Medical Manpower

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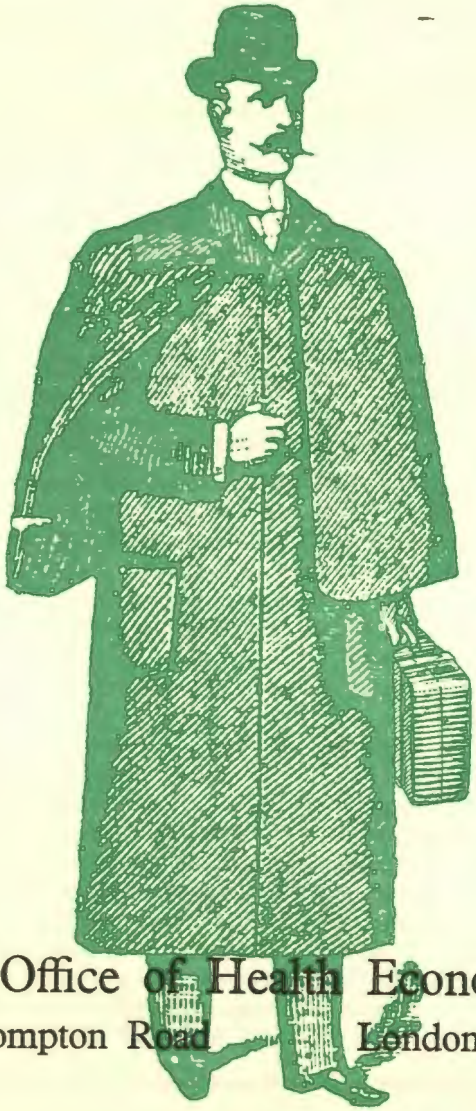

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Medical Manpower

IN 1964 there were estimated to be 55,000 doctors actively engaged in medicine in England and Wales. In addition to these probably some 8000 to 9000 qualified doctors were not practising of whom about half had retired on grounds of ill-health or age. The two largest groups of those professionally employed were the 22,000 general practitioners and the 21,000 hospital doctors (Table A).

During the eighteenth and the early part of the nineteenth century medical care was provided by barber surgeons, physicians, apothecaries and not a few quacks. Although medicine had been one of the superior faculties in the universities since the Middle Ages, many medical practitioners had no university education and only the training they had acquired through apprenticeships or experience. In these circumstances, there were both sincere practitioners with sound—if scientifically limited—academic qualifications, and unqualified and often unscrupulous charlatans. Some of the latter used 'imposing, if medically meaningless', strings of letters after their names. One, who had 'scorned to purchase a medical diploma from the colleges marketing such things', was alleged to have been earning £13,000 a year, a rare fortune for the 1820s.[1] Thus, even though the medical professions were consolidated and their practice controlled by the formation of the General Medical Council in 1858, doctors in the mid-nineteenth century had a heterogeneous background.

As scientific and medical knowledge developed during the remainder of the nineteenth and the twentieth centuries, the scope of medical practice was extended and changed. It has been said that it was not until 1912 that 'the random patient, with a random disease, consulting a random physician, had a better than fifty–fifty chance of benefiting from the encounter'.[2] Medical progress since then, and especially in the last two decades, has been more rapid than ever before, and therefore the change in the role of the doctor has been correspondingly dramatic.

Thus a historical review of the numbers of doctors in Britain is complicated not only by the fact that some registered medical

Table A

Professionally employed doctors. England and Wales. 1964.

Sources: See appendix A.

	Number (rounded to nearest thousand)	*Per cent*
National Health Service:		
General Practice	22,000	40
Hospital senior staff	10,000	18
Hospital junior staff	12,000	21
Total Hospital staff	21,000*	38*
Local Authority service	3000	5
University staff	2000	4
All others	7000	13
Total	55,000	100

*Does not add due to rounding.

Note: (i) Hospital senior staff includes Consultants and Senior Hospital Medical Officers.

(ii) Other types of doctor include doctors in the Armed Forces resident in England and Wales, doctors in industry, doctors in Government departments, doctors working for the Medical Research Council, doctors in private practice, etc.

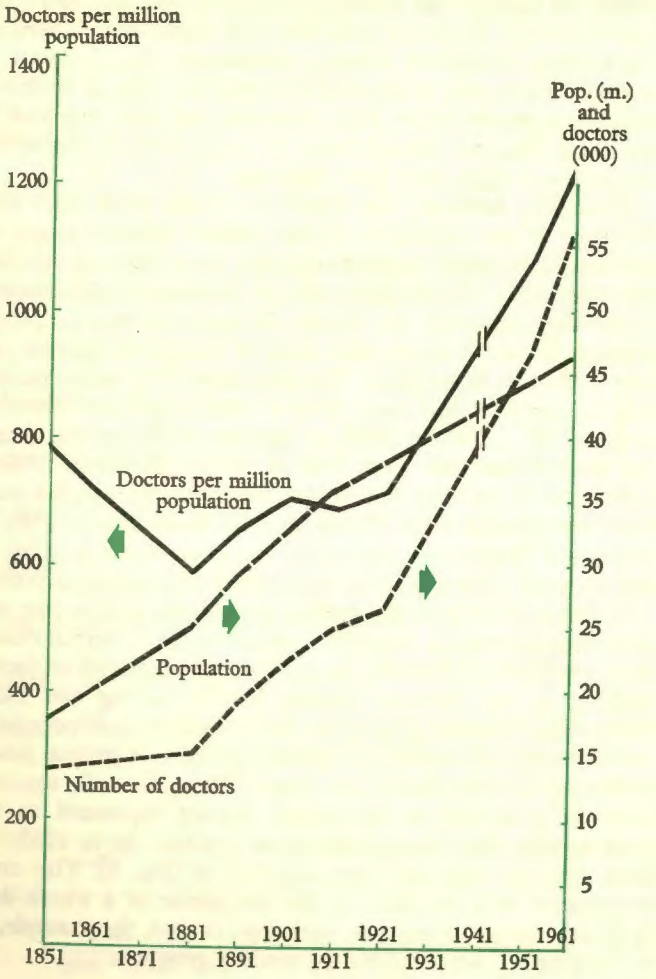
(iii) Doctors have been allocated to the type of work which accounts for the major part of their time and thus, as far as possible, double counting has been avoided.

practitioners do not practise medicine, but also by the changing responsibilities and function of those who do practise. The earliest census figures show that in 1851 there were approximately 14,000 doctors or surgeons in England and Wales (Fig. 1). That was about 800 per million population, or one for every 1300. By the time of the next census, additions to the number classified as doctors had been restricted to those with an approved educational training. Thereafter the number who had been admitted to the medical register without examination gradually diminished through retirement and death, and for the next three decades the number of doctors recorded remained constant, even though the population steadily increased. Consequently, the ratio of numbers of doctors to population fell, and did not return to the 1851 figure until eighty years later. The comparison between the numbers of doctors per head of population in the 1850s and the 1930s may not be very meaningful, but the comparatively favourable ratio of doctors to population in Britain

Fig. 1

Number of doctors* per million population. England and Wales. 1851 to 1961.

Source: Derived from Census of England and Wales. Various years.



