, schools and workplaces), and
- Carry out primary studies evaluating the health impacts of social and health policies and interventions (again, with initial priority being given to housing, urban regeneration, schools and workplaces)

Background
Work on this programme dates from April 1999, when Petticrew took up his post in the Unit. The programme is oriented towards producing the actual evidence to support public health decision-making. In particular we focus on primary research and systematic reviews as a means of evaluating the actual health impacts of social interventions (such as policies, programmes or projects).

Key findings
Introduction
There are two main strands in this programme. The first involves research into the health and social effects of housing, regeneration and area-based initiatives, and the second is focused on the health effects of transport policies. Both strands incorporate quantitative and qualitative methodological approaches.

Housing, regeneration and area-based initiatives
Systematic review of housing investment and health gain
The unit has a record of housing research deriving from work in the Social and Spatial Patterning, and the "Measuring Health" programmes. Building on this, we carried out a systematic review on housing improvement and health gain. This reviewed all research studies which had assessed the health effects following housing improvements. Studies which reported a health, illness or wellbeing measure following housing improvement or re-housing were included (prospective, retrospective, controlled and uncontrolled). A synthesis of the findings of the more methodologically sound studies suggested that investment in housing has the capacity to improve health; eight of the nine studies which measured mental health showed improvements and one study demonstrated a ‘dose-response’ effect. Effects on general symptoms were less clear with studies sometimes showing similar effect sizes but in opposite directions; For example, in one study of rehousing and area regeneration chronic respiratory conditions increased by 12% at 5 years, while in another study bronchial and asthmatic symptoms fell by 11% up to 4 years after rehousing. In a number of studies adverse effects were reported following housing improvement. This review will be updated when the findings of 14 ongoing studies become available.

We also produced a more detailed MRC SPSHU Occasional Paper based on this work, and, in collaboration with the Scottish HIA Network, we went on to produce a review of the wider evidence, including observational data. We also developed a checklist to screen...
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housing interventions for health effects. This checklist indicates the most important aspects of housing improvement programmes in terms of potential health impact (either positive or negative).

Area-Based Investment and health
Links between health and area investment are increasingly highlighted in UK Government-funded Area Based Investment (ABI) programmes, yet evidence that area investment is effective as a public health strategy is largely unavailable. We are carrying out an in-depth review of government-funded ABIs. This aims to describe whether ABIs over the past 20 years have focussed on health, and assess health impacts. National evaluations of these programmes are being examined for hypothesised links made between area investment and health, how such programmes tackled this issue and whether health or wellbeing measures were used as indicators of success or impact. This is a collaborative project with the Department of Urban Studies at the University of Glasgow.

SHARP (Scotland’s Housing and Regeneration Project)
It was clear from our housing systematic review that there is a lack of research into the health and wider impacts of housing improvements, and that studies are needed to explore the possibility of and explanations for both positive and negative health impacts. We received funding in 2001 from Scottish Homes and the Chief Scientist Office to allow us to carry out such a study: SHARP (Scotland’s Housing and Regeneration Project). This is a prospective controlled study of new social housing and urban regeneration, carried out in collaboration with the Department of Urban Studies at the University of Glasgow. We are currently recruiting approximately 600 households to follow them for 3 years to assess the health and related effects of housing improvement.

We are also conducting a smaller prospective controlled study of housing improvements (the Renton study) in a deprived area of West Dunbartonshire (15 miles west of Glasgow). This involves monitoring the health impacts of a major programme of housing-led regeneration being carried out by Cordale Housing Association. The interview schedule (developed with colleagues in the Social and Spatial programme, with funds from Scottish Homes) consists of questions about their neighbourhood, social contact, health, illness and some physical measurements. Data collection for this study was started in 2000 and will be completed by autumn 2004.

We are also evaluating the health impacts of the Scottish Executive’s (SE) Central Heating Programme, in a collaborative project with Steve Platt and Rich Mitchell of RUHBC (University of Edinburgh). The Central Heating Programme is one of the major elements of the SE Healthy Homes Initiative, and the main aim of this study is to assess the impact of the Central Heating Programme on recipients’ health. More specific objectives include the measurement of change in health status among Programme recipients up to two years after installation, and the exploration of reasons for these changes (including changes in temperature and humidity, living conditions and use of the house, and fuel poverty). Baseline fieldwork is currently being carried out by System Three Scotland. The study ends in September 2005.

Assessing the health impacts of area investment: incorporating lay reports
It has been recommended that public consultations should inform future public health policy, but there is little guidance as to how this may be done scientifically. We are carrying out a qualitative study which incorporates lay reports of health and social impacts in two areas
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with contrasting experiences of area investment. Using focus groups with local residents, we studied two similar residential areas in Glasgow which have had contrasting experiences of area investment and regeneration. In one area a multi-million pound regeneration programme had been implemented over the past decade, while in the other area there were reports of area decline and an absence of recent investment. Data from the two areas were compared to highlight possible differences and similarities which may have resulted from contrasting levels of area investment. In both areas the neighbourhood influenced health through feelings of belonging, control, social contact and safety. In particular, social contact in public space and in clubs was linked to mental wellbeing. A report of this study is being prepared for non-academic audiences, such as local authorities. It is also being written up as a doctoral thesis (Thomson).

