Funding respiratory research

Research is the life blood of medical advance. It varies from the rigor of experimentation in the basic sciences to observation of the natural history of disease. Respiratory research encompasses many disciplines, each contributing to our understanding of respiratory structure, function, and pathology, and the application of this knowledge to the relief and cure of patients, the goal of all clinicians.

All research needs resources, which usually amount to time or money, or both. Time has to be given to the project by the investigator, although sometimes he may be able to do this as an extension of his normal activities without additional expense. Little useful research can proceed, however, without support and in most circumstances the time of a secretary, fellow, technician, nurse, or other assistant has to be committed, and therefore funded directly. Usually equipment and running expenses are also needed. At the extreme a comprehensive immunological or physiological programme may require hundreds of thousands of pounds' worth of sophisticated apparatus, and the time of many people from various disciplines.

Unfortunately research is often not very cost effective. Inevitably many ideas turn out to be blind alleys, and worthwhile projects may have negative results. Denying a hypothesis may be intellectually as important as confirming it, but rarely has the same glamour. Research is not easy to rationalise. It is difficult to identify who is going to have the best ideas, or at what stage in their careers. If money could be directed solely to those who were going to make major advances at the moments when these were due the cost of research would be relatively small. Clearly it is not that easy. Research workers have to build up their expertise and their knowledge of a field. They have to pursue their goals relentlessly and only thus put themselves in a position to have new insights. Often a team approach with elaborate background work is necessary for a new advance. All this is expensive.

Because medical investigation is considered worthwhile, a tradition that various bodies will sponsor research has existed for many centuries. In Britain such support came first from the universities, individual patrons, and some of the well endowed hospitals. Today university support is usually via preclinical and clinical medical schools. Unfortunately in the last decade funding for British universities has been continuously eroded so that cutbacks have occurred in every sphere, not least in medicine, which is expensive compared with non-scientific subjects. Occasionally in the past patrons would support their own or other peoples' research, and this tradition continues. There are some rich benefactors who have generously funded respiratory research, but their number is small. One or two well endowed hospitals have continued to support research among their staff but their funds have diminished with inflation, and have to be spread widely throughout all departments. Regional health authorities do have some research funds, but these are also thinly distributed. Trusts and foundations such as the Wellcome, Nuffield, and Wolfson provide much valued support but their monies are also limited and are often confined to specified areas of research.

The British Medical Research Council, which will receive about £117m in 1984–5 from the central government, of course plays an important part in supporting medical research. Unhappily, its budget does not keep pace with inflation and this year its effective spending power has been reduced by some £2m, with increased pressure predicted for the next few years. Thus in 1983–4 only 53% of applications rated 'alpha quality' were funded, compared with 87% in 1982–3 and 100% in 1978–9. Furthermore, the MRC is committed to supporting its own research establishments, particularly the National Institute for Medical Research at Mill Hill and the Clinical Research Centre at Northwick Park Hospital, so that only just over one third of its resources is available for funding programmes and projects submitted from other sources. This must cover the entire range of medical endeavour, so that clinically orientated and in particular respiratory research obtains only a small total allocation. In 1983–4 the MRC spent less than 0.8% of its budget on research primarily related to the respiratory system, compared with 6.4% classified under the heading of central nervous system, 6.2% under inheritance, 2.5% under molecular structure, and 1.7% under endocrine glands.
It is sometimes argued that the relatively small spending by the MRC and other bodies on respiratory research is related to a lower scientific standard of grant applications in this field. This is clearly a circular argument. As King Lear pointed out, "Nothing comes of nothing." Thus the fewer individuals and institutions are committed to research into the respiratory system, the less likely it is that grant applications will be forthcoming. Furthermore, high quality grant applications usually reflect persistent, committed research already being done by an individual or group in a specific area of investigation. It would be most unusual for a highly rated application to come from a source which was not already funded from other sources. Thus it is only by encouraging research generally in the field of respiratory disorders that the very best workers and units can be identified for additional and more substantial support.

Pharmaceutical companies and other industrial organisations such as equipment and appliance manufacturers support external research, often directed towards investigating or evaluating their products. This welcome source has traditionally provided some additional monies for established workers. Over the past few years, however, these funds have become a much larger proportion of many investigators' support. Some laboratories in the UK are now heavily dependent on drug company money and this reliance appears to be increasing. It is probable that this could gradually impair the independence of the investigator, as his reliance on particular commercial firms could erode his impartiality as an unbiased research worker. This is not in the long term interest of either the investigator or the pharmaceutical companies, let alone the patients.

Charities have long been an important source of support for medical research in Britain. In 1983 the 35 charities affiliated to the Association of Medical Research Charities had a combined income of £128m. Nearly £77m of this was spent directly on medical research. This valuable contribution has been growing gradually, increasing by 55% in real terms since 1972 and by 4% between 1982 and 1983, in contrast to the shrinking funds available from other sources.

In a rational world, funding for medical research might be allocated to different diseases and organ systems in proportion to the medical or economic consequences of disease. On this basis respiratory research should do well. Respiratory diseases (including lung cancer) accounted for 20% of all deaths in Britain in 1981, exceeded only by heart disease (27%). In an analysis of the burden to the community of disorders of different organ systems Black and Pole concluded that overall the greatest burden was produced about equally by mental illness and by disorders of the respiratory system (excluding cancer), respiratory disorders causing by far the greatest number of days lost from work and the largest number of visits to general practitioners; in their terms respiratory disease was responsible for 13.5% of the total "burden" of disease. If 13.5% of resources were directed to respiratory research (excluding cancer) this would provide a total of some £10m annually from charity (and over £15m from the British MRC). In practice we live in a haphazard world. Allocations by medical charities depend on their purposes and the charities have grown variously, presumably in relation to the emotion, enthusiasm, and effectiveness of their initiators and supporters. Thus the British Heart Foundation has endowed 17 professorial units and distributes about £7m annually for cardiac research. The cancer charities gave out over £36m in 1982–3 with an addition £2m for leukaemia, while the Arthritis and Rheumatism Council distributed over £5m. The Cystic Fibrosis Trust devotes £800 000 annually to research into cystic fibrosis, an important but relatively uncommon systemic condition. By contrast diseases of the lung are poorly represented. The Chest, Heart and Stroke Association spent about £120 000 in 1983 in respiratory research, and the Asthma Research Council some £200 000, totalling under £350 000; less than one half of 1% of the total charitable support for medical research. It seems inescapable that respiratory research is underfunded in relation to its importance medically, economically, and socially.