*Includes 'active' and retired doctors. Figures for 1881 and before may be slightly under-represented as some retired doctors are not included.

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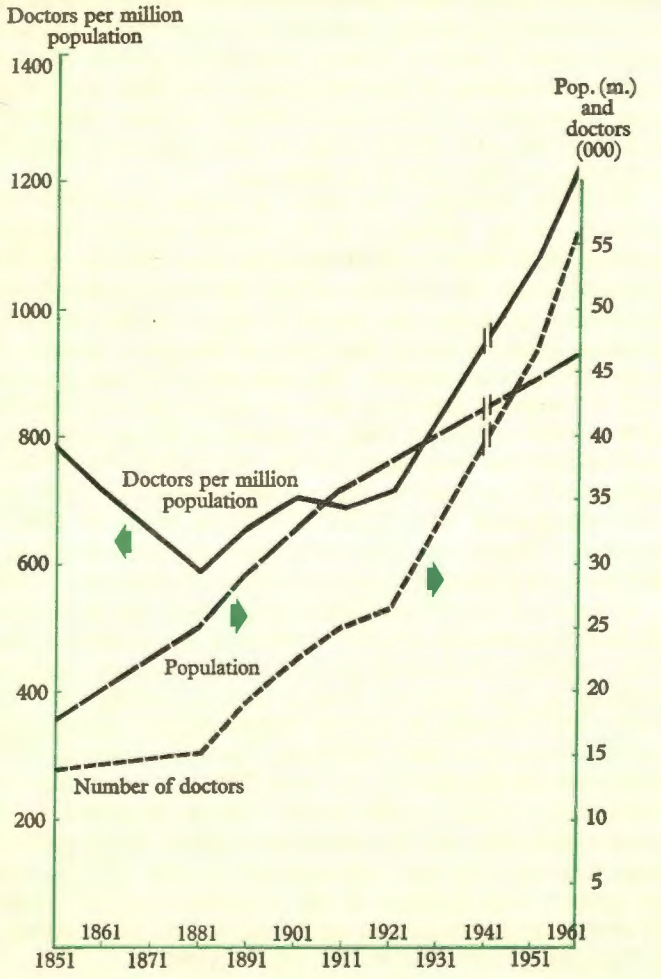

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in the middle of the last century throws into sharp relief the problems facing many developing countries today. Often they have less than 100 qualified medical practitioners per million population.

From 1881 onwards the numbers of doctors in England and Wales rose faster than the population as a whole. Thus the proportion of doctors per million population also started to rise, and continued to do so until the first world war. Then, the interruption of medical training temporarily slowed down the increase in numbers of doctors, and held the ratio of doctors to population steady. After 1921, however, the ratio rose steadily and there are now almost twice as many doctors per million population as there were forty years ago.

Obviously, however, the trends in recent years have most relevance to any discussion of the current medical manpower position, and more detailed statistics have become available especially since the inception of the National Health Service. Examining separately the trends in hospitals and in general practice, Figure 2 shows that most of the recent increase has been of doctors in hospitals. The total number of senior medical staff in hospitals has risen from a whole-time equivalent* of 4594 in 1949 to 7477 in 1964, an increase of 63 per cent. Junior medical staff has risen from 7141 in 1949 to 10,869 in 1964, an increase of 52 per cent. For general practitioners, also, the numbers rose steadily from 17,316 in 1952 to 20,349 in 1963, an increase of 18 per cent. Since then there has been a levelling off and the years since 1963 have seen a small but important decline.

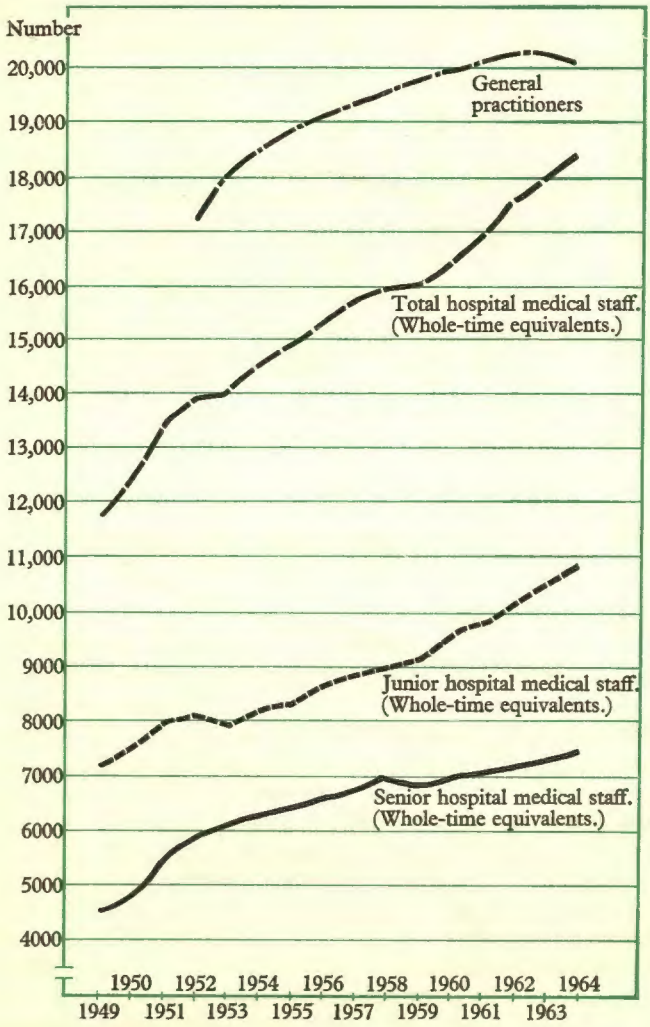
In terms of doctors per million population, and in line with the overall increase in the ratio recorded in the decennial census, there was also a fairly steady increase among all groups of doctors working in the National Health Service during the 1950s. Since then, the ratio of hospital doctors per million population has continued to increase slowly, but the ratio of general practitioners to the population has been falling. Overall, the total numbers of doctors in the Health Service continued to rise more rapidly than the population as a whole up to 1963, but since then has only just kept pace with it (Fig. 3). This crude comparison with numbers of the population as a whole does, of course, ignore changes in work load caused, for example, by a changing age structure and by medical progress.

*Calculated by totalling the notional half-days per week (or hours per week) for which the part-time staff are in contract, dividing the total by 11 (or 38·5 hours) and adding the number of whole-time staff.

Fig. 2

Doctors in the NHS. England and Wales. 1949 to 1964.

Source: Ministry of Health.



Note: (i) General practitioners are those providing unrestricted services.
(ii) Senior hospital staff include Consultants and S.h.m.o.'s.

Fig. 3

Doctors in the NHS per million population. England and Wales. 1949 to 1964.

