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PROJECT PAPER

Number RC9 September 1980

International Comparisons of Health Needs and Services

Robert Maxwell

Based on working papers of the Royal Commission on the NHS

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Published by the King's Fund Centre, 126 Albert Street, London NW1 7NF. Printed in England by Trident Services, London SE1.

INTERNATIONAL COMPARISONS OF HEALTH NEEDS AND SERVICES

by Robert Maxwell

September 1980
Price £1.00

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126, Albert Street
London NW1 7NF

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EDITORS' INTRODUCTION

This is the ninth in a series of pamphlets based on the working papers of the Royal Commission on the National Health Service. In chapter 3 of the Royal Commission's report, the health service in the United Kingdom in terms of resources and results was compared with health service in the rest of the World.* The Royal Commission were aided in their discussion of international comparisons by discussions with experts, visits they themselves made to other contries, comparative health service statistics prepared by McKinsey and Company Inc, and by the paper reproduced here. This paper by Robert Maxwell, the newly appointed Secretary of King Edward's Hospital Fund who was previously Administrator to the Special Trustees for St Thomas' Hospital, London, was commissioned in 1978 and provides a commentary on the unpublished McKinsey statistics. The paper has been slightly updated since the publication of the Royal Commission's report. The views expressed here do not necessarily reflect those of the King's Fund or the Royal Commission.

We are grateful to McKinsey and Company Inc. for permission to use unpublished data they provided to the Commission in this paper. We are also grateful to the King Edward's Hospital Fund for London for giving a grant to enable this material to be published, and to the Polytechnic of North London where this project has been based.

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Rosemary Davies

* GREAT BRITAIN. PARLIAMENT. *Report of the Royal Commission on the NHS* (Chairman: Sir Alec Merrison) London, HMSO, 1979. *Cmnd 7615* pp 13-27.

INTERNATIONAL COMPARISONS OF HEALTH NEEDS AND SERVICES

INTRODUCTION

This memorandum was prepared at the request of the Royal Commission on the NHS to give members a summary view of the comparative information readily to hand on health care in developing countries in preparation for their visits overseas. It is not based on new research except on expenditures where I have drawn to some extent on my own current work in this area. The statistics and my comments on them can very properly be approached with considerable wariness, for there are all kinds of pitfalls in international comparisons. Nevertheless, some valid conclusions can be drawn, particularly about the many striking similarities among countries. Differences must be treated with more caution, as pointers to questions, rather than as answers.

HEALTH NEEDS

The principal needs and trends are common throughout the developed world, and are only slightly changed from those that I described in *Health Care: The Growing Dilemma.*[1] They relate to birth and infancy; old age; unnecessary death and morbidity before old age; minor illness; and the overwhelming importance today of chronic degenerative, life-style diseases, compared with acute infectious disease.

1 Birth and Infancy

Remarkable progress has been made, and continues to be made in reducing death rates connected with birth and infancy. Statistics for selected countries are given in Figures 1 to 3 attached.* While there are differences among countries, the trend is everywhere encouraging. The credit lies in part with rising living standards, but also with good health and social care. Obviously these improvements cannot continue indefinitely.

* Figures in this paper are based on unpublished data provided by McKinsey and Company Inc.

The Swedish, Norwegian and Danish maternal mortality figures in 1973 were a mere three deaths per 100 000 live births, having fallen by two-thirds since 1970. Most countries should, however aim for further substantial improvements, particularly in infant deaths before the age of one week: as many deaths occur in England and Wales in this first week as in the next 20 years of life. The scope for improvement lies especially with certain sections of most populations (e g the urban poor) for whom the figures are much worse than for the population at large. Ante-natal care for **all** pregnant mothers is one of the keys, since this allows early identification of mothers and babies who are physically or emotionally at risk. There must also be ready access to skilled specialist obstetric and neonatal units for those who need them. And close continuing contact in the community at the primary care level is vitally important for those families with very young children at risk through their physical frailty, the family's living conditions, or the parents' difficulties in coping.

Besides mortality, we must be equally concerned about impairment at birth and in infancy. In the main and with dramatic exceptions like spina bifida, the measures which will reduce mortality should also help to reduce handicap. Ante-natal care, skilled specialist units and good follow-up in infancy are equally relevant here.

The figures suggest that Sweden, Norway and Denmark are the leaders in maternal, natal and infant care. The disturbing fact for England and Wales is that our recent record of improvement in this field is not as good as that of many other countries. France's achievement in reducing infant mortality from 25 per cent above ours in 1960 to 12 per cent below us in 1974 merits discussion, although the reasons for the dramatic drop in France are hotly debated by French commentators.[2]

2 Old Age

The number and proportion of the elderly have increased throughout the developed world, and the 'old old' (over 75) will continue to rise for the rest of this century. These increases have major implications for health

and social services because physical frailty and suffering rise sharply with age. Figure 4 attached, gives demographic figures for a range of countries, and figures 5 and 6 illustrate British expenditure by age group, based on government sources.[3] (Swedish and American studies have illustrated the same point.)

The reasons for this increase in the elderly population have little to do with recent changes in life expectancy after age 1, although there has been some improvement, especially for women (see Figure 7). It stems mainly from falling birth-rates, and from reductions in infant death rates much earlier in the century.

The challenge presented by these facts is how to enable older people to live as independent and full a life as they can, for as long as they can, and provide graduated levels of support to them and to their families and neighbours. Permanent care in institutions is needed by only a relatively few, is wanted by even fewer, and is massively expensive.

I know of no country that has developed better graduated support than Britain, but that may be my ignorance. My impression is that the Swedes have some splendid housing and homes but are overreliant on institutional solutions. The Norwegians and the Dutch may have done better than the Swedes in community care for the elderly and this would be worth probing.

3 Death and major illness between infancy and old age

Too much avoidable death and major illness occurs between infancy and old age. Figures 8 and 9 give death rates by country for each age group, for men and women separately. Figures 10 and 11 give the principal causes of death for six countries by age group in 1973, or the nearest available year.

There are interesting and important national differences in these figures.[4] For example, Sweden, for all the excellence of its health, has far too many deaths from accidents, injury, suicide and mental disorder. The

UK record here is far better, but our figures are poor from age 35 onwards for ischaemic and other heart disease, for lung cancer and for lung disease and pneumonia. The Americans and Canadians combine some of the worse points of the Swedes with ourselves, though their figures for respiratory disease are not as bad as ours. Similar analyses would show each country's pattern to be different: for example the Finns have uniquely high mortality from circulatory disease in middle-aged men.

Despite these differences, the pre-eminent fact is common: virtually all these unnecessary deaths and most major illness in these age groups are self-inflicted or inflicted by the violence of others. Drink is a principal cause and alcohol consumption is rising everywhere, except in France, which has the dubious distinction of heading the consumption league (Figure 12). Smoking is another potent cause. Here the story is a little more encouraging. Cigarette consumption continues to rise almost everywhere (Figure 13) but tobacco consumption is down in several countries. Other causes include diet, lack of exercise and life-style habits generally, but none of these is as important as smoking and drink.

How does one bring home to people their responsibility for their own health, and what measures is it appropriate for government to take ? In the last few years there has been a heightened interest in these questions but relatively little action. Seat-belt legislation has proved its effectiveness in reducing fatal and serious road accidents in Australia and Canada. Laws against driving with excess alcohol in the blood are fairly general but are said to be more effective in Sweden and Norway than in most other places: as with other anti-social behaviour the crucial consideration is probably the likelihood of being caught, not the existence of the legislation or even the stiffness of the penalty. Against other aspects of drinking and against smoking little legislative action has been taken.

These are negative sanctions by government but what about the promotion of responsible behaviour by individuals? It is a sobering fact that the Communist countries make Western attitudes look totally

irresponsible over individual behaviour affecting health. In the West, Canada has perhaps moved further than other countries in promoting changes in personal behaviour; my own observation (a misleading guide) suggests that in diet and exercise the Germans and Americans are also beginning to act on the message, and that the Norwegians have perhaps never lost the habit of reasonable frugality and exercise.

The potential impact of personal behaviour in improving health in the developed world can scarcely be overstated. Studies by Breslow and Belloc[5] show that life expectancy and health are significantly related to seven basic habits:

1 Three meals a day at regular times and no snacks between meals.
2 Breakfast every day.
3 Moderate exercise two or three times a week.
4 Seven or eight hours' sleep per night.
5 No smoking.
6 Moderate weight.
7 No alcohol or only in moderation.

At age 45, a man who practises few of these habits can expect to live to age 67, while one who practises six or seven of them has a life expectancy 11 years longer, to 78. The health status of those who practise all seven habits is similar to those 30 years younger who observe none. No conceivable intervention by curative health services can begin to make good this difference, once the damage is done.

4 Minor illness

Minor illness changes its shape but certainly does not decline overall. International statistics on minor illness are almost non-existent. The scant information that there is on sickness absence underlines its ostensible importance as a cause of working days lost, not only in this country, but also elsewhere (Figure 14). A break-down of the British figures in 1972/73, compared with ten years earlier (Figure 15), shows a

fall in some conditions, but an overall rise, especially in the degenerative diseases connected with ageing, and in ill-defined and psychiatric conditions. Sample surveys emphasise the shadowy boundary between health and ill-health and the very extensive amount of 'dis-ease', most of it probably minor in nature, which is not dealt with at all by health services (Figure 16).

5 Degenerative versus infectious disease

Relatively little disease today is of the sudden episodic kind, such as arose from infectious disease early in the century. Infectious diseases often occurred in the young and otherwise healthy. In many cases the pathology of these diseases is now understood, and they can be prevented or cured.

The main threats to life and health today are of a different kind, often arising (as we have seen) from life-style associated with the ageing (quicker or slower, but ultimately inevitable) of the human body. These problems are less susceptible to cures, and to solutions through scientific advance. Moreover, because ageing and death are inescapable, there are many occasions when one can only help, alleviate, comfort and care, without the satisfying drama of cure.

