INTERNATIONAL HEALTH AND HEALTH SERVICES COMPARISONS

Information Circular No. 30

Over the last 15 years health expenditure in Australia has remained fairly stable while in the U.S. it has increased rapidly. The current U.S. health expenditure is far greater than spending levels in other industrialised countries. This contrasts with Japan where expenditure is low compared with most other Organisation for Economic Cooperation and Development (OECD) countries. Information on use of health services in the U.S. paints a picture of fairly low use of services and high unit cost.

Increasingly attention has focused on the contribution of the health care system to improvements in population health status. Health care systems in Japan, Britain and the major OECD countries have all addressed issues of cost containment and equity in access of health services. Japan at relative low cost compared to the U.S. provides its entire population with equitable health insurance that guarantees ready access to virtually all medical facilities.

The Japanese system in contrast with the U.S. is more loosely organised and far less functionally differentiated, but incorporates values that are highly prized in the U.S. - patient freedom of choice of private physician and a delivery system operated on laissez-faire principles. All seven of the major European countries (Belgium, France, Germany, Ireland, Netherlands, Spain and U.K.) have mastered the art of cost containment with their governments adopting global budgets for public expenditure on health care and firm policies for making such budgets stick.

To draw meaningful conclusions about expenditure data and health care systems of industrialised countries we need to focus on health outcomes. Life expectancy and infant mortality are widely used as measures of health outcomes. The U.S. performs poorly on these indicators, while Japan ranks highest among industrialised nations. Australia's ranking on most measures was generally in line with its economic ranking. However, Australia was among the worst of the OECD countries for perinatal mortality, indicating considerable potential for reduction in perinatal mortality rates.

The relationship between life expectancy and infant mortality outcome measures and the health care system is not clear. It is likely that other factors not directly connected to medical care are of even greater importance. Examples of this include the greater cultural and ethnic homogeneity of Japanese citizens and a more equal distribution of income.

This report examines beds per 1,000 inhabitants, bed days per capita, admission rates, average length-of-stay and occupancy rates for both inpatient medical care services and acute care amongst OECD countries. In addition, comparisons were made between OECD countries for the availability, use and expenditures for physician services and pharmaceutical services. The most notable finding was that both Australia and Queensland had high admission rates for both the use of inpatient medical care services and acute hospital care.

1. INTRODUCTION

It is important to look at comparative health data between Australia and other countries to see how Australia compares with other industrialised nations. Therefore, in this report health care expenditure, availability and use of health care services and health care systems are examined for industrialised countries.

This report will be the first in a series of periodic reports that will focus on health and health service comparisons among industrialised nations. The next report will examine mortality outcomes by major diseases, and the association between life style factors (i.e. diet, alcohol and cigarette consumption) and mortality rates amongst OECD countries.

2. HEALTH CARE EXPENDITURE, AND AVAILABILITY AND USE OF HEALTH CARE SERVICES.

Over the last 15 years, relative health spending in Australia has remained fairly stable at its current level, while the U.S. rate has steadily increased (Altman and Jackson, 1991:130). Australia's health expenditure as a percentage of gross domestic product is close to the OECD average.

In 1989, Australia spent 7.6 percent of its gross domestic product on health, in contrast to the U.S. figure of 11.8 percent (Table 1). Some of this difference is explained by the faster growth of Australia's GDP, which in turn has allowed for larger increases in absolute expenditure (Altman and Jackson, 1991: 130).

Also, as shown in Table 1 U.S. spending on health expenditures, whether measured by GDP shares or per capital in U.S. dollars, far exceeded spending levels in other industrialised countries. In contrast, the relative cost of health care has remained low in Japan when compared with most other countries. This is partly explained by the fact that Japan's GDP has grown rapidly and other countries have not experienced such rapid economic expansion. Thus a more meaningful comparison is the compound annual rate of growth in real per capita health spending relative to the compound annual rate of growth in real per capita GDP. When this is taken into account Japan is well below the U.S. (Ikegami, 1991: 94).

Table 2 contains information on the availability and use of inpatient medical care services in 24 OECD countries in 1988 (or the most recent available), while table 3 shows indicators of the availability and use of acute hospitals in the major OECD countries. Both tables show that Australia and Queensland were in the middle range of the OECD countries for beds per 1,000 population and bed days per capita, and both Australia and Queensland had one of the highest admission rates. For average length of stay, occupancy rate and expenditure per admission Australia was below the OECD average for acute care hospitals (Table 3). The U.S. performed poorly on all the indicators in table 3.