Source: **Derived from Ministry of Health data.**

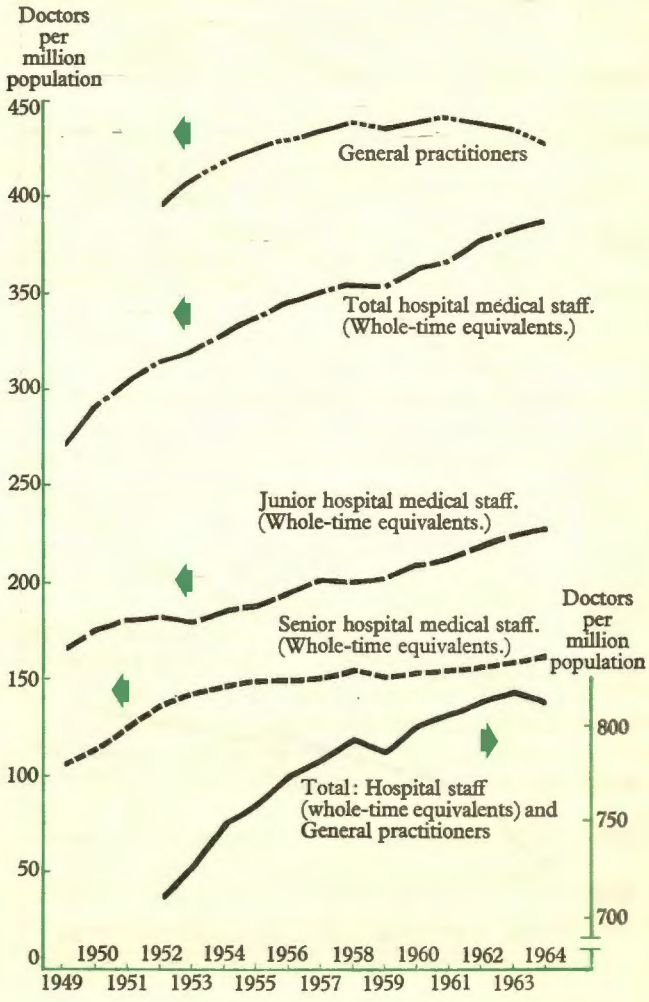


Table B

Number of doctors in general practice. England and Wales. 1952 to 1964.

Source: Ministry of Health.

Year	*Principals providing unrestricted service*	*Assistants*	*Trainees*	*Total*	*Patients per principal*
1952	17,316	1689	309	19,314	2431
1953	18,095	1596	297	19,988	2321
1954	18,566	1504	296	20,366	2293
1955	18,867	1515	304	20,686	2283
1956	19,180	1546	368	21,094	2272
1957	19,437	1465	349	21,251	2273
1958	19,685	1394	332	21,411	2267
1959	19,745	1357	275	21,377	2282
1960	19,928	1345	263	21,536	2287
1961	20,188	1169	201	21,558	2292
1962	20,325	989	237	21,551	2304
1963	20,349	947	206	21,502	2326
1964	20,246	855	165	21,266	2362
1965	20,027*				2410*

*Provisional figure.

Trends in General Practice

TABLE B shows the number of doctors in general practice as principals, assistants and trainee assistants and the average number of patients per principal for each year since 1952. Figure 4 shows the annual increase or decrease in the number each year. In the early 1950s the number of doctors in general practice was increasing by several hundred per year—nearly 700 in 1952–53—and between 1954 and 1956 the number of both principals and assistants was increasing. The number of principals increased more slowly from 1957 onwards, was almost static in 1962–63, and since then has been falling at an accelerating rate—by over 200 in 1964–65. The number of assistants has been falling steadily since 1956. Throughout the period the general population has been rising each year and since 1958 it has been rising more rapidly than the number of doctors in general practice.

Fig. 4

Annual change in number of general practitioners. England and Wales. 1952 to 1964.

Source: Derived from Ministry of Health data.

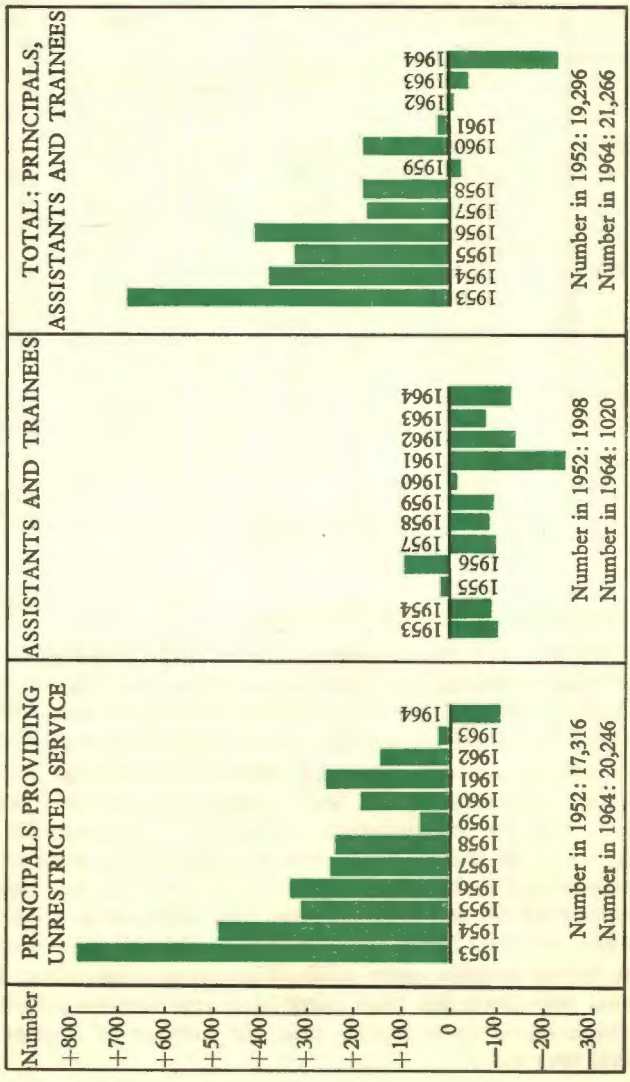


Table C

Medical List withdrawals, by age and reason. Principals providing unrestricted service. England and Wales. 1963–64.

Source: Ministry of Health.

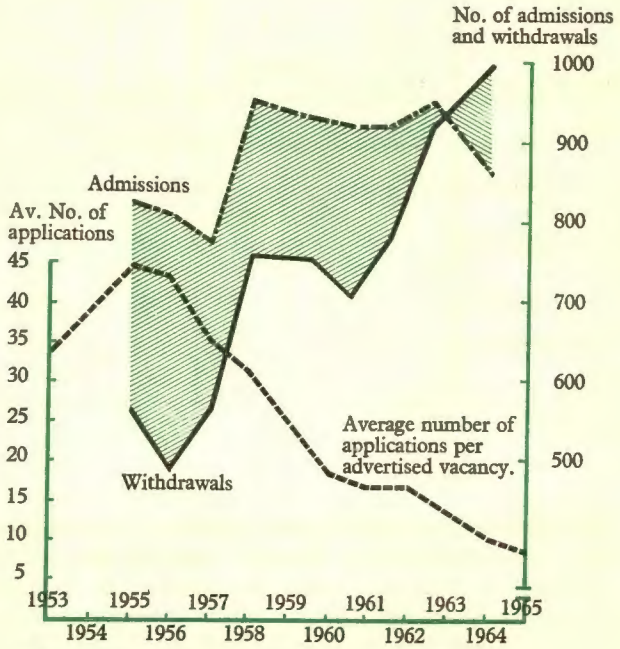
	Under 35	*35–44*	*45–54*	*55–64*	*65 and Over*	*Total*
	Nos.	*Nos.*	*Nos.*	*Nos.*	*Nos.*	*Nos.*
On death	2	7	28	51	55	143
On retirement	2	4	23	162	293	484
To enter Hosp. Service	9	12	5	1	—	27
Other reasons	88	132	55	33	16	324
Total	101	155	111	247	364	978
	%	%	%	%	%	%
On death	2	4	25	21	15	15
On retirement	2	3	21	66	81	49
To enter Hosp. Service	9	8	4	0	—	3
Other reasons	87	85	50	13	4	33
Total	100	100	100	100	100	100