Clinicians and health systems are very slow to adjust to this profound change in their role. Once their central role was to comfort and care, because they could do so little else. Now, because of their very successes, the wheel has come full circle and prevention (where possible) and alleviation and comfort have regained theirimportance, in fact if not in professional esteem and public expectation.

RESOURCES

Everywhere health expenditures have risen steadily, not only in terms of money but as a proportion of Gross National Product. Figure 17 shows annual health expenditure from all sources (public and private) in US dollars for a range of countries, and Figure 18 shows the proportion of

GNP spent on health care since 1960. Reliable and comparable information is hard to obtain on health expenditures, but there can be no doubt about the rising trends.

The money is primarily spent on wages and salaries. Where I have been able to obtain a reliable breakdown, wages and salaries have taken between 58 per cent and 65 per cent of total health expenditure (including capital spending), with little variation from country to country. The English breakdown is given in Figure 19. Physician manpower varies by country from about 12 per 10 000 population to 20 in Italy and 30 in the USSR (Figure 20 attached). Everywhere the trend in physician numbers has been strongly upwards, and recent major expansions in the intake of medical schools mean that most countries will face difficult and inflationary problems in employing the physicians available to them in ten years' time. Nursing numbers are much less reliable than physician numbers (Figure 21). For qualified nurses, the ratios range up to 59 per 10 000 population in Sweden, and again the trend is strongly upwards. Some countries, for example Canada, have recently faced a sudden transformation in the employment position for newly qualified nurses. When I first worked in Canada about four years ago, hospitals frequently visited Britain to recruit nurses. Within 12 months it became difficult for newly qualified Canadian nurses to obtain jobs. Besides doctors and nurses there are, of course, many other disciplines at work in the health field (Figure 22), particularly in hospitals. Health services are now a major employment sector, accounting for about five per cent of the workforce throughout the developed world. Britain became aware of the importance of medical manpower planning earlier than most other countries but its experience has shown just how complex medical manpower planning is, while little has yet been done for any other health manpower group. Outside Britain, governments seem only recently to have become aware of the importance of health manpower planning. The explosive expansion of medical schools in the early 1970s stemmed almost entirely from the boom in university education and from the popularity of medicine as a field of study. In remarkably few cases was any serious study done of medical manpower needs.

By service, the major share of health expenditure is everywhere on hospitals. Figure 23 shows the breakdown for England, where hospitals account for two-thirds of the total. In other countries, the proportion ranges from 71 per cent in Sweden down to about 40 per cent in France and West Germany. However, the comparison is somewhat misleading because in West Germany, only teaching hospitals have outpatient clinics, ambulatory care being the preserve of the private physician, while in France hospital outpatient care is not included in the hospital expenditure figures. Moreover, several countries exclude a major part of physician costs from hospital costs since attending physicians are not paid by the hospital but by the patient, his insurance company or the public insurance system. Nevertheless, there are real variations among countries in the mix between hospital and community care. Figure 24 shows hospital beds by country, and Figures 25 and 26 give hospital utilisation statistics. Sweden has the most hospital dominated system, particularly so far as general hospitals are concerned. The United States uses its relatively few beds more intensively than anyone else, with a short average length of general hospital stay (eight days, compared with 12½ in England and Wales, and over 15 in France, Germany and the Netherlands). A most interesting statistic is the average number of days of hospitalisation per person per annum, and here the England and Wales figures are low (Figure 27), particularly for general hospitals. This suggests that we are more successful than most developed countries in keeping people out of hospital, much of the credit for this presumably lying with our comparatively strong system of primary care through general practice. In relatively few other countries, apart from the UK and the Netherlands, must the patient first see a GP and be referred by him to a specialist. This arrangement is probably essential if we want (as I believe we should) to keep general practice strong. For other types of community care, complementary to general practice, the Netherlands and parts of Scandinavia probably provide the best examples. For example, community-based psychiatric care is strong in the Netherlands.

The same five causes lie behind the rise in health care expenditures everywhere. These have been well described by Brian Abel-Smith.[6]

They are:

- changing needs, particularly from the ageing of the population and the increased importance of chronic diseases,

- changing technology, since medical advance often offers the possibility of improved care but almost never saves money,

- rising expectations, on the part of the medical and other health professions, and of the general public, not only in acute care, but also in care of groups like the physically and mentally handicapped, who have been neglected in the past,

- rising costs associated with the personnel (as opposed to capital) intensive nature of health services: only relatively seldom in the health field is human labour replaced by capital equipment,

- increasing dependence on public financing: this switch (for which there are impeccable reasons) removes the restraint imposed by individuals' inability to pay and their physicians' concern about the financial strain imposed on them.

Most of these causes, except perhaps the last (which may already have made its maximum impact), will continue to operate in the future. It is quite wrong to suppose that the past causes of increases in health expenditures have spent their force.

On the other hand, however, all governments have now become worried about the cost of health care and are seeking means to limit public expenditure on health services. Every developed country provides some evidence of this concern. UK controls over health prices and expenditures are tighter than anywhere else, and originated earlier. But Canada, France and the Netherlands, Sweden and the United States, all provide recent evidence of efforts to cap increases in expenditure. On the whole, success has been only temporary. Governments can in the short term impose restraint, especially if there is substantial 'fat' in the system. But

the longer term problem is much more complicated, namely how to obtain maximum value for money in expenditures for health, and how to choose rationally among health programmes and other priorities, with full awareness of what money will buy in each field.

Our own budgeting methods and disciplines are probably in advance of those elsewhere. Sweden, Norway and Denmark deserve study on their balance between central and local public financing, since they depend more than we do on local finance. Canada has better information than any other country on what services are given by each doctor and what he charges for these services. And France is worth studying for its 'ticket moderateur' system, which imposes a charge of around 25 per cent of cost on individuals at the time of use for all except the most expensive services : the object is to restrain demand for service for minor conditions while covering people fully in the case of catastrophes.

ORGANISATION AND ADMINISTRATION

While there are great differences among countries in the degree of government control of health services, everywhere the trend has been towards more reliance on government funding, and increased government intervention in health administration. Figure 28 suggests a spectrum of degrees of government involvement. What is common, however, is that in the last two decades, every developed country has moved a longer or shorter distance from the bottom left of this diagram towards the top right. I know of no example of a movement the opposite way, although this could certainly happen in the next decade.

Organisational change has been common in health services in recent years, and has been, by no means, solely a British preoccupation. The reasons for change have been mainly three: to promote local cooperation among hospitals, and between hospitals and community services; to provide a regional framework for the rational planning of services, including tertiary referral services; and to obtain closer control of public spending.

No pattern of health service organisation and administration is for export, since each country's traditions and values are sufficiently different to make it uncomfortable with solutions developed elsewhere. Nevertheless, certain questions are general and are important, including:

- how can personal responsibility be retained, while giving good access to care for everybody in need (here the French experience with the 'ticket moderateur' deserves study, even if one decides against it) ?

- how can local flexibility and 'elbow-room' for those working in the system be encouraged, while maintaining adequate standards everywhere and controlling costs (here the Scandinavian and Dutch systems, which are substantially less dominated by central government than ours, are worth attention) ?

- how can duplication and misuse of expensive services, requiring a high concentration of workload and skill, be avoided (here no other country has, so far as I know, done as well as the UK, but an unintended result of the RAWP formula might be to change this; Norway has tried to achieve a balance between decentralisation of basic services and concentration of selected specialities) ?

- how can excellence of care for each individual and high standards in education and research, be reconciled with economy and equity (here the American attempts to measure the appropriateness and quality of care deserve respect, although they have so far been unduly concerned with process; British emphasis on outcome assessment must be right, despite the formidable problems involved) ?

I do not pretend that these questions are the only ones, nor that they are particularly well formulated. However, they are examples of the issues that are common to all systems, and are much more worth pursuing on overseas visits than are attempts to absorb the details of how health services are organised, financed and run.

