

Some Failures of Modern Medicine

The Milroy Lecture 1976

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A century ago Dr Milroy listed the following as 'cachetic diseases': scrofula, tuberculosis, rickets, leprosy, framboesia, pellagra, goitre and cretinism, elephantiasis, and dirt eating among negroes in the West Indies. He expressed the opinion that: 'the genesis or origination of the malady will probably be found to be largely due to the neglect of those natural laws of healthy existence with the consideration of which the Science of Public Hygiene proposes to deal', and his forecast has largely proved correct, for most of the conditions listed have been brought under control by the improvement of living conditions.

I believe that some of our failures in medicine today are due to attaching too little weight to 'those natural laws of healthy existence'.

The World Health Organisation (1958) defined health as 'a state of complete physical, mental and social well being'. Judged by this definition, the failures of medicine are almost 100 per cent. I prefer the definition of health given by Pavlov (1928) as 'equilibrium with surrounding nature'. It is a dynamic concept in which the environmental forces that surround us, whether physical or human, constitute an integral factor in the formula of health to be kept in balance as long as possible with man's internal characteristics, both acquired and genetic.

I would like to define the terms used in my title. By medicine I mean the sum total of the work done by doctors in the U.K., and by modern I mean my own professional life time, i.e. the last 40 years. Failure is more difficult to define. If mortality or morbidity rates before old age are not falling, if preventable diseases are not prevented, if certain important categories of patients are, relatively speaking, neglected and if our emphasis in medical education and research does not adequately reflect the health needs of the nation, then I think we must admit to some degree of failure. Table 1 lists the areas in medicine where we have not been so successful as we might have been.

It may be unfair to attribute some of these failures to medicine alone. The increasing amount of absence from work due to medically certified sickness may be due to social reasons, and the relative neglect of certain categories of handicapped or sick people may be blamed, at least to some extent, on the attitude of governments or indeed the public at large.

Table 1. Some failures of modern medicine

| | |
|---|---|
| Trends in mortality and sickness rates | Little or no improvement in the expectation of life in men over 40 in the last 30 years. Infant mortality rate lagging behind some other advanced countries. Increasing sickness absence from work. |
| Treatment | Insufficient scientific evaluation of treatment and management in the health service. Excessive prescription of drugs, adverse reactions and iatrogenic disease. |
| Medical education | Concentration on selected cases of advanced, rare or fatal disease. Too little on social, psychological, environmental and preventive aspects. |
| Insufficient resources for certain groups | The mentally ill and retarded, the elderly chronic sick and the incurable and dying. |
| Medical research | Too much emphasis on the phenomena of disease at molecular, cellular and organ level; too little at the level of man in his environment. |
| Education for health | Too little emphasis on health education and too few resources devoted to it. |

EXPECTATION OF LIFE AND MORTALITY RATES

Since 1943, the expectation of life at birth has increased from 62 to 69 years in males and from 67 to 75 in females. It has also increased significantly in childhood and early adult life. But for males aged 45 and over it has remained stationary at 27 years although for females it has increased from 30 to 33 years.

Figure 1 shows the mortality rates from all causes for males and females at different ages (excluding infants under one year) in the period 1941-1970. Again, it shows practically no improvements for men over 45 and, indeed, a slightly rising rate for men aged 65 to 74. Over the same period the mortality rates of older women have been lower and have been declining steadily.

The lack of improvement in the death rates of middle-aged and older men is due mainly to two diseases: ischaemic heart disease and cancer of the lung.

Figure 1 also shows that, with the exception of older women, the decline in mortality in every age and sex group has flattened out over the last 15 years. This suggests that we have come to the end of an era of successful prevention and treatment and that further improvements depend on some new breakthrough. It