The numbers of admissions and withdrawals from the National Health Service Executive Councils' medical lists reflect the overall trend. Figure 5 shows the number of 'unrestricted principals' in general practice added to and removed from the Medical List annually since 1955. During the 1950s there was a net gain of several hundred a year, but by 1964 this had been converted to a net loss of a 100 in that year. It is clear from this chart that the reduction is due primarily to the larger number of withdrawals since 1960. Table C gives a breakdown by age and cause of the withdrawals between 1 October 1963 and 1 October 1964. Although retirement or death accounted for two thirds of these, the remaining third left for other reasons. No earlier figures are available against which these can be compared.

Fig. 5

Medical list admissions and withdrawals and average number of applications per vacancy in general practice. Principals providing unrestricted medical services. England and Wales. 1953 to 1964.

Source: Ministry of Health.



Note: (i) Admissions and withdrawals are for calendar years 1955 to 1958, for year ending 1 July 1960, for 1 July 1960 – 1 October 1961 (adjusted) and for years ending 1 October, from 1962 onwards.
(ii) Admissions – principals who were on the medical list at the end of the year but not at the beginning of the year.
Withdrawals – principals who were on the medical list at the beginning of the year but not at the end of the year.

General practice vacancies in partnerships and group practices are usually filled by arrangements made privately by the other partners, and most of the advertisements of general practice vacancies appearing in the medical journals relate to appointments to be filled in this way. However, in the case of single-handed practices (and occasionally in other cases, such as when two partners leave the Health Service at the same time) the vacancy is advertised by the local Executive Council and the appointment made by the Central Medical Practices Committee. The number of such advertisements has risen from about 100 a year in the mid-1950s to 267 in 1965. This is a further indication of the increasing difficulty in staffing the general practitioner service, particularly as the number of single-handed practices has been falling. In addition, these advertised vacancies are becoming harder to fill. The average number of applications per vacancy has fallen from about forty in the mid-1950s to less than ten in 1965 (Fig. 5). Not all applicants, for one reason or another, may be suitable, and doctors seeking such an appointment may apply for several vacancies. Therefore, although it is still easy to fill a general practice vacancy in an area with attractive amenities, an average of less than ten applicants per vacancy advertised indicates a very considerable difficulty in filling vacancies in the less attractive areas at present. By contrast, the mid-1950s average of forty applicants per vacancy reflected the relative difficulty in finding any job as a principal in general practice at that time, and explained the willingness of many doctors to accept assistantships.

Trends in Hospital

IN hospital, there has existed a strict hierarchy of different grades of doctor, rising from newly qualified House Officers, through Senior House Officers, Junior Hospital Medical Officers, Registrars, Senior Registrars and Senior Hospital Medical Officers to Consultants. All but the last two are usually full-time salaried staff. Two thirds of Consultants, however, have part-time National Health Service appointments covering on average between four and four and half days a week. It has never been necessary for all hospital doctors to progress through each grade, and in particular those who achieved steady promotion could often progress directly from a Senior House Officer post to that of Registrar, and from Senior Registrar directly to Consultant. Since 1961, recruitment to the Senior House Medical Officer

and Junior House Medical Officer grades has in effect been stopped, and in 1964 a new grade of Medical Assistant was introduced as a permanent career grade below the consultant level.

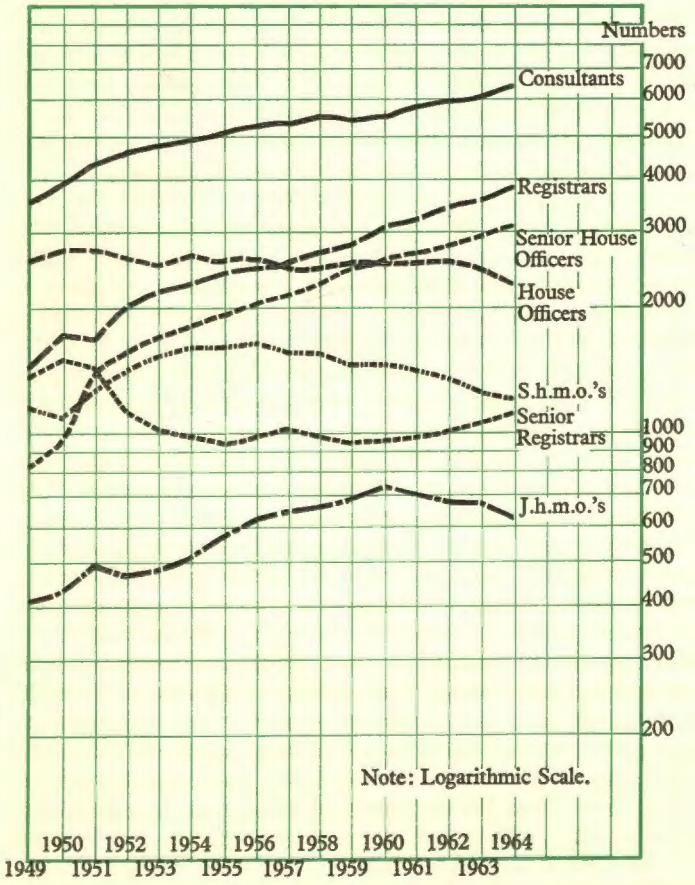
Figure 6 shows the numbers of different grades in hospital practice in terms of whole-time equivalents since 1949. It takes account of part-time as well as whole-time staff, and gives an indication of the amount of time for which the doctors are actually employed in the hospital service, rather than merely the total numbers who spend some time in hospital. It is clear that it is the Registrars and Senior House Officers who have increased most. There have been fluctuations in numbers of Senior Registrars and of the Senior Hospital Medical Officers. In the early 1950s, for example, the number of Senior Registrars fell, and the number of Senior Hospital Medical Officers rose. In the early 1960s as recruitment to the latter grade was stopped the pattern was reversed. Over most of the period, the number of House Officers, the most junior grade, who include those newly qualified doctors not yet admitted to the medical register, has remained fairly constant, while the number of Junior Hospital Medical Officers increased up to 1960. To some extent the pattern between the different grades reflects policy decisions concerning, for example, rates of promotion, or the appropriate classifications for different posts. There has been a reduction in the numbers in the two lowest grades in recent years. For Junior Hospital Medical Officers this again is the result of the new policy, while for House Officers it reflects the reduction in medical recruitment six years previously, which will be discussed more fully later. Understandably, most of the overall increase in numbers has resulted from the growth of such specialities as anaesthesia, pathology, radiology, psychiatry and geriatrics.