Table 1: Health care expenditure in twenty-four OECD countries, 1989

	Percent of GDP[a] (%)	Percent public spending (%)	Per capita health spending[b] ($)
Queensland	-	-	-
Australia	7.6	70	1,125
Austria	8.2	67	1,093
Belgium	7.2	89	980
Canada	8.7	75	1,683
Denmark	6.3	84	912
Finland	7.1	79	1,067
France	8.7	75	1,274
Germany	8.2	72	1,232
Greece	5.1	89	371
Iceland	8.6	88	1,353
Ireland	7.3	84	658
Italy	7.6	79	1,050
Japan	6.7	73	1,035
Luxembourg	7.4	92	1,193
Netherlands	8.3	73	1,135
New Zealand	7.1	85	820
Norway	7.6	95	1,234
Portugal	6.3	62	464
Spain	6.3	78	644
Sweden	8.8	90	1,361
Switzerland	7.8	68	1,376
Turkey	3.9	37	175
United Kingdom	5.8	87	836
United States	**11.8**	42	2,354
Average	7.4	76	1,059

Source: G.J. Schieber and J.P. Poullier, "International Health Spending: Issues and Trends, Health Affairs (Spring 1991): 106-116, and OECD Health Data, 1991.

[a] Gross domestic product, [b] In U.S. dollars, gross domestic product purchasing power parities.

Interpreting the expenditure data with the information on use of services paints a picture of relatively low use of services and high unit cost in the U.S (Scheiber et al., 1991: 30). This may be due to far more intensive treatment during relatively short stays, higher labor and capital costs, greater inefficiency, better amenities, or higher quality of care standards (Schieber, et al., 1991: 30). Even if this could be measured, to draw meaningful conclusions one would still need to know the effect of all of this on health outcomes (see section 4).

Table 4 provides information on physician availability, physician contacts per person, and expenditures per capita and per physician for 1988 (or for the most recently available year). For physicians per 1,000 population Australia and Queensland were slightly lower than the average and the U.S. was the same as the average value. However, this only tells part of the story; clearly the mix between primary care and specialist care is of crucial importance. Other studies comparing more limited numbers of countries show more

Table 2: Availability and use of inpatient medical care services* in twenty-four OECD countries, 1988

	Inpatient beds per 1,000 inhabitants	Inpatient days per capita	Admissions as percent of total population (%)	Average length-of -stay (days)	Inpatient occupancy rate (%)
Queensland	9.9[a]	3.1[b]	22.4[b]	13.9[b]	74.6[b]
Australia	9.9	3.2[c]	22.6[a]	12.8[a]	81.2[c]
Austria	10.7	3.3	22.8	12.9	82.8
Belgium	8.3	2.7	15.8	14.6	86.7
Canada	6.9	2.0	14.5	13.2	82.7
Denmark	6.1	1.8	20.9	8.6	81.3
Finland	13.5	4.1	22.8	18.1	83.7
France	10.2	3.0	22.3	13.1	81.2
Germany	10.9	3.5	21.5	16.6	86.5
Greece	5.2	1.4	12.1	11.0	71.0
Iceland	14.8	5.0	27.5	18.2	93.0
Ireland	6.4	2.8	15.2	8.1	80.1[e]
Italy	7.5	1.9	16.6	11.7	70.2
Japan	15.6	4.1	7.8	52.1	84.1
Luxembourg	12.5	3.7	19.0[f]	19.8[f]	81.0
Netherlands	11.7	3.8	10.9	34.8	89.0
New Zealand	9.0	2.1	13.0[d]	12.9[f]	-
Norway	15.3	5.1	16.7	10.1	89.1
Portugal	4.7	1.1	9.6	12.2	70.2
Spain	4.4[d]	1.2	9.4[d]	13.1	76.4
Sweden	13.3	4.0	20.0	19.1	85.1
Switzerland	9.9	3.0	16.6	25.3	83.9
Turkey	2.1	0.4	5.0	6.9	55.5
United Kingdom	6.5	2.0	15.9	15.0[d]	80.6[f]
United States	5.1	1.3	13.8	9.3	69.2
OECD average	9.2	2.8	16.1	16.4	80.2

Source: For all countries excluding Queensland the sources are OECD Health Systems: Facts and Trends (Paris: OECD, forthcoming); and OECD Health data, 1991. For Queensland the sources are Australia's Health 1992 for inpatient beds per 1,000 inhabitants, and Health and Welfare Establishments, 1989, ABS Cat. 4302.3 for the remaining indicators of the availability and use of inpatient medical care services. For two indicators for Australia, admissions as percent of total population and average length-of-stay the source was Australia's Health, 1992.