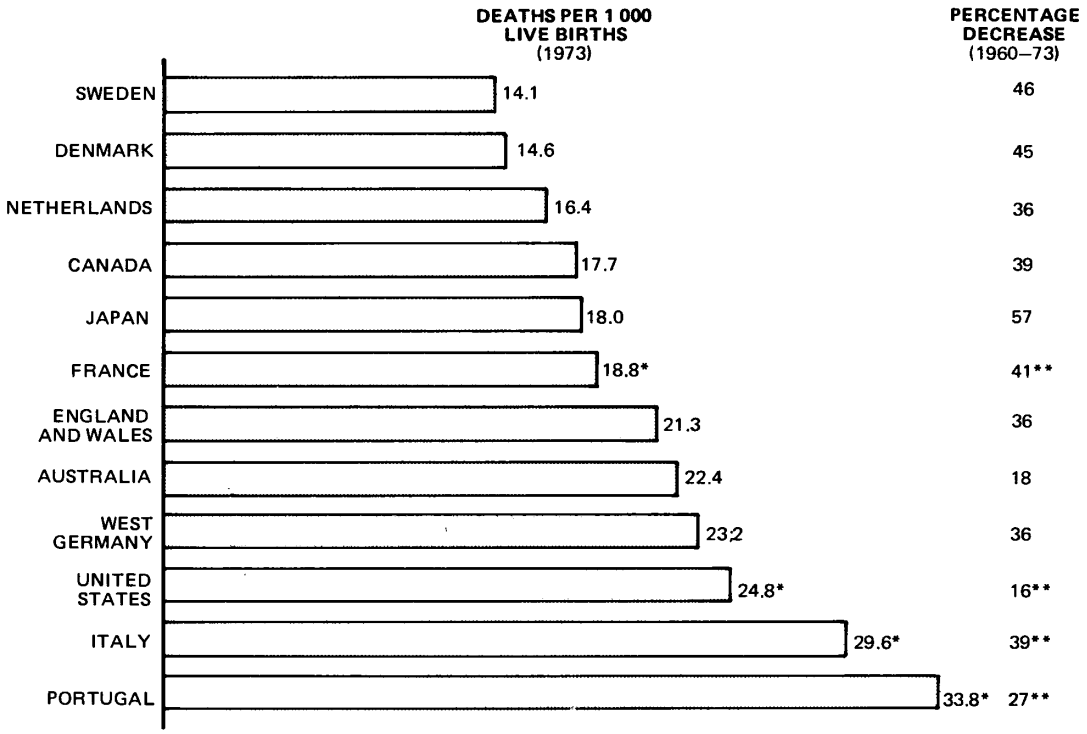
IMPLICATIONS

I have tried to suggest some of the matters that members of the Commission may find worth pursuing in particular countries and among countries. The more general points that impress me from international comparisons in the developed world are (a) that the similarities among developed countries in health needs and the problems of trying to meet them are far more important than the differences, (b) that governments have gradually, and often unwittingly, become the dominant source of finance for the health sector, are suddenly worried about the scale of growth of health expenditure, but have as yet, little skill in this major field of public policy, and (c) that the British National Health Service has a great deal to commend it as a framework for a health system. The principal problem for the NHS, and thus for the Commission, is how to preserve the basic strengths of the NHS and overcome the threats of discontent by many of those working in the service, and of an increasing gap between what the NHS is supposed to do and the level of service actually delivered. Matters on which international comparisons are of special relevance are whether we can do more to promote health through personal responsibility; whether we are expecting too much of the NHS for what we put into it (ie whether it is underfinanced relative to the scope and level of services aimed for); and whether we can learn from some of the ways in which other people tackle the extraordinarily demanding task of running the health sector well, for example, whether the greater decentralisation of the Scandinavian system has lessons for us.

FIGURES

Figure 1

SHARP DECLINES IN PERINATAL MORTALITY

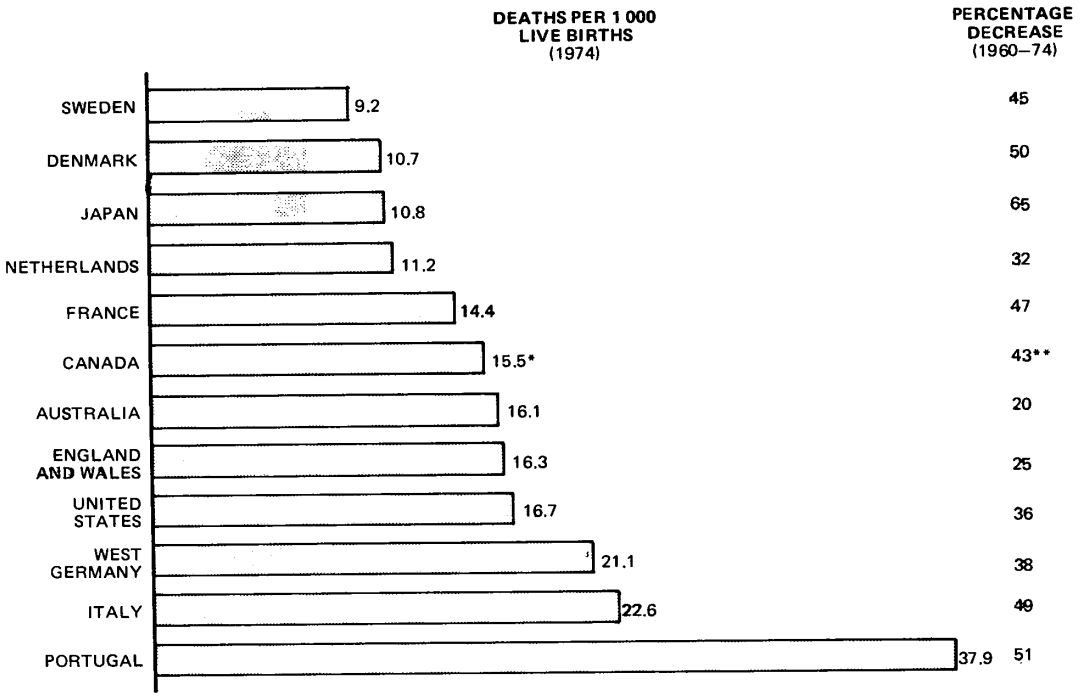


* 1972 ** 1960–72

Source: *International Comparisons of Health Needs and Health Services* McKINSEY & COMPANY INC 1978 (unpublished) This is a useful extract of available international statistics chiefly from the World Health Organisation.

Figure 2

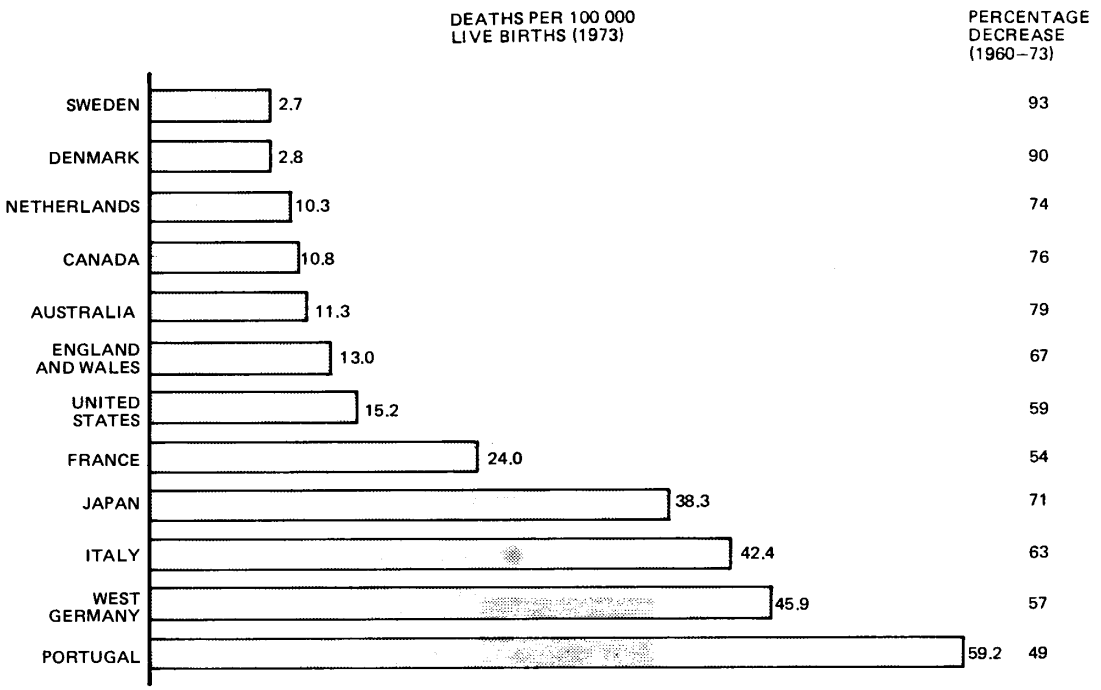
INFANT MORTALITY



* 1973 **1960–73

Source: McKINSEY & COMPANY INC *Op cit* Table 4

Figure 3
MATERNAL MORTALITY



Source: McKINSEY & COMPANY INC *Op cit* Table 5

Figure 4

GROWING PROPORTION OF THE ELDERLY

	Population 1974 (million)	Per Cent Aged		Change in Per Cent of Population (1950–74)	
		65 to 74	75+	65 to 74	75+
United States	212	6.4	3.9	14	50
Japan	110	5.3	2.4	43	85
West Germany	62	9.4	4.5	42	67
Italy	55	7.8	4.0	42	54
France	53	8.4	5.2	9	27
England and Wales	49	9.0	5.0	22	43
Canada	23	5.2	3.2	0	33
Netherlands	14	6.7	3.9	26	63
Australia	13	5.4	3.0	13	77
Portugal	9	7.1	3.1	51	35
Sweden	8	9.4	5.5	38	62
Denmark	5	8.1	4.8	31	65
AVERAGE		7.4	4.0		

Source: McKINSEY & COMPANY INC *Op cit* Table 2

Figure 5

The Elderly have large health needs . . .

ESTIMATED CURRENT EXPENDITURE PER HEAD 1975–76 (GREAT BRITAIN)

£

	Total	All* Births	0–4	5–15	16–64	65–74	75+
Hospital and Community Health	75	455	85	30	45	150	350
Family Practitioner Services	20	30	20	15	20	25	50
Personal Social Services	20	10	20	25	5	25	125