However, despite the very substantial increase in total numbers of hospital doctors, the hospital service has faced manpower difficulties in recent years. These can best be understood against a historical background. Two factors have revolutionised the staffing of hospitals. First, there has been the creation of large numbers of junior salaried posts in the hospitals. Before 1948, there were few junior hospital posts available, and young doctors rarely continued working full-time in hospitals after they qualified; the accepted pattern was to go into general practice, and perhaps to join the honorary staff of the voluntary or cottage hospitals, thus often being able to retain full responsibility for their patients in hospital. Second, there has been the enormous

Fig. 6

Hospital staff by grade. Whole-time equivalents. England and Wales. 1949 to 1964.

Source: Ministry of Health.



advance in the technology of hospital medicine, resulting in the need for many highly specialised doctors working entirely within their speciality. The complexity of modern surgical techniques means that general practitioners can no longer undertake surgery or even administer anaesthetics for any but the simplest operations. Many procedures such as kidney grafting, heart surgery and radiotherapy each require large teams which may include, for example, specialised surgeons, anaesthetists, diagnosticians, physicians, biochemists or clinical pharmacologists.

With the introduction of the National Health Service, the organisation of the hospital service made it possible for nearly all the younger medical staff in hospitals to have full-time salaried appointments although most were of limited tenure. This limited tenure has inherent problems in relation to the career structure. It is current practice to spend two years as a Registrar and four years as a Senior Registrar before seeking an appointment as a Consultant. Thus a doctor remaining in the hospital service should spend six years in the registrar grades, compared with perhaps thirty years in the consultant grade. As the number of Registrars is little fewer than the number of Consultants, and as hospital doctors expect to spend on average five times as long in the latter appointment, the great majority of Registrars cannot expect to become Consultants. In fact, over the past fifteen years this problem has been slightly reduced by the creation of new consultant posts; but at the same time the number of registrar posts of limited tenure has been increasing even more rapidly, thus building up further trouble for the future.

This was a well recognised problem in the early 1950s and the phrase 'falling off the ladder' was coined for those who left the hospital service having failed to obtain consultant appointments. Although not all were of the calibre appropriate to consultantships, many were very highly trained, experienced and competent men and women who had held several registrar appointments before finally leaving the hospital service. They had acquired new techniques and knowledge in advance of some older and longer established Consultants, but were themselves unable to obtain such a post. Further, in many cases, the very specialised experience they had gained in their latter years in hospital had no application in general practice. Many were unwilling to change to such work, and often they were also unacceptable to established general practitioners.

In this situation, there has been a genuine problem in finding sufficient young doctors to carry out the routine and emergency

Table D

Hospital Doctors born outside the UK and Eire. England and Wales. 1961 to 1964.

Source: Ministry of Health.

	1961 %	*1962* %	*1963* %	*1964* %
House Officer pre-registration	20·2	19·8	20·9	25·9
House Officer post-registration	33·3	36·5	32·6	33·1
Senior House Officer	51·2	52·1	53·6	54·5
Junior Hospital Medical Officer	42·2	45·7	47·5	45·8
Registrar	39·5	41·0	42·4	44·9
Total 'junior' staff	38·8	40·4	41·5	43·9
Senior Registrar	—	12·6	14·8	15·0
Total 'Junior' staff and Senior Registrar	—	37·5	38·7	40·7

work in hospitals, when most have little prospect of a permanent career in the hospital service. One solution has been to allow increasing numbers of doctors from overseas, who wish to come to Britain, to fill junior hospital appointments. Figure 7 shows the proportion of junior hospital medical staff (including dentists) in England and Wales who were born outside the United Kingdom and Eire. Since 1960 the proportion has been rising steadily. Table D shows the proportion of doctors from overseas in various junior grades.

Because of this increase in the numbers of doctors from overseas practising in hospitals, 1000 out of the 1100 increase in the numbers of junior hospital staff between 1961 and 1964 was due to those born outside the British Isles. By 1964, the number of doctors from overseas totalled 4300 and represented 44 per cent of the entire junior hospital staff in England and Wales. If those coming from Eire are included amongst doctors born overseas then more than half of the doctors in these posts in England and Wales were born outside the United Kingdom. It is not known

how many doctors in junior hospital posts in 1949 were born outside the British Isles but it would nevertheless seem that the major expansion in the numbers of junior hospital doctors since the National Health Service came into operation has been composed of doctors from abroad.

It is, of course, desirable that Britain should provide opportunities for doctors from overseas to obtain training and experience in hospitals in this country, which will be of value to them when they return to their own country. It would be wrong, however, for Britain to become dependent on doctors from abroad working permanently or for very long spells in this country, when the need for doctors is often much more urgent in their own countries. There is also a responsibility to provide doctors from overseas with adequate supervision and opportunities for study whilst they are in Britain. This is not always easy in some of the more isolated hospitals.

Some Underlying Factors

THE number of both senior and junior hospital doctors is rising steadily, although almost all the recent increase among the latter is due to doctors from overseas coming to work in Britain. In general practice the numbers are falling, and the total number of doctors in hospital and general practice has, since 1963, ceased to increase faster than the population as a whole. This is a less alarming picture than is often suggested, but nevertheless the situation is very far from satisfactory. There appear to be three main causes. First, a gross error in forecasting future trends at the end of the 1950s, which in many ways is a classic example of the danger of making a central general policy decision based on inadequate evidence. Second, and contributing to the error in this forecast, the failure to appreciate the extent of medical emigration from Britain. Third, the failure to modify sufficiently the career structure for the medical profession to take account of the rapid technological progress and consequent changing pattern of medical care which have occurred in the past twenty years.

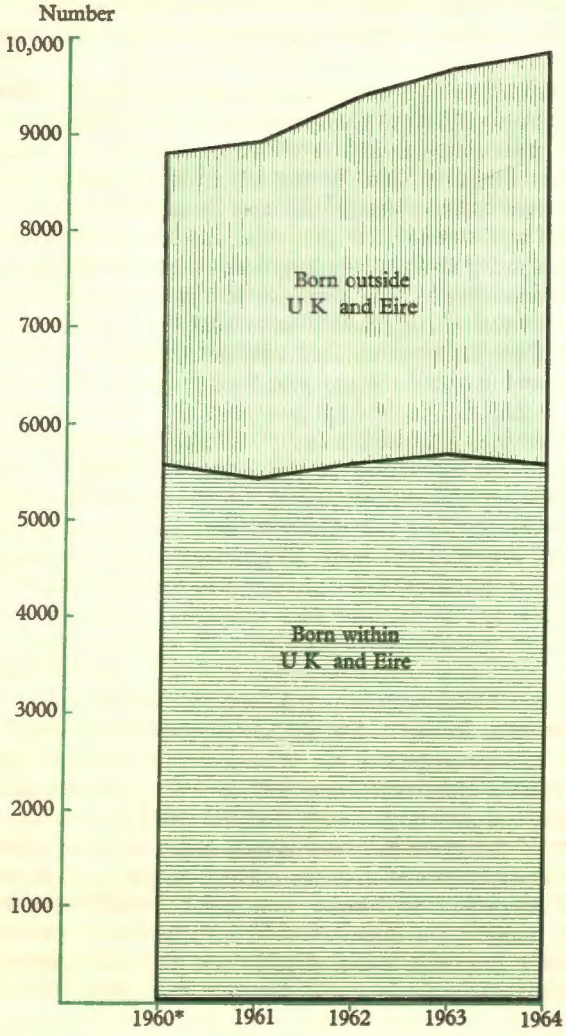
Errors in forecasting

The Willink Committee was set up in 1955 by the Minister of Health and the Secretary of State for Scotland, to estimate the number of medical practitioners likely to be engaged in all branches of the profession and therefore the number of medical

Fig. 7

Junior hospital staff: numbers born within or outside UK and Eire. England and Wales. 1960 to 1964.