Health impacts of commercial investment: evaluation of the impact of a superstore

Reducing social inequalities between places, groups and individuals is central to current government policy. One suggested approach to reducing spatially-based inequalities is through commercial investment in deprived, socially marginalised neighbourhoods. We (Cummins, Higgins, Petticrew) are carrying out a two-year pilot project, funded by the Department of Health, using the new Tesco St Rollox (Springburn) development to test this hypothesis. The main aim is to investigate the health impacts of a major food superstore development in a deprived urban neighbourhood. We used a two-wave, ‘before and after’, cohort study design involving a postal survey of a random sample of adults from the postcode address file in Springburn (the intervention neighbourhood) and a similar control neighbourhood (Shettleston). Both areas are among the most deprived urban neighbourhoods in the UK. We have also undertaken focus-group interviews with a sub-sample of respondents. The survey has collected demographic and other data and includes questions relating to self-reported health, psychological well-being and food purchase and consumption patterns. A retail baseline survey of shops in both areas was also undertaken prior to the store opening, and has been repeatedly updated. Results will be available in 2004. This study is a collaborative project with the Institute for Retail Studies at the University of Stirling (Professor Leigh Sparks, Anne Findlay).

Scottish Healthy Living Centres Evaluation

We are collaborating in an intensive (case study) evaluation of the Healthy Living Centre (HLC) programme in Scotland with Steve Platt, Kathryn Backett-Milburn, and David Rankin (RUHBC, University of Edinburgh), funded by the CSO. The study explores the pathways between activities, processes, contexts and outcomes in a purposive sample of HLC projects, using a longitudinal research design.
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The health effects of transport policies

Transport policies have important health impacts through their effects on air pollution, noise, injuries, climatic change, and physical activity, but current understanding of how transport policies can optimise health benefits and mitigate harmful effects is often speculative. We synthesised evidence from existing systematic reviews on the effects of transport interventions, whether national policies (e.g., use of safety belts) or local programmes (e.g., traffic-calming measures, promoting walking and cycling) for two purposes: firstly, to provide policymakers and planners with accessible, high-quality evidence when making decisions, and secondly to suggest where future research on the health effects of transport policies should best be directed. We found that some transport interventions can have a positive benefit on the health of the population. Traffic calming schemes for example have a mean effect of reducing accidents by 15%, and similar effect sizes were found in different decades and in different countries. Others, such as driver improvement courses, may have detrimental effects. Legislative interventions may be particularly effective, as lighter sanctions against drink drivers increase crash rates by about 7%, while the introduction of random breath testing is associated with a reduction in alcohol-related hospital admissions, deaths, injuries, and night-time crashes.

Promoting a transport modal shift for population health

The late twentieth century saw a strong trend away from the use of public transport, walking and cycling in the UK in favour of private vehicle use, and population levels of physical activity have declined. The promotion of a modal shift in people's transport patterns towards walking and cycling could therefore help to meet cross-cutting policy objectives across the transport, environment and health fields by both reducing traffic congestion and increasing population levels of physical activity. Measures to promote modal shift are often advocated, but evidence is rarely cited. We are therefore undertaking a systematic review to determine what interventions are effective in promoting modal shift, and their effects on health inequalities. We aim to extend existing systematic review methodology by incorporating evidence from case studies and other types of research, and by exploring the social, physical and political context of the interventions, rather than seeking simple aggregate measures of effectiveness. We then aim to investigate the validity and utility of this approach to research synthesis in a follow-up qualitative study which will explore how the review findings are received and interpreted by decision makers in different policy areas. The review, lead by David Ogilvie, will be completed in early 2004.

The health impact of new roads

New roads have the potential to assist economic growth, ease congestion and improve access to remote communities, but they also raise safety and environmental concerns, and are often a focus for popular protest. Any attempt to accurately measure the human costs and benefits of roadbuilding policies must take into account the health effects. With this in mind, we carried out a systematic review of the positive and negative impacts of new road building on human health and wellbeing, covering injuries, health concerns associated with traffic pollution, and community severance. We found that new major urban roads
increase disturbance and severance effects in local communities but have little or no effect on the incidence of accidents. This is, however, reduced after the opening of bypasses and new major roads between towns, perhaps by up to 20%. Bypasses reduce disturbance in towns, but increase disturbance for some residents and do not reduce the overall incidence of accidents on the local road network. New roads, like most social interventions, therefore have both beneficial and adverse effects on population health. We used the evidence from our review (suitably adapted) as one scientific input into the statutory consultations (and public inquiry) over the completion of the M74 motorway.

