

Health System Performance Comparison

A reflection on the WHO and other methods for comparing health systems as applied to 10 rich countries.

Based on a paper given to the UK Annual Conference of the National Association of Primary Care, by Dr Graham Lister. First published by the Oxford Institute for Health Service Management in 1998 updated in October 2001 to reflect on the WHO 2000 Report.

Introduction

This paper examines 10 health systems, which pride themselves on being “the best in the world”. With the assistance of the London Health Economics Consortium data from the recently updated OECD Health database (1), the WHO HFA database (2) and other sources are used to draw comparisons between health systems’ performance.

Comparison of past performance is set alongside a consideration of the capacity of health systems to manage current pressures on demand and to cope with the new challenges of the 21st century (3 and 4). Lessons that can be drawn from the emerging trends in healthcare reform are discussed (5). One of the most important of these reforms is the trend towards the development of local healthcare networks in which primary and secondary care find a new basis for partnership.

This evaluation leads to the conclusion that the evaluation of health systems depends upon the viewpoint of the evaluator. In my view the Swedish health system could be represented as the best in the world, but even this system has an important agenda for reform (6).

I revisited and revised this paper for a course on International Health Systems Comparisons at the University of Bern in October 2001. This gave me the opportunity to reflect on the WHO Report of 2000. I concluded that the type of comparisons developed in this paper might be a more useful basis for exchanging lessons about health systems management between a small group of similar countries than the statistical analysis presented in the report.

The Best Healthcare System in the World

In the UK we take pride in our National Health Service, even while we complain about waiting lists, the quality of the buildings and equipment and increasingly the standard of treatment and care we receive from health professionals. Tony Blair proposes that the UK NHS should be the “envy of the world” (7). This may be a realistic expectation or a distant hope, but we are not alone in this hope.

- Canada- high standards of medicine with equal access for all.
- France- “medicin liberal” ensures choice for patients and doctors.
- Germany- high satisfaction from patients and high technical standards.
- Japan- high levels of health with low levels of health expenditure.
- Netherlands - Dekker reforms seen as leading to greater choice and equity.
- New Zealand-a poor country in OECD terms aspiring to first class services
- Sweden- high standards of health and social care seen as world leading.
- Switzerland- very high technical standards at a high cost.
- USA- some Americans look with horror at social health systems in the rest of the world convinced that private enterprise must be better.

American commentators tend to see US style managed care as a solution to the health care problem of many countries including their own. Europeans tend to redefine the term “managed care” in the context of social welfare based systems, that see health and social care as managed for the community and not just the individual.

Similarities and Differences between Healthcare Systems

Beliefs about being the “best in the world” are often misguided and misinformed. They are almost always based on very limited experience of systems in other countries. Before drawing comparisons a brief description of the systems is required.

All the countries listed in the previous section provide social welfare based healthcare systems, with the exception of the USA, which has free-market systems based on private insurance cover, and private sector provision but with a welfare safety net for the poor and elderly. Private health insurance is of course available in other systems but it is not the dominant factor. While it is well known that USA total expenditure on health is much higher than other countries, it may be a surprise to note that the US Government, through Medicare and Medicaid, spends about the same amount per head of population on health care as the UK Government.

Social welfare health systems have the ideal of providing access to healthcare for all regardless of ability to pay. Some systems follow the tax based model introduced in the UK in 1948, largely financed by central or regional taxes: Sweden, Canada and New Zealand follow this model. The other systems are based on compulsory social health insurance (sick funds) financed by employees and employers: France, Germany, Netherlands and Switzerland follow this model, which was first introduced in 1883. In the Netherlands higher income families are obliged to take private health insurance. In Switzerland social insurance contributions are paid by all but many people also take out additional private insurance, which covers higher levels of comfort and choice during hospital treatment. Japan has compulsory insurance through sick funds for the employed with government insurance schemes for other families, free medical care for the over 70s and private insurance for the better off.

Virtually all systems are hybrids with elements of tax, social insurance and private funding. In the UK there are still vestiges of a National Insurance scheme and most countries have some form of mixed funding with the regional or local government meeting part of the cost of health provision. In France, the sickness funds were estimated to be some 66b Francs in debt at the time of the proposed Juppe reforms it is still not clear how this cost overhang will be met. The French system also provides for co-payments from users and there are insurance schemes to provide cover for this. Though not quite at these levels (18% of costs in France) co-payment is becoming increasingly important for all systems. In Germany and Switzerland local and regional taxpayers also meet a proportion of the cost of hospital provision.