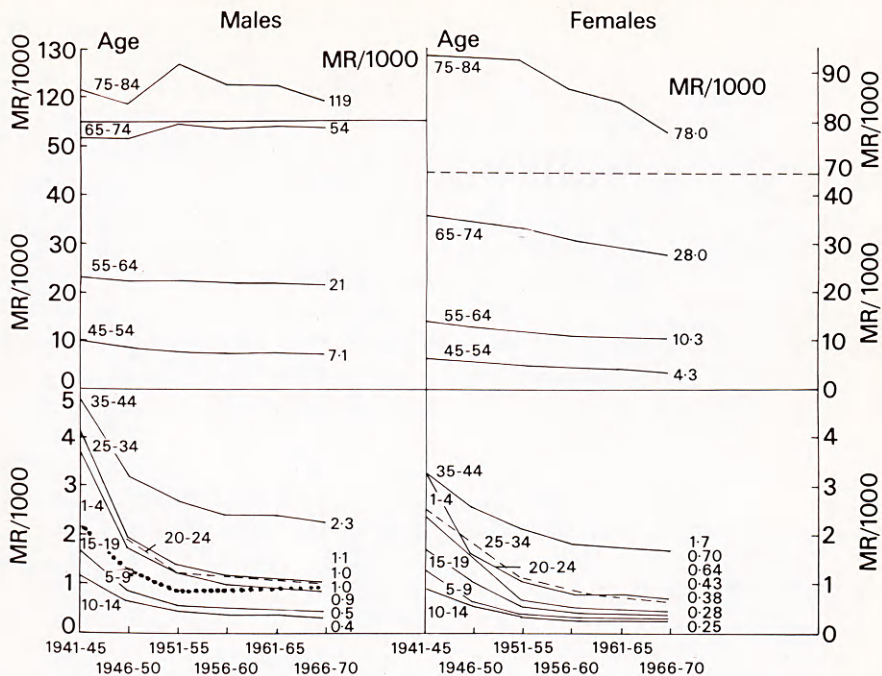


Fig. 1. Age and sex specific mortality rates, all causes, England and Wales 1941-70.

must be remembered, however, that mortality rates between 1 and 44 years of age have now reached very low levels (from 0.25 to 2.3 per 1,000 per annum) and so the possibilities of further improvement are limited.

The infant mortality rate is often regarded as the best single index of the health and social well-being of a country. However, in spite of the great fall in infant mortality in the U.K. over the last century, there are 10 countries today with lower rates than ours. It is remarkable that the rate in Japan, which as recently as 1950 was almost twice as high as ours, is now lower, and that the Scandinavian countries and Holland have achieved considerably lower rates than we have for many years.

Table 2 shows the three chief causes of death in each sex at various ages. For infants under one year the chief cause of death is congenital abnormalities, a problem still largely unsolved. The second cause is anoxic conditions and these deaths have shown a tendency to increase slightly in recent years.

It is a striking fact that from ages 1 to 44 in males and 1 to 24 in females, violence is the most important cause of death. Most of these deaths are due to road accidents, and the rates are increasing at ages 15 to 44. The death rates would indeed be far higher if it were not for the advances in surgery and intensive

Table 2. The three chief causes of death at various ages. Mortality rate per 100,000. England and Wales 1973.

| | | Age (years) | | | | | | | |
|---------|-------------------------------|-----------------------|---|--|--|---|---|---|------|
| | | Under 1 year | 1 - 4 | 5 - 14 | 15 - 24 | 25 - 44 | 45 - 64 | 65 - 74 | 75 + |
| Males | Congenital 3.8 = | All violence 22 - | All violence 16 - (Road accidents) (9 -) | All violence 63 + (Road accidents) (39 +) | All violence 46 + (Road accidents) (17 +) | I.H.D. 493 + | I.H.D. 1,650 + | I.H.D. 3,516 + | |
| | Anoxic Conditions 3.5 + | Resp. disease 15 = | Cancer 7 = | Cancer 9 = | Cancer 31 - | Cancer 378 - (Cancer Lung) (172 -) | Cancer 1,326 + (Cancer Lung) (590 +) | Resp. disease 2,880 + | |
| | ** Immaturity 1.6 - | Cancer 8.5 - | Resp. disease 2.5 - | Resp. disease 5 = | Resp. disease 8 - | Resp. disease 130 - | Resp. disease 774 - | Cancer 2,134 + (Cancer Lung) (651 +) | |
| Females | | All violence 14 - | All violence 7 = (Road accidents) (5 =) | All violence 18 + (Road accidents) (11 +) | Cancer 39 - | Cancer 295 = (Ca. Breast) 79 + | I.H.D. 708 + | I.H.D. 2,377 + | |
| | Combined with males | Resp. disease 12 = | Cancer 5 = | Cancer 7 = | All violence 17 + (Road accidents) (5 +) | I.H.D. 126 + | Cancer 649 + (Ca. Breast) (122 +) | Resp. disease 1,584 + | |
| | | Cancer 6 - | Resp. disease 2 - | Resp. disease 4 = | Cerebro-vasc. 7 - Resp. disease 7 - | Cerebro-vasc. 71 - | Resp. disease 274 - | Cancer 1,114 (Ca. Breast) (170 +) | |

The trend over previous 5 years is shown by: +, increasing; -, decreasing; =, no trend. * deaths per 1,000 live births. ** 1972.

care that now save the lives of many victims of road accidents who in the past would inevitably have died.