We also carried out a pilot study of the effects of traffic calming in a community in Glasgow, to explore methods of evaluating the net effects of traffic-calming measures such as speed cushions and zebra crossing. The study, involving a postal survey, began in late Summer 2000, following discussions with the local council and the local neighbourhood forum. The data suggest that public perceptions of risk from traffic are significantly reduced, while walking in the area has increased in all age groups (up by approximately 20%). This self-reported data is corroborated by pedestrian counts. We also assessed the cost-effectiveness of disseminating early findings from the project as a means of increasing survey response rates at 1 year of follow-up. We found that this dissemination activity had no effect.

**ESRC Evidence-Based Policy and Practice Initiative: Centre for Evidence-Based Public Health Policy**

We received ESRC funding in 2001 to set up the above Centre, as part of a collaborative project with Sally Macintyre (MRC SPHSU), Hilary Graham (University of Lancaster) and Margaret Whitehead (University of Liverpool). It is part of the ESRC Evidence Network, which brings together 8 centres across the UK to provide an evidence-based resource to support policymaking. One key activity is to liaise with the user community to identify areas where evidence is currently absent, and to build consensus on the nature and quality of evidence considered acceptable in public health. The latter task involved a number of workshops involving policy makers from the UK and beyond, and researchers, reported in two forthcoming papers.

The Centre’s systematic reviews include the following:

- **Health Impacts of New Road building.**
- **Health and State-subsidised employment** (Lead reviewer: Egan, Glasgow).
- **Teenage Mothers and Smoking** (Lead reviewer: McDermott, Lancaster). A systematic review of qualitative research, aiming to provide policy makers and researchers with a synthesis of the qualitative evidence regarding teenage mothers’ perspectives/accounts of their cigarette smoking.
- **Systematic review of the social and economic consequences of poor health in childhood for both children and their families.** (Lead reviewer: Milton, University of Liverpool). This includes identifying policy entry points and effective action from the literature to prevent or ameliorate adverse consequences.
• Growing up in disadvantage: a systematic review of child coping strategies. (Lead reviewer: Raine, University of Lancaster). This systematic review synthesises research from different disciplines – spanning social epidemiology, sociology and social policy – to advance understanding of how children cope with growing up in disadvantage.

• Does ‘workfare’ work? A systematic research synthesis on the effectiveness of the ‘workfare’ programmes of Germany, Sweden, the UK and the USA in assisting individuals with chronic illness or disability gain or retain employment. (Lead reviewer: Bambra, University of Liverpool).

We have also contributed methodological and position papers on evidence–based policy, 281, 323-325, 327, 329, 365, 393, 468 and on HIA methodology, 63, 65, 194, 208, 295, 461

Other research:
Evaluation of the development of a hospital-based smoking cessation programme
While there have been a large number of studies evaluating the outcome of smoking cessation services in primary and secondary care, there have been few looking at how such services are implemented. Determining the factors which promote and impede the implementation of new health care services helps identify where changes need to be made, and can help increase their future impact and effectiveness. The project aims to find out (a) if patients perceive a need for a smoking service and wish to use such a service (b) which factors facilitate or prevent the successful introduction of the smoking cessation clinic (c) how health promotion is understood by clinical staff and how it operates within an acute medical unit, and (d) what lessons can be learned which can inform the future implementation of similar health promotion services Twenty-two staff members in a large acute unit in Scotland were interviewed and 450 patients were surveyed as part of this CSO-funded PhD project, which is currently being completed by Margaret Callaghan (Supervisors: Hart, Petticrew).

The effectiveness of interventions to change health related behaviours: a review of reviews
As part of its Health of the Public Initiative, the MRC commissioned the unit in 1998-9 to review the evidence of the effectiveness of a range of interventions to change health related behaviours. This review was published in 1999 and updated in 2000 to include the large number of relevant systematic reviews which had been published in the subsequent 18 months. It summarised evidence of effectiveness focussing on cigarette smoking, alcohol drinking, physical exercise, diet, sexual risk taking amongst young people, and illicit drug use. 453

Collaborators
Housing and regeneration: Professor Ade Kearns, Dr. Caroline Hoy, Department of Urban Studies, University of Glasgow
Healthy Living Centres Evaluations: Professor Steve Platt, Dr. Kathryn Backett-Milburn, Dr. Richard Mitchell, Evelyn McGregor, David Rankin, Julie Truman, Research Unit in Health Behaviour and Change, University of Edinburgh
Superstore study: Professor Leigh Sparks, Anne Findlay, Institute for Retail Studies, University of Stirling
ESRC Centre for Evidence-based Public Health Policy: Professor Margaret Whitehead, Department of Public Health, University of Liverpool; Professor Hilary Graham, Health Development Agency/University of Lancaster
Systematic review methods: Professor Jennie Popay, University of Lancaster, Professor Helen Roberts, St. Bartholomew’s School of Nursing and Midwifery, City University, Dr.
Evaluating the Health Effects of Social Interventions

