OHE briefing
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TRENDS IN EUROPEAN HEALTH SPENDING

In Europe, as in other developed countries, health expenditures have recently been rising proportionately faster than national wealth. Between 1960 and 1978 the percentage of gross national product spent on health care in the European Community rose from about 4.1 per cent to 7.3 per cent. Figure 1 shows that in each of the major European countries the proportion spent on health rose substantially in this period. If the present rate of growth were to continue an obviously unacceptable situation would be created. However the sharp increases of the past 20 years need to be seen as part of a more complex pattern. Figure 2 shows these 20 years as part of a longer historical trend with a more realistic prediction for the future. It is generally estimated that health care in Europe absorbed only about one per cent of national wealth at the end of the last century. Taking that as a starting point, the steep rise of the last two decades becomes a part of the exponential growth sector of a sigmoid curve. Even if health care expenditure does not actually decline as a proportion of national wealth in the future it will certainly cease to rise. Quite possibly, however, health care expenditure in Europe will follow the classical pattern of growth and decline which characterises so many social institutions. In this case it will eventually absorb a smaller proportion of national wealth than at present.

There are four good reasons to suppose that the levelling off in the growth of health expenditure is a sound prediction. First, all governments are now worried about the apparently uncontrolled rise in health service spending. Serious attempts are being made to cut back or curtail public expenditure on medical services. Second, in more general terms, spending on health is coming in for increasing criticism as being wasteful, misdirected and to some extent unneccessary. Illich from North America strongly challenged the doctors' role in improving the quality of life in 'The Medical Nemesis' in 1975. In addition, two eminent British doctors – Professors Archie Cochrane (1972) and Tom McKeown (1976) – have themselves commented on the relative ineffectiveness of their own profession. And the influential BBC Reith lectures, given by the lawyer Ian Kennedy in 1980, expounded on the inappropriateness of much medical care.

Figure 1 *Health care expenditures as a percentage of gross domestic product: various European countries 1960-1978.*

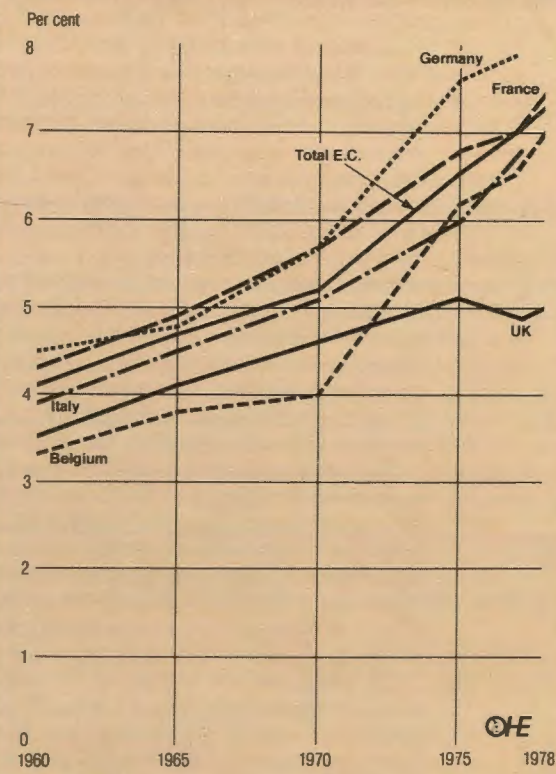
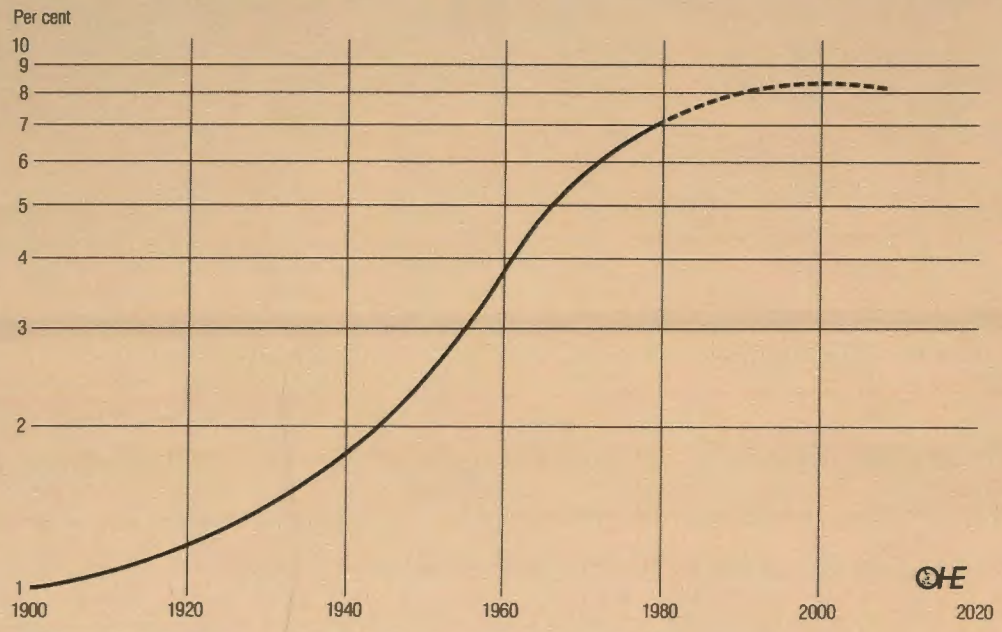