Most health systems are regulated and directed by central and local government. Health service provision is controlled by regional agencies in: Japan (Prefectures and Municipalities), Sweden (Counties and District Authorities), Switzerland (Cantons), Germany (Land), Canada (Provinces) and the USA (States). The French are introducing a greater degree of regional control in the latest reforms. The UK system is controlled by English, Welsh, Scottish and Northern Irish government departments with locality based commissioning agencies. New Zealand has replaced four Regional Health Authorities with one national Health Funding Authority.

In most social welfare systems, hospital services are provided by both public and private sector agencies. In the UK, New Zealand and Sweden public sector providers account for over 90% of provision. Charity sector providers working under contract to local health agencies or sick funds tend to be very common in the Netherlands (where most hospitals are private sector, nearly all not-for-profit) Switzerland and Germany

(where about half are private the majority of which are charity based). In Japan over 80% of hospitals are private.

The different history of health services gives rise to differences in the nature of primary care provision. France, Japan, Germany and Switzerland have relatively high levels of independent, office-based clinicians providing both Family Medicine and other specialties and most often working as a sole practitioner. New Zealand and UK GPs tend to operate through group practices. In Sweden only 15% of doctors operate in primary care, 80% of GPs work in local authority clinics with the remainder operating as independent practitioners under contract to the local health authority. Nurses play a much more prominent role in primary care in Sweden than in most other systems. In the Netherlands GPs work in clinics and independent practices paid on a capitation basis, by sick funds and fee for service by private insurers.

Comparing Healthcare Systems

There is no such thing as a value free comparison, so we must start by describing the systems and defining the basis for comparison. The WHO Ljubljana Charter ⁽⁸⁾ provides a starting point for comparisons. It calls for health systems to be:

- Driven by values of human dignity, equity, solidarity and professional ethics.
- Targeted on protecting and promoting health.
- Centred on people, allowing citizens to influence health services and take responsibility for their own health.
- Focused on quality including cost effectiveness.
- Based on sound financing to allow universal coverage, and
- Access oriented towards primary care.

This paper attempts to apply these values to criteria concerning:

- Impact on health outcomes and targeting of health promotion
- Access to and use of health services, focusing on equity of access
- Quantity and quality of medical services
- Economy and efficiency
- Capability to manage health care in response to community needs.

In most cases comparisons are based on the latest available data from OECD and other sources. These suffer from problems of missing data and different definitions.

Health Outcomes

Typical health outcome indicators have been chosen and compared for the most recent year for which data are available. The indicators selected are based on mortality and morbidity data applying the concept of Potential Years of Life Lost (PYLL) for deaths under the age of seventy assuming that these are some proxy for avoidable morbidity;

- Infant Mortality Rate 1995
- PYLL per 100,000 Men under 70 from Ischaemic Heart Disease 1992
- PYLL per 100,000 Women under 70 from Malignant Neoplasms 1992
- PYLL per 100,000 Men under 70 from Suicide 1992
- Life Expectancy at birth for Women 1995

Success in terms of these outcome indicators is described as good for the top three, medium for the middle four and bad for the worse three. From this a relatively

consistent pattern emerges, with Japan, France and Switzerland having most “Good” ratings and New Zealand and the US the most “Bad” ratings followed by the UK.

Table1 Typical Health Indicators 1992-1995

Country	IMR	PYLL M Heart	PYLL W Cancer	PYLL M Suicide	LE W
Japan	G	G	G	G	G
France	G	G	G	B	G
Switzerland	M	G	G	B	G
Netherlands	M	M	M	G	M
Sweden	B	M	M	M	G
Canada	M	M	M	M	M
Germany	M	M	M	M	B
UK	B	B	B	G	M
USA	B	B	B	M	B
New Zealand	B	B	B	B	B

Clearly such indicators measure health status, which is likely to be a result of genetic and lifestyle factors as well as health service intervention. We know, for example, that Japan has the lowest consumption of calories, and a very low consumption of butter and other saturated fats, but it also suffers from a very high level of smoking amongst men (but low for women). New Zealand by contrast has the highest recorded level of consumption of butter and the highest total consumption of calories. It is notable that France has high levels of butter and calorie consumption, high levels of male smoking and the highest level of alcohol consumption, yet achieves good health outcomes according to these indicators. A different selection of male/female outcomes would have produced worse ratings for France, a study in 1991 showed composite outcome measures for France below those of Japan, Sweden and the Netherlands but above those of Germany, UK and USA (9).

