

HEALTH: HISTORICAL ISSUES

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ABSTRACT

Assessments of the changing pattern of health in the present century are made on the basis of very limited evidence. Problems in evaluating such evidence as age specific mortality rates are considered. Fuller exploitation of morbidity records is advocated. But this data is notoriously difficult to interpret. The examples of malnutrition, tuberculosis and cancer are discussed to illustrate the degree to which a variety of factors lead to under-reporting. It is concluded that morbidity data is strongly influenced by prevailing assumptions about health care; these in turn reflect economic pressures. Critical assessment of morbidity data casts doubt on the appropriateness and efficiency of health and welfare services, especially during the interwar period. These findings add to our difficulties in reaching firm conclusions about the impact on health of the Depression.

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SUMMARY

Health: Historical Issues

Trends in health are predominantly considered with respect to changes in mortality indices. Limitations in the use of these indices are discussed before going on to stress the importance of the evaluation of data relating to morbidity. Representative examples are cited to illustrate the dangers of taking morbidity data at face value. It is demonstrated that the circumstances involved in the collection of data reflect the limitations and presuppositions existing within the health care system. Nevertheless a substantial body of data can be drawn upon to support a reconstruction of the complex pattern of morbidity existing in the diverse socio-economic circumstances prevailing in Britain since 1918.

HEALTH : HISTORICAL ISSUES

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1984 is a good point from which to examine longer-term problems of health care. To some extent chronological divisions are arbitrary, but it is arguable that 1918 marked the beginning of a conscious attempt to develop modern health services, while 1948 saw the most obvious secular organisational shift in health care, with the establishment of the National Health Service. It is thus appealing to make comparisons between health and health services existing in the 30 years between 1918 and 1948 on the one hand, and during the 36 years of the National Health Service on the other. The former marked the last phase of the dominance of a largely unplanned patchwork of voluntary agencies, which were replaced under the National Health Service by a publicly financed and controlled service, planned on rational lines. In the field of primary care the NHS replaced the limited 'panel' system with a service covering the whole population. It is also instructive to make comparisons between the present economic depression and its interwar counterpart with respect to adverse effects on health and health care. Then, taking the period since 1918 as a whole, the study of longer-term trends contributes towards the understanding of persistent regional or social class disparities in health, and towards appreciating the fundamental changes which have taken place in the fields of health and health care.

Ideally we might aim to arrive at a comprehensive balance sheet, on the one side providing a precise indication of the evolving epidemiological pattern and an indication of the state of health of each section of the

population, on the other a statement of the nature and cost of the health services which have developed in response to this state of affairs. The equation would not of course be complete without some kind of estimation of the degree to which agencies other than health services had contributed towards the determination of standards of health. Stated baldly, such an exercise is relevant to understanding the degree to which our current expenditure of some £15 billion is contributing to the maintenance or improvement in standards of health. The modern health services do a great deal of good, but it is notoriously difficult to quantify this benefit, or to prove that the increasing proportion of the GNP spent on health care in western nations is producing proportionate advantages in terms of health. The celebrated paper by Cochrane raises the possibility that in the key area of perinatal mortality at least, the highest spenders have achieved the worst results, while McKeown's familiar hypothesis attributes the greater part of the modern decline in mortality rates to social factors, such as a rise in standards of living or improved nutrition, rather than to medical advances or curative medicine.¹

The present paper hazards no conclusions on larger issues, rather concentrating on the technical difficulties facing investigators stepping into this treacherous territory. In stressing the problems of evaluating standards of health, it will be suggested that evaluation of data on health throws light on prevailing priorities in health care, as well as assisting in the assessment of the efficiency of major sections of the health services.