Figure 2 *Percentage of gross national product devoted to health, Europe 1900-1980, projected to 2000.*



Third, this general scepticism is reinforced by the fact that Europe seems to have reached the end of an age of optimism during which it was mistakenly believed that the WHO definition of health – a state of complete physical, mental and social wellbeing – was an attainable goal. It is now recognised that, particularly as people get older, suffering disability and feeling unwell are normal, natural and inevitable states for mankind. No one can expect to achieve perfect health any more than they can achieve perfection in other fields. Furthermore it is realised that it is pointless to strive endlessly towards immortality. Thus, the justification for some newer forms of expenditure on medical care is starting to be strongly challenged. This is so in such cases as heart transplants generally and renal dialysis for the very elderly. In the latter context it is ironic that the United States Federal Law nevertheless requires renal dialysis to be routinely provided whenever feasible, regardless of the age or physical state of the 'victim' of the procedure.

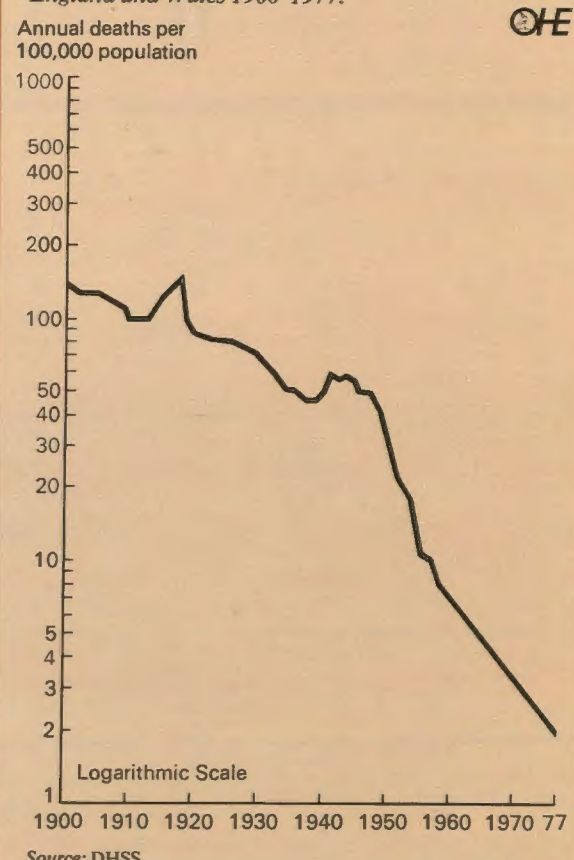
Finally, the need for much traditional medical expenditure has been reduced by medical progress, for example by the virtual elimination of many of the infectious diseases. In other cases, such as mental illness, expensive hospital care has been replaced by relatively inexpensive medication, while some surgery for gallstones and ulcers is being replaced by less costly chemotherapy.