A more significant measure of the impact of the health system on health outcomes can be derived from the rate of improvement achieved in indicators. The rates of decrease or increase in the indicators shown in table 1 were calculated from 1990 to the most recent year for which data were available. These were then ordered to derive a score from one to ten and added to derive a composite score. This measure of health outcome improvement produces the following order of merit; in first place the UK followed by Sweden then, Switzerland, Canada, USA, Germany, France, Netherlands with Japan and New Zealand equal in last position.

While all health systems have some regard to health promotion (remember the signs on the Paris Metro warning us not to drink more than a litre of alcohol per day), there are significant differences in the emphasis placed on this aspect. Public health and health promotion are emphasised in the health systems of: Sweden, (a long history of control of alcohol and public service advertising), Switzerland, (recorded as spending 1.2% of cost on health promotion) and Japan, (rapidly expanded Municipal Health services with public health nurses since the early 1990s). The UK, which despite a long history of public health, spends only 1.1% of health costs, Canada, and New Zealand may be seen as middle ranking in this regard. However, the UK and Canada achieve the highest recorded rate of immunisation for DPT and Measles for children. Less emphasis on this aspect is seen in the systems of the USA, the Netherlands

Germany (0.8%) and France (0.5% of health spend). It is very difficult to illustrate this point and indeed it is arguable that while the USA seems to have a less well developed welfare based health promotion capability, social fashion has been successful in promoting healthy lifestyles for some but excluding others. Thus while the parks are full of joggers obesity rates are still very high and increasing. It is estimated that obesity (20% for men and 24% for women) is a factor in some 280,000 deaths per year in the USA, this compares with obesity rates of some 17% and 20% in the UK, this is the highest in Europe.

Access to and Use of Health Services

In considering access to health services, the following factors have been taken into account;

- Coverage of tax or social insurance funded systems
- Whether services are free at the point of delivery
- Extent of co-payments
- Extent of private health insurance
- Orientation toward primary care

Japan, the UK and New Zealand achieve virtual total coverage with relatively low co-payments (12 % in Japan, 15% in the UK). In the UK 14% have private insurance higher than Japan (about 12%). In New Zealand 37% of people have full or partial health insurance, though this accounts for only about 7% of expenditure, out of pocket expenditure was about 16%. Sweden has total coverage and a very low level of private insurance (1%), while there are significant co payments for visiting a doctor (about £8) total co-payments are limited to £65 per year. In Germany about 8 % of the population lack social insurance cover, mostly the rich and immigrant workers and 9% have private insurance cover. In France about 1% of people are without cover, in this case it is mainly immigrant workers. This system also requires users to pay the GP and later reclaim costs and has co-payments of about 18% of total costs. Full private insurance cover is taken by 9 % and about 85% of people have insurance for co-payment costs. The Netherlands and Canada achieve close to total coverage but higher income groups must pay for their insurance out of income (33% in the Netherlands and 29% in Canada). All Swiss people are covered by social insurance but 30% take additional private insurance. In the Netherlands there is also a health insurance scheme for public sector workers covering about 7% of the population. The USA public funded systems cover 45% of the population and 17% of people are without health insurance cover, 39% of people have private insurance cover. Direct patient payments account for over 20% of costs.

OECD data showing the proportion of health expenditure accounted for by ambulatory care are difficult to interpret because of differences in definitions and missing data, however, it would appear that Japan has the highest proportion of expenditure on ambulatory care (42%). Switzerland also shows a high percentage (37%), followed by the USA (33%). New Zealand shows the lowest percentage (7%) other countries vary from 20-30%. No figure is given for the UK, in the OECD Health Database, however another source (10) shows the UK as spending a lower proportion on ambulatory care than Germany, France or the USA.

Use of GPs and other office-based specialists, as shown by doctor consultation rates per person, vary from over 16 consultations per person in Japan, to 3 per person in Sweden (1994). Consultation rates are also high in Switzerland (11), Canada (6.8),

Germany (6.4) and France (6.3). Lower consultation rates are found in the UK (5.8 in 1993 but rising), the USA (6) and the Netherlands (it fell to 5.4 in 1996).