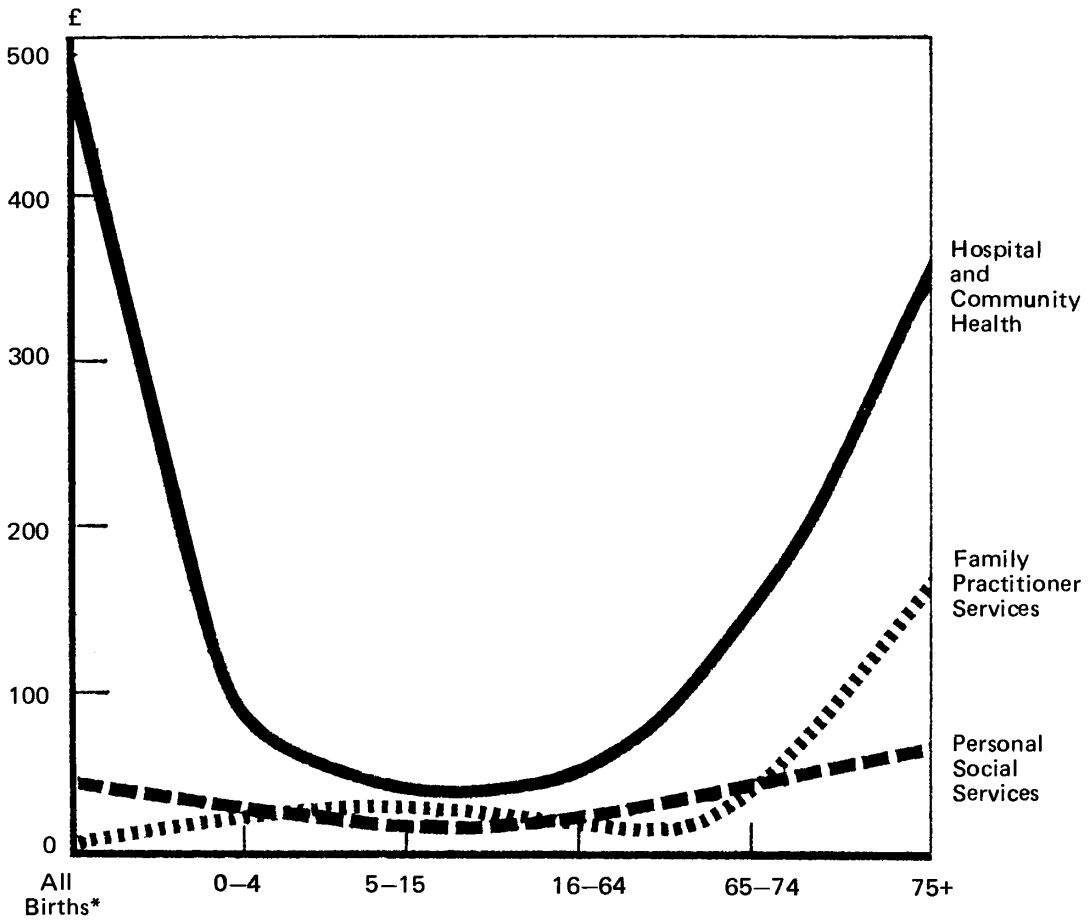
* Cost per delivery, including pre- and post-natal care; this is excluded from the costs by age group

Source: GREAT BRITAIN, PARLIAMENT. The Government's Expenditure Plans 1978–79 to 1981–82. Vol 2, HM Treasury, London, HM Stationery Office, 1978. pp85 *Cmnd 7049.*

Figure 6

The Elderly have large health needs . . .

ESTIMATED CURRENT EXPENDITURE PER HEAD 1975–76 (GREAT BRITAIN)



* Cost per delivery, including pre- and post-natal care; This is excluded from the costs by age group.

Source: Figure 5 and Command 7049–II

Figure 7

EXPECTATION OF LIFE AT AGE 1

	Male (in years)		Female (in years)	
	1973	Change since 1960	1973	Change since 1960
Sweden	72.0	+ 0.6	77.4	+ 3.5
Netherlands	71.2	– 0.8	76.9	+ 2.5
Denmark	71.0	– 0.4	76.4	+ 2.8
Japan	70.8	+ 6.3	76.0	+ 6.7
Italy	70.0 *	+ 0.9*	76.0*	+ 2.6*
Canada	69.7	+ 0.3	77.0	+ 2.7
France	69.5	+ 2.2	77.1	+ 3.8
England and Wales	69.5	+ 0.7	75.6	+ 1.3
West Germany	68.6	+ 0.4	74.9	+ 2.0
Australia	68.5	+ 0	75.4	+ 1.2
United States	68.0	+ 0.6	75.6	+ 2.4
Portugal	67.1**	+ 2.0**	73.3**	+ 3.4**

* 1972 figures ** 1974 figures

Source: McKINSEY & COMPANY INC *Op cit* Table 6

Figure 8

MALE DEATH RATES PER MILLION POPULATION, BY AGE GROUP (1973)

	1–4	5–14	15–24	25–34	35–44	45–54	55–64
Sweden	490*	322*	952*	1 240*	2 318*	5 852*	14 291*
Denmark	685	448	1 077	1 026	2 432	6 486	16 904
England and Wales	770	370	957	1 007	2 250	7 231	20 422
Italy	782	486	1 091	1 173	2 535	7 050	18 168
Canada	821	516	1 857	1 548	2 949	7 380	18 697
France	831	431	1 517	1 568	3 386	8 012	19 399
Netherlands	862*	391*	1 044*	835*	1 924*	5 794*	16 638*
USA	858	500	1 898	2 145	3 804	9 166	22 066
West Germany	928	495	1 506	1 609	3 027	7 225	20 679
Australia	980	414	1 640	1 386	2 848	7 879	20 787
Japan	1 122	431	1 123	1 324	2 775	5 620	14 960
Portugal	2 402*	790*	1 666*	2 160*	4 111*	8 279*	19 213*

* 1974 figures

Source: McKINSEY & COMPANY INC *Op cit* Table 7

Figure 9

FEMALE DEATH RATES PER MILLION POPULATION, BY AGE GROUPS (1973)

	1 – 4	5–14	15–24	25–34	35–44	45–54	55–64
Sweden	385*	234*	409*	547*	1,298*	3,176*	7,367*
Denmark	448	295	422	640	1,872	4,116	9,219
Netherlands	557*	266*	368*	509*	1,272*	3,283*	7,328*
England and Wales	605	236	421	579	1,552	4,372	10,222
France	656	293	600	711	1,638	3,604	8,200
United States	699	316	664	944	2,156	4,931	10,798
West Germany	701	328	572	776	1,681	4,172	10,069
Canada	731	310	609	723	1,632	3,950	9,231
Italy	733	299	448	647	1,400	3,593	8,814
Australia	734	290	564	675	1,673	4,360	10,241
Japan	840	275	518	783	1,496	3,395	8,322
Portugal	1,977*	536*	577*	932*	1,869*	4,068*	9,930*

* 1974 Figures

Source: McKINSEY & COMPANY INC *Op cit* Table 7

Figure 10

PRINCIPAL CAUSES OF MALE DEATHS, AGE 1 TO 64 (excluding congenital abnormalities)

(1973 or nearest available date, deaths per million population)

At ages	Neoplasms						Circulatory diseases					
	SW	NL	E&W	WG	US	J	SW	NL	E&W	WG	US	J
1 to 4	62	87	91	106	78	89						
5 to 14	75	78	74	75	64	65						
15 to 24	70	88	99	107	95	86						
25 to 34	148	162	180	192	160	162	101	85	149	138	36	187
35 to 44	394	409	482	490	521	517	401	566	921	615	1 141	686
45 to 54	1 243	1 781	1 871	1 653	1 863	1 506	2 226	2 454	3 759	2 449	4 180	1 736
55 to 64	3 723	6 112	6 059	5 558	5 193	4 660	7 180	6 994	10 256	8 449	11 456	5 760

At ages	Respiratory diseases						Accidents, poisoning, violence					
	SW	NL	E&W	WG	US	J	SW	NL	E&W	WG	US	J
1 to 4							181	334	218	360	415	548
5 to 14							149	205	156	279	307	220
15 to 24							734	695	629	1 144	1 508	758
25 to 34	16	16	50	34	55	33	784	386	470	902	1 400	669
35 to 44	61	52	124	86	129	74	951	492	443	958	1 229	784
45 to 54	164	181	538	273	394	181	1 277	507	475	1 042	1 234	916
55 to 64	429	835	2 179	1 240	1 311	693	1 278	756	609	1 327	1 369	1 230

SW = Sweden NL = Netherlands E&W = England and Wales

WG = West Germany US = United States J = Japan

Source: McKINSEY & COMPANY INC *Op cit* Table 8

Note: For each group of causes in each age group the figures for the two countries with the worst rates are underlined.

Figure 11

PRINCIPAL CAUSES OF FEMALE DEATHS, AGE 1 TO 64 (excluding congenital abnormalities)

(1973 or nearest available date, deaths per million population)

At ages	Neoplasms						Circulatory diseases					
	SW	NL	E&W	WG	US	J	SW	NL	E&W	WG	US	J
1 to 4	60	68	67	75	58	76						
5 to 14	67	47	51	67	50	52						
15 to 24	57	61	72	69	62	72						
25 to 34	133	145	172	186	164	197	35	62	88	81	196	104
35 to 44	542	589	663	632	627	568	165	236	344	258	499	306
45 to 54	1 600	1 773	2 081	1 861	1 814	1 346	616	723	1 236	867	1 510	985
55 to 64	3 302	3 299	3 956	3 860	3 601	2 860	2 383	2 351	4 084	3 206	4 544	3 220

At ages	Respiratory diseases						Accidents, poisoning, violence					
	SW	NL	E&W	WG	US	J	SW	NL	E&W	WG	US	J
1 to 4							88	162	136	236	292	323
5 to 14							74	94	70	150	144	89
15 to 24							248	167	182	303	397	227
25 to 34	12	12	35	28	55	35	239	166	148	264	364	210
35 to 44	36	34	106	60	99	57	301	187	201	286	413	222
45 to 54	100	88	299	116	210	116	384	219	277	426	446	308
55 to 64	206	195	827	350	481	345	538	373	351	530	496	478

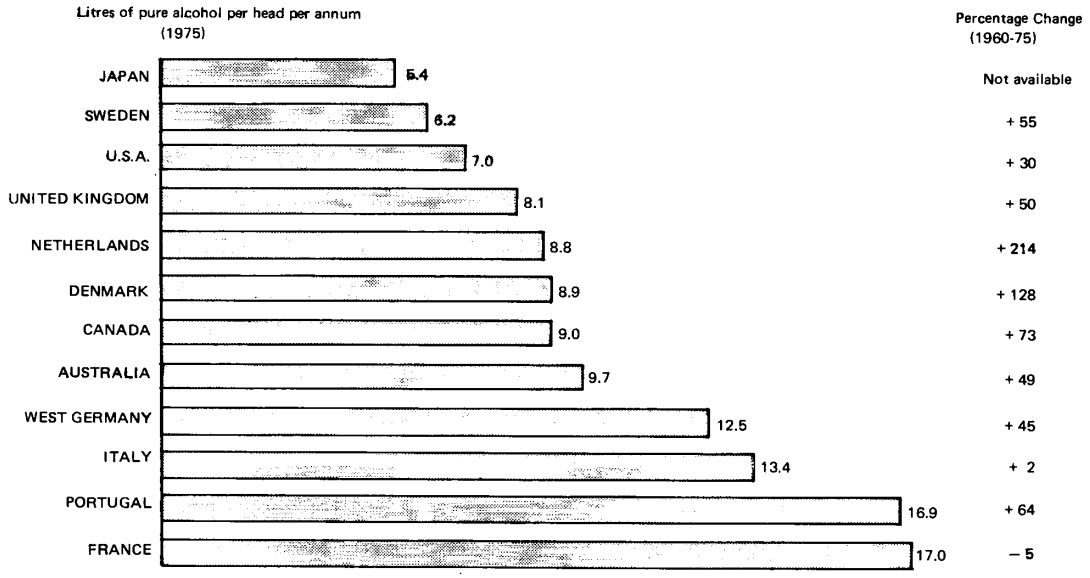
SW = Sweden NL = Netherlands E&W = England and Wales

WG = West Germany US = United States J = Japan

Source: McKINSEY & COMPANY INC *Op cit* Table 9

Note: For each group of causes in each age band, the figures for the two countries with the worst rates are underlined.