Cancer casts a black shadow on all age groups in both sexes. Cancer of the lung in males and cancer of the breast in females are the biggest problems. The former rate is increasing over the age of 65 and the latter over 45.

Ischaemic heart disease is the chief cause of death in males over age 45 and in females over age 65, and the rates are increasing.

Respiratory disease, mainly bronchitis and pneumonia, appears among the first three causes of death in all but one group (females 45 to 64).

Our failure to prevent many types of cancer, and the disappointing results of treatment, and the relatively small impact we have made on the problems of ischaemic heart disease and chronic respiratory disease are among the most serious unanswered challenges to medicine in the U.K. at the present time.

ILLNESS

The reduction in notifications and deaths from most infectious diseases over the last 40 years, in large measure due to successful inoculation campaigns, has been spectacular.

An exception is in the field of sexually transmitted disease, particularly gonorrhoea. The failure here has been mainly due to not succeeding in tracing and treating a large enough proportion of the primary contacts of patients.

The increase in the average time lost by men from work each year due to certified sickness from 10 days in the 1930s to 16 days today suggests that men of working age are less healthy today. There are, however, other possible explanations for this. The work force may be on average older today or people may have a lower tolerance for minor illness. An examination of the diseases that

Table 3. Most common causes of absence from work (days of incapacity per 1,000 men p.a. All ages. Ten top causes. Great Britain. Year ending 2.6.62)

| Disease | Men | |
|--|------|------|
| | Rank | Days |
| Bronchitis | 1 | 1235 |
| Influenza | 2 | 723 |
| Arthritis and Rheumatism | 3 | 567 |
| Acute Up. Resp. Infection | 4 | 517 |
| Arterio-sclerotic Heart Disease | 5 | 358 |
| Psychoses and Psychoneuroses | 6 | 347 |
| Diseases of the stomach excluding cancer and GU and DU | 7 | 339 |
| GU and DU | 8 | 226 |
| Skin conditions (infection, eczema and dermatitis) | 9 | 205 |
| Sciatica or disc displaced | 10 | 192 |

cause most sickness incapacity in men (Table 3) indicates that these are conditions for which prevention has not, so far, proved possible and for which treatment is often unsatisfactory.

Bronchitis, which heads the list, accounts for 37 million days of absence from work annually and is on average responsible for more than four times the total time lost from industrial disputes. In spite of the use of a variety of antibiotics, its position as the leading cause of sickness absence as well as its high death rate in males has varied little over the last 30 years. The failure to prevent or cure chronic bronchitis or avert the development of its most disabling complications, emphysema and right heart failure, is a depressing story. The same might be said about many of the conditions listed in Table 3.

TREATMENT

The history of medicine is littered with the records of useless and sometimes harmful treatments, and the situation has been greatly complicated in recent years. The great success of the sulphonamides and antibiotics has stimulated the growth of a very big pharmaceutical industry, a rapid multiplication of potent drugs and the creation of a belief among doctors that there is, or will be discovered, a drug for every disease. The public has even greater faith that this is so, and the cataract of medicine that Aneurin Bevan forecast would flow down British throats has become an ocean.

Every time a patient consults his doctor it now costs on average £3.36, of which £2 goes on drugs and £1.36 to the doctor (Office of Health Economics, 1976).

Theoretically, no useless or inferior form of treatment would ever be generally introduced if randomised controlled trials (RCTs) were carried out on every new drug, operation or other form of treatment. The technique of such trials and their value were established a long time ago; for example, by the RCT of streptomycin in tuberculosis carried out by the Medical Research Council (1948). In spite of this and many valuable RCTs, and the persuasive arguments of Cochrane (1972), new treatments that have not been properly tested in this way are still recommended in reputable medical journals.

There can be little doubt that, encouraged by the resourceful and persuasive pharmaceutical industry, a large amount of unnecessary drugs is prescribed at the present time. The evidence for this is that doctors in similar areas vary widely in the amounts and cost of their prescriptions, and that the cost per patient of prescribing in some parts of the U.K. may be more than twice as high as in other parts (Government of Northern Ireland, 1969); unnecessarily large amounts of drugs are often prescribed and drugs are prescribed for self-limiting minor illnesses to satisfy patients' expectations.