Amanda Sowden, NHS Centre for Reviews and Dissemination, University of York

**Equity and other public health reviews**: Professor Peter Tugwell, Dr. Elizabeth Kristjansson, Institute for Population Health, University of Ottawa; Dr. Liz Waters, Jodie Doyle, Cochrane Health Promotion and Public Health Field, VicHealth, Melbourne; Professor Margaret Whitehead, Department of Public Health, University of Liverpool; Dr. Amanda Sowden, University of York
Public Engagement with Science

Background
We do not have a core unit programme on public engagement with science, but have carried out research into the production, presentation and public understandings of and engagement with public health science. Here we present a report on past work, including studies initiated during the 1993 to 1998 period. The studies sought to answer the following questions:

- How do media reports of new health risks affect public perceptions of biomedical science, and what factors inform public views and use of the information presented in broadcast and print media?
- Do lay understandings of common diseases associated with significant morbidity and mortality (e.g. coronary heart disease) accurately reflect professional concepts such as ‘predisposition’, ‘risk factors’ and ‘family history’, and what are the consequences of mismatched perceptions?
- What knowledge and understandings do young people bring to the interpretation of scientific information, and what are the pedagogic processes involved in understanding specific links e.g. between genetics and human health?
- Given a long history of public health and policy engagement with the issue of inequalities in health, what is the public’s view of the relationship between government action on this matter and the lived reality of such inequalities?

Key findings

Health risks and the media
In the past we have successfully collaborated with the Glasgow Media Group in studying the production, content, and reception of mass media information relevant to public health. In three ESRC-funded projects we looked respectively at: AIDS and the media; the role of the media in the emergence of ‘food panics’ (listeria, BSE, salmonella); and processes leading to media coverage of risk and public debates (with particular reference to human genetics, BSE, and false memory syndrome). A common theme across all these projects was the elicitation and examination of public knowledge and experience of, and attitudes to, various risks, and of expert pronouncements and media coverage about these risks. A short-term MRC-funded project also examined media and scientific representations of the announcement of the “gay gene”.

Findings from these studies confirm the importance of not treating ‘the public’ as an undifferentiated mass, but of taking into account the knowledge, experience, interests and values of different groups. We have noted that public views are not created ‘from thin air’, nor are they simply determined by a homogeneous ‘media’, by governmental pronouncements, nor by ‘lay perspectives’ or culture. Judgements are made according to the information available from the media, education, friends and family, and other sources, and evaluated against previous experience and information. Experiences are patterned by class, ethnicity, gender, nationality, region and age, as well as by biography, and are evaluated logically. Trust in government, or in particular types of sources such as scientists, is not a stable or uniform filter through which new information is strained, but varies according to the specifics of the information content and other sources which make it credible (for example, public responses to BSE were very different from those to AIDS). The newsworthiness of, and reactions to, public health stories varies by key triggers such as ‘blame’, ‘government cover ups’, ‘conflicts among experts’, ‘relevance to man-in-the-street’, etc. Rather than always demanding certainty, most groups of the public are highly sceptical of over-certain pronouncements from experts or governments, and sophisticated in their analysis of
epidemiological findings, often in the light of the observation that one decade’s scientific certainties subsequently become historical curiosities (‘they said BSE would never jump the species barrier’, ‘they said butter was bad for you now they say its good for you’, ‘if you believed everything you read about diet you wouldn’t eat at all’).57

**Understandings of coronary heart disease and of the inheritance of health and illness:**

**Analysis of Twenty-07 and Midspan data**

We have published a number of papers based on quantitative analyses of data from the Twenty-07 study and the Midspan Family Study, a population-based clinical epidemiological study of people aged 30-59 (n=2338) living in the Renfrew-Paisley area of the West of Scotland who were interviewed in 1996. The mothers and fathers of all of these respondents had been included in the Midspan study of residents of Renfrew-Paisley in 1972-76.

Our qualitative research on lay understandings of heart disease (see below) reinforced the importance of well-recognised ‘anomalies’ (‘unwarranted survivors’ and ‘unexpected deaths’ assessed on the basis of lifestyle and age) which may undermine medical advice to avoid coronary disease risks. We assessed survival at the extremes of highly visible risk (based on obesity and history of heavy smoking) in over 6000 men who participated in the Midspan Study in the 1970s. Differences in survival were dramatic. Over 80% of the deaths from heart disease in the “low visible risk” group were associated with other less obvious risks for heart disease, such as poor lung function, diabetes, previous heart disease and poorer social circumstances. Similarly, three quarters of the surviving men at high visible risk had protective factors such as being taller and having lower cholesterol levels, which may help to explain their unexpected survival.285