The UK, Netherlands and New Zealand operate a form of “gatekeeping” in which patients are required to see a GP before being referred to other specialists. Gatekeeping is also a feature of some “Managed Care” health systems in the USA and Switzerland but it is not comprehensively applied. US managed care systems cover about half the population and Swiss systems cover about 5% in 1996. In Sweden patients are usually but not always referred to hospital by Primary Care clinics. In the UK GPs have total patient registration and comprehensive patient records. The Netherlands also has GPs working in clinics paid on a capitation basis by sick funds with registration of patients and good patient records. The UK and Netherlands provide 24-hour access to GPs. The new NHS Direct service will be the first fully comprehensive 24-hour medical advisory service, though there are partial services in Sweden and the USA and some other countries (11). These aspects may reduce the need for direct patient contact (12).

Admission rates to inpatient care also vary widely with France having the highest rate of 23 admissions per 100 population (in 1995) and Japan having the lowest rate of 9 admissions per hundred in 1994. The UK rate of 18 admissions per 100 population seems surprisingly high and has risen rapidly. Admission rates were also recorded as high in Germany (21) and Sweden (19). Lower rates are found in Switzerland (15), New Zealand (14), USA and Canada (12) and the Netherlands (11). Admission rates in the US have been cut by day case centres and HMO controls on referrals. The UK and USA showed the highest rates of surgical procedures.

Health service activity can have positive and negative effects, very high doctor consultation is blamed for over use of medicines in Japan and high rates of cardiac surgery in the USA has been seen as a cause of excessive mortality. However, rates of admission to hospital are often quoted by politicians, for example Virginia Bottomley noted “we are treating more patients than ever before” on several occasions.

Quantity and Quality of Medical Services Available

In assessing the quantity of medical services available the following indicators have been selected:

- Acute hospital beds per 1000 population
- Nurses per patient in acute hospitals.
- Physicians per 1000 population
- Primary care doctors per 1000 population
- Computerised Tomography Scanners per 1000 population

These data have been categorised as high medium and low and are shown in table 2. Where data are missing an estimate has been included denoted by a question mark. The measure of nurses per patient was estimated by adjusting the number of nurses per bed by the turnover of acute hospitals in the country.

Table 2 Quantity of Medical Services Available

Country	Beds	Nurses/pat	Physicians	GPs	Scanners
Switzerland	M	H	H	M	H
Germany	H	L	H	H	M
Japan	H	H	L	M /H?	H
USA	L	H	M	M	H
France	M	L	M	H	M
Canada	M	M	M	H	L
Sweden	L	M/ H ?	H	L	M
Netherlands	M	M	L	M	M
New Zealand	H	M	L	M	L
UK	L	L	L	M	L

Note that conventionally nurse ratios are expressed “per bed” under this rather silly measure the UK would be seen to have a high level of nurses per bed, but since nurses look after patients rather than beds, this is meaningless.

Evidence of the technical quality of services is very sparse. What data there are support the notion that Sweden and Germany have high proportions of specialist consultants, Canada and the USA have high proportions of registered nurses. Anecdotally doctors from other countries express surprise at the extent to which UK hospitals rely on junior medical staff, doctors not trained in the UK, and at the poor condition of many hospitals. Survival rates from cancer also provide an important indicator: the USA achieves the best outcomes with Switzerland, Holland and Germany not far behind. UK survival rates are very significantly worse, reflecting a lack of specialist skills and failure to co-ordinate services as highlighted in the Calman-Hine report. A similar ranking can be seen in relation to Ischaemic heart disease though in this case the USA may suffer from poorer results as a consequence of what some European doctors would regard as over-treatment.

Waiting time for hospital treatment is a major quality issue for patients. This is a feature of the UK system. Waiting time guarantees in the UK are intended to ensure no patient waits longer than 18 months from seeing a specialist to receiving treatment and in practice almost half the patients are treated within 3 months. However, patients may wait for months between referral by a GP and seeing a specialist. Waiting lists are also found in the New Zealand, Swedish and Netherlands systems. New Zealand is currently introducing a system under which GPs assess the medical needs of patients referred to hospital. If their need is demonstrated they will be guaranteed treatment within 6 months, if not the patient may reapply at a later date. In Sweden and the Netherlands there have been attempts to rationalise waiting lists, to set priorities and ensure that life-threatening conditions receive immediate attention and urgent cases should wait no longer than three months. Other health systems experience delays in hospitalising patients due to bureaucracy, for example in Germany, but generally avoid long term waiting lists.