IATROGENIC DISEASE AND ADVERSE REACTIONS TO DRUGS

Seidl *et al.* (1966) found that 5 per cent of patients admitted to a medical ward at the Johns Hopkins Hospital were suffering from drug reactions, and Hurwitz and Wade (1969) found that 10.2 per cent of all patients admitted to a general hospital in Belfast suffered from adverse reactions to drugs given to them while in hospital.

The Committee on Safety of Drugs, which was set up in 1964, and later the Committee on Safety of Medicines have brought the chaotic situation, created by the rapid introduction of a variety of potent and not always sufficiently tested drugs, under some sort of control but dangerous adverse effects from drugs in general use continue to be reported. The recent notice on ocular damage, including loss of vision, resulting from the use of practolol is an example (Committee on Safety of Medicines, 1975). There is no easy solution to this problem. It may be that we will have to accept the fact that if a drug has a desirable and potent effect on one part of the body it is quite likely to have other but undesirable effects that in some cases may cause permanent disability or even death. A dangerous drug may be justifiable for treating a deadly disease but unjustifiable for treating non-fatal conditions. The profession itself has greatly reduced the prescribing of amphetamines and is now seeking to curb the prescription of barbiturates.

MEDICAL EDUCATION AND THE NEGLECT OF SOME IMPORTANT PROBLEMS

I suppose that most doctors of my generation experienced feelings of alarm and confusion when they started on their first locum in general practice, especially if it was a single-handed practice. We tried desperately to fit the patients' illnesses into the pattern of disease we had been taught in our teaching hospital, but found that many of them did not fit at all.

Hodgkin (1963) documented the difference between patients seen in a teaching hospital and in general practice very clearly. This deficiency in medical education has been recognised by most medical schools, and many have created chairs of general practice, so that most students now have an opportunity of studying medicine in the raw in addition to the highly selected hospital clinical cases that were the sole training material for the older generation. University departments of social medicine and epidemiology have also given medical students a sense of proportion about disease by introducing them to methods of measuring the incidence of disease and accidents and their distribution in the community.

It is difficult to understand why medical education came to be so largely circumscribed by the advanced, acute or unusual type of case whose admission is favoured by the teaching hospital. Pathologists like Virchow and the morbid anatomists of the nineteenth century were partly responsible. They helped to

create clear-cut disease entities, derived from the study of fatal illness in hospital, which could be linked to a specific set of clinical symptoms and signs. The profession almost came to believe that a patient without demonstrable pathology could not be ill. The insistence on pathology as the basic concept in disease leads to a curious form of teleological thinking in which the pathology of a disease is equated with its cause, e.g. 'atherosclerosis of the coronary artery is the cause of myocardial infarction'. The great light that the study of morbid anatomy, histology, microbiology, and biochemistry have thrown on many disease processes has had the unfortunate effect of causing some doctors to underrate or ignore conditions in which no such changes can be demonstrated, such as insomnia, backache, dyspepsia, anxiety states and depressions, family and social problems, self-poisoning, mental illness, mental handicap and addictions. General Practitioners tell us that a large proportion of their patients fall into these categories and that a knowledge of pathology is of little use in their diagnosis and treatment.

Recent advances in diagnostic techniques and electronic monitoring have greatly stimulated interest in the phenomena of disease, sometimes at the expense of interest in the patient as a person and a member of a family and social group.

The problem-orientated record advocated by Weed is an interesting attempt to bring the patient's problem as well as his pathology into the foreground.

The concentration of medical education on the limited variety of cases seen in the teaching hospitals has also meant that certain subjects have not received the emphasis in undergraduate teaching that their importance in the community merits. These include the care of the elderly and the chronic sick, the mentally ill and handicapped, and preventive medicine. The lack of importance given to these subjects in the teaching hospital in the past is probably the reason why the profession as a whole is not very interested in them even today and why it is difficult to recruit young doctors to these specialties.

RESEARCH

There has been a great increase in the quantity of medical research carried out in the last quarter of a century. Most of it has been concerned with the phenomena of disease within the sick individual. I believe that more progress would have been made in the control and prevention of disease if more research effort had gone into the investigation of disease in its social setting. Research into disease can be approached at five levels of complexity, as in Table 4.