Until recently there has been very little intensive work on standards

of health in the present century. For the most part our views tend to be determined with reference to standard demographic indicators such as age specific mortality or fertility, especially infant mortality, perinatal mortality and maternal mortality. Minor perturbations have attracted less interest than long-term trends. Generally speaking, the period since 1918 has been regarded as favourable with respect to all the basic indices. These changes have been ascribed to a combination of influences, especially rising living standards or advances in medical knowledge and health care. Trends established in the earlier part of the century are seen to be carried to their logical conclusion under the post-1945 welfare state. The interwar period takes on the character of a preparatory phase, displaying the same features as the welfare state, but to a more primitive degree. Improvements in health indices and expansion of health care have contributed to the case against the older more impressionistic view of the slump as a dark age of welfare.²

Mortality statistics are genuinely important and they will continue to predominate because they are our most comprehensive and best standardised source of data. For shorthand purposes national averages are the staple for comparisons, but this usage tends to overlook the degree of heterogeneity of the data. The striking feature of pre-war mortality data is the enormous scatter and great disparities even within limited areas. The extent of these disparities is most evident when reference is made to the smallest population units. Such divergences are progressively ironed out in the regional and national statistics. In typical northern industrial towns in 1930 a high proportion of wards experienced an Infant Mortality Rate (IMR)

of between 100 and 150, while middle-class suburbs were experiencing an IMR of around 40. Thus some communities had reached the standards of the post-war welfare state, while others compare with present day insanitary slums of the Third World. Without pursuing this problem in depth it is obvious that we only gain insight into the demographic status of the various socio-economic groups if aggregate data are broken down to arrive at units as far as possible coinciding with these groups. In this way it will be possible to detect the degree to which the fluctuations within each sector of industry exerted an impact on the demographic indices relating to its workers and their families.

Maternal mortality has attracted attention recently because this rate reflects the state of health of a major section of the female population and also because this is a conspicuous example of a major demographic index which worsened during the interwar period.³ This problem caused great public concern, in response to which the Ministry of Health undertook a series of investigations into maternal mortality, the records of which remain to be exploited fully as a major source concerning women's health.⁴ Maternal mortality averages again disguise great local variations. 'Good' areas kept their levels below 2 deaths per 1,000 live births; 'bad' ones rose above 9. Adverse changes in maternal mortality, and the extent of local disparities, are important and they require explanation. It is quite inadmissible to ignore this phenomenon and concentrate on the rise in age expectation among women to justify the view that women's health has been continuously improving in the course of this century.⁵

We must also consider the degree to which the reported maternal

mortality rates are accurate. One experienced team for instance argued that the high rate of around 9 in Rochdale was an underestimate because deaths during childbirth were recorded under different headings such as influenza, when they should have been classified as eclamptic convulsions. An investigation into the maternal mortality data will also throw light on abortion, thought by medical opinion to be greatly on the increase during the interwar period, especially in the cotton towns and among women workers.⁶

The example of maternal mortality, taken together with fragmentary yet alarming statistics concerning maternal morbidity, suggests that the pressure groups formed to draw attention to the problems of women's health were not addressing themselves to a minor and diminishing problem. High maternal mortality also tended to occur in areas experiencing high infant mortality. This association suggests that developing health services were varying in their effectiveness. In some areas at least maternity and child welfare clinics, midwifery and institutional services were not bringing proportionate benefits to mothers and children. One expert in the field frankly admitted that high maternal mortality reflected the incompetence of medical intervention and that 'in many cases maternal deaths were nothing short of murder'.⁷

I have so far avoided the problem that mortality rates provide only an indirect indication of sickness existing in the community. For reasons of conviction or convenience we have clung on to the view that infant mortality provides an appropriate yardstick of general health. The health administrator, Sir Arthur Newsholme, regarded infant mortality as 'the most sensitive index we possess of social welfare and of sanitary

administration'. Forty years later the epidemiologist pioneer of social medicine, F.A.E. Crew, described the league table of IMRs as the best indicator of 'the stage of social evolution reached by any given population... it is a measure of the people's progress'.⁸ Mortality rates continue to be used as indicators for the sake of international comparison, and they have recently been used by the Resource Allocation Working Party for weighting in the allocation of resources between health regions.

Mortality indices may have a general value but their use should not be overstrained. It is clear from the above remarks that the positive trend in infant mortality gives no clue to the existence of an adverse trend in maternal mortality. It is difficult to believe that infant mortality could be of much help as an health indicator in a community in which the health of the adult population was affected by pulmonary tuberculosis, occupational hazards, high levels of atmospheric pollution, alcoholism and tobacco-related diseases. Such models are relevant to the pre- and post-1948 situation. A further difficulty relates to the quantification of the relationships between mortality and morbidity. This problem will be considered below with reference to tuberculosis and cancer. On the basis of hospital admissions it was accepted that 50,000 cases of maternal disablement were occurring each year in the interwar period, a disturbing and embarrassing finding which could not be guessed from the maternal mortality rate.⁹

Before the advent of the Survey of Sickness during World War II no systematic basis existed for the gathering of morbidity data. A wide variety of sources of information on morbidity nevertheless exist.