Attitudes to healthcare are inextricably tied to cultural and political circumstances. For example, some cultures such as Japan still exhibit a deeply deferential attitude towards their doctors, others such as USA do not. It is also apparent that any tax-

funded system engenders complaints about “bureaucratic controls”, while it could be argued that customers expect more from private enterprise.

A survey in 1992 ⁽¹³⁾ showed 95% of French respondents described healthcare in their country as good compared to 93% of Netherlands respondents, 91% of German and 81% of UK respondents and an EU average of 71%. A survey in 1990 ^(14a) showed 89% of Americans agreed that fundamental changes, or a complete rebuilding were needed in their health system, compared to 69% of UK respondents (which was in the midst of reforms at the time) but only 48% of German and 42% of Canadian respondents agreed. Another survey in 1992 ^(14b) showed that while on average 75% of Canadian respondents described themselves as “very satisfied” with health services, doctor’s visit and most recent hospital stays only 47% of US respondents came into this category.

Economy and Efficiency

Total expenditure on health is shown below in \$ per capita at purchasing power parities (ppp) and as a percentage of GDP. The rate of increase in expenditure over the previous 4 years in these terms is also shown. Where the 1996 figure is not available the 1995 figure is shown in brackets.

Table 3 Total Expenditure on Health 1996/5, % of GDP and Growth

Country	Total Expenditure on Health per Capita \$ PPP	Total Expenditure on Health as % GDP	Rate of Increase of Total Health Exp per Capita in \$ PPP
New Zealand	1,251	7.2	3.5%
UK	1,304	6.9	2.7%
Sweden	1,405	7.2	1.4%
Japan	(1,581)	(7.2)	7.1%
Netherlands	1,756	8.6	3.3%
France	1,978	9.6	2.4%
Canada	2,002	9.2	0.8%
Germany	2,222	10.5	4.0%
Switzerland	(2,412)	(9.8)	3.9%
USA	3,708	14.2	4.2%

Table 3 shows that, while New Zealand has the lowest expenditure of the countries, this is a larger proportion of their GDP than the UK and expenditure is growing at a faster rate ⁽¹⁵⁾. Swedish expenditure per person is only about 8% more than the UK in these terms, which is far less than the difference in cost levels between England and Scotland (about 20%). This cost difference is usually justified on the basis of the greater distances to be travelled in Scotland, yet Sweden faces considerably worse problems in this regard. It is also notable that while managed care is said to be leading to improved cost control in the USA, costs are rising faster than any other country except Japan.

It is not possible to comment on the efficiency of primary care from the data available. Patient services per doctor vary from a high of 9,200 in Japan to a low of 3,800 in Canada. The UK rate of 7,600 in 1998 was lower than the comparative rate in the Netherlands 8,400, but higher than France 4,700 or the USA 7,000.

Data on the expenditure on pharmaceutical goods suggests that France has the highest level of expenditure (\$ 335 per capita ppp in 1996), Japan shows the second highest level (\$308 per capita ppp in 1994, then second highest), followed by the USA (\$330 in 1996), Canada (\$286 in 1996) and Germany (\$282 in 1996). The UK and Sweden (both \$198 in 1995, UK expenditure rose to \$217 in 1996) and New Zealand (\$216 in 1996), have low levels of expenditure on pharmaceuticals. Switzerland is shown as having the lowest total expenditure on pharmaceutical goods person but also has the highest pharmaceutical sales per person, this suggests an error in the data.

The best available measure of the efficiency of hospitals is the turn over rate per bed, measured as the number of patients treated per available bed. This takes into account the length of stay for all categories of patient and the occupancy rate, either of these measures taken alone is misleading. Where data are missing countries have been put in the order they would appear for the year in which data were available. The length of stay shown for all categories is higher than the figures expected for acute hospital treatment but this is the only consistent figure available.