The first three factors – anxiety about levels of expenditure, scepticism of the value of medical care, and the acceptance of mental and physical impairment as an inevitable concomitant of ageing – will have a general macro effect in flattening out the growth curve for health expenditure. The fourth factor – the conquest of individual diseases – has a more specific effect operating at a micro level within the overall pattern of expenditure.

This effect operates as follows. To build up the total picture of health expenditure one has to take individual examples of declining expenditure and set them against the expansion of new fields of medical activity. When one does this, it is clear that the overall curve which has been postulated for expenditure on health care as a whole (Figure 2) is far from being a homogeneous phenomenon. It is the cumulative resultant of many individual curves for particular diseases.

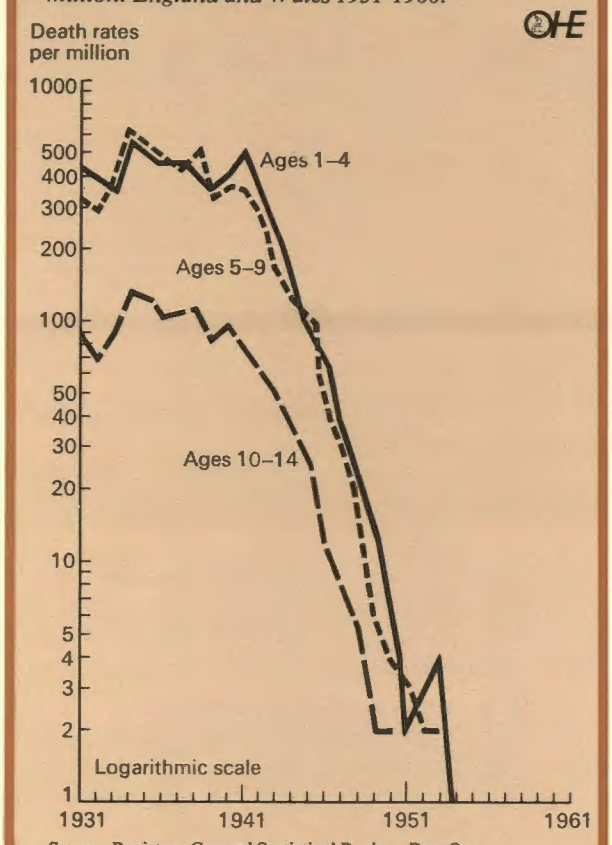
Illustrating this effect with specific examples from Britain, Figures 3 and 4 show a rapid decline in tuberculosis and in diphtheria due to the introduction of the anti-tubercular

Figure 3 *Mortality rate from tuberculosis. England and Wales 1900-1977.*



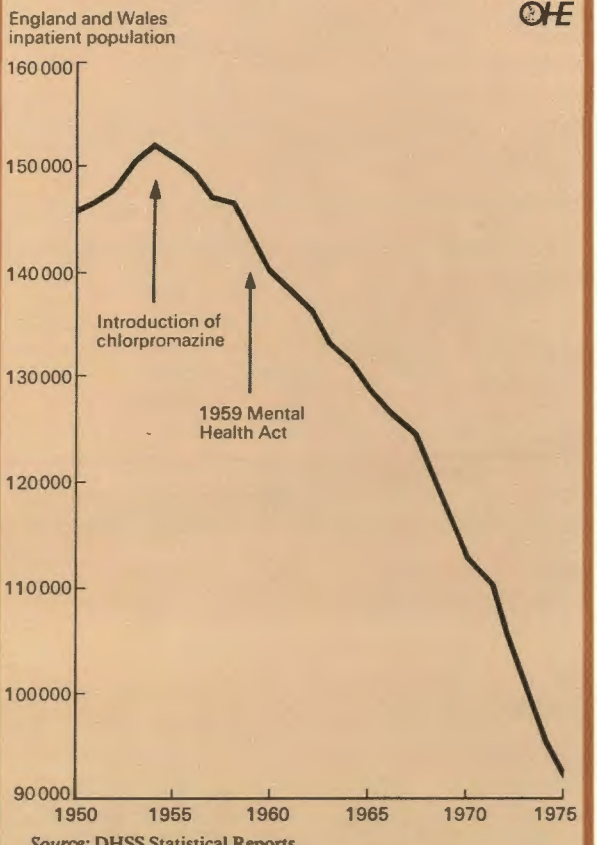
Source: DHSS.