Our views on morbidity should be derived wherever possible from critical evaluation of these sources. To enumerate just some of them: Reports of the Ministry of Health and Registrar General's Department and their background files; evidence delivered to various Royal Commissions; data included in reports of local authority health, welfare and education departments; Public Assistance Committee records; National Health Insurance records; local surveys sponsored by the Medical Research Council, Industrial Health Research Board or other governmental and non-governmental bodies; independent research reported in medical journals; hospital, dispensary, and voluntary society records.

Each source of evidence presents its own problems of interpretation. Very little can be taken at face value. Particular care must be adopted with respect to some of the more accessible and systematic sources, such as the Annual Reports of Medical Officers of Health and School Medical Officers. The latter are particularly attractive because they contain anthropometric data, as well as information concerning infectious diseases, malnutrition and supplementary feeding, dental health, and minor ailments. Reports of School Medical Officers would therefore be expected to throw considerable light on the health of children and their families. However this material is not easy to use.

Central to the work of the School Health Service from 1907 until 1974 was the regular measuring and weighing of children. Children were weighed and measured three times during their school careers, in the course of regular medical inspections. The vast body of data accumulated relating to height and weight has never been exploited in research and it is not

clear whether it can be employed to any useful purpose. On the other hand, certain local anthropometric studies of a more detailed nature may be more valuable. As I and others have demonstrated elsewhere, the data relating to tonsils and adenoids requiring treatment, rickets, dental health, infestation and malnutrition are totally unreliable.¹⁰ Diagnosis tended to be superficial and impressionistic, with the result that findings were affected by the bias of the medical officers involved. The reports thus show inexplicable inconsistencies between districts of similar socio-economic character. Even where consistency existed, this may well have reflected an appreciation of the expectations of the Ministry of Health and local committees, rather than the realities of the situation. Investigators were also subtly influenced by the need to show positive results for their efforts. The above factors arguably tended to exaggerate the scale of health problems in 'good' districts, and, more seriously, to understate the gravity of these problems in impoverished districts. Failure of the School Medical Service during the 1930s to evolve satisfactory standards for assessing malnutrition caused particular concern among nutritionists and the public. Confidential Ministry of Health investigations candidly acknowledged that the extent of malnutrition in problem areas had been greatly underestimated, with the result that the school meals service was seriously underdeveloped. Even when school meals were provided there was no guarantee that they would benefit the children most in need. After 1934 the school milk programme was developed in a more systematic fashion, but it is unlikely that supplementary feeding seriously contributed before World War II to solving a problem of malnutrition affecting as many as half of the nation's children.¹¹

Lethargy in certain public health circles over malnutrition was

more than compensated for by the efforts of outside investigators, who devoted more energy to the investigation of malnutrition during the 1930s than has occurred before or since. There is thus in existence a mass of data approaching the problem of malnutrition either from the point of view of family budget or by standardised clinical tests. These investigations used the best methods available and they resulted in findings suggesting that substantial sections of the low income population were malnourished. The validity of these conclusions depends on the adequacy of the various budgetary standards for malnutrition adopted. In strict biological terms it is likely that the standards were too liberal - the population could have subsisted below the identified minimum budgets without necessarily incurring ill-health, but this would presuppose their adoption of social habits which were alien at the time. It is also not entirely clear whether the tests for anaemia and vitamin deficiency will stand up to criticism. It is therefore likely that reconsideration of the data will lead to conclusions falling somewhere between the assessments of the optimists and pessimists. But this would still establish malnutrition as one of the major health problems of the interwar period. Whatever the conclusions about malnutrition, social surveys and malnutrition investigations reveal very detailed information concerning family budgets. These sources are invaluable for assessing the impact on family budgets of such factors as council house rents, costs of public transport, new consumer commodities and factory-processed foods. They will also shed light on the controversial question of the efficiency of the British housewife as a household manager.¹²

It will be useful to consider two representative instances to illustrate the difficulties involved in assessment of morbidity data:

firstly, tuberculosis, the single major cause of death in the century before the National Health Service; and secondly cancer, which has risen to become one of the major causes of death under the National Health Service.