We found that women, and people who had non-manual jobs, were more likely to report that heart disease “ran” in their family. Men in manual social classes, who have a higher risk of CHD than other groups, are least likely to report a ‘family history’ of heart problems.236, 383 Our analysis of the Midspan Family Study showed that more than a quarter of men and women had experienced a parental death attributed to CHD by mid-life. These deaths were reported by respondents with a very high level of accuracy (as validated against death certificates), but only a minority interpreted a parental CHD death in terms of a family history of CHD.383

**In depth interviews with subsample from the Midspan family study**

We explored these findings further in an ESRC-funded study involving in-depth interviews with a sub-sample from the Midspan study of 61 men and women (then aged 41-51), half of whom had had indicated in the Midspan Family Study that they thought that heart disease “ran” in their family, and half of whom had reported that no illnesses or weaknesses ‘ran’ in their family.27, 439

Having a large number of relatives with heart problems was not always translated into a ‘family history’; some people interpreted these problems as being the result of other factors, or due to chance. People emphasised the importance of illness or death among first degree relatives (usually parents, occasionally siblings) and searched for ‘patterns’, such as a number of relatives with heart problems on one ‘side’ of the family.238 People differed in the amount of information they had as the basis for their decisions, not only because some came from larger families, but also because some people knew much more about their families. In weighing up whether they had a ‘family history’ people attributed more weight to deaths at
younger ages; heart disease deaths in older relatives were often attributed to old age rather than heart disease.238 Women usually gave more detailed accounts about their family health history than men and needed less encouragement to do so.185 Men, especially those in manual social classes, seemed to need more affected relatives than women before considering themselves to have a ‘family history’. Given the class differences in CHD, premature deaths are more common among the relatives and wider social networks of manual respondents, it may be that it is more difficult for such them to be convinced that heart problems run in their family in particular.

An important finding was that people commonly made a distinction between inherited risk within their family as a whole, and for themselves personally. Some people believed that, whilst heart disease ‘ran’ in their family, they were not personally at any greater risk because they did not ‘take after’ affected family members in crucial ways. This clearly raises the potential for misunderstandings in clinical encounters; if doctors wish to offer effective health advice, it is vital that they establish whether they and their patients share an understanding of familial risk.238

We investigated views about links between family history and health-related behaviours.236 Family history, past diet and exposure to smoking, and poor socio-economic circumstances were commonly seen as barriers to changing behaviours; these were seen as ‘legacies’ which could not be undone.41 One powerful image that often recurred when people were weighing up their decisions about health-related behaviours was that CHD was seen as a ‘good way to go’, often being seen as preferable to a long, painful and lingering death, typically from cancer. Most narratives about heart disease described fatal heart attacks, often with graphic accounts that emphasised the suddenness and quickness of death (seldom with any mentions of pain). Very few accounts referred to the pain, disability or restrictions of living with heart disease.184, 185 The extent to which CHD is still seen as a male disease is discussed elsewhere (see Gender and Health).

We concluded that there are many parallels between the ‘lay’ and ‘professional’ epidemiology of heart disease. However, whilst both accept that understandings of causality are imperfect, it is not surprising that more emphasis is put on the challenges posed by the ‘inexplicable’ in lay accounts because these most powerfully involve the premature death or unexpectedly long survival of a close family member.237 We collaborated with Greater Glasgow Health Board to produce a new health promotion leaflet on CHD which incorporated the results from this study. We worked on the premise that coronary health promotion messages would be more credible if they acknowledge salient features of the lay epidemiology of heart disease, including the existence of anomalies and the limits of prediction of coronary disease at an individual level,285 the fallacious notion that CHD is ‘male’ disease, 185 and the image of CHD as a ‘good way to go’.184 The new health promotion leaflet addressed all these features.452

We also explored lay perceptions of inheritance. Respondents’ understandings were heavily influenced by observations made within the context of their family, and accounts often emphasised family identity. While respondents often used scientific terms (e.g. ‘genes’), their understandings rarely followed Mendelian models of inheritance. Views about modern genetic technologies and discourses about the evolution of the species were often mentioned in general discussion of inheritance. ‘Social’ and ‘biological’ forms of inheritance were inextricably linked in accounts; eye colour, illnesses and smoking behaviour could all be seen as “running in the family”,27, 183
A review of patients’ perceptions of CHD

Recent research has confirmed the measurement of cardiac troponin levels as the new ‘gold standard’ when assessing heart disease. Elevated troponin level is a highly sensitive and specific indicator of myocardial damage, which is useful because presentations of CHD range from silent ischaemia to acute myocardial infarction (MI). NHS Quality Improvement Scotland is conducting a Health Technology Assessment (HTA) of troponin testing. As part of this HTA, Hunt and Emslie were commissioned to produce a literature review of qualitative studies which explore cardiac patients’ perceptions and experiences of CHD, and to conduct focus groups, to inform the Patient Issues section. Published studies which we have identified tend to focus on MI rather than other manifestations of CHD. There is very little information about the beliefs and experiences of patients from ethnic minority backgrounds. Few studies included female patients until the mid 1990s. Key themes addressed by the literature include: the ‘career’ of the cardiac patient, reasons why patients delay in presenting symptoms to health professionals, gender and social class differences in experiences and perceptions of health professionals and services.