Figure 4 *Diphtheria. Child death rates per million. England and Wales 1931-1960.*



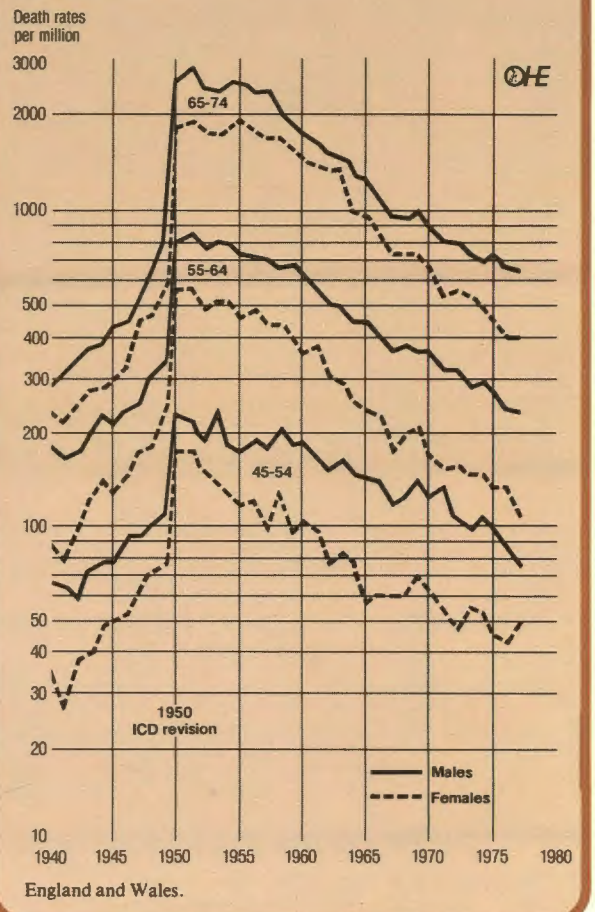
Source: Registrar General Statistical Review, Part One.

Figure 5 *Mental illness hospitals and units. England and Wales inpatient population 1950-1975.*



Source: DHSS Statistical Reports.

Figure 6 *Hypertensive diseases, including hypertensive heart disease (pre 1950 essential hypertension).*



England and Wales.

drugs and diphtheria vaccination in the 1940s. These illustrate the later sharply declining segments of much longer individual disease curves, whose growth phase dates back to the industrial revolution. Similar curves can be drawn for cost of the other infectious diseases. Next, Figure 5 shows how the increasing number of hospital beds occupied by psychiatric patients was reversed following the introduction of chlorpromazine in 1954. Figure 6 is an even more excellent illustration of the pattern of first growth and then decline, in this case in the mortality attributed to hypertensive disease. The sharp increase up to 1950 was due to the growing fashion of diagnosing hypertension as a cause of death, and the subsequent decline was due to advances in pharmacology. Although the fall in mortality does not automatically bring a reduction in cost, it is probable that effective control of hypertension will eventually reduce expenditure on it. Finally Figure 7 shows that hospital discharges for appendicitis in Britain have been almost halved since 1960. This previously increasing disease is now declining, perhaps partly due to fashions in diagnosis and partly due to antibiotics.