Tuberculosis is important because before 1940 it was the single largest cause of death for most age groups. Although declining as a cause of mortality, tuberculosis was accounting for around 30,000 deaths in England and Wales per annum in the 1930s, falling to around 20,000 in the late 1940s.¹³ It is likely that these figures are an understatement; deaths ascribed to other bronchial diseases might well have represented cases in which tuberculosis was implicated. Thus for most of the first half of the century tuberculosis was probably accounting for as many deaths each year as were caused by the first great cholera epidemic of the nineteenth century. Tuberculosis is the more important because it is associated with a long period of debility, affecting efficiency and earning capacity, and ultimately plunging the whole family of the afflicted breadwinner into destitution. A final point of importance of tuberculosis is the known correlation in the incidence of this disease with such unfavourable socio-economic conditions as low wages, unemployment, overcrowding, slum dwelling and malnutrition. Strong variations in the levels of tuberculosis are thus reflected in any regional or class dissection of mortality rates.¹⁴

It might be possible to use tuberculosis mortality rates as an index of its incidence, but it is equally important to assess the extent of disability occasioned by the disease. This is by no means an easy problem because it is likely that a large proportion of the population had

experienced some form of tuberculosis to a minor extent without any serious inconvenience, the only permanent signs being healed lesions detectable only by autopsy.

Tuberculosis was from 1912 a notifiable disease. Maintenance of a tuberculosis notification register was a responsibility of the Medical Officer of Health, while notification of the disease was a legal responsibility of general medical practitioners. Tuberculosis notification should thus provide an indication of the extent of active tuberculosis.¹⁵

It is not however possible to extract firm evidence from this source. For sound economic and potent social reasons, patients tended to disguise the symptoms of tuberculosis from themselves, their families and their general practitioner. From motives of sympathy with their patients or disaffection with the public health machinery, general practitioners failed to notify the disease to the MOH. No doubt recognising the token nature of notifications, and because of their poor relations with general practitioners, Medical Officers of Health were negligent in keeping their registers. Accordingly it is common for above 50% of the cases notified to relate to terminal cases or notifications after death. Notifications are therefore no more reliable than mortality rates as a reflection of the incidence of tuberculosis. Indeed, notifications are less reliable because they will reflect the vagaries of local reporting. The above points reinforce the suspicion that with tuberculosis as in the case of venereal disease, noted long ago by Graunt, patient and doctor conspired to avoid ascribing death to a condition to which a social stigma was attached.

Experts in the field were faced with a serious dilemma. Early notification was seen as essential for prevention and early treatment, yet this would lead to labelling of large numbers of individuals experiencing no more than minor symptoms - thus setting them at a disadvantage on the labour market or with life insurance companies, besides placing the whole family under a cloud of suspicion in their neighbourhood. Visitations by the Tuberculosis Officer and other intruders might well break up the family and deposit the unwilling sufferer in some inaccessible sanatorium.

Even with active cooperation from all parties the notification procedure was difficult to operate. From almost the outset of notification experts were locked in debate concerning the level at which tuberculosis should be notified, and with respect to the merits of a single as against a double system of notification. Practice therefore varied enormously. In 1929 the Committee wrestling with this problem reported that 'some extremists do not notify at all, or only such patients as are about to die. Some will notify only when the sputum is found to contain tubercle bacilli...', others when it seems likely that notification will...assist the patient; others when notification seems likely to assist prevention, etc.'¹⁶ No progress in checking the anarchy existing with respect to tuberculosis notification had been made by the time the Tuberculosis Standing Advisory Committee went over the ground again under the early National Health Service.¹⁷ In view of this unresolved problem it is impossible to take at face value the notification rates reported in England and Wales which suggested that cases had fallen from 50,000 in 1931 to 35,000 in 1939, rising to 44,664 in 1944.