Processes involved in the public understanding of the biomedical sciences: a case study of educational packages

In an MRC grant-funded study we undertook a detailed case study of educational packages designed and disseminated by MRC to improve students’ knowledge and understanding of genetics and human health (specifically, cystic fibrosis and sickle cell disease). We aimed to chart the conditions under which new biomedical information is accepted or discounted, and to examine the social processes involved in the production, transmission and reception of information about science. Data were collected from the scientists and writers who produced the materials, the MRC’s educational officer, teachers using the materials, school pupils, student teachers, and students on access courses for mature students. Focus groups were held both with students taking science and non-science subjects. We found that pupils/students critically appraised information about genetics from a number of sources, rather than indiscriminately assimilating information (even from ostensibly ‘trustworthy’ sources such as GPs and scientific journals). While teachers and scientists tended to view fictional representations of genetics such as the TV programme ‘The X Files’, or films such as ‘Jurassic Park’ or ‘Gattaca’ as representing a ‘deficit’ model of science, pupils tended to draw many different boundaries between ‘facts’ and ‘fictions’. Pupils used criteria such as: how much was actually known (e.g. referring to ignorance among GPs); the trustworthiness of different sources (e.g. the unregulated status of medical websites); motivational qualities of the sources (e.g. what they saw as the emotional dryness of the MRC updates); and the appropriateness of emotionality (e.g. the overdramatised emotion in soap operas).

Media representations and lay understandings of inequalities in health and related public health policy

Wilkinson’s (Wilkinson 1996, 1997) recent work is premised on people being highly conscious of their economic and health status in relation to others, and has stimulated much debate on the importance of relative as compared with absolute poverty. However, few studies to date have addressed the question of public awareness of inequalities directly. With the election of the Labour government in 1997, there was renewed interest in health inequalities among policy makers. In an MRC PhD project (Davidson) we carried out a content analysis of print media coverage of the Scottish and English Green Papers (Department of Health, 1998; Scottish Office, 1998) and White Papers (Scottish Office 1999; Department of Health, 1999) on public health, and the Acheson Report on inequalities in health (Department of Health, 1998) to examine how this policy was communicated in the main British newspapers.
These policy documents were mainly reported in broadsheet publications, and coverage was largely absent from the tabloid media. The Green Papers (published in February 1998) received relatively favourable coverage; all newspapers which reported the story included some acknowledgement of the Government’s attention to the role of poverty in the aetiology of ill-health and their move away from a ‘victim-blaming’ or ‘nanny-state’ approach. However, the seeds of a more critical reception were present in disquiet at the lack of targets for reducing health inequalities. By the time the English White Paper was published in July 1999 the reaction was more critical. The government’s targeting of premature mortality in key areas and its aim to reduce health inequalities were overshadowed by a more general and open scepticism about the government’s willingness to see its policies through. Much of the coverage also focused on scathing personal comment on the composure and likely fate of the Health Minister as he launched the new policy on public health. The political affiliation of newspapers greatly affected the way in which the inequalities debate was presented.136, 492

Some of the images and headlines from the media coverage of these five reports were used to facilitate 14 focus group discussions (with respondents from a range of socio-economic backgrounds) on inequality, poverty, and relative deprivation. Researching lay views on health inequalities, and inequality in society at a broader level, elicited often compelling and emotive responses. The discussions suggested that for many people inequalities in health were a very sensitive and personal issue rather than an abstract public debate controlled by the media, and the government’s intention to reduce health inequalities appeared to have had little impact. Those of lower socio-economic status were often painfully aware of their status in relation to others, and many related feelings of frustration, anger and helplessness about the state of their health. Views from higher income groups tended to be more disparate, yet this only reinforced how polarised certain sections of society have become.492 These results, amongst the first to specifically research lay understandings in inequalities, begin to bridge an important gap in inequalities research.

A contemporary history of UK Biobank
An MRC studentship (Langan) is being used to study the origins and development of the UK Biobank project (funded by MRC, the Wellcome Trust and Department of Health to collect DNA and lifestyle data on around 500,000 adults in the UK). Media coverage of UK Biobank is being studied, and key stakeholders will be interviewed.

Parental decision-making in measles, mumps and rubella (MMR) vaccination
Although the safety of MMR has been emphasised by reports from independent expert bodies (including the MRC), within some parts of the United Kingdom the uptake of MMR has dropped significantly, and in some areas this has led to outbreaks of measles, thus fuelling concerns about an impending measles epidemic. Assurances about the safety of immunisation may be compromised by public distrust of the government and scientists following the BSE crisis (see above), and perhaps by a concern about the independence and reliability of scientists more generally. In this climate simple assurances about the low risks of vaccination are unlikely to be persuasive, and a deeper understanding of parental decision-making with respect to
MMR is of value. In an MRC PhD project (Hilton) we are exploring parents’ perceptions of mass childhood immunisation, within the context of the current MMR controversy. This study also aims to describe parents’ perceptions of diseases and vaccines, and explores how these perceptions translate into decisions about whether to immunise or not. Fieldwork is currently ongoing.