The reason why most research has been concentrated at levels 1 to 4 is probably because the work of the great majority of doctors has always been concerned with the individual patient. The effort to discover more and more about disease in the sick individual has naturally moved in the direction of exploring deeper and deeper into the patient. This was carried out literally by the morbid anatomists. Then the microscope and the ultramicroscope enabled the

Table 4. Levels of complexity in research into disease.

| | |
|---------------------------|---|
| 1. The molecular level | Abnormalities in the blood serum, etc. |
| 2. The cellular level | Degeneration, infection, neoplasia, etc. |
| 3. The organ level | Morbid anatomy. Abnormal function. Action of drugs, etc. |
| 4. The clinical | Symptoms and signs. 'New' syndromes, etc. |
| 5. Man in his environment | Illness in the setting of family, working environment, social class, etc. |

pathologists, the microbiologists and geneticists to penetrate to our cells and their contents and the biochemists got down to our very molecules. Animals have been used for the same type of research by causing them to have diseases similar to those experienced by man. The results have been applied, by analogy, with greater or lesser success, to man himself.

If it is accepted that most diseases are the result of a disturbance of the 'equilibrium between man and surrounding nature' it follows that research that includes the environmental component is more likely to be successful in uncovering the aetiology of a disease and in devising methods of control than research directed to man alone or the environment alone.

A classical example of the success of this approach was Snow's appreciation that the cholera outbreak in London in 1854 was due to a phenomenon outside the affected individuals, namely a common infected water supply. In this way the 'cause' of this particular epidemic was discovered and future epidemics ultimately eliminated by improving the water supply of London years before the so called 'real cause', i.e. the cholera vibrio, was discovered. But what is meant by 'real cause' when disease is under discussion? In this case an infected water supply was equally the 'real cause' and more effectively dealt with.

If Snow had confined his observations on cholera to the clinical phenomena of the disease he might have discovered that fluid and salt replacement constitute good treatment for cholera but he would never have discovered how to prevent it.

Table 5 lists some important conditions that have been brought under control or favourably influenced by action at level 5 (Table 4). In most of these instances the action was based on careful observations, research, and recommendations emanating from the medical or dental professions and the resulting improvements in the health of the population have been remarkable.

The importance of the community approach to many of our disease problems is underlined by the marked social class gradients in mortality that still exist for a number of important diseases (Registrar General, 1971). Where they exist, the gradients are nearly always unfavourable to the lower socio-economic groups, and for some diseases, for example bronchitis, rheumatic heart disease, cancer of the

Table 5. Some conditions brought under control or favourably influenced by action at community level

| Disease or accident | Community action | Result |
|----------------------|--|----------------------------|
| Cholera | Pure water | Eliminated |
| Typhoid | Pure water, Clean food | Nearly eliminated |
| Goitre and cretinism | Iodisation of table salt (Switzerland) | Nearly eliminated |
| Rickets | Addition of vit D to margarine etc. | Nearly eliminated |
| Smallpox | | |
| Diphtheria | Mass inoculation | Nearly eliminated |
| Poliomyelitis | | |
| Dental caries | Fluoridation (e.g. Birmingham) | Much reduced where applied |
| Industrial cancers | Modification of or stopping the industrial process | Nearly eliminated |
| Road accidents | Breathalyser legislation (GB) | Deaths reduced by 12% |

cervix and tuberculosis, the gap between Social Classes I and V has widened over the years. These gradients strongly suggest that there are important environmental conditions responsible for the higher death rates in Social Classes IV and V which are amenable to preventive action at the community level.

CANCER RESEARCH

In spite of the expenditure of large sums of money collected by the efforts of many cancer campaign workers, cancer research has been disappointing if judged by success in reducing the cancer problem. In recent years, most of this research has been at the biochemical or cellular level in man or in experimental animals. It has increased our understanding of the nature of cancer and led to some partially successful treatments but the overall death rate from cancer continues to rise.

Figure 2 shows the distribution by field of research of the 563 research projects supported by the Cancer Research Campaign in 1974. The great majority of the projects were concerned with cancer at the molecular or cellular level and only 3 per cent were classified as epidemiological. Doll (1967) stated that 'the sum of evidence points firmly to the conclusion that cancer as a whole is largely preventable'. Insofar as cancer has been brought under control, it is mainly through action based on epidemiological research, as in the case of the prevention of occupational cancers and cancer of the lung among doctors.