It will be recognised that the above problems of definition would not have been solved by the introduction and widespread application of X-radiography. Indeed X-radiography complicated the problem still further. However, this diagnostic development was slow to take effect in the tuberculosis field. X-ray equipment was introduced into hospitals on an extensive scale in the interwar period, but it was not widely available in tuberculosis dispensaries before the mid-30s. Britain had by this stage fallen behind other western nations in X-radiography, with the result that it was slow to introduce X-ray screening for such strategically important groups as recruits to the forces and factory workers. The first civilian mobile miniature mass radiography units were not in operation until the latter stages of the war. Even then, it is difficult to know what to make of the results which added only 4,000 active cases out of the one million persons subjected to mass radiography by June 1946.¹⁸

Tuberculosis is perhaps the major aspect of morbidity in which the official statistics give no real indication of the magnitude of the problem. For a more secure understanding of the impact of tuberculosis it is necessary to rely on evidence from a relatively small number of local studies such as that undertaken by Bradbury on Tyneside, where he revealed that among families with an average income of less than ten shillings a head a week, in one district 53% and in another 34% of households contained a tuberculous individual.¹⁹ Other investigations linked the incidence of tuberculosis with overcrowding, likewise exposing higher levels of the disease than was expected from the official notifications.²⁰

In the light of the above problems it is difficult to reach firm

conclusions about the impact of tuberculosis prior to 1950. Clearly the problem was much greater than the official statistics suggest. The social and economic impact of tuberculosis was considerable. This disease was not fading into obscurity at the rate often imagined. Although it was never claimed that a complete tuberculosis service was established, official reports were on the whole optimistic concerning achievement in this branch of health care. This verdict was assisted by the known gradual spontaneous remission of the disease. Yet with closer examination it may well emerge that the tuberculosis service was a token contribution, neither quantitatively effective nor particularly efficient. The degree to which tuberculosis was not under control was indicated by the increase in mortality and levels of notification in certain categories, especially among young adolescents during the Second World War. In 1946/7 the mortality rate was 30% higher among 15-25 year-olds than it had been at the height of the depression, continuing the rise which had caused alarm in the immediate pre-war period. Thus the physical impairment associated with tuberculosis is scarcely a thing of the past.

An historic moment in modern epidemiology occurred in 1951 when annual deaths from tuberculosis were exceeded by deaths from lung cancer. This statistic vividly illustrated the manner in which problems associated with the old infectious diseases were being overtaken by challenges of new chronic conditions and threats coming from unexpected directions. Information concerning the incidence of the different types of cancer is valuable among other things because a precise epidemiological pattern might be matched with some pattern of change in social habits or within the environment, or it might suggest an association with particular occupational

hazards. Once the problem of lung cancer became recognised, by a process of elimination the source of this problem was predicted to lie in three areas - pollution due to gas works, exhaust gases associated with coal or petroleum, or tobacco smoke. Three years before the celebrated paper of Doll and Hill, Kennaway had concluded that the most obvious explanation for the rise of lung cancer lay with cigarette smoking.²¹

Long-term trends in mortality and registration of cancer are thus important epidemiologically and they attract considerable speculation. Each type of cancer has exhibited its characteristic pattern of activity. Statistical trends with respect to mortality are routinely made with reference back to 1911. On this basis, leaving aside lung cancer, the volume of other cancers as a cause of mortality has been approximately constant for both men and women. Registration has tended to increase for most kinds of cancer for both sexes, largely reflecting an improvement in the efficiency of registration. However the variations in standardised registration ratios from one region to another still cause concern about the uniformity and adequacy of the system now in operation.²²

Many comparisons can be drawn between tuberculosis and cancer. A sense of fear was evoked because each disease was felt to exist at far higher levels than was immediately evident. Cancer attracted particular sympathy because it seemed to strike indiscriminately. In both cases early diagnosis was regarded as indispensable to effective containment. During the interwar period the X-ray aided early diagnosis of cancer; deep X-ray therapy and radium emerged as the major hope of cure. Major cancer charities grew up during this period with the expectation that

cancer could be understood and eliminated. The Radium Trust and its Radium Commission were established to develop and control radium therapy. Under the Radium Commission radium therapy was concentrated in 17 centres and registration related only to these centres, although it was recognised with some alarm that radium therapy was springing up indiscriminately throughout the voluntary hospital system.