Source: Ministry of Health.



*Estimate.

students who should be trained in the future. The Committee was set up because of a widespread belief amongst all those concerned with medicine that too many doctors were being trained in Britain during the early 1950s. It was common experience within the medical profession that young doctors wishing to enter general practice had difficulty in becoming principals in practice and well qualified specialists in the hospital service often found it impossible to obtain permanent senior appointments there.

The Committee first attempted to estimate the number of doctors in various forms of employment in Great Britain at the time, and the rate at which they would leave medical occupation through retirement or death in the future. Rough estimates and forecasts were made of emigration and immigration, and of the likely need and demand for doctors in the future. For instance it was assumed that the prevailing ratio of general practitioners to population (which was more or less the same ratio as is creating so much dissatisfaction at present) was satisfactory. In the hospital service it was assumed that the number of consultants would expand at about 150 per year for five years; thereafter the increase would fall to 75 per year and the expansion would continue at that rate indefinitely.* Similar assumptions were made about the expansion of junior hospital staff. All these assumptions appear arbitrary. If the Committee had made other equally probable (and sometimes in the event more accurate) alternative assumptions their conclusions would have been different. For instance, little account was taken of the way in which the scope of medical care was being extended by the dramatic development of new surgical techniques, new diagnostic methods, and new medicines. In addition, the Committee assumed that the population would increase from 1955 to 1971 by 4½ per cent. In fact it has already increased by about 7 per cent and as a consequence the present population is at least a million greater than that expected for 1971. The Committee anticipated that the emigration of doctors would decline although the effect of this error has been largely offset by their failure to envisage immigration of overseas doctors on the scale on which it has actually occurred. Finally, they failed to anticipate the way in which demand for doctors would be affected by changes in the nation's economic prosperity. It was this last assumption which was their most important error, although it was only a

*In the event the number of hospital consultants has continued to increase at the rate of 150 per year after the date when the Committee had predicted it would drop to 75.

reflection of the general failure to realise at that time that a wealthier society would naturally wish to spend more on medical care.

Based on their assumptions the Committee reported unequivocally in 1957 that after 1961 a reduced output of doctors from medical schools would suffice for all needs for medical care in Great Britain, and therefore recommended that the student intake be reduced by 10 per cent. Its conclusions and recommendations were accepted promptly, without question. Yet within three years it was becoming clear that a shortage rather than a surplus of doctors was emerging. Professor Jewkes in his Memorandum of Dissent to the Report of the Royal Commission on Doctors' and Dentists' Remuneration wrote in early 1960 that 'in my opinion, it would be imprudent to be over confident about the continued supply of doctors'. By the end of 1961 the government had reversed the Willink recommendation and the rate of intake of medical students was restored; but there had already been five years during which the number of medical students in training was little larger than in the 1930s despite an increased population and the greater complexity of medical care.

Emigration

Another factor tending to create a shortage of doctors in Britain is medical emigration on a scale not officially recognised until recently. An early reference to medical emigration had been made by the Willink Committee itself. It recognised that there was scant information available about the numbers emigrating, but concluded that 'there is no doubt that the opportunities for doctors from Great Britain to obtain employment overseas has been diminishing in the recent past and will continue to do so in the future'.

In 1958 the Council of the British Medical Association expressed the contrary view. Little evidence was provided by the BMA to support their view, and the Royal Commission reported that 'It was suggested to us in evidence that British medicine was in danger of being seriously depleted by emigration . . . (but) investigation proved the extent of emigration to have been much less than had been suggested, although completely satisfactory figures are difficult to obtain'. The statistics used by the Royal Commission had been derived from the Board of Trade's statistics on emigration, which were based only on passengers by sea and which the Board itself recognised to be inadequate. Nevertheless the Commission reported that net emigration amongst doctors and dentists 'can be considered of no special significance'.

Table E

Migration of doctors. 1901 to 1961.

Estimated difference between (*a*) expected survivors by the end of each decade amongst doctors reported as resident in Great Britain at its start plus those qualifying in the British Isles during it and (*b*) the actual number of doctors reported as resident in Great Britain at the end of the decade.* Decennial averages for the decades 1901–11 to 1951–61 various age groups.

Source and Method: See Appendix B.

Age (at end of period shown)	$(b - a) \div 10$				
	1901–11	*1911–21*	*1921–31*	*1931–51†*	*1951–61*
Under 45	−370	−400	−520	−600	−350
45–64	− 10	+ 30	+ 30	+100	+100
Over 65	+ 10	+ 30	+ 20	+ 10	− 30
Total	−370	−340	−470	−490	−280

*The figures thus include those doctors trained in Ireland who remain in Ireland.
†$(b-a) \div 20$

The conclusions of the Royal Commission about the small rate of medical emigration were first criticised in the *Lancet* in 1961.[3] This criticism was extended the next year with the suggestion that in the five years up to 1960 the rate of emigration of British doctors was equivalent to the output of one third of the medical schools.[4] Emigration at anything like this rate was publicly denied by the Minister of Health and some leading members of the medical profession. However, two years later two further independent studies confirmed the high rate of emigration.[5, 6] In the previous ten years some 5000 doctors born and trained in the British Isles (4000 from Britain and over 1000 from Ireland) had emigrated from Britain and not returned.‡ The number was equivalent to one quarter of the output of British-born graduates of British medical schools. Some 75 per cent of the emigrants had previously been working in the hospital service and 20 per cent in general practice.

When even recent statistics for medical emigration have proved so difficult to elucidate, the absence of earlier figures is

‡In its report for 1964 the Overseas Emigration Board has been able to produce more comprehensive statistics about emigration by taking a sample of all those who enter or leave the country by both sea and air. Its sample suggested that 1200 doctors with UK passports left during the year but only 300 with UK passports entered. However, in view of the possibility of sampling error the very substantial net loss by emigration implied by the figures may well be inaccurate, and figures for a single year should not receive too much weight.

not surprising. Nevertheless there is some indication from the decennial census figures that the British Isles have been substantial net exporters of doctors throughout this century. Table E is based on estimates of the numbers of doctors practising in Britain, and trained in the British Isles, in each decade. It shows that during each ten year period there was a substantial loss of doctors, comparable to that of recent years, which could not be explained on the basis of anticipated mortality rates.* A small and presumably fairly constant number of those trained in Ireland would remain in practice there, but apart from that much of the 'loss' in each decade was probably due to doctors going to practise abroad. The difference between the earlier decades of this century and the 1950s was probably more in the nature of the migration of doctors than in its volume. Formerly, doctors joined the Colonial Services, and the census figures suggest that a number of these returned to Britain once they had completed their service abroad. More recently, the opportunities for doctors to practise overseas in posts providing regular 'home leave' have diminished, and the present-day migration of British doctors overseas has therefore assumed a more permanent character.