Table 4 Acute Hospital Turnover, Length of Stay and Occupancy 1988-1995

Country	TO Rate	LoS days	Occ	Comment
UK	50	7.1	N/A	1993 (suggests occupancy 96%)
Sweden	39	8.5	82%	1995
USA	34	5.7	66%	1994
Netherlands	26	9.7	89%	1995
France	25	6.8	81%	1993
Germany	26	13	83%	1995 TO 1994 LoS
Canada	24	11.1	84%	1993
Switzerland	21	11.8	84%	1988 TO & Occ 1993 Los
New Zealand	N/A	6.9	N/A	1995 low Los, possibly low occ ?
Japan	9	42	83%	1994 acute/long stay not separated

Capacity to Manage Future Demand

Healthcare systems are in constant evolution and occasional revolution. In evaluating the future of health systems we must consider how robust they are likely to be in the face of the pressures from:

- Ageing population and trends in health
- Developments in medical technology
- Potential of information technology
- Social changes and consumer expectations.

While there are differences in the timing and the extent of change, all the sample countries are facing increased demand for health services due to increases in life expectancy, between 1980 and 1990 life expectancy rose by an average of 3 years in Europe. It is estimated ⁽¹⁶⁾ that ageing adds between 0.3% and 0.7% per year to the cost of health care. An older population also results in a shift from acute services to the management of chronic conditions where health and social needs may be closely related. Japan faces a very rapid increase in its elderly population and in 1989 set in place a ten year “Gold Plan” to increase chronic and home care services for the elderly ⁽⁵⁾.

Medical technology is producing new treatments and drugs at an increasing rate and it seems likely that within the next ten years developments such as the human genome project and advances in micro and nano-technology will further accelerate development. While some advances hold the key to early detection and treatment of conditions at lower cost, the overall impact has been to drive up the cost of medicine by about 3/4% in real terms (16). Technical advances have also tended to result in a concentration of resources in large city hospitals despite the fact that information technology can now support a much greater dissemination of expertise. This may be due to the reluctance to invest in such technology.

Studies also indicate that for most countries expenditure on health is strongly related to wealth (GDP). Thus as countries grow richer they tend to demand and consume more health care at a rate of almost 1/2% per year (16 and 17). At the same time patients are more demanding of healthcare services expecting higher levels of comfort and convenience. This includes a demand for treatment and care at home (the fastest growing area of virtually all health systems), local treatment and support for self-care and family-care. Salary inflation also adds to cost pressures by about 1/2%.

In the face of these relentless pressures on healthcare costs all healthcare systems have developed mechanisms to define the nature and quality of healthcare to be provided and the resulting costs. In the USA this has resulted in the development of managed care companies, which intervene between the health insurer and the health provider to define and manage the level, cost and quality of services to patients. This is a very complex market and commentators distinguish between stages of managed care from very simple controls on eligibility and costs to detailed specification of each treatment and medicine that doctors are permitted to use. While this has clearly improved the overall management of health costs, at least slowing the rate of increase in health costs as a percentage of GDP, it has also brought controversy. A national debate is now being waged through television advertising as to the merits of managed care and the curtailment of benefits that this involves. Meanwhile the number of people without health insurance cover of any sort has risen to 17% and ill health is a major cause of poverty and debt.

Social welfare systems are managed through funding and regulation, limiting the total budget spent by the public sector or the quasi-public sector sick funds and defining standards of treatment and care. Most tax funded systems such as Canada, Sweden and the UK operate through regional and local structures. This makes it possible to delegate decisions about the balance and nature of local services to match local needs and demands. Local agencies may also provide a basis for community involvement in health and care services for local health promotion measures and for the co-ordination of health and social services functions. Elected representatives are responsible for health systems in Canada and Sweden.

Many systems now operate some form of contracting system between an agency planning and funding healthcare and the agencies and doctors providing services. This may take the form of a long-term service agreement, as we must now call it in the UK, or a contract as in the case of Canada. Sweden adopted a form of service planning agreement in about half the Counties, which administer healthcare but as in the UK and New Zealand the emphasis is now more on shared planning than simple market relationships.

In the countries with sickness funds the standards and costs have been managed through national tariff systems that set cost and quality standards for secondary and

primary care. A complex points system used in Germany to allocate budgets according to activity and the level of service provided (large technical hospitals have a higher points tariff than community hospitals). In France a DRG based system used to evaluate hospital budgets though other forms of funding are also used. There are, however, signs that these complex national systems will be replaced with systems giving greater choice and control to sickness funds within national guidelines. In Switzerland for example a common basis is being established for costing hospital services and at the same time measures of patients' perceptions of quality are being developed. These will form the basis for contracts or service agreements permitting local or industry based sickness funds to manage and control health services for their members. While employment based sick funds could provide a link between health at work and health at home in practice, this has not developed in Europe, though there have been such schemes in Japan and the USA.