Figure 12
ALCOHOL CONSUMPTION



Source: McKINSEY & COMPANY INC *Op cit* Table 11

Figure 13

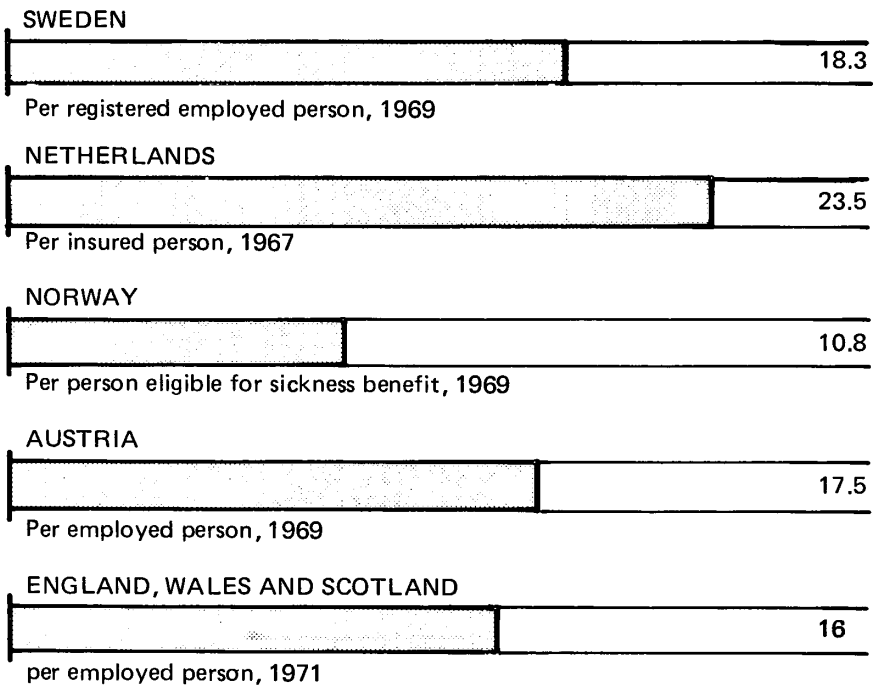
TOBACCO AND CIGARETTE CONSUMPTION

	TOBACCO		CIGARETTES	
	Lbs per adult per annum (1973)	Percentage change (1960–73)	Number manufactured per adult per annum (1973)	Percentage change (1960–73)
Portugal	3.4*	+42*	1 490*	+52*
Sweden	4.0	–11	1 580	+36
Italy	4.4	+38	1 930	+53
France	5.9	+23	1 920	+46
United Kingdom	6.2	– 9	3 230	+17
West Germany	6.8	+21	2 610	+60
Japan	7.2	+67	3 240	+72
Australia	7.5	– 5	3 080	+26
Denmark	8.0	– 1	1 850	+26
United States	9.2	–12	3 850	+ 1
Netherlands	9.8	+15	2 370	+39
Canada	10.0	+ 6	3 450	+19

* 1972 Figures, with changes from 1960 to 1972

Source: McKINSEY & COMPANY INC *Op cit* Table 11

Figure 14
WORKING DAYS LOST THROUGH SICKNESS



Source: MAXWELL, R *Health care: The Growing Dilemma.* New York, McKinsey & Company Inc 1975. Figure 14 pp12.

Figure 15

RECORDED CAUSES OF SICKNESS INCAPACITY

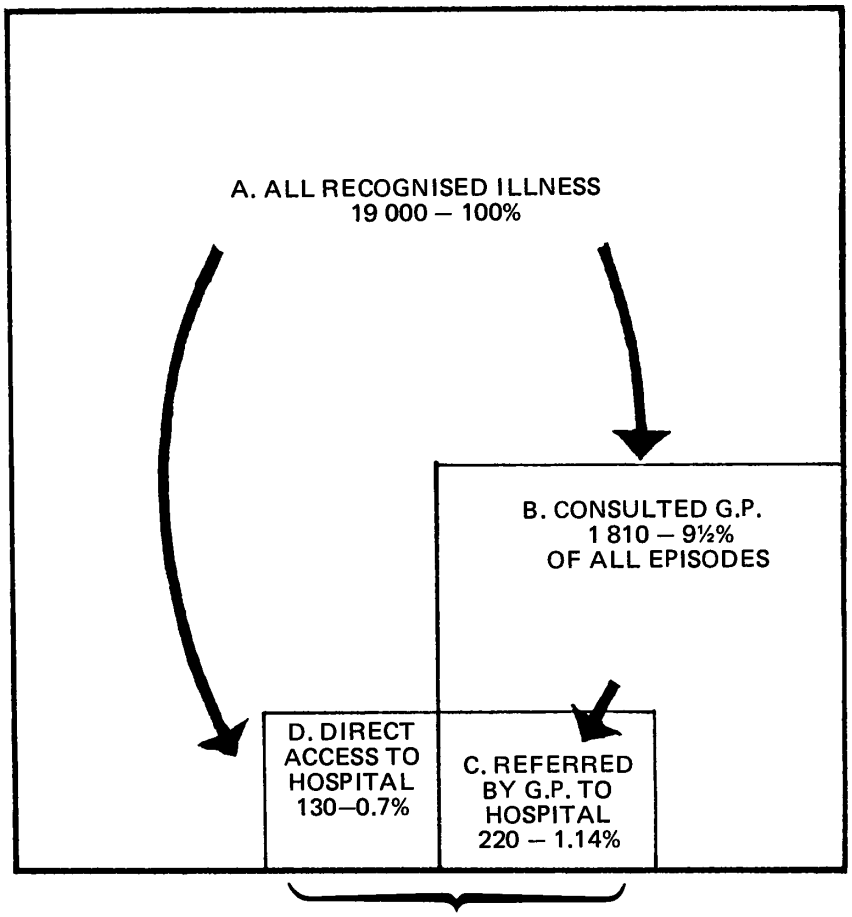
	1962/3		1972/3		
	Days lost (millions)	%	Days lost (millions)	%	% Change
Bronchitis	39	13.6	31	9.8	–20
'Flu	14	4.8	14	4.3	– 2
Other respiratory	23	8.0	26	8.1	+11
All respiratory	76	26.4	71	22.1	– 7
Circulatory	32	11.2	45	14.0	+37
Musculoskeletal etc.	27	9.3	34	10.8	+27
Digestive	25	8.5	19	6.0	–22
Accidents, poisonings, violence	21	7.2	29	9.0	+38
Symptoms and ill-defined conditions	21	7.3	32	9.9	+51
Mental disorders	28	9.5	31	9.6	+11
Other	59	20.4	59	18.6	+ 1
TOTAL	289	100.0	320	100.0	+11

Source: DHSS statistics

Figure 16

THRESHOLDS OF AWARENESS AND CONSULTATION

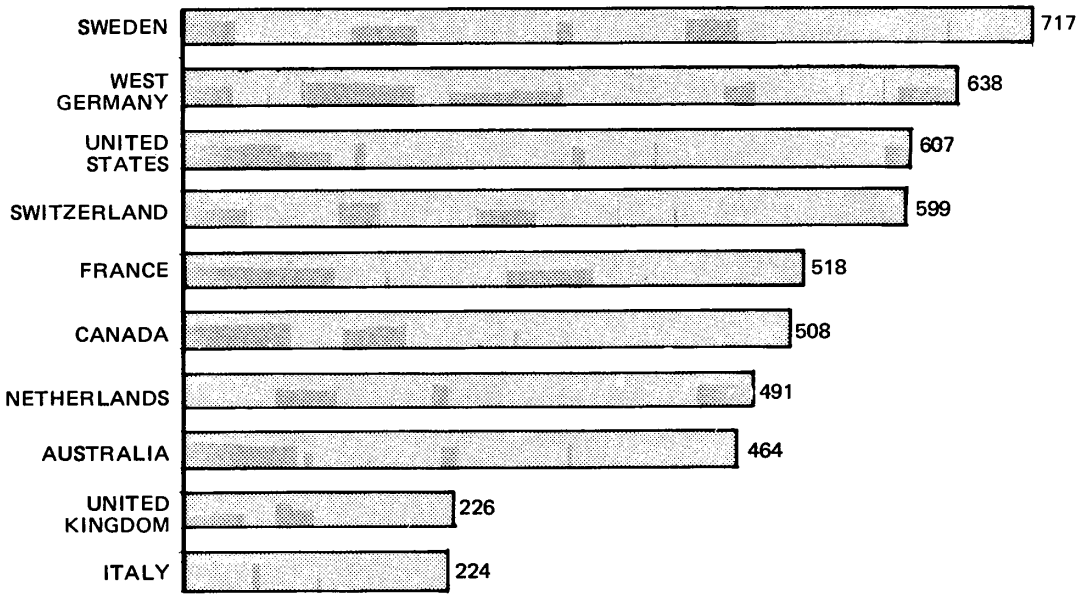
Episodes of illness during period of study per 1 000 patients at risk



Source: CROMBIE, D Changes in Patterns of Recorded Morbidity, pp24, Figure 1, in TAYLOR, D *editor Benefits and Risks in Medical Care.* London, Office of Health Economics, 1974.