The main effect of public awareness and more active diagnosis was the identification of far more cases than could possibly be given treatment. In 1936 it was estimated that of 100,000 ascertained cases, of which 40,000 were identified as treatable sites, only 8,000 were receiving treatment. Thus treatment centres were unable to cope even with their local cases, while the cost of extending the approved schemes lay beyond the means of the virtually bankrupt voluntary hospitals.²³

Modern science had thus exposed a mass of disease which the health care system was unable to treat, although the public and the medical profession at the time were confident that the means of treatment were at hand. In order to avoid political embarrassment on this issue the government increased its aid to cancer and established the framework for a comprehensive system of cancer treatment schemes under the Cancer Act (1939).

Cancer registration grew up under the aegis of the Radium Commission.²⁴ Pre-war registration data covered less than 20,000 cases per annum, and even within this context it was not representative, but biased towards cases treated by radiotherapy. The 1939 Act increased the scope of the registration scheme, but the repeal of this Act in 1946 created a hiatus

pending the establishment of new machinery under the National Health Service. The Registrar General was alarmed that returns represented only 50% of the estimated number of cases.²⁵ In fact the number of registrations had doubled between 1945 and 1948, but it then remained static at around 50,000 until 1952. In making proposals to simplify and rationalise the data-gathering scheme the Registrar General's Office pointed out that only 175 of the 300 hospitals registering cancer were including all cases. As in the inter-war period cases treated by radiotherapy were over-represented.²⁶ Although it is difficult to make a precise estimate, in 1952 cancer registration cannot have been more than 50% complete and it may have represented only 25% of new cases.

Cancer registration under the National Health Service repeated the diversity of practice existing under the previous order. The Regions and Management Committees were left complete discretion in their handling of registration. By 1953 only three Regions had established Regional Registration Bureaux as part of their cancer organisation. Cancer registration was accepted policy, but it was only weakly enforced. No investigation of local practice was undertaken until 1954.²⁷ In 1956 regional schemes involving collaboration within teaching hospitals were still being evolved. The regional registration organisation was still not complete ten years after the beginning of the National Health Service.²⁸

Even then there were great disparities in practice. Some Regions aimed at complete cancer registration. Others such as Sheffield had achieved only 50% registration. Furthermore, clinical records and the system of organisation varied between the Regions. This minor example

illustrates the degree to which ingrained insistence on regional and hospital group autonomy has permeated even the process of epidemiological data-gathering. Up to the present the National Cancer Registry has failed to establish complete standardisation in the field of cancer registration. Current complaints precisely echo the past: 'The regional systems vary in complexity and clinical support and regional registration rates, especially in the last few years' data available, have varied alarmingly.'²⁹

Lack of momentum in the movement towards comprehensive cancer registration reflects the limited influence of the Ministry of Health and its central advisory machinery. It is also clear that the advisory committees were inhibited by a sense that planners should not encourage the epidemiological machinery to run ahead of the capacities of the health service to provide treatment. There was therefore a tendency to put a brake on data-gathering initiatives. For instance the keen South West Cancer Bureau at Bristol claimed in 1952 to be registering 99% of cancer deaths. Their statistics seemed to show conclusively the value of early treatment. Local experts were therefore favourable to controlled cancer education of the public with a view to detecting early signs of cancer of the breast, uterus, tongue and mouth.³⁰ Similar plans for education and screening were emerging in other areas. However, within the Cancer Advisory Committee and among Ministry advisers, these schemes were given a cool reception, partly because it was felt that medical treatment was insufficient in quantity and quality to meet the demand, partly because publicity would generate 'cancer phobia' among the public.³¹ On these grounds the Cancer Standing Advisory Committee had developed a rooted objection to cancer education and this attitude

preponderated among Medical Officers of Health. By 1955 only a handful of local education schemes had been initiated, usually in the face of the opposition of local medical opinion, only rarely, as in the case of Bristol, in association with the hospital service.³² This experience points to failure to secure cooperation between the various branches of the health service, a further endemic feature of the early National Health Service.