Japan also operates a national fee for service system but there has been great resistance to any external specification of standards. Their fee for service system seems to encourage high levels of examination and particularly high rates of dispensing, from which the doctors profit if there is a difference between the official price and the discounted price they obtain.

Other health systems also display a similar distaste for external imposition of protocols, and are reluctant to follow the US model in which protocols are enforced by contract. Self-regulation is more popular, either through physicians associations, which is the pattern for Germany, the Netherlands and Switzerland or by local doctors participating in clinical audit as in the UK (18) and many other countries. The recently proposed introduction of Clinical Governance in the UK (7), reinforces clinical audit and places a duty on Trusts to manage the quality of clinical performance.

In the US managed care entails the management of access to services. This is often achieved through primary care doctors vetting all non-urgent cases, applying protocols which specify the requirements for referral to specialist care or treatment. General Practitioners also perform this vetting, or gatekeeper, role in other health systems, however, apart from the UK and the Netherlands patients have a direct right of access to specialists. Germany and Switzerland are introducing forms of managed care in which patients may agree to forego direct access to specialists, instead they may use a network of office based practices which offer a higher standard of continuity of care and controlled access to secondary care. The development of networked practices in Germany and forms of health maintenance organisation in Switzerland (19) are at an early stage but seem to be popular with both doctors and patients. A form of managed care is offered by a private health insurance company in Paris and French doctors are beginning to join "quality networks" with the aim of achieving agreed standards of treatment and to increase the role of primary care.

In Sweden, New Zealand and the UK primary care doctors are also beginning to play an important role in the wider planning of health and care services for their locality. In Sweden this usually means that senior primary care doctors employed by the Local Area Authority are involved in co-ordinating and planning health services and establishing quality standards for secondary care services. In New Zealand managed care takes many different forms, most commonly local groups of GPs take responsibility for local budgets for drugs and laboratory services. In some cases, however, local co-operatives manage and fund a range of primary care and social services, community hospitals and health promotion measures.

The final form of GP Fundholding in the UK went further than this in providing for the management of the contract for services provided by acute hospitals as well as community care, primary care and pharmaceuticals. It is to be hoped that the new Primary Care Trusts will be able to draw on the experience and enthusiasm generated by these developments and will not become bogged down in bureaucracy.

All these forms of managed care require the use of advanced information technology. Information is required: to improve information on community health needs, so that service agreements can be better planned, to improve the integration of care by the use of electronic patient records and to provide access to evidence based medicine to guide medical professionals and patients. A study in 1996 ⁽²⁰⁾ suggested that while this technology is currently more prevalent in the USA, the UK Swedish and Netherlands health systems may be better placed to exploit this technology as their systems promote information sharing. The new information strategy for the NHS proposes greater information sharing between the primary and secondary sector and with patients. It proposes the development of a common electronic medical record and a library of health information to support the use of information for health ⁽²¹⁾.

Overall Evaluation

Any summation of these different comparisons is arbitrary, a reasonable judgement would be that the Swedish, Swiss and Japanese systems can claim to be amongst the best in the world. The high use of drugs and excessive lengths of stay shown by the Japanese system and the fact that health outcome measures are not improving as fast as other countries balances against Japan, while the high cost of the Swiss system weighs against that system. This suggests that the Swedish system can claim to be the best in the world, however, there are currently many problems of quality and the motivation of doctors in the Swedish system. It may be that the Swedish system is profiting from high levels of investment in facilities and staff in previous years but is now facing a period of greater difficulty.

The UK could only be considered amongst the best if the number of patients admitted to hospital could be reduced, if hospitals were upgraded and had the resources to cope and if variations in the quality of treatment could be reduced, by improving the worst to the quality of the best. This may mean ensuring that services are provided by consultants and well motivated and stable nursing teams rather than by junior medical staff and agency nurses. Waiting times are the worst features of the NHS, not only because they reflect resource shortages but also because they support inequality and take scarce consultant medical staff time away from NHS patients. The comparison suggests there may be scope for greater investment in health promotion and primary care. This suggests it will take a long time and a lot of money to make the NHS “the best in the world”. Bringing UK funding up to European levels may provide some of the answer but Scotland, Northern Ireland and Wales already spend above the average European proportion of their GDP on health, with little observable improvement.