Figure 17

TOTAL HEALTH CARE EXPENDITURE (public & private, capital and current)
(Calendar 1975 in U.S. $ per head)



Source: Own research (to be published shortly)

Figure 18

HEALTH CARE EXPENDITURE AS A PERCENTAGE OF GNP

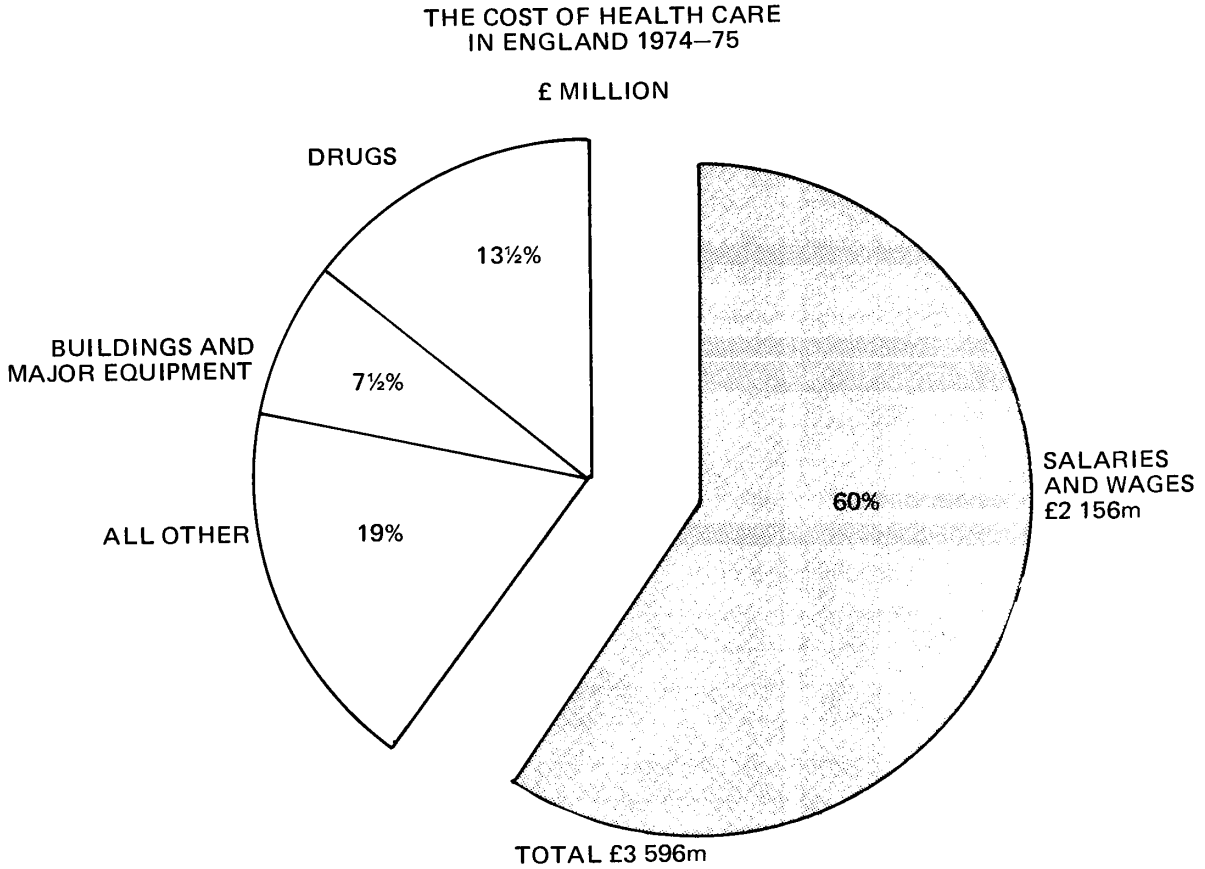
(Public and Private, Capital and Current)

	West Germany	United States of America	Sweden	Nether-lands	France	Canada	Australia	United Kingdom
1950		4.5	3.4		3.4	4.0		3.9
1960		**5.3**	4.7	4.5	4.7	5.6	5.0	3.8
1965		6.2	5.6	5.3	5.8	6.1	5.2	3.9
1970	6.4	7,6	7.4	6.3	6.4	7.1	5.5	4.3
1975	9.4	8.6	8.5	8.1	7.9	7.1	7.0	5.5

Source: Own Research (to be published shortly).

Figure 19

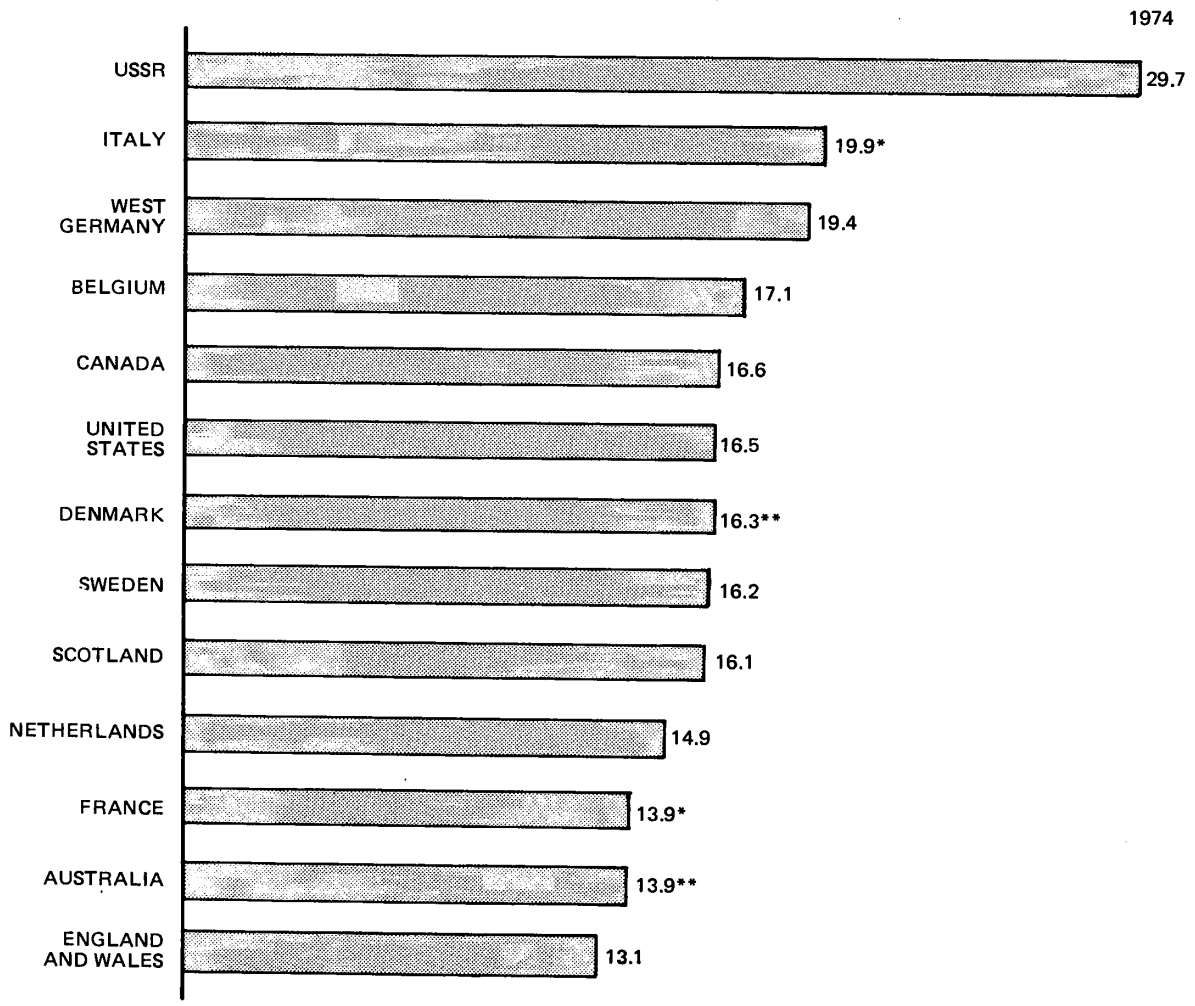
60% OF HEALTH EXPENDITURE IN SALARIES AND WAGES . . .



Source: GREAT BRITAIN. PARLIAMENT. *Annual Reports of the Department of Health and Social Security.* London, HM Stationery Office, annual publications.

Figure 20

DOCTORS PER 10 000 POPULATION



* 1973 ** 1972

Source: McKINSEY & COMPANY INC *Op cit* Table 13

Health Services in Europe. Third edition.
Vol. 2. Country reviews and statistics WHO.
Regional Office for Europe, Copenhagen, 1981.

