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Editorial

HOUSES, HOUSEHOLDS AND HEALTH

If we were to start all over again to design a model for modern medicine, most of us, I am sure would opt for a design which concerned itself, far, far more with the pursuit and preservation of health, of well being. What we have instead is the very opposite: a system of medicine which reacts, which responds, which waits to pick up the broken pieces—a form of medicine in short, concerned with illness, not health. A moment's thought demonstrates the folly of this. (Ian Kennedy)¹

The pursuit and preservation of health is an exercise fraught with difficulties in a society with wide disparity in social circumstances, education and wealth. The Department of Health recognised this in its statement of strategy in 1992; 'variations in health are due to the complex interplay of genetic, biological, social, environmental, cultural and behavioural factors'.² A few of these factors are addressed in this issue of *Proceedings* but one not touched upon is the adverse effects of defective housing and homelessness, consequences which may extend to a generation unborn.^{3,4,5}

While it is not given to the medical profession to provide quality housing or to alter the economic circumstances of our patients, it is our business to draw attention to the part played by these in the initiation of ill-health and to research the mechanism of the effects.⁶

In the 19th century the outstanding achievements in the pursuit of health were the provision of clean and potable water for the cities and towns and the system for collection and disposal of sewage. In this century the virtual elimination of smallpox, measles and whooping cough through mass immunisation have been triumphs of preventative medicine, changes which arose from public and professional pressure and parliamentary legislation. Still building up momentum in their contribution to better health are the recent improvements through changing fashions of nutrition⁷ and exercise,⁸ and likely to show benefit in the next quarter century is the current downward trend of cigarette smoking among all groups except young women. But paradoxically, the most striking benefits of scientific research and medical technology in the second half of this century have not been the result of interventions at the community level but of those applied to specific disorders in individuals: antibiotics for infections, the intensive care of coronary artery disease and respiratory failure, the replacement of failed organs by transplantation, and the use of drugs arising from research into the molecular basis of disordered function. These measures are available to almost all in wealthier 'developed' countries and to the wealthy in poorer countries. The greatest promise at the present time also relates to individuals—the replacement of the defective genes in those with congenital disorders. Remarkable and laudable as are these achievements, the requirement for their application would be vastly reduced if the social and behavioural generators of disease could be redressed.

Ours is an affluent country yet a substantial proportion of individuals live in unsuitable dwellings.

Homelessness and adverse housing conditions are both largely a consequence of the same

problem, a lack of good quality affordable housing for people on low income. An increasingly large number of people do not have a home at all and several million people may have a dwelling place that does not fulfil the conditions for being regarded as a house.⁹

Cold and damp

Poor thermal insulation causes condensation or/and rising damp resulting in damp cold houses; where this is prolonged and excessive, fungi flourish. Mould contamination underlies much of the asthma of children and adults and complicates other respiratory infections.^{10,11,12} The problem is more acute in the north. Homes in Scotland cost significantly more (23–66 per cent) to heat adequately than those in the south of England.¹³ The worst effects seem to arise where there are excessive internal temperature differentials.^{3,14} The excess in winter mortality is greatest in those living in substandard conditions with inadequate domestic heating.¹⁵ There is also an increased incidence of hypertension, ischaemic heart disease, and stroke in communities living in cold wet climates.¹⁶ With adequate heating and ventilation any house can be kept dry and mould free. Unfortunately those with least income to provide for fuel are often housed in property which is most difficult to heat, one of the aspects which underlay the resentment of the imposition of value added tax on domestic fuel. The World Health Organisation recommendation that the minimum air temperature for the sick, the handicapped, the elderly and the very young should be 20°C/68°F is certainly not attained in a large number of homes in Scotland.¹⁷

Although association may not imply causation, one has to recall John Snow's response to a similar argument in the time of cholera; the removal of the handle from the Broad Street water pump, when an 'association' was soon revealed to be a water borne causation.

It is a sad reflection on political priorities that the most persuasive argument to the improvement of cold, damp, houses is that directed to the saving of money out of avoiding repairs due to the corrosion, timber decay and electrical faults which arise from those conditions.