Figure 7 *Hospital discharges and deaths for appendicitis, England and Wales, 1955-77.*

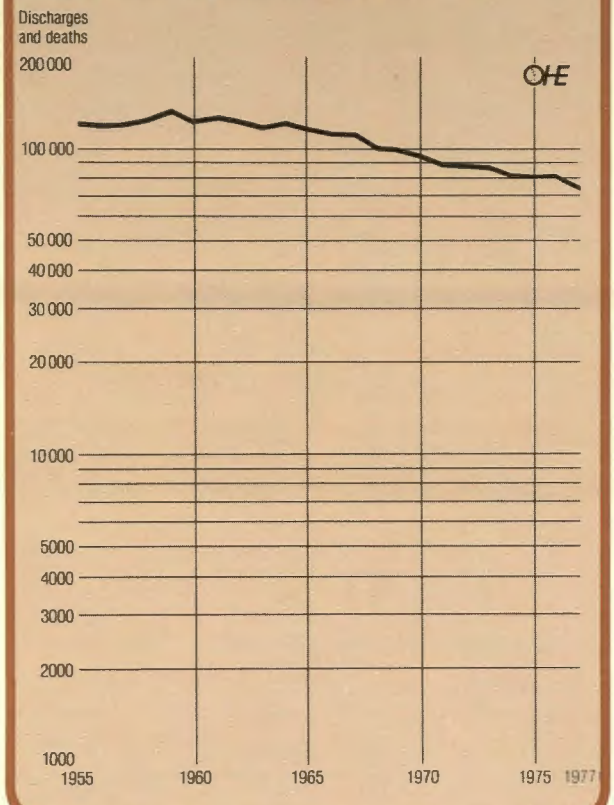
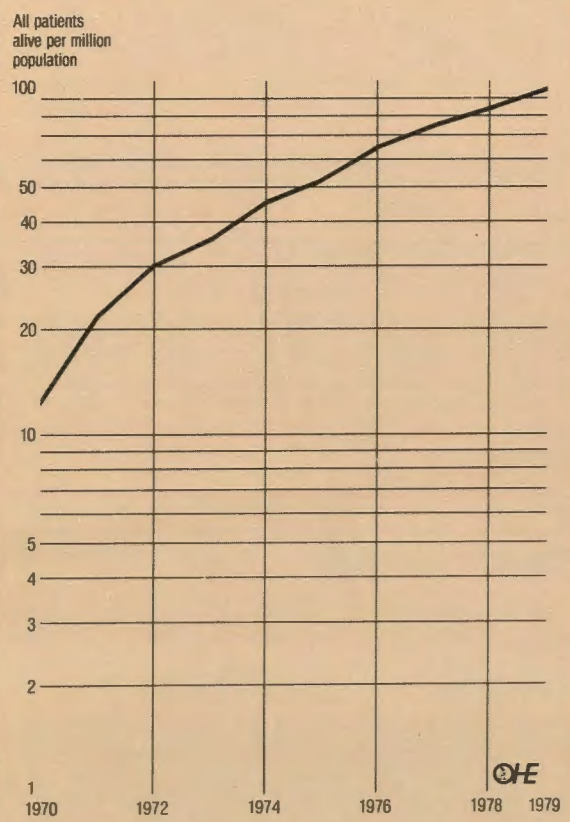


Figure 8 *End stage renal failure: patients with transplant or on dialysis per million population, Europe 1970-79.*



Source: 1976-79 combined report on regular dialysis and transplantation in Europe 1979 e.d.t.a. 1979 1970-75 e.d.t.a. analysis with particular reference to the UK e.d.t.a. 1978.