Total nursing personnel per 10,000 population

Sweden	73,170	(1977)	population	8,284,437	(1978)
Denmark	30,037	*	59.2	(1976)	
Norway	39,746		98.1	(1977)	
Finland	45,869		96.4	(1978)	
UK	183,617		37.4	(1977)	
West Germany	228,269		37.1	(1976)	
France	303,344		57.4	(1976)	
Netherlands	96,000		69.1	(1978)	
Portugal	18,355	*	19.3	(1976)	

* Nurses

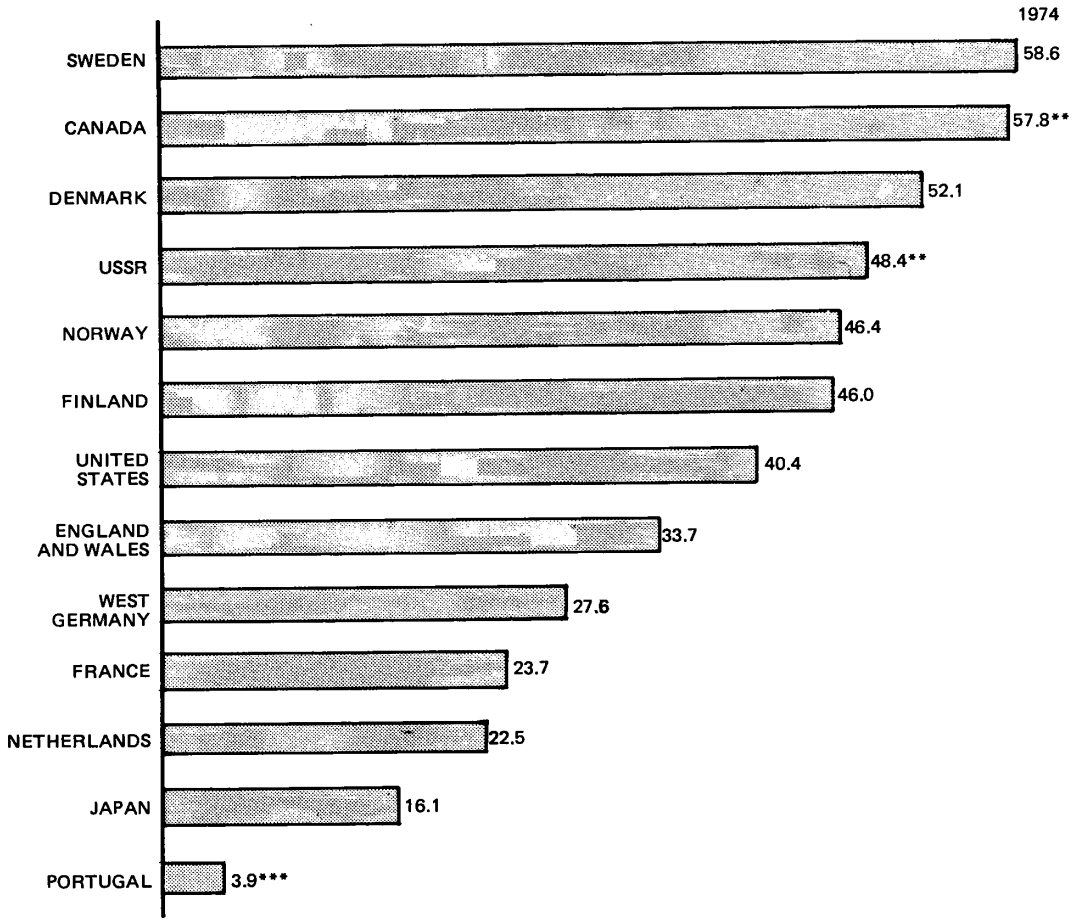
World Health Statistics Annual 1980. World Health Organisation 1980.
Health Personnel and Hospital Establishments.

Canada	181,000	77.63	(1977)
USSR	1,561,300	61.38	(1975)
USA	1,450,000	67.40	(1976)
Japan	418,754	37.13	(1976)

Figures updating September 1980. fig 21 page 39 of KF project paper number RC9

Figure 21

NURSES* PER 10 000 POPULATION



* Fully qualified ** 1975 *** Hospital Personnel only

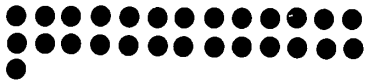
Source: McKINSEY & COMPANY INC *Op cit* Table 14

Figure 22

PEOPLE EMPLOYED IN HEALTH SERVICES

Survey average per 10 000 population

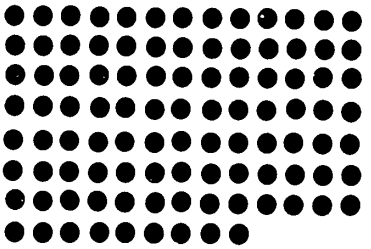
Doctors 15



Nurses 27

Dentists 4

Pharmacists 5

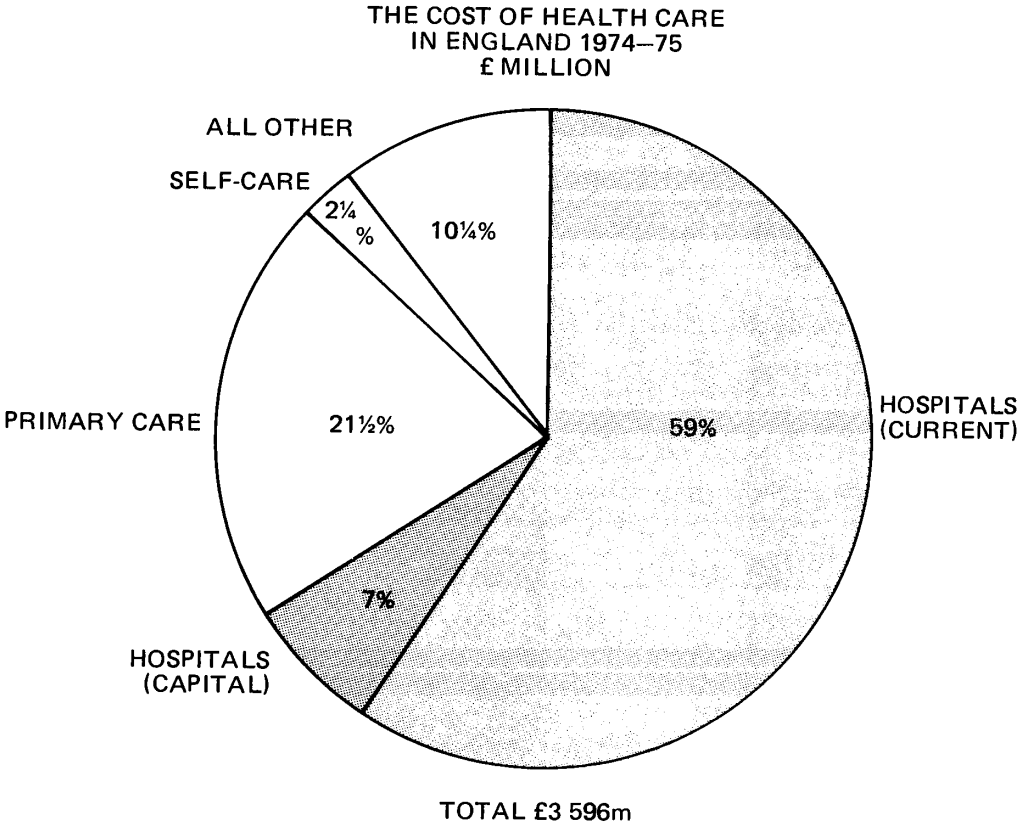


Supporting staff 100

Source: MAXWELL, R *Op Cit* Figure 22, pp 19.

Figure 23

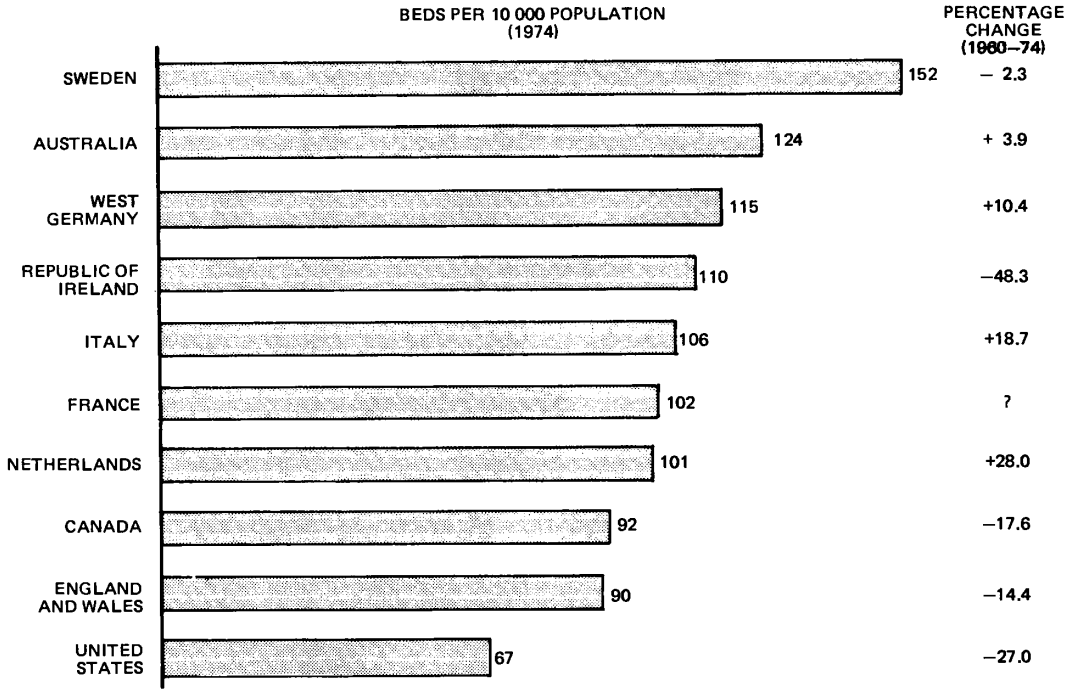
ROUGHLY TWO THIRDS OF HEALTH EXPENDITURE RELATES TO HOSPITAL CARE . . .