In spite of the success of the epidemiological and community approach in the control of some cancers, most cancer research continues at the biochemical and cellular levels. The results might be better if more of the weight of cancer research were shifted to epidemiological and environmental studies.

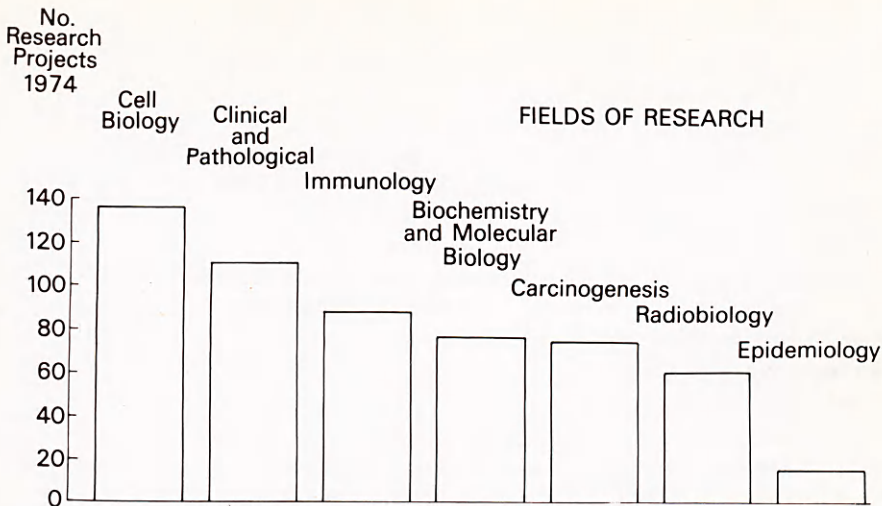


Fig. 2. 563 cancer research projects supported by the Cancer Research Campaign (1974).

Another huge problem where progress has been slow, perhaps partly because it has been tackled at the wrong level, is mental illness. The psychoanalysts were responsible for the first serious scientific approach to this problem. This was descriptive and analytical rather than experimental and has been followed by much research based mainly on studies of the phenomena of mental illness within individuals.

This has increased our understanding of the mental and emotional needs and disturbances of individuals but seems to have had little effect as far as prevention is concerned.

It would seem likely that more research directed to the family and social environment of the mentally ill and emotionally disturbed, and the modification of the human environment at these levels, difficult though it is, offers a better chance of treatment and prevention.

EDUCATION FOR HEALTH

In the last quarter of a century retrospective and prospective epidemiological surveys and, indeed, plain common sense have demonstrated that several of our modern plagues have their origins in unhealthy or unsafe forms of human behaviour. Some of the more important of these conditions are listed in Table 6. If these conditions are to be brought under control the public's knowledge of health needs to be increased, their attitudes affected and their behaviour changed. This appears to be the most promising line for preventive medicine in the decades ahead. The task may look daunting and even impossible to us now but I suspect

Table 6. Some important diseases due to, or partly due to, certain types of behaviour

| Disease or accident | Related behaviour |
|---|--|
| Cancer of the lung | Cigarette smoking |
| Ischaemic heart disease | Lack of vigorous physical activity Cigarette smoking Becoming overweight |
| Chronic bronchitis | Cigarette smoking |
| Road accidents | Driving under the influence of alcohol Aggressive or careless driving |
| Sexually transmitted disease | Promiscuity and prostitution |
| Self-poisoning | Impulsive reaction to adverse situation |
| Some perinatal deaths | Smoking in the antenatal period |
| Alcoholism | Excessive consumption of alcohol |
| Other addictions | e.g. Heroin, cocaine and L.S.D. |
| Cancer of colon and rectum, diverticulosis and diverticulitis | Due, or partly due, to eating an over-refined diet with too little fibre? |
| Obesity and its complications | Overeating |

Table 7. Percentage of smokers of manufactured cigarettes by sex and social class (From Todd (1975). Changes in smoking patterns in the U.K. Tobacco Research Council)

| Registrar General's social class | Men | | Women | |
|----------------------------------|------------------|------------------|------------------|------------------|
| | 1961 per cent | 1973 per cent | 1961 per cent | 1973 per cent |
| I Professional, etc. occupations | 53 | 39 | 46 | 26 |
| II Intermediate occupations | 59 | 42 | 44 | 42 |
| III Skilled occupations | 59 | 50 | 47 | 47 |
| IV Partly skilled occupations | 60 | 56 | 49 | 46 |
| V Unskilled occupations | 62 | 63 | 43 | 47 |
| All social classes | 59 | 50 | 43 | 44 |

that a hundred years and more ago the problems of infectious diseases looked just as daunting and even terrifying at times, yet now, with a few exceptions, they are of minor importance in the U.K.