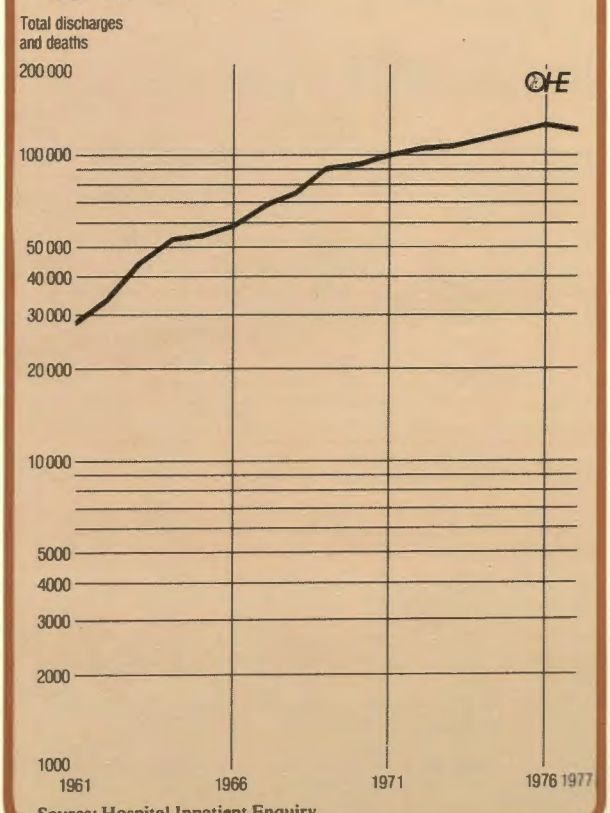
Turning next to those medical care activities which have been continuing to increase in the 1970s, high technology medicine and surgery are obvious examples. Figure 8 shows the increase in renal dialysis and transplantation in Europe. However this graph must shortly flatten out when all suitable cases are being treated, and it may start to fall as the quality of life for those on dialysis is more critically assessed. Figure 9 illustrates a classic case of recent growth in what can be described as a 'social disease' (OHE 1981). It shows admissions to hospital in Britain for deliberate self-poisoning or 'parasuicides' as they are sometimes called. Again there is an indication that in the last two years the peak has been reached and a decline is starting to set in.

Finally, to conclude this list of examples, there are the genetic, autoimmune or slow virus diseases. The aetiology of these diseases is beginning to be understood and they tend now to be more often diagnosed. However there is a good prospect that they too will eventually show a decline due to progress in preventive medicine.

Summarising all this in crude terms, Figure 10 shows the way in which individual growth and decay curves for groups of diseases have contributed to the overall evolution of health care spending. The individual curves are obviously not to scale, but they illustrate the principle. The overall growth curve for health expenditure can be seen as an envelope curve within which there has been a dramatically changing pattern of morbidity in the community. These changes have made many of the traditional ideas about the organisation of health care obsolete for the 1980s. The structure of our health services needs to adapt if it is to take account of these changes and at the same time to recognise that health expenditure probably will not continue to increase in real terms in the next decade.

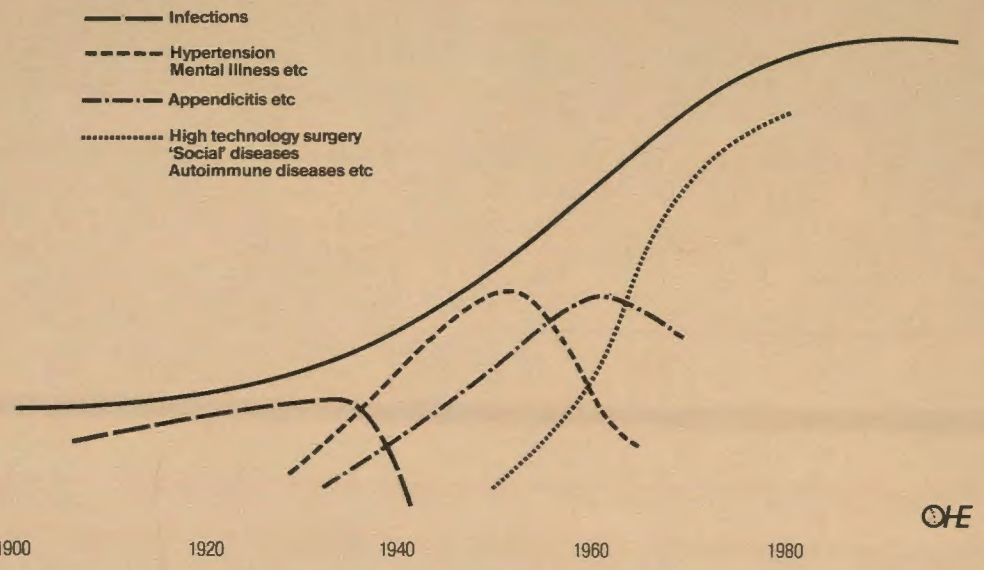
One last factor which is likely to affect health expenditures in the future is the development of preventive medicine in the broadest sense. For example, dietary changes may reduce the incidence of cardiovascular