* The definition of inpatient medical care services is all inpatient medical care institutions.

[a] 1989-90, [b] 1987-88, [c] 1985, [d] 1987, [e] 1980, [f] 1986

specialists than GPs and other primary care physicians in the U.S. compared with other countries (i.e. Canada and the U.K.).

For physician contact per person per capita it is difficult to get a consistent definition (Schieber et al., 1991: 32). Both the contact and reported number of contacts are heavily influenced by payment rules. The OECD average was 6.0 for physician contact rate. However, there appears to be no direct relationship between physician availability and contacts per person.

Table 5 contains information on the number of pharmacists per thousand population, outpatient pharmaceutical expenditures as a percentage of total health expenditures and pharmaceutical expenditures per person. Both the U.S. and Australia were close to the

Table 3: Availability, use, and expenditures for acute care hospitals* in seventeen OECD countries, 1988

	Beds per 1,000 population	Bed days per capita (%)	Admissions as a per cent of total population[a]	Average length-of-stay (%)	Occupancy rate ($)	Expenditure per capita[b] ($)	Expenditure per day[b] ($)	Expenditure per admission ($)[b]
Queensland	5.4[c]	1.3[c]	21.8[d]	5.7[d]	67	358[h]	361[h]	2,191[h]
Australia	5.4	1.3	21.2[e]	6.1[e]	67.7[e]	418	322	1,972
Austria	6.4	2.4	20.6	11.4	81.3	-	-	-
Belgium	5.5	1.5	16.5	9.6[f]	76.1[f]	-	-	-
Canada[e]	4.5	1.3	13.3	8.9	80.3	592	455	4,444
Denmark	4.8	1.4	20.2	6.9	80.5	388	277	1,921
Finland	4.5	1.2	16.7	7.3	73.8	198	165	1,186
France	5.4	1.5	20.1	7.3	76.4	515	343	2,562
Germany	7.4	2.3	18.7	12.7	85.5	-	-	-
Iceland	9.8	3.2	25.3	12.8	90.7	-	-	-
Ireland	3.9	1.2	13.9	7.3	82.2	-	-	-
Netherlands	4.5	1.2	10.4	11.9	74.0	335	279	3,221
Norway	4.5	1.3	14.9	8.5	77.4	440	338	2,953
Spain[e]	3.4	0.9	9.2	10	73.4	223	242	2,372
Sweden	4.1	1.2	16.8	7.1[e]	78.4	-	-	-
Switzerland	6.6	1.3	13.8	13.7	80.7	398	210	2,884
United kingdom[g]	2.8	0.9	12.9	7.8	76.4	-	-	-
United States	3.8	0.9	12.8	7.2	65.5	715	779	5,609
Average	5.1	1.5	16.3	9.2	77.7	422	341	2,912

Sources: OECD Health Systems: Facts and Trends (Paris: OECD, forthcoming); and OECD Health Data, 1991, where used for all countries excluding Queensland. The sources for Queensland included Australia's Health, 1992 for beds per 1,000 population, bed days per capita and occupancy rate; Health and Welfare Establishments, 1989, ABS Cat. 4302.3 for admission rate and average length-of-stay; and 90/91 Casemix data base, Queensland Health for expenditure.

* The definition of acute care hospitals used here is an institution or ward in which the average length-of-stay does not exceed 30 days.

[a] Percent of total population, [b] In U.S. dollars, gross domestic product purchasing power parities, [c] 1989-90, [d] 1987-88, [e] 1987, [f] 1983, [g] 1986, [h] 90/91: Queensland figures were converted into U.S. dollars by multiplying by 0.78, which was the average exchange rate in both 1990/91 and 1988. The Queesland figures for expenditure per capita, expenditure per day and expenditure per admission were more recent than the equivalent Australian figures.