Although individual General Practitioners and consultants often give health education in the course of their normal clinical work it is not a subject that has created much interest among the medical profession as a whole, an important exception being cigarette smoking.

The two reports published by the Royal College of Physicians (1962, 1971), together with newspaper articles, television programmes and medical advice, have

influenced many people to give up smoking. Table 7 shows that the percentage of male cigarette smokers in the U.K. has in fact fallen from 59 per cent to 50 per cent in the period 1961 to 1973. The fall has been considerably greater in the Registrar General's Social Classes I and II, while in Social Class V the percentage has risen slightly. In women, the overall picture is less satisfactory, although women in Social Class I also show a considerable reduction. These figures, and the decline in the mortality rate from lung cancer among doctors compared with all men and the decline in the death rate from lung cancer among all men under 65 after 1964, strongly suggest that health education with regard to cigarette smoking is having a considerable effect.

Health education does not yet seem to have penetrated undergraduate medical education or medical research to a significant extent, but the introduction of the behavioural sciences into the undergraduate course is a sign that this situation may be changing, and the Health Education Council, whose total government grant is only just over £1 million a year, has set aside a substantial proportion of its budget to stimulate research in this field.

CONCLUSION

The main criticism that can be made of modern medicine, as I see it, is that it has become too preoccupied with the phenomena of disease in the individual and pays too little attention to the phenomena of disease in the environmental setting and to the health needs of the nation as a whole.

This preoccupation has been stimulated by great technical advances in physics and chemistry which have allowed the development of complex diagnostic equipment and methods of treatment that are very costly and are largely confined to hospitals. The use of these necessitates a high degree of specialised training of doctors, nurses and technicians, which involves a still greater concentration on the phenomena of disease in patients or parts of patients.

The capacity of the pharmaceutical industry to manufacture a very large number of substances with potent physiological effects has still further focused the attention of doctors on the phenomena of disease, particularly those that can be modified by drugs. All of this is extremely costly and absorbs the greater part of our health service resources. The progress of preventive medicine has not been encouraged because the study of individual patients does not usually throw much light on the aetiology of a disease. To discover this it is necessary to study both the affected and unaffected to determine which characteristics possessed by the affected are not possessed, or are possessed to a lesser extent, by the unaffected. These characteristics may be, and often are, characteristics of the environment. This is, of course, the epidemiological approach.

The epidemiological methods of the retrospective case control study followed by the prospective study and, finally, the epidemiological experiment employed by Doll and Hill in the elucidation of the causal relationship between cigarette

smoking and lung cancer and backed up by appropriate animal and laboratory experiments proved very successful and could serve as a model for an almost unlimited number of future studies covering almost the whole range of human disease in the same way as the techniques of pathology and biochemistry have been used as a universal method of enquiry in medicine. However, these methods, especially the prospective epidemiological survey, are difficult, expensive and time-consuming.

Perhaps the time has come to undertake a large national random population sample of tens of thousands of individuals from whom as much medical and social data as possible would be collected. These data would have to be updated from time to time and would be related to subsequent illness and death. With our existing epidemiological techniques and the use of the computer, the mass of data generated could be analysed, and associations between personal and environmental factors and many diseases studied. The organisation required, a national institute perhaps, would be large and expensive but not extravagant when compared with the cost of building and running a new hospital. Its ultimate effect on the health of the nation might be immeasurably greater.

Health education offers the most promising method of prevention of many of our current problem diseases. Until now it has not been very successful mainly, I think, because most people are ignorant about the structure and function of their bodies and do not appreciate the nature of the risks to health of certain forms of behaviour. An increasing amount of health education is now given in the schools but perhaps the Royal Colleges and the medical schools could use their influence to increasing this substantially so that no child would leave school without a basic knowledge of human anatomy, physiology and preventive medicine.

The Director General of the World Health Organisation, Dr Mahler, (1975) recently argued strongly for the demystification of medicine so that people themselves can play a more significant part in their own health maintenance.