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Professor Graham Watt, Alex McConnachie & Dr Mark Upton, Department of General Practice, University of Glasgow
Current Professional Activities by Unit Members

Editorships* and Editorial Boards

AIDS Care* (Carfax)
Critical Public Health (Carfax)
Health, Risk & Society (Routledge/Taylor & Francis)
Ethnicity and Health (Carfax)
Health & Place (Elsevier)
Health Education (MCB UP)
HIV Medicine (Blackwell)
Journal of Health and Place (Elsevier)
Journal of Sports Sciences, Psychology section* (Taylor & Frances)
Journal of Youth Studies (Carfax)
Midwifery (Churchill Livingstone)
Sexually Transmitted Infections (BMJ Publications)
Social Aspects of AIDS (Taylor & Francis)
Social Science & Medicine* (Elsevier)
Social Studies in Medicine (Policy Press)
Sociology of Health & Illness (Blackwell)

National and International Scientific Committees

Advisory Committee, Peer-led Sex Education Study, Institute of Education/University College London
Centre for Research on Families and Relationships (CRFR) (Associate Director, Sweeting)
British Association of Sport and Exercise Science: Accreditation and Fellowship Committee
British HIV Association: Social and Behavioural Sciences Sub-committee
Cancer Research UK Population and Behavioural Sciences Committee
CDSC/PHLS Behavioural Surveillance Advisory Group
Child and Adolescent Psychiatry section of the Scottish Division of the Royal College of Psychiatrists
Cumbernauld and Kilsyth Teenage Health Group
Department of Health - Tackling Health Inequalities: Scientific Reference Group
Faculty of Child and Adolescent Psychiatry, Royal College of Psychiatrists
General Practice Research Framework Strategy Group
GGHB Sexual Health Planning and Implementation Group
GGHB Strategy for Men’s Health: Male Survivors of Sexual Abuse Working Group
Glasgow City Council Corporate Policy Department: Men Involved in Prostitution Working Group
Glasgow Lesbian, Gay, Bisexual, and Transgender Community Safety Forum
Greater Glasgow NHS Board: Male Sex Workers Forum
Health Development Agency Housing Reference Group
Health Development Agency Transport Reference Group
Health Development Agency: HIV Prevention Evidence Base Reference Group
Health Development Agency: HIV/STI Prevention Evidence Base Reference Group
MRC Health Services and Public Health Research Board
Department of Health Independent Advisory Group for Sexual Health
International Scientific Advisory Board for the Africa Centre for Population Studies and Reproductive Health, Kwa-Zulu Natal, South Africa
Lanarkshire NHS Board Child Health Review Support Group
Management Board, Centre for Exercise Science and Medicine (CESAME)
Current Professional Activities by Unit Members

Measuring Health Inequalities Working Group, Scottish Executive Health Department
Midspan Studies Steering Committee
MRC Advisory Board
MRC Joint National Consultative Committee on Equal Opportunities
MRC Laboratories, The Gambia: Advisor to Reproductive Health Programme
Neighbourhood Statistics Project, Public Health Institute for Scotland, Steering Committee
NHS Health Scotland Gender and Health writing group, commissioned by Scottish Executive to produce report on Developing Effective Gender Policies
NHS Quality Improvement Scotland Patient Issues Group for Health Technology Assessment of the use of troponin testing in acute coronary syndromes in NHSScotland
North Lanarkshire Community Safety Partnership Transportation Group
Public Health Evidence Steering Group, Health Development Agency
RGS-IBG Geography of Health Research Group
Science in Society Working Group (subgroup of Scottish Science Advisory Committee)
Scottish Executive: Expert Group for Scotland’s National Strategy for Sexual Health
Scottish Executive: National Demonstration Projects Steering Committee
Advisory Committee: Teenage Pregnancy Evaluation
Scottish Health Survey: Consultation on content of 2003 Scottish Health Survey
Scottish Healthy Public Policy Network Core Group
Scottish Science Advisory Committee
Scottish Sex Workers Forum
MRC Sexual Health and HIV Research Strategy Committee
MRC Special Training Fellowships in Health Services and Health of the Public Research Panel
Sport Scotland Board
Steering group: Centre for Cultural Policy Research, University of Glasgow
The Wellcome Trust: Public Health Sciences Working Party
UK Health Equity Network Advisory Board
University of Glasgow Ethics Committee for Non-Clinical Research on Human Subjects
West of Scotland Postgraduate Psychiatric Education Committee, West of Scotland Deanery
West of Scotland Public Health Medicine Training Committee
West of Scotland Training Committee in Child and Adolescent Psychiatry
WHO Housing and Health Task Force