Inertia within the advisory machinery of the Ministry of Health stood in the way of a more active and scientifically desirable approach to gathering data on the epidemiology of cancer. Extreme caution over cancer education immediately drove the Ministry and its cancer advisers into difficulties over smoking and lung cancer. At first they were disinclined to accept the findings of Doll and Hill on the grounds that epidemiological evidence constituted only indirect proof. When faced by mounting evidence in support of the connection between smoking and lung cancer, only gradually and reluctantly was official sanction given for the public to be officially warned about the likely scale of ill-health occasioned by smoking. It was not until 1962, twelve years after the original paper by Doll and Hill, and only after a committee of the Royal College of Physicians had committed itself, that the Ministry of Health joined the chorus of concern on this major modern health hazard, currently believed to be responsible for twice as many deaths annually as tuberculosis at its peak.³³

As in the case of tuberculosis in the past, the present preventive effort with respect to lung cancer is far less than the scale of the problem

would suppose. In both cases main responsibility for preventive action has been relegated to voluntary or quasi-voluntary organisations, rather than being central to the machinery of the public health services. Smoking-related diseases are the more serious problem because there is no expectation that they will obligingly enter into spontaneous remission.

These examples have indicated the types of problems faced when assessing the scale of burden of mortality and morbidity carried by the British population in the present century. An aggressive response to these problems was called for, at the least because of the serious implications of decline of the birth rate. Yet strangely, Britain entered the Second World War having neglected health much more than the English speaking dominions, or many of the western nations. The tally of maternal and infant deaths, or deaths of children due to failure to introduce diphtheria immunisation, was very considerable. Furthermore, malnutrition, tuberculosis, industrially related diseases, etc., impaired the physical state of the post-war population, perhaps having very long-term repercussions through low birth weight of babies. Under the NHS many of the above problems have been replaced by others. It remains to be seen how appropriately modern health care has faced up to its responsibilities.

The above examples demonstrate the dangers of taking shortcuts in the investigation of the changing pattern of health in the present century. Overall trends in mortality provide only a limited insight into an extremely complex series of events. We fall back on the truism that health can only be understood by investigating morbidity. But the data relating to morbidity are usually fragmentary and each class of

evidence presents major problems of interpretation. The difficulties outlined with respect to physical problems ranging from infestation to malnutrition could be matched by examples relating to many classes of physical and mental handicap, or deviancies such as high intelligence or maladjustment. These are all areas in which the development of classification, the elaboration of tests and the generation of numerical data have given the specious impression of objectivity and scientific precision. On closer inspection these procedures turn out to be subject to a variety of fallacies and limitations. Nevertheless the entire body of evidence is not worthless. Rather, the process of historical reconstitution involves a more taxing and technically complex process than has been anticipated when questions of health seemed less important.

The problems are in fact at least one degree more complex than has so far been admitted in this paper. Health is not merely a physical construct defined by the absence of known categories of disease. Expectations concerning health have changed radically in the course of the present century. Consequently we need to take account of the deficit between popular expectations and levels of health permitted by socio-economic conditions and health care systems. One of the major features of the interwar period was the mounting tendency of aspirations to run ahead of the services provided. The loyalties of the providers of health care were divided between the spirit of charity inherited from the eighteenth century, and the sanitarianism of Edwin Chadwick, while the mentality of the public was becoming conditioned by expectations generated by rapid scientific and technical advance, translated into concrete terms through glimpses of life in California absorbed from the cinema screen. In these

circumstances it is not surprising that the people rebelled against welfare provided on the principle of 'minima' and demanded instead a system based on 'optima'.

We now recognise that our immediate past provides us with an extremely valuable experimental situation in which sections of the population were taxed by a variety of serious health problems, many of which were generated by adverse economic circumstances, though it is also necessary to take into account the impact of two world wars. It is important to evaluate the short and longer term consequences of these strains on personal, family and community life. A more secure understanding of these problems will provide a tenable standpoint for assessing the role and efficiency of the agencies evolved for dealing with sickness both before and after the establishment of the National Health Service.

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11. In 1938/9 free meals were being received by 2% of the school population, while less than 1% were receiving meals for payment; 50% were receiving 1/3rd of a pint of milk each day either free or for payment of 1d. By 1945 meals were served to 33% of school children and milk to 73%.