Stephen Dorrel noted the “jewel in the crown” of the UK system is General Practice. Developments in this field are watched with most interest by other countries. The first international conference on “Primary Care Based Purchasing”, attracted delegates from 27 countries ⁽¹⁹⁾. Primary Care Trusts could help to meet many of the improvement objectives noted above. Furthermore they may be an important step towards a future in which health and social care are more closely integrated and local care, including most importantly self care play an increasing role.

The WHO Report 2000 on Health System Performance

The work by Chris Murray to develop measures of health system performance for 191 countries (22) was aimed at addressing different questions to those discussed above, moreover he was facing very different constraints on the data available. It is not my intention to add to the detailed criticism of the methodology he employed nor the indignation expressed at the outcome. I am pleased that he has raised the issue of system performance and hope to learn from examining the two approaches to health systems comparison.

The WHO measure of health system attainment is based upon a weighted aggregate of 5 variables: 25% of the weighting relates to DALE (disability adjusted life expectancy), 25% relates to the distribution of health outcomes as reflected in the equity of child survival, 12.5% relates to a measure of responsiveness to patients, 12.5% relates to the distribution of responsiveness and 25% of the weighting relates to a measure of the fairness of financial contribution.

Applying these measures of health system attainment to the countries discussed in this paper produces the following ranking: Japan, Switzerland, Sweden, France, Canada, Netherlands, UK, Germany, USA, New Zealand.

Others have commented on the adequacy of these measures (23-25). DALE provides a wider measure of health outcome than any selection of specific outcomes, however, I suggest that improvement of health outcomes is a more relevant measure of system performance than outcomes alone. Distribution of health outcomes is also a very important factor, for rich countries there may be better measures than child survival but at least data is available, whereas data is very sparse for the poorest countries where this measure is more relevant. Responsiveness to patients is an important issue, however, the method applied assumes an expected relationship between observed factors and responsiveness it is therefore not a measure but an assumption. It is unfortunate that the distribution of responsiveness showed no difference between the countries discussed in this paper. Financial fairness is also important but for a selected sample of the rich countries this can probably be better inferred from a description of the systems.

Health system performance was measured in the WHO report by relating the level of inputs to achievements. This was done by measuring the ratio of the level of performance achievable for the level of spend and level of development to the level actually achieved. In practice the achievable level was estimated from a regression analysis of achievement against health expenditure per inhabitants and educational levels (average years of schooling of 25year olds in 1990). Separate measures were derived for performance in relation to health outcomes (DALE) and overall health systems attainment as described above. Using these measures gave the following rankings:

1 For health outcomes performance: France, Japan, Netherlands, Sweden, UK, Switzerland, Canada, Germany, USA, New Zealand.

2 For health system attainment performance: France, Japan, Netherlands, UK, Switzerland, Sweden, Germany, Canada, USA, New Zealand.

These measures give a higher ranking to those countries with relatively low years of education. France is recorded as providing only 6.9 years of schooling, which very low in relation to other rich countries.

Conclusion

The WHO Report has demonstrated the importance of health system performance comparison, however, by approaching this as a complex statistical exercise it risks losing some of the benefits to be gained from a more detailed process of exchanging lessons between different health systems.

It might be more fruitful to establish learning networks to build a consensus as to the goals of health systems, or to build upon the goals agreed in the Ljubljana Charter on Reforming Health Care, before developing agreed measures to reflect these goals.

It is also important to reflect upon the impact of health systems upon overall health outcomes as measured by DALE. To assume that overall health status is strongly related to health system performance appears to contradict most writers who have discussed the determinants of health. It is more reasonable to assume that improvement of health outcomes is related to system performance but even in this regard there are likely to be many other factors influencing overall health outcomes.

A more realistic approach would be to select specific health outcome measures, which are susceptible to health system intervention. It should also be possible to develop specific measures of other health system goals and achievements such as equity of health outcomes and fairness of contributions. This approach would also make it easier to draw lessons in health system management from the comparisons.

While the original paper on which this is based was written before the WHO report it still seems to represent a more realistic approach to health system performance comparison at least for a selected group of rich country health systems.

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