OECD average for the number of pharmacists per thousand population. Also both the U.S. and Australia at 8.3 per cent had the third-lowest pharmaceutical expenditure percentage and were significantly below the OECD average. Other studies suggest that the U.S. situation is characterised by relatively low utilisation per person, and high prices per unit of service (Schieber et al., 1991: 34).

3. HEALTH CARE SYSTEMS

Increasing attention is being given to the contribution of the health care system to improvements in population health status. In this section health care systems in Japan, Britain and major OECD countries will be examined, all of which have addressed issues of cost containment and equity in access of health services.

At a cost that is little more than half of what the U.S. spends for personal health services, Japan provides its entire population with equitable health insurance that guarantees ready access to virtually all medical facilities. The Japanese system also incorporates values that are highly prized in the U.S., including patient freedom of choice of private

Table 4: Availability, use, and expenditures for physician services in twenty-four OECD countries, 1988

	Physicians per 1,000 population	Physician contacts per capita	Physician expenditures per capita	Physician expenditures per physician[a]
Queensland	1.9[h]	9.0	-	-
Australia	2.0[d]	8.4[e]	181	81,430[e]
Austria	2.0	5.8	-	-
Belgium	3.3	7.5	-	-
Canada[e]	2.2	6.6	241	112,035
Denmark	2.7	5.2[f]	-	25,895[g]
Finland	1.9	3.7	-	-
France	2.6	7.1	147	57,270
Germany	2.9	11.5	193	67,067
Greece	3.2	5.3[h]	-	-
Iceland	2.7	4.9[i]	-	-
Ireland	1.5	6.6	-	26,057[g]
Italy	1.3	11.0	-	72,926[g]
Japan[e]	1.6	12.9	306	183,761[d]
Luxembourg	1.9	-	-	90,992[g]
Netherlands	2.4	5.1	113	46,702
New Zealand	1.9	3.8[i]	124	67,009
Norway	2.5[c]	5.7[f]	-	-
Portugal	2.7	2.7	-	-
Spain	3.6	4.0[d]	-	-
Sweden	2.9	2.8	-	-
Switzerland	2.9	6.0[e]	247	85,640
Turkey	0.8	2.0[f]	-	-
United Kingdom	1.4	4.5	-	34,823[g]
United States	2.3	5.3	414	183,281
Average	2.3	6.0	219	98,244[i]

physician, employment-based nonprofit health insurance, and a delivery system operated on laissez-faire principles (Ikegami, 1991:88).

The Japanese health care delivery system shares some basic characteristics with the U.S. system. About 80 percent of Japan's hospitals and 94 percent of its physician-run offices (referred to as clinics) are privately operated (Ikegami, 1991:89).

All seven of the major European countries (Belgium, France, Germany, Ireland, Netherlands, Spain and U.K.) have in the past decade or earlier mastered the art of cost containment. This has been achieved mainly because their governments have adopted global budgets for public expenditure on health care and firm policies for making such budgets stick (Hurst, 1991:19). They also have shown a persistent or growing preference for universal, or near universal, public health insurance arrangements (Hurst, 1991:

Table 5: Availability, use, and expenditures for pharmaceutical services in twenty-three OECD countries, 1988

	Pharmacists per 1,000 population	Pharmaceuticals as percent of total health expenditures (%)	Pharmaceutical expenditures per capita[a] ($)	Pharmaceutical expenditures per capita[b] ($)
Queensland	-	-	-	-
Australia	0.66[c]	8.3	187	92
Austria	0.25	11.6	152	121
Belgium	1.18	17.4	304	161
Canada	0.80	11.6[d]	187[d]	175[d]
Denmark	0.29	9.3	140	78
Finland	0.86	9.5	158	95
France	0.91	16.7	492	196
Germany	0.56	20.7	321	258
Greece	0.69	26.3	187	90
Iceland	0.74[d]	12.9	-	174
Ireland	0.31	11.2	96	68
Italy	-	18.2	349	179
Japan	0.69	18.4	332	179
Luxembourg	0.77	15.5	325	178
Netherlands	0.15	9.6	134	103
New Zealand	0.67	14.3	242	115
Norway	0.45	5.3	106	65
Portugal	1.08	18.2[c]	88	60[c]
Spain	0.87	18.8[d]	204	106[d]
Sweden	0.51[c]	6.7	189	89
Switzerland	-	12.3	-	159
United Kingdom	-	11.3	201	88
United States	0.66[c]	8.3	182	182
Average	0.65	13.6	218	129

19). An example is Britain's National Health Service (NHS) which provides with remarkable parsimony, a comprehensive service to the entire population. The service is tax-financed and free at the point of delivery with remarkably low administrative costs (Day and Klein, 1991:40).