12. For a contemporary summary of sources, J.R. Marrack, Food and Planning (London, 1942); idem, "Investigations of Human Nutrition in the United Kingdom during the War", Proc. Nutrition Soc., 1946-7, 5: 213-41.
For an assessment of wartime changes: R.M. Titmuss, Problems of Social Policy (London, 1950), pp.509-14; A.H.J. Baines, D.F. Hollingsworth and I. Leitch, "Diets of Working-Class Families with Children before and after the Second World War", Nutritional Abstracts and Reviews, 1963, 33: 653-68.
13. Registrar General's Statistical Review for England and Wales for 1947, Part I (London, HMSO, 1948); A.M. Adelstein, "Mortality from Tuberculosis", OPCS, Population Trends, 8 (London, HMSO, 1977), pp.20-3.
14. R.M. Titmuss, Poverty and Population. A Factual Study of Contemporary Social Waste (London, 1938), pp.167-75.
15. The following comments on the incompleteness of tuberculosis notification take account of a section of the dissertation of Linda Bryder on tuberculosis and tuberculosis care, under preparation at Oxford. See also P. Stocks, Sickness in the Population of England and Wales in 1944-7, General Register Office, Studies on Medical and Population Subjects, no.2 (London, HMSO, 1949), pp.12-15; W. T. Russell, "The Morbidity of Pulmonary Tuberculosis", Tubercle, 1946, 27: 138-45.
Notification statistics continue to be used with little reference to their shortcomings. See N.S. Galbraith, "Communicable Disease Surveillance" in A. Smith ed., Recent Advances in Community Medicine, 2 (Edinburgh, 1982), pp.127-41; 'since then [1913] notifications have provided the main source of data for the surveillance of disease' (p.137).

16. Notification Committee of the Joint Tuberculosis Council, PRO MH 55/157. The Infectious Diseases Regulations, 1918, Article 5, required notification of persons 'suffering from tuberculosis'. Pre-war notification rates were only twice the death rate from tuberculosis (P. Stocks, E. Lewis Fanning, BMJ, 1944, i, 581).
17. Inconclusive discussions between the Standing Tuberculosis Advisory Committee and outside bodies, SAC Tuberculosis, 1950/1, DESS 94199/2/1A.
18. "Report of Subcommittee on Mass Miniature Radiography", 1953, MRC 53/687; Titmuss, Problems of Social Policy, p.525.
19. F.C.S. Bradbury, Causal Factors in Tuberculosis (London, NAPT, 1933).
20. P.D'A. Hart and G.P. Wright, Tuberculosis and Social Conditions in England (London, NAPT, 1939).
21. Sir E. Kennaway, in 24th Annual Report, British Empire Cancer Campaign (London, 1947), p.190.
22. S. Donnan, "Cancer Registration - Advance or Retreat?", in A. Smith ed., Recent Advances in Community Medicine, pp.157-68; R. Balarajan, A. Scott, "National Cancer Registration: an Appraisal", Community Medicine, 1983, 5: 31-7.
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24. P. Stocks, Cancer Registration in England and Wales, General Register Office, Studies on Medical and Population Subjects, no.3 (London, HMSO, 1950).
25. A.E. Joll to Sir W. Douglas, 13 May 1949, DHSS 94200/3/2.
26. Registrar General's Office, "Cancer Registration Scheme" 1953, DHSS 94200/2/1A.
27. Circular HM(54)18.
28. "Replies received in Response to Circular MH(54)18 on Cancer Registration", DHSS 94200/2/1A.
29. Donnan, op. cit., p.161.
30. A. Rendle Short to E. Rock Carling, 16 June 1952, DHSS 94200/2/1A.
31. "Scheme for Cancer Education" Conference, 20 February 1952, and related papers, DHSS 94200/2/2A.
32. "Summary of Replies from Local Health Authorities to Circular 18/53", DHSS 94200/2/1A.
33. For fuller discussion, see C. Webster, "Tobacco Smoking Addiction: A Challenge to the National Health Service", in British Journal of Addiction, Centenary Edition (forthcoming).