Poor housing may also lead to an increase in trauma. Falls among the elderly may be due to poor lighting or tripping on badly maintained steps and floors, but may be contributed to by the effect of cold on muscle function and postural control.³ While the incidence of fractures of the femoral neck occurring out of doors is one and a half times higher in winter than in summer, there is an increase of three and a half times in similar fractures due to falls indoors in winter.¹⁸

Air quality

If the air quality in houses is unsatisfactory there is an increase in the population of dust mites favouring asthma. Inadequate ventilation, especially where gas cookers, portable paraffin or bottled gas heaters are in use, may lead through incomplete combustion to a potentially lethal build up of carbon monoxide, and of nitrogen dioxide which favours respiratory infections.⁴ The same circumstances underlie the fires and explosions which regularly injure and kill members of households in inferior dwellings. Additional hazards are persisting asbestos in lagging and cement,⁴ and formaldehyde seeping from damp cavity wall insulation material.⁴ Presently there is concern about the pollution of the air in old houses whose front doors and windows open directly on to streets with heavy

traffic, and thus expose the inhabitants to the potentially carcinogenic benzene in unleaded fuel emitted from vehicles with catalysers.¹⁹

Poor design and overcrowding

Chronic stress leading directly to depression and suicide and sometimes to violence is common in substandard housing, especially in the tower block dwellings erected in the sixties. Vandalised lifts, dark or unlit stairways, block-length balconies, enclosed alleys and bridges have facilitated robbery, vandalism and personal assault. Living at a height in blocks with vandalised lifts aggravates the feelings of isolation leading to depression. Sound insulation between flats is often atrociously poor causing noise generated stress.

Overcrowding presents particular hazards. An association has been shown between respiratory disease at 2 years of age and overcrowding, with a subsequent increased risk in adult life,²⁰ and between overcrowding and lower birth weights.²¹ Those infants weighing under 270 grams at birth are more likely to have fathers in social classes IV and V and at the ages, 7, 11 and 16, to live in overcrowded households lacking amenities and to have a greater chance of becoming smokers when adult.

Other associations are those shown between high mortality ratios for coronary artery disease in a community and high infant mortality in the same community at the time when the members of the investigated group were born.²² They also show a similar relationship between fatal adult coronary disease and a deficient rate of growth in early life.²³

However it is difficult to determine the relative extent to which each of the various features of social and personal deprivation which attend those living in poor quality houses contribute to the disadvantage of health in the inhabitants. The categories of deprivation derived from the 1991 census²⁴ reflect access to a motor car, overcrowding, the head of household being in social class IV or V, and the presence of unemployed men in the household. Mortality rates dropped in the decade 1981–1991 in both affluent and deprived sectors of the population but the reduction in the latter was only half that of the former. This included the degree of change in deaths from carcinoma of the bronchus and ischaemic heart disease.²⁵ McLoone and Boddy suggest that such differences in the degree of improvement may reflect a lag in the changes in lifestyle with the affluent staying ahead of the deprived in leading healthier lives.²⁴

The role of doctors and managers

Doctors have the responsibility to assist the public and politicians to reach informed and intelligent decisions on priorities in the pursuit of health. In community and hospital practice adequate attention (and time) needs to be given to gaining an understanding of the social, occupational and financial circumstances in the household of which the patient is a member, with respect to the quality of the housing, the presence or not of overcrowding, unemployment, smokers and drinkers and of physically and mentally handicapped individuals. The present trend of management in hospitals in the UK is to increase the numbers of patients passing through each clinic session, and to shorten the contact time between in-patients and ward staff. This works in the opposite direction. To reduce hospital costs more operations are being performed as day cases, and following in-patient care, whether surgical or medical, early discharge has

become the rule. Yet there must be very few hospitals which use detailed information on the household characteristics of the individual patients to determine the suitability of early discharge. Logic dictates that it is hazardous to discharge patients into conditions which may increase the risk of infections and of other complications, or which may themselves, such as cold and damp, have contributed to the illness in the first place. The recent increased emphasis on care in the community for those with mental and physical infirmity, particularly the elderly, has the potential for exposing the most vulnerable to inappropriate domestic environments. It need hardly be added that this is particularly relevant for those who live in temporary accommodation or who sleep rough.

The role of government

The potential contribution of government towards redressing these undesirable circumstances lies in the provision of resources for education in the wise use of tobacco and alcohol, for facilities and instruction in recreational exercise in schools and community centres, and for the continued upgrading and replacement of unfit housing stock. A proportion of these houses need to be rentable, perhaps with a scheme devised by which progressive rental payments lead, over time, to ownership. Even in urban conurbations the design for communities would ideally be based on a concept of intra-urban villages modest in size, with the physical centre containing the post office, newsagent, general store, children's play area, community centre and medical practice, and between adjoining 'villages', churches, a mosque where applicable, and the outdoor recreation facilities.