Recently the Oregon Health Services commission in the U.S. addressed the issue of cost containment for medical expenditures, for medicaid recipients by virtue of prioritization of health services. The commissioners believed that at a time of limited resources and increasing demands, it was rational for the state to identify the most important health services and to make those services available to a larger number of underserved residents (Oregon Health Services Commission, 1991:67). It was apparent that no methodology existed to accomplish this task, but the commission attempted a systematic and scientific approach to the establishment of a list. The state developed a list of treatments (linked

with conditions) to which a net benefit formula was applied to identify the benefit likely to result from each procedure and the duration of the benefit. Costs were also considered. An extensive professional and community consultation was then conducted to determine a prioritized list to guide health care resource allocation decisions. One recommendation was especially significant in the acceptance and interpretation of the prioritized list:

◆ to ensure access for all Oregon's residents to affordable health insurance providing at a minimum a benefit package which includes all services in categories considered essential and most of those considered very important (Oregon Health Services Commission, 1991:xiv).

The Commission defined basic health care as a minimum below which no person should fall (Oregon Health Services Commission, 1991: 70). The Commission went further to describe basic in terms of essential and very important categories of health services. It was argued that all of the 'essential' services and most of the 'very important' must be included in a basic health care package (Oregon Health Services Commission, 1991: 70). These 'essential' categories included life-saving, maternity care and preventative services for children, as well as reproductive services, comfort care, preventative dental services and preventative care for adults. All of these services are effective, contribute to quality of life, give good value for the dollar and demonstrate community compassion for those who are terminally ill (Oregon Health Services Commission, 1991: xiv). The 'very important' categories comprise treatment which is effective and improves quality of life.

4. HEALTH OUTCOME MEASURES

Socioeconomic, cultural, geographic, health system and other factors determine the health status of populations of different countries (Schieber et al., 1991: 34). Life expectancy and infant mortality are often used as measures of health outcomes. It is also useful to review general population measures, to point out differences in the underlying demographic features which will have an impact on health status measures.

The percentage of population aged 64 and over had an OECD average of 13 per cent and ranged from 4 per cent in Turkey to 17.8 percent in Sweden (Table 6). The U.S. had the eighth-lowest ratio with Australia and Japan slightly lower than the U.S. Since health care costs increase with age, one would expect countries with relatively younger populations to have lower expenditures, other things being equal (Schieber, et al., 1991: 34). However, this was not found to be the case in the U.S. situation.

Another measure of population dependency is the total dependency ratio (the population less than age twenty and age sixty-five and over relative to the 'productive' population ages twenty to sixty-four). This ratio provides a measure of the ability of the productive working population to support the young and elderly populations. The U.S. and Australia's ratios are about average and fall in the middle of the range for the major

Table 6: Population and health outcome measures in twenty-four OECD countries, 1988