Career Structure in Medicine

Doctors, having qualified and spent at least their pre-registration year in hospital, can enter general practice; can remain in hospital either to practise clinical medicine or to concentrate on research and teaching; can specialise in public health; or can join the armed forces. Other career opportunities include industrial health; medical administration; research in the universities, research institutes or industry; or medical journalism; and of course some will leave professional practice altogether either to become housewives or to take up non-medical careers; others will emigrate.

The majority, however, will eventually either enter general practice or obtain a permanent hospital appointment in the National Health Service. The resultant problem, as far as a career structure is concerned, has already been referred to in discussing the trends in hospital. At present these doctors, after spending at least their 'pre-registration' year in hospital, have the choice between going directly into general practice, and remaining

*The figure for net emigration in the 1950s should, of course, be lower than the estimate of 500 per year for doctors born in the British Isles alone, because of the substantial increase in numbers of foreign-born doctors practising in Britain.

in hospital. If they do the latter, it may either be with the hope of making an eventual career in the hospital service, or else with the conscious intention of gaining further qualifications and experience before entering general practice. Indeed newly qualified doctors intending to enter general practice are now very much encouraged to spend longer than their pre-registration year in hospital to acquire further experience before entering general practice.

However, those who hoped to remain in hospital have in the past faced very much the same situation as faces professional soldiers, sailors and airmen. The prospects of promotion are limited by the fact that there are not enough senior appointments for all eventually to reach the top. To prevent the intervening grades being filled by those who no longer have any prospect of promotion, the appointments are made of limited tenure. In the same way as a captain must usually leave the army if he has not gained promotion to major by a certain age, so Senior Registrars were expected to leave the hospital service if they could not obtain consultant appointments within a specified time. Although the circumstances are very different, in each case the sudden career break creates understandable problems. This situation in hospital has only recently been tackled by the establishment of permanent medical assistant appointments at a level below that of consultants.

After taking account of the doctors from overseas who at present fill over 40 per cent of the junior hospital appointments, fewer than half the British born doctors in the junior hospital grades can expect to get consultant appointments. Even with an increase in the number of consultant posts, the number of doctors completing the normal progression through the junior hospital grades must be considerably greater than the anticipated number of consultant vacancies. Those who leave the hospital service, having spent long enough in it to become an experienced Registrar or Senior Registrar, enter general practice several years behind their colleagues who left hospital almost immediately after qualifying. Since their hospital experience is not directly relevant to general practice, they have all too often been at a disadvantage compared with their contemporaries who are already experienced general practitioners. If, on the other hand, all doctors who intended or were likely eventually to enter general practice left the hospital service within two or three years of qualification, it would be possible to fill only a very small proportion of junior hospital posts with young doctors who were

trained in this country and who had a reasonable expectation of obtaining a consultant appointment.

This paradoxical situation has built-in frustrations, especially for those who do not make a decision shortly after qualifying to enter general practice. A doctor who has spent some time as a Registrar in a hospital may understandably be reluctant to enter general practice, because in many specialties the experience he has gained so far is too specialised to be appropriate to general practice, and because he will have become accustomed to working in a hospital environment. In addition, he will find his contemporaries who entered general practice shortly after being admitted to the medical register already well established in their chosen career. They may be regarded as his seniors in the practice, even if in the meantime he has gained a higher qualification.

This situation has arisen because the career structure in the National Health Service was established on principles which were conceived before the present therapeutic revolution changed the pattern of medical practice. In the 1930s, there was in many cases little difference between the medical care provided in the patient's own home and that provided in hospital. Even minor operations such as tonsillectomies might be carried out at home. Treatment for diseases like pneumonia or scarlet fever was largely palliative whether at home or in hospital. Many doctors were undertaking similar types of medical work whether they were in hospital or in general practice, and it was logical for them to practise in both.

Now, by contrast, patients are in many cases admitted to hospital in order that very highly specialised diagnostic or therapeutic procedures can be carried out on them. Cardiac patients are continuously monitored using elaborate apparatus. Diabetics admitted for 'stabilising' undergo extensive biochemical investigations. For patients where the diagnosis is uncertain, radiologists, biochemists and bacteriologists may all be called upon by the physician in charge. In the surgical wards, the complexity and specialisation of procedures is often even greater. It is now mainly in the geriatric wards, and for some patients in the general medical wards that hospital medicine has any close resemblance to the work of general practice. In these cases patients have often been admitted for social rather than purely medical reasons.

This contrast between hospital and general practice in the 1960s has been accentuated by the changing pattern of general medical care. The old acute crises, such as those of pneumonia,

are now averted by the use of antibiotics. Pressures of work, more stringent demands for asepsis, and in many cases simply changing habits have more or less eliminated even the most elementary surgical procedures from general practice. The development of complex diagnostic equipment, which can only be available centrally, has tended to divide many diagnostic procedures into those which can conveniently be carried out in general practice, and those whose complexity confines them to hospital. At the same time, the need for community care, the early or presymptomatic diagnosis of disease, the surveillance of the frail and elderly living alone, and the routine examination and immunisation of infants, are some of the activities which are changing the nature and adding to the importance of the general practitioners' responsibilities.

Probably more than anything else, it is this sharp divergence between highly specialised hospital medicine and the equally important community care now expected from general practitioners which has strained the traditional career structure and organisation of medicine to breaking point. Although the future role of the general practitioner has in many ways still to be defined, it is clear that current specialist hospital practice no longer provides the most appropriate experience for those who are eventually to enter general practice.

The Future

THE present acknowledgement of a shortage of medical manpower begs the question of 'a shortage in relationship to what?' There are more doctors practising in Britain than ever before. Even related to the growth of population, the rate of increase in numbers of practising doctors has been more rapid, with the exception of the last two years when both have been growing at the same pace. It is only in general practice that there has recently been an actual drop in numbers.

However the mere fact that the number of doctors has been increasing does not mean that there are enough. The real problem lies not in absolute numbers but in defining anew the role of the doctor, and in deciding on the quality of medical care which Britain should afford to provide for itself. Despite the great technological advances in the past 30 years, it is probable that the medical care provided for some of the less privileged members of our community today, such as the elderly chronic sick, is still much inferior to that provided for the middle classes in the 1930s.

Lifesaving antibiotics, the miracles of modern surgery and even the local authority welfare services are of no value to an elderly bedridden widow, if her plight is unknown to her general practitioner or at the Town Hall.

Should it be the task of our medical services to seek out such individuals, and to provide proper care for them? If so, it must affect our calculation of how many doctors we need. There are many similar examples in almost every field of medicine, involving either unmet needs or the perpetuation of perhaps unnecessary procedures.

Often they involve questions such as how much of the 'clinical iceberg' of untreated illness should be tackled. How many of the current rare but lifesaving procedures, like intermittent dialysis in cases of kidney failure, should become more generally available? These may be difficult questions to answer because too little research has yet been done to be sure of the value of different procedures. It is more difficult still to forecast what new time-consuming medical techniques will be developed, perhaps even before the present first-year medical students have qualified. But it is necessary to answer questions like these and to define clearly the priorities before it is possible to decide the scope of medical care; and until it has been decided, it is impossible to estimate meaningfully the future requirements for medical manpower. To attempt to do so would be to risk a repetition of past errors in forecasting.