Government should reflect majority public opinion and prohibit the promotion of tobacco and alcohol and facilitate pilot studies into the feasibility of decriminalising some drugs. Further changes in the National Health Service should reflect the ultimate savings likely to be achieved, by increasing the resources which would permit the spending of time by doctors, both in hospital and general practice, to become informed of a patient's home background and circumstances and, where appropriate, to discuss the art of healthy living. If the present NHS changes do reduce waste and therefore costs, the money saved would be better directed to increasing the numbers of doctors and nurses rather than be sucked back into the treasury for general use.

Resolving the complex

Nevertheless in seeking solutions the difficulties of redress have to be faced squarely. Respecting the concentration of deprived households in particular urban areas, census information has been used to identify such localities with a view to directing extra resources for upgrading of houses and focussing education.²⁶ The assumption was that by so doing the opportunities and quality of life for the residents could be revised without focussing on individual circumstances such as low wages or unemployment. It would be naive to expect these interventions or educational propaganda about nutrition and lifestyle to be as effective with disadvantaged individuals as with those otherwise placed; the interaction of poor education, malnutrition, demoralising environments, lack of self-esteem and aspiration form a forbidding complex. As has been stated, 'attempts to explain or resolve inequalities of health by means of interventions directed towards specific aspects of lifestyle (such as smoking or diet) ignore the question of whether

disadvantaged populations are able to act on advice about healthy living in the wider context of their social circumstances'.²⁴

The excess mortality associated with residence in areas designated by census as deprived may be wholly explained by the concentration in those areas of households with adverse personal or socio-economic features, often as a result of a deliberate policy of the local authority. Slogget and Joshi maintain that such disadvantaged persons have higher mortality risks wherever they live, whereas those not so disadvantaged but living in the same area have the average national mortality, so that targeting deprived areas for increased resources could be less intelligent than targeting individuals.²⁷ The programme most likely to succeed must surely have regard to both these targets.

There can be no short-term solutions. Only by planning in terms of generations can realistic priorities of action be devised. There is no way that the most idealistic reformer can dodge the complexity of the issues. A proportion of the individuals who suffer from the worst circumstances for health, may by reason of inherited characteristics, incapacity for or disinterestedness in employment, by poor education or fortuitous illness, by abuse of alcohol and tobacco, and even anti-social behaviour, end up with adverse social circumstances which compound the chances of ill health for themselves, their children and their yet unborn grandchildren.

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POLICIES ON PREVENTION: THE HAZARDS OF POLITICS*

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The development of policies for the prevention of ill-health, and the inter-play of science and politics in this activity is a fascinating topic. In recent years, Yarrow¹ has described his experiences from his viewpoint as a medical officer in a ministry, while Mills² provides a scholarly review of the subject. This paper examines the epidemiological evidence in four areas, smoking, pollution, screening and iodine deficiency and tries to draw conclusions for improvement in the ways in which the findings from such studies are applied in the interest of public health.

SMOKING

The most important health hazard in our country at this time is the smoking of cigarettes. The realisation of an increase in the incidence of chronic disease, e.g. cancer of the lung, coronary heart disease and chronic bronchitis, led to a variety of initiatives at the end of the Second World War. It is believed that the Medical Research Council (MRC) asked Pat Lawther to study air pollution and bronchitis, and Tony Bradford-Hill to study smoking—although initially it had been envisaged the other way round; only Lawther had an engineering degree and it was therefore considered more suitable that he should study the problem of air pollution.

Hill and Doll's studies are universally known^{3,4,5} but their reception by the Imperial Tobacco Company probably less so. When the published results in the *British Medical Journal* were reported to the main board of the Imperial Tobacco Company according to a participant the chairman was so appalled by the findings that he turned to his board and said 'surely these results cannot be correct since we produce a clean, hygienic product!'

The general reaction to Hill and Doll's studies and similar investigations by Wynder,⁶ Levin,⁷ and Hammond^{8,9} in the United States were muted, and little public notice was taken until the publication of the report of the Royal College of Physicians in 1962,¹⁰ and the Surgeon General's report in the United States two years later.¹¹ As a result of these, governments and most members of the public began to take the problem of smoking more seriously. Tobacco companies reduced the amount of tobacco in cigarettes (from 1g/cigarette to 0.75g/cigarette) and introduced filters in most brands. They also became involved in a search for what they hoped would prove to be less harmful products; in particular tobacco substitute material. In the United Kingdom this search was led by Imperial Tobacco and ICI, and in the United States by Dupont.

The government in the UK reacted to these initiatives by setting up an Independent Scientific Committee under the chairmanship of Lord Hunter.¹²

*A Ballantyne Prize lecture delivered at the Symposium on *Preventive Medicine* held in the College on 9-10 November, 1994.