Figure 9 *Estimated total discharges and deaths for the adverse effects of medicinal agents and chiefly non-medicinal substances, England and Wales 1961-77.*



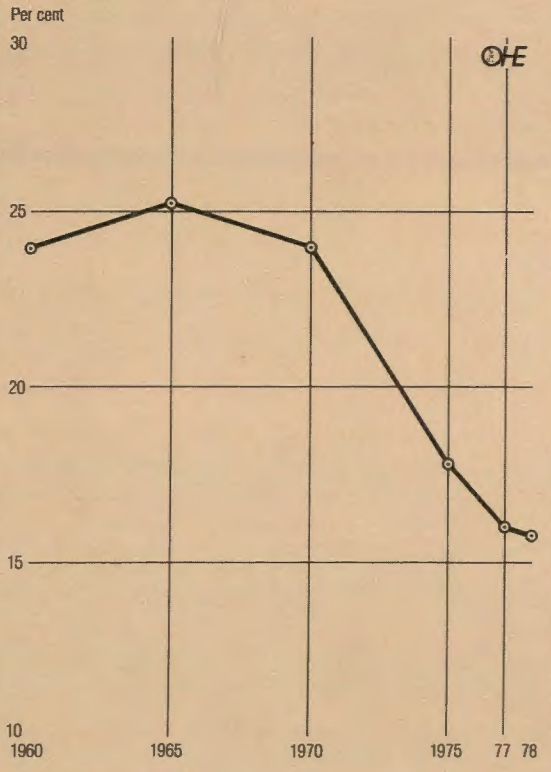
Source: Hospital Inpatient Enquiry.

Figure 10 *Health expenditure as an 'envelope' curve.*



Source: OHE.

Figure 11 *Expenditure on pharmaceuticals as a percentage of total health expenditure, European Community, 1960-78.*



Source: OHE.

disease. Equally fundamentally, it is now often suggested that most cancers are environmentally caused. A further reduction in cigarette smoking would have an obvious effect. Once again, a dietary change to reduce potential carcinogens in processed foods and to increase the fibre content of meals and snacks might reduce cancers of the stomach and colon. In general, it is likely that more healthy life styles in the 1980s and 1990s should help to reduce the incidence and cost of disease.

Against this background of an overall changing pattern in health service expenditure, and a possible overall decline in terms of a proportion of national wealth, it is interesting to look specifically at the pharmaceutical sector. Figure 11 shows that in Europe since 1965 pharmaceutical expenditure has been declining as a proportion of total health expenditure. This decline probably marks the end of the era characterised by what can be called the 'first therapeutic revolution'. This was based on developments dating back to Pasteur's germ theory and to Ehrlich's dream of a "magic bullet" to tackle invading bacteria without damaging the healthy human host tissues. It stemmed also from an early understanding of biochemistry following the work of Barger and Dale in the Wellcome Laboratories in the 1900s. This work led to methods of controlling the activity of the autonomic nervous system and eventually to the discovery of pharmacological methods of correcting other biochemical abnormalities in the tissues. Much of pharmacology over the past 30 years has therefore been concerned with the chemistry of body tissues and with dealing with cell-sized infective organisms of the sort which Pasteur observed and Ehrlich dreamt of tackling. The pharmaceutical compounds developed at this stage of the conquest of disease are now emerging from patent and becoming available as cheap generic medicines. The high costs of this phase of innovation have largely been paid for.