Source: DHSS Annual Report

Figure 24

HOSPITAL BEDS* BY COUNTRY



* All hospitals

Source: McKINSEY & COMPANY INC *Op cit* Table 15,

Figure 25

UTILISATION OF GENERAL HOSPITALS (1974)

	Admissions per 10 000 population	Bed occupancy rate (per cent)	Average length of stay (days)	Average number of days hospitalisation (per head, per annum)	Admissions per bed per annum
Japan	546	75	41.8	2.3	6.6
Portugal	616	not available	not available	not available	15.2
England and Wales	900	77	12.6	1.1	22.3
Italy	996**	77**	13.5**	not available	20.7**
Netherlands	1 016	88	15.6	1.6	20.5
West Germany	1 246	84	17.1	2.1	18.0
Denmark	1 453*	84*	12.8*	1.9*	24.0*
France	1 565	84	15.8	2.5	19.2
Canada	1 600	76	9.9	1.6	28.0
Sweden	1 600	78	12.9	2.1	22.2
United States	1 641	75	8.3	1.4	33.2

* 1970 Figures

** 1971 Figures

Source: McKINSEY & COMPANY INC *Op cit* Table 17. Figures not available for Australia from this source.

Figure 26

UTILISATION OF PSYCHIATRIC HOSPITALS (1974)

	Admissions per 10 000 population	Bed occupancy (per cent)	Average length of stay (days)	Average number of days hospitalisation (per head, per annum)	Admissions per bed per
Japan	13.6	103	512	0.7	0.7
Portugal	14.3	not available	not available	not available	1.2
Netherlands	15.3	95	456	0.7	0.8
Italy	25.8**	90**	268**	not available	1.2**
Canada	27.7	89	255	0.7	1.3
United States	30.3	84	143	0.4	2.1
West Germany	30.9	94	198	0.6	1.7
England and Wales	32.2	88	319	0.6	1.0
France	47.9***	94***	179***	0.9***	1.9***
Denmark	63.8*	98*	119	0.8*	3.0*
Sweden	99.7	90	133	1.3	2.5

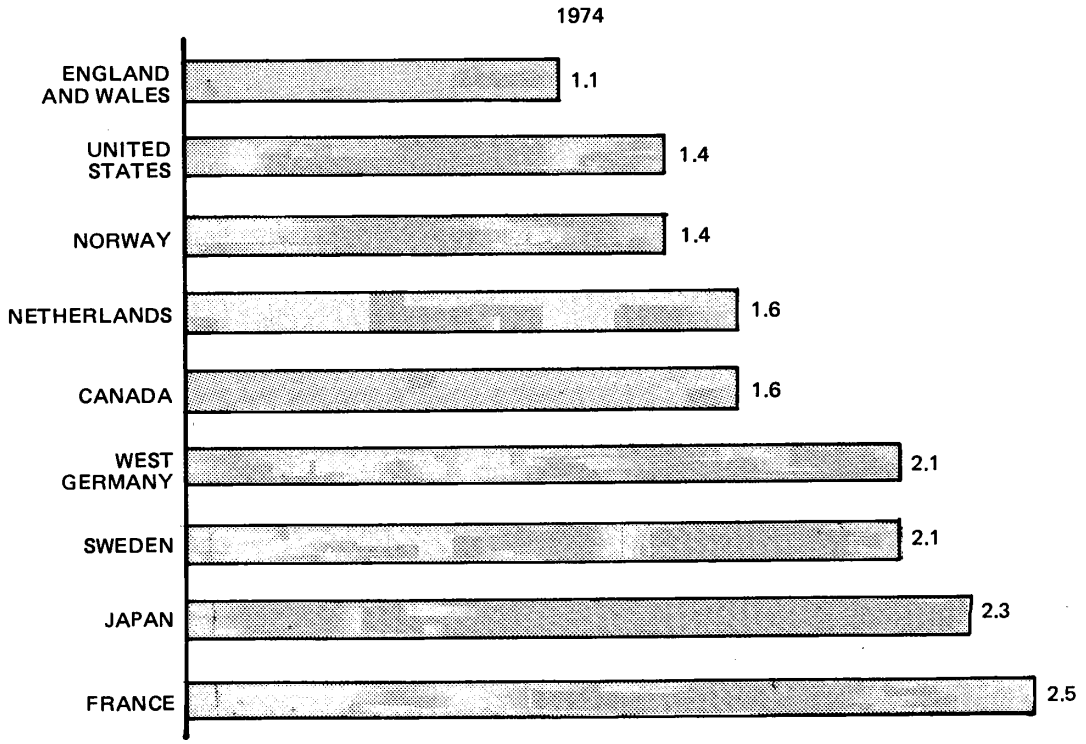
* 170 Figures

** 1971 Figures

*** 1973 Figures, relating to all psychiatric beds

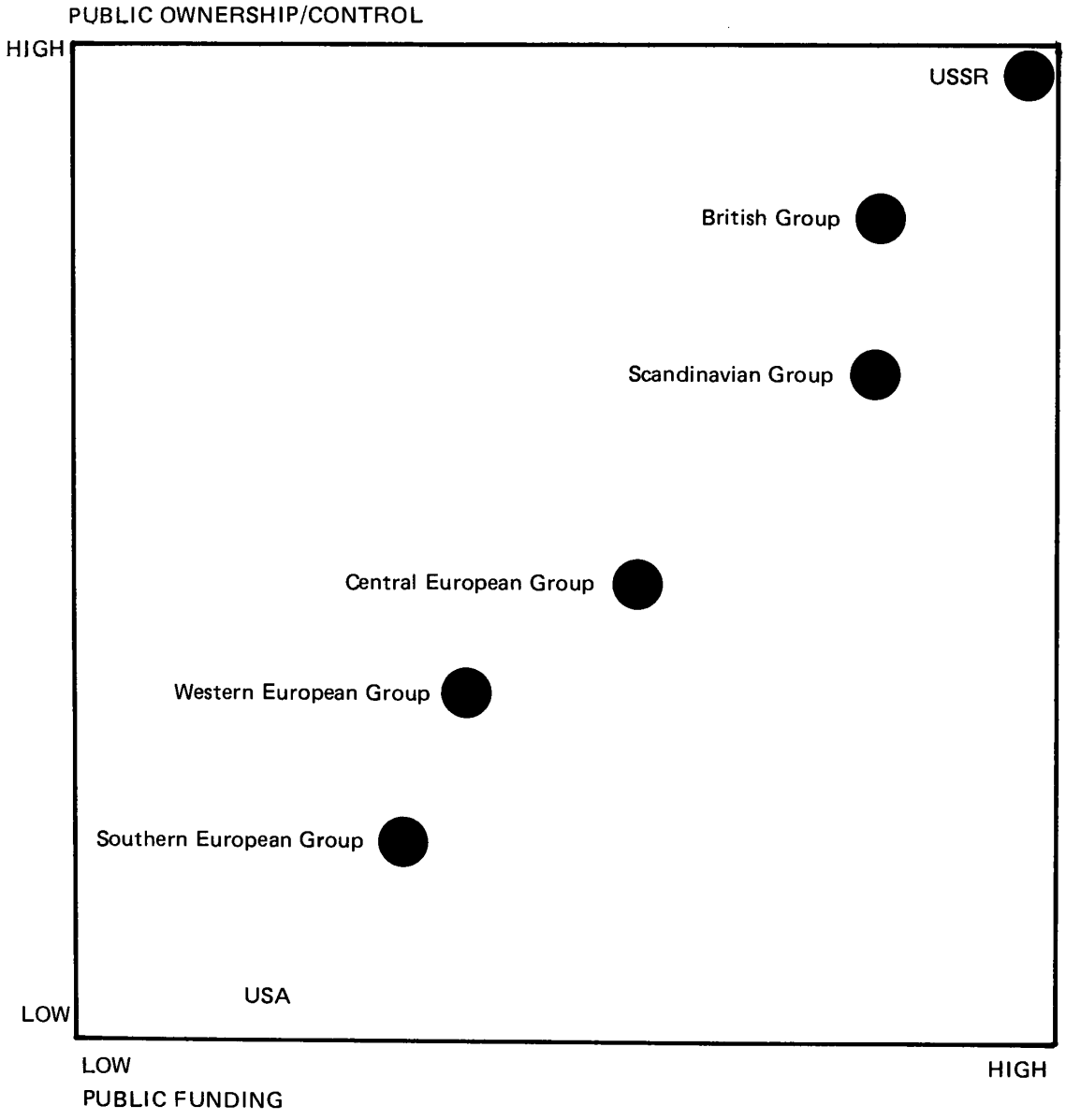
Source: McKINSEY & COMPANY INC *Op cit* Table 18. Figures not available for Australia from this source.

Figure 27
DAYS IN GENERAL HOSPITALS PER HEAD OF POPULATION



Source: McKINSEY & COMPANY INC *Op cit* Table 17

Figure 28
THE ORGANIZATION SPECTRUM



Source : MAXWELL, R. *Op Cit* Figure 51, pp 33.

REFERENCES

1 MAXWELL R *Health Care The Growing Dilemma* McKinsey & Company Inc (2nd Edition) New York 1975.

2 CHALMERS I., OAKLEY A., and MACFARLANE A. *Perinatal health services: an immodest proposal* British Medical Journal 22 March 1980 p 842.

3 GREAT BRITAIN, PARLIAMENT *The Government's Expenditure Plans, 1978–79 to 1981–82* Vol 2 H M Treasury, London, HMSO 1978 p 85 *Cmnd 7049.*

4 See also a short, privately circulated report *Identifying Major Health Improvement Opportunities* McKinsey & Company, January 1978.

5 BELLOC N.B. and BRESLOW L. *The Relation of Physical Health Status and Health Practices* in *Preventive Medicine* 1 August 1972 pp 409 – 421. See also KNOWLES J.H. in the *Responsibilities of the Individual in Feeling Better and Doing Worse,* New York, Norton and Company, 1977 pp 57 to 80.

6 *Value for Money in Health Care Planning,* Excerpta Medica, Amsterdam-Oxford, 1976 and *Value for Money in Health Services,* London Heinemann 1976.

7 McKINSEY & COMPANY INC. *International Comparison of Health Needs and Health Services,* 1978 (unpublished).

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RC6	NHS Finance and Resource Management
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