Organisation of Conferences
AIDS Impact 2003: Biopsychosocial Aspects of HIV Infection (Milan)
Evidence, Policy, Practice conference (CSO, Edinburgh)
Scientific Steering Group, Second World Congress on the Fetal Origins of Adult Disease
Unit publications

**Books**


**Book chapters**


Unit publications


35. Hart G, Elford J. The limits of generalizability: community-based sexual health inter-
(eds). Promoting Men’s Health: A Practitioners Guide. London: Balliere-Tindall,
37. Hart G, Hawkes S. International travel and the social context of sexual risk. In:
Carter S, Clift S (eds). Tourism and Sex: Culture, Commerce and Coercion. London:
Pinter, 2000: 168-177.
Jejeebhoy S, Koenig M (eds). Reproductive Tract Infections and Other
Gynaecological Disorders: A Multidisciplinary Research Approach. Cambridge:
 tenure and area variations in ontological security derived from the home. In:
Gurney C (ed) Placing changes: perspectives on place in housing and urban studies.
Carter S, Clift S (eds). Tourism and Sex: Culture, Commerce and Coercion. London:
Pinter, 2000: 74-90.
41. Hunt K, Emslie C, Watt G. Barriers rooted in biography: how interpretations of
family patterns of heart disease and early life experiences may undermine behav-
42. Hunt K, Macintyre S. Genre et inégalités sociales en santé. In: Grandjean H,
43. Kitzinger J. Creating discourses of ‘false memory’: media coverage and production
44. Kitzinger J. A sociology of media power: key issues in audience research. In: Philo G
45. Kitzinger J. The gender politics of news production: silenced voices and false mem-
46. Kitzinger J, Farquhar C. The analytical potential of ‘sensitive moments’ in focus
group discussions. In: Barbour R, Kitzinger J (eds). Developing Focus Group
47. Langford I, Leyland AH, Rasbash J, Goldstein H, Day RJ, McDonald A. Multilevel
modelling of area-based health data. In: Lawson A, Biggeri A, Bohning D, Lesaffre
48. Lewsey J, Murray G, Leyland AH, Boddy FA. Using routine data to complement and
enhance the results of randomised controlled trials. In: Stevens A, Abrams K,
Based Health Care: Insights from the NHS HTA Programme. London: Sage, 2001:
149-165.


**Refereed journal articles**


139. Deary I, Der G. Reaction time, age and cognitive ability: longitudinal findings from age 16 to 63 years in representative population samples. *Psychology and Aging* (in press)


158. Ellaway A. Subtle refinements of popular concepts may be difficult to put into practice. *International Journal of Epidemiology* (in press)

159. Ellaway A, Macintyre S. 5-a-day may be harder to achieve in more deprived areas (gallery). *Journal of Epidemiology and Community Health* (in press)


165. Ellaway A, Macintyre S. Does housing tenure predict health in the UK because it exposes people to different levels of housing related hazards in the home or its surroundings? *Health and Place*, 1998; 4: 141-150.


171. Elliot R. "Because everybody did it then": smoking among women in Britain 1930-2000 from oral history sources. *Women’s History Review* (in press)


186. Flowers P, Buston K. "I was terrified of being different": exploring gay men’s accounts of growing-up in a heterosexist society. *Journal of Adolescence* 2001; 24: 51-65.


258. Lewsey J, Leyland AH, Murray G, Boddy F. Using routine data to complement and enhance the results of randomised controlled trials. *International Journal of Health Technology Assessment* 2000; 4


281. Macintyre S, Petticrew M. Good intentions and received wisdom are not enough. *Journal of Epidemiology and Community Health* 2000; 54: 802-803.


299. Morrison D, Petticrew M, Thomson H. What are the most effective ways of improving population health through transport interventions? Evidence from systematic reviews. *Journal of Epidemiology and Community Health* 2003; 57: 327-333.


314. Mutrie N, Hannah M-K. Some work hard while others play hard: the achievement of current recommendations for physical activity levels at work, at home, and in leisure time in the West of Scotland. *Journal of Epidemiology and Community Health* (in press)


317. Ogilvie D. Hospital-based alternatives to acute paediatric admission: a systematic review. *Archives of Disease in Childhood* in press


339. Richards H, Emslie C. The ‘doctor’ or the ‘girl from the University’? Considering the influence of professional roles on qualitative interviewing. *Family Practice* 2000; 17: 71-75.


Unit publications


### Reports, and Unit Occasional and Working Papers


Unit publications


Theses
496. George R. Estimation of Folic Acid Intake of an Elderly Cohort (aged 63) from a Food Frequency Questionnaire [MSc (Med. Sc.)]. University of Glasgow, 2002.
502. Ogilvie D. Improving health services in Lanarkshire for adults with epilepsy [MFPHM Part II report]. Faculty of Public Health Medicine, 2002.