However in the same way as the germ theory and early biochemical discoveries led to the first therapeutic revolution, the more recent discoveries in molecular biology and genetics, such as those of Watson and Crick, are likely to lead on to a second revolution. Whilst developments in the past have largely been concerned with tissue chemistry, the new developments of the future will be concerned with intracellular chemistry. These problems are of an order of magnitude more difficult to solve, but already there are many indications that molecular biology,

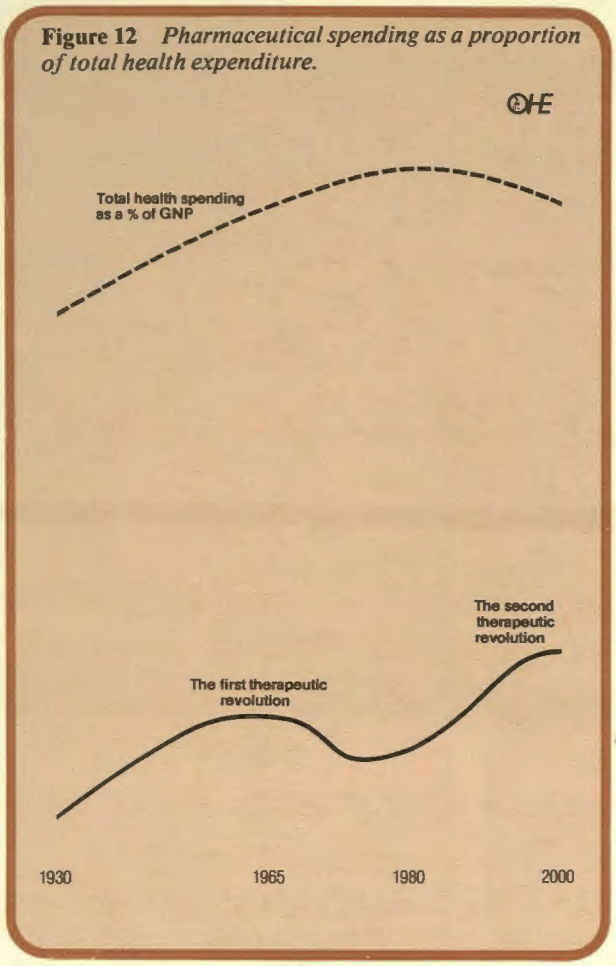


Figure 12 *Pharmaceutical spending as a proportion of total health expenditure.*

genetic engineering and immunology will lead on to a new era in the understanding and the discovery of medicines for the control of virus diseases, the cancers and the autoimmune diseases. These last probably include diseases such as early onset diabetes, rheumatoid arthritis and rarer conditions like multiple sclerosis and coeliac disease.

The economic importance of these developments will be enormous. While health spending as a whole may decline as a proportion of national wealth, it is likely that pharmaceutical spending will start once again to increase both as a proportion of total health expenditure and as a percentage of gross national product. Just as health service expenditure has probably reached an apogee, pharmaceutical expenditure has probably reached its perigee.
The downward curve is likely to reverse and once again to climb upwards. Figure 12 shows how the pattern could develop.

Against this background, Europe faces an important economic question. It has an option of a cheap drug policy to keep health service costs low, and so to escape the second 'hump' in pharmaceutical expenditure. However, if it does this it will at the same time drive out its innovative pharmaceutical industry. The alternative is to pay the price of the new wave of innovation and to accept an increase in pharmaceutical spending as a proportion of total health service costs. This means supporting a research-based pharmaceutical industry through paying relatively higher prices for the medicines for its health services to finance the industry's continuing research programme.
European governments should choose the option of continuing to attract and foster pharmaceutical research and production. It must be recognised that rising investment and expenditure on pharmaceuticals represents a sound policy for the containment of total health service costs, as Figure 12 implies.

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