Coupled with the problem of defining the scope of medical care, there is the question of how it should be organised. Much of the present manpower problem seems to have arisen because of the divergence between hospital and general practice. The type of medicine practised in specialist hospital wards and that practised out in the community must always be very different, but as both involve the same general processes and are complementary to each other, they cannot be practised in isolation. Indeed there is a dynamic relationship between them, for example as new procedures first developed in hospital start to be applied by general practitioners or as it becomes more appropriate for an increasingly complex examination to be done in hospital rather than outside. Also, although many examinations can only be done in hospital, in other cases it may be more a question of economics or convenience whether a particular procedure is most appropriately carried out in the general practitioner's surgery, in hospital or in the local authority clinics.

There have recently been encouraging signs of closer links growing up again between hospitals, general practice and the

local authorities, especially in some of the experiments in providing medical care for new towns. In particular, this enables undergraduate or post-graduate students at the teaching hospitals and junior hospital doctors elsewhere to gain experience of general practice. Conversely, in the less highly specialised wards general practitioners can more often maintain part-time hospital appointments as Medical Assistants. This should help to overcome the problems inherent in the present pyramid-like structure in hospitals. By making general practice more satisfying, it should also reduce the present high levels of emigration.

In addition there is the question of how much of the work at present done by doctors could be carried out instead by qualified auxiliaries, by machines, or else eliminated altogether. In general practice, health visitors and other ancillary staff can do much to relieve the doctors' load. Not all the tasks traditionally performed by doctors in hospital need a full medical qualification. Automation, for example in the pathology department, can reduce the demand for medical manpower. Duplication between examinations carried out on the same patient in general practice, as an out-patient and then again in the wards after admission could perhaps be avoided. Is the decision-making with regard to the treatment of patients in hospital always properly apportioned between Consultants, Registrars and Housemen ? Certainly there are differences between the organisation in teaching and non-teaching hospitals which may not be altogether accounted for by the requirements of the teaching itself. There are also large differences in the average length of hospital stay for the same condition in different parts of the country. Considerations such as these must be taken into account if the cost of improving the quality of medical care—in terms of manpower—are not to extend beyond our means. In many instances the opportunities and data needed for operational research exist, but little use is made of them.

This paper has not attempted to answer the question of how many doctors Britain needs or how many it should train for the future. Indeed in reviewing the history of the past seventeen years it has underlined the dangers in arriving at too rigid a conclusion on a question which depends on so many factors. Its aim has been to bring out some of those factors, in the hope that attention will be focused on them. It is important that the annual intake of medical students must be guided by very much better forecasts of future trends than those which have been available in the past. Better information must be available about what work doctors are actually doing, about what they should be doing, and

about exactly how many are arriving in or leaving the country. Some clear policy must be decided about the immigrants already practising medicine in this country and in relation to those who may wish to come to Britain in the future. More needs to be known about the value of the dramatic new medical procedures now being developed, and the extent to which the public will demand their availability in the future. Above all we have to decide how much of our resources we are prepared to devote to health. There will always be fewer doctors than would be needed to provide the very best medical attention for every individual. For the present, by far the most urgent priority is to concentrate on getting the most efficient use of the available medical manpower.

Appendix A

Professionally employed doctors in England and Wales 1964 —*Sources.*

NHS—General practice:
Annual report of the Ministry of Health for the year 1964. Includes all principals, assistants and trainees.

NHS—Hospital Staff
Annual report of the Ministry of Health for the year 1964.

Local Authority Service
Ministry of Health—personal communication.

University Staff
University Grants Committee—personal communication.

Total
Estimated from a projection of the 1963 Ministry of Health Survey (personal communication) and the 1961 Census of England and Wales, Occupation and Industry, national summary tables.

Appendix B

Migration of doctors—*Sources and method.*

Sources:

1. The number of doctors in Great Britain at specific points in time obtained from the occupation volumes of the census report for England and Wales and for Scotland for 1901, 1911, 1921, 1931, 1951, and 1961.

2. The number of doctors registering in inter-census years obtained from the General Medical Council. Data relates to doctors registering from the medical schools of the British Isles.

3. Occupation mortality rates for men obtained from the Registrar General's decennial supplement and mortality rates for women from the Registrar General's Statistical Reviews.

Method:

For each decade the method used was identical and thus the first decade 1901 to 1911, will be used as an example.

The 1901 census data gives the number of doctors, both active and retired, alive in 1901 and resident in England, Scotland and Wales. The data is given by sex and age. For men, each age cohort was followed through from 1901 to 1911 applying age-specific and occupation-specific death rates to them. Account was taken of the fact that a doctor aged 25 in 1901 would have been 35 in 1911 and thus at a greater risk of death and also that the age-specific death rates decreased over the decade. Thus of the 4590 male doctors aged 45–54 recorded in the 1901 census it is estimated that 3697 could have been expected to live on to 1911. They would then have been aged 55–64. An expected number was calculated for each of the age groups and totalled. A similar procedure was adopted for women but in the absence of occupation death rates the rates used were those for all women.

The data of new registrations was not obtainable broken down by sex and age and thus estimates had to be made of the proportion of men to women. An average age of 24 at registration was assumed throughout. The number registering in each of the years 1901 to 1911 (for each of the end years only half the numbers were included) were followed through to 1911 with age-specific death rates operating, the two sexes being calculated separately. Thus of the estimated 1175 male doctors registering in 1904 at the age of 24, some 1140 could have been expected to be alive in 1911, aged 31. Again, an expected number alive in 1911 was calculated for each sex and for each age group for each year's new registrations and totalled. These totals were then added to the existing 1901 doctors expected to be alive in 1911.

Thus data was obtained by sex and age of the number of doctors expected to be alive in 1911. This was then compared with the actual 1911 census figures. Some 32,175 doctors were expected to be alive in 1911 and only 28,488 were recorded as being alive and resident in Great Britain in 1911. This gives a figure of 3687 doctors who were no longer in Great Britain in 1911 giving an average figure for net migration of 370 for each of the 10 years 1901 to 1911.

It is recognised that this method has a number of limitations. Firstly, the census data used was based on doctors resident in Great Britain whereas the new registrations included doctors trained in Ireland. Thus within the net migration figures there are those doctors trained in Ireland who remained in Ireland. Secondly, some doctors who are no longer practising medicine, either through retirement or through working outside the profession, will not be recorded in the census reports.

Thus a proportion of those qualifying will in fact be resident at the following census count but will not be recorded. Both these limitations, however, apply to each decade shown and thus, whilst in absolute terms the figures may be slightly inaccurate, for comparative purposes over the 60 years the exercise is considered valid.

Three other minor limitations should be mentioned. A small error might exist on account of the necessary estimation of the proportion of men to women registering. Also the final age breakdown may not be entirely satisfactory as average ages of registering were used throughout. Finally, migration in the decades containing the two world wars may be overstated as the death rates applied were for civilians only.

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