The arguments in favour of providing more resources for health education and the prevention of disease are overwhelming even if it were to involve diverting some resources from the treatment services.

Figure 3 illustrates how the financial resources of the Health Service are allocated at present and suggests that quite small shifts in the proportions allocated might do much to improve the health of the nation. It suggests a modest reduction in the proportions spent on the hospitals, a more drastic cut in expenditure on drugs (which at present costs us more than our family doctor service), a modest increase on general practice and public health and a substantial increase on health education. The proportion allocated to the personal social services, teeth, spectacles, central administration and 'other' items have been left constant.

The new proportions of expenditure suggested could be achieved by the reallocation of funds within the present budget or by increasing the funds for

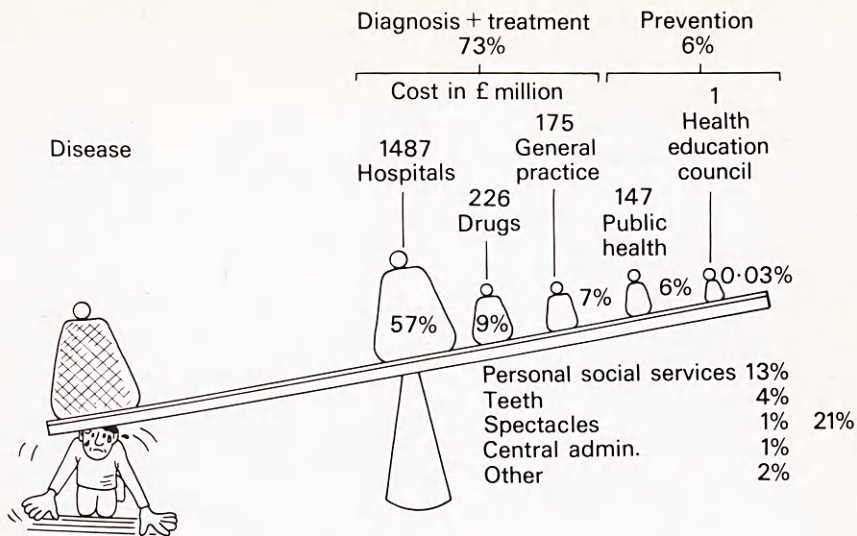


Fig. 3. Estimated expenditure on the N.H.S. England 1973/74. (Total £2992 million.)

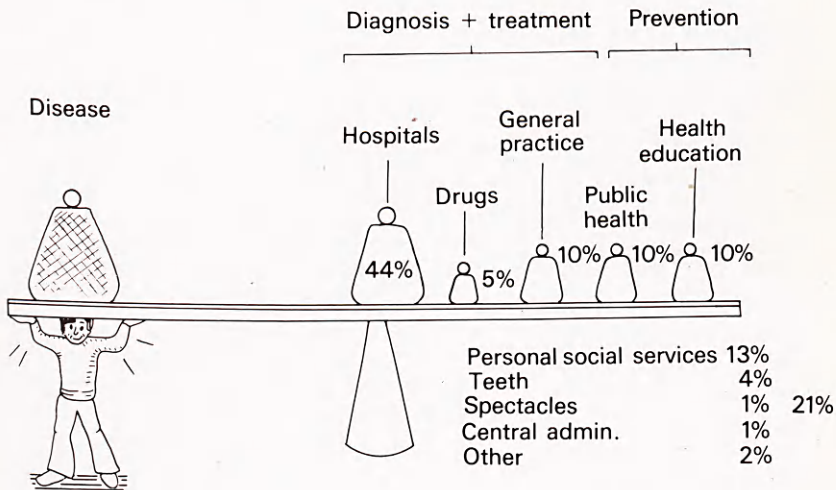


Fig. 4. A distribution of N.H.S. expenditure that might be more effective.

prevention. It would be extremely difficult to make any substantial reductions in hospital expenditure though not, I think, so difficult to reduce the amount spent on drugs.

The hoped for result of the change in the balance of expenditure suggested in

Fig. 4 is, of course, guesswork but it is based on the reasonable supposition that a million pounds spent on prevention will do more for the health of a nation than a million pounds spent on treatment.

In the words of the late Lord Rosenheim (1968) in an address to the World Health Organisation: 'It must increasingly be the purpose of the medical profession, and of all who work with them, to aim at prevention rather than cure . . .'

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