There may be several reasons for the relatively poor level of charitable support for lung research. The lung does not have the same measure of appeal as, for example, the heart, which has been associated with love and warmth in literature through the ages. Heart disease kills apparently fit men in their prime, who are well represented in the higher socioeconomic groups. By comparison the lung and the importance of the disorders associated with it are little known to the public as a whole in Britain. This is not true of the United States. There the American Lung Association is an enormously successful organisation, raising about $73m annually. Its Christmas seal campaign has brought the importance of breathing to the awareness of the American public as a whole, who respond by supporting the organisation. There seems to be no inherent reason why a similar level of public awareness should not be attained in this country. Indeed, several organisations associated with disorders that do not appear superficially to have great public appeal have been very successful. In 1983 £1.2m was raised in the UK
for leprosy, £4.7m for multiple sclerosis, and £2.1m for muscular dystrophy. Surely national appreciation of and response to lung disorders should be as realistic as its response to these important but much less prevalent conditions?

Historically respiratory charities in the UK seem to have taken a different course in the 1950s from those in the United States and other countries. Until that time the major charities had related largely to tuberculosis, the infectious scourge of the late nineteenth century. As this disease became treatable the need for these charities became less. In the United States the American Tuberculosis Association changed to the American Lung Association and its charitable efforts were transferred to all respiratory disorders, backed up by the impetus of its history and nationwide organisation. By contrast, in Britain most of the organisations related to tuberculosis were wound down. The Chest Association in 1960 decided to incorporate heart research, perhaps because it felt that lung problems were less important, and in 1975 as the Chest and Heart Association it began to embrace stroke also to widen further its public appeal. While this process of extension may have been successful in increasing its support, it has diminished its specific commitment to respiratory research.

The remedies for this problem in the UK are not easy. It appears unlikely that in the foreseeable future there will be appreciable increase in research funding from the universities or central government, let alone the National Health Service. Most of these organisations are fighting to maintain their current levels of spending, and are generally losing the battle against even the low rates of inflation currently prevailing. At the same time medical and research technology becomes more expensive and advances made in other countries, particularly in North America, Japan, and increasingly Europe, mean that to continue research at an international level requires continuously increasing rather than diminishing support. Possibly the drug companies will maintain or increase their contributions but this source has its dangers and is under ever closer government regulation and scrutiny. New approaches therefore would seem to be necessary.

In an attempt to tackle this problem a group of respiratory physicians from many parts of Britain have initiated a new medical charity to be devoted specifically to raising funds for research into respiratory disorders: this organisation, called the British Lung Foundation, is modelled on the British Heart Foundation. It has been accepted by the Charity Commissioners and a council and executive committee have been formed. The hope is that it will be supported by large commercial organisations, as well as by the public as a whole. It will aim to raise charitable money on a regular basis to provide a substantial annual income to be spent on respiratory research. An independent grants committee will evaluate requests and distribute funds to individuals and institutions according to the merit of their research proposals. The foundation plans not to found its own units or institutions but to support research within existing university, hospital, and other departments. It aims to encourage both donations and research in all parts of the UK. It will be specifically and only directed towards respiratory research, encouraging studies into all aspects of respiratory health or disease.

The new charity will need to have close relationships with existing ones. It plans to develop links in particular with the Asthma Research Council, the Cystic Fibrosis Trust, and the Chest, Heart and Stroke Association, each of which has a different constitution and aims from those of the British Lung Foundation. Experience from the United States suggests that increasing public awareness of the importance of an organ system increases the likelihood of donations to all charities associated with this organ.

It might be argued that increasing research activity is inappropriate at present, when so many doctors are having difficulty finding permanent career opportunities in thoracic medicine and surgery, as in other specialties. This may, however, be to take too narrow a view of research funding. Most believe that it is important for young physicians to have a period of research in their training, and there continues to be a need for respiratory physicians and surgeons and thus for doctors in training. Many of these men or women would be better supported by fellowships which enabled them to carry out effectively the research which they, or their supervisors, plan rather than than research tied to drug or other applied projects. Alternatively, much worthwhile research can be carried out by non-medical personnel, including PhD students, university graduates, technicians, nurses, and physiotherapists. In a different approach, the British Heart Foundation has funded professorial chairs, a lump sum being paid to the appropriate university to provide tenured salary as well as salaries of senior lecturers and other senior staff, thus increasing career opportunities in cardiology.

Most of us are faced with the need for economies in all aspects of our working life. It is, however, vitally necessary for the future progress of our specialty that respiratory research should be appropriately funded. There seems no reason why public awareness of the importance of lung disorders should not increase, with concomitant support for respiratory research. This may seem a foolhardy
venture in the present economic climate, but there is perhaps never an ideal moment for such initiatives. There might be some comfort to be gained from the knowledge that a group of cardiologists founded the British Heart Foundation as recently as 1961, and in the intervening 24 years it has made an outstanding and continuing contribution to cardiac research. Perhaps, with luck and support, the same may be true in 20 years of the British Lung Foundation.

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References
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