	Infant mortality, live births per 1,000	Perinatal mortality, deaths[a] per 1,000	Life expectancy at birth, male (years)	Life expectancy at birth, female (years)	Life expectancy at age 80, male (years)	Life expectancy at age 80, female (years)	Percent of population over age 64 (%)	Dependency ratio[b]
Queensland[c]	8.4	10.6	73.3	79.8	6.8	8.7	10.7	74.5
Australia	8.7	10.7	73.1	79.5	6.7	8.4	10.9	71.6
Austria	8.1	7.4	72.0	78.6	6.3	7.4	14.9	66
Belgium	9.4	10.4[d]	71.4[e]	78.2	5.7[f]	7.1[f]	14.5	65.7
Canada	7.2	7.6	73.0[d]	79.7[d]	6.9[d]	**8.9[d]**	11.1	65.2
Denmark	7.5	8.7	71.8	77.7	6.4	8.2	15.4	67.0
Finland	6.1	6.5	70.7	78.7	6.1	7.5	13.1	63.0
France	7.7	9.2	72.3	80.6	6.8	8.6	13.6	71.7
Germany	7.6	6.5	71.8	78.4	6.1[e]	7.6[e]	15.4	57.9
Greece	11.0	12.9	74.1[e]	78.9	6.7	7.6	13.6	68.6
Iceland	6.2	7.5	74.6	79.7	**7.2**	**8.9**	10.5	78.4
Ireland	8.6	10.4[e]	71.0	76.7	5.5[f]	6.4[f]	11.1	95.2
Italy	9.3	12.3	72.7[e]	79.4[e]	6.2[e]	7.7[e]	13.6[e]	65.8[e]
Japan	**4.8**	**6.2**	**75.5**	**81.3**	6.9	8.4	11.2	63.7
Luxembourg	9.4	7.1	70.6[d]	77.9[d]	5.3[d]	6.8[d]	13.3	57.8
Netherlands	6.8	9.2	73.3	79.9	6.7	8.6	12.5	62.9
New Zealand	10.8	8.5	71.0[e]	77.3[e]	6.2[d]	7.9[d]	10.7	76.4
Norway	8.3	7.9	73.1	79.6	6.5	8.1	16.1	75.7
Portugal	13.0	15.3	70.7	77.6	5.8	6.9[e]	12.9	76.3[d]
Spain	8.1	10.6[d]	73.2[e]	79.8[e]	6.7[g]	7.7[g]	13.1	74.2
Sweden	5.8	6.8	74.2	80.0	6.3	8.1	17.8	73.1
Switzerland	6.8	7.6[e]	73.9	80.7	6.9	8.6	14.8	61.6
Turkey	65.0	-	63.2[h]	68.1[h]	5.1[f]	5.6[f]	4.0	105.8
United Kingdom	9	9.1	72.4	78.1	6.4	8.1	15.6	72.0
United States	10.0	9.7	71.5	78.3	6.9	8.7	12.3	70.3
Average	10.6	9.0	72.1	78.5	6.3	7.8	13.0	71.1

Sources: OECD Health Systems: Facts and Trends (Paris: OECD, forthcoming); and OECD Health Data, 1991 for all countries excluding Queensland. The sources for Queensland include 1988 Deaths Queensland, 1989, ABS Cat. 3307.3; Estimated Resident Population by Sex and Age: States and Territories of Australia, 1989, ABS Cat. 3201.1; and Causes of Death, Queensland, 1988, ABS Cat. 3302.3.

[a] Includes live births and late fetal deaths, [b] Dependency ratio defined as number of population ages 0-19 and 65 and older, divided by number of population ages 20-64, [c] 1988, [d] 1986, [e] 1987, [f] 1980, [g] 1985, [h] Average for 1985-1989.

industrialised countries (Schieber et al., 1991:34).

Infant mortality is widely used as a measure of health outcomes. The U.S., with an infant mortality rate of 10.0 had one of the highest rates, while Australia had a lower value of 8.7 (Table 6). Australia and Queensland had high perinatal mortality rates of 10.7 and 10.6 respectively, which were above most of the European countries. Both rates were over 70 per cent higher than the Japanese rate of 6.2, which was the lowest rate among industrialised countries.

Life expectancy at various ages is also used as a measure of health system outcomes. The Australian female life expectancy at birth was 79.5 years, while the male life expectancy

was 73.1 years (Table 6). These values were slightly higher than the OECD averages, and were where Australia would expect to be given our economic environment. Queensland had very similar life expectancy values to Australia.

The health status of Japan's 122 million citizens is impressive, although spending levels in Japan are low. Japan's average life expectancy at birth of 75.5 years for males and 81.3 for females ranks highest among nations. Yet, the exact relationship between these macro-outcome measures and the health care system is none to clear (Ikegami, 1991: 88). It is likely that factors not directly connected to medical care - the greater cultural and ethnic homogeneity of its citizens, a more equal distribution of income, and a lower unemployment rate as compared with Americas - are of even greater importance. The Japanese may also have a healthier diet.

Some have argued that life expectancy in the older ranges may provide a better indication of the availability and use of high-technology health interventions and hence may be more influenced by health spending than is life expectancy at birth (Schieber, et al., 1991: 36). U.S. female life expectancy at age 80 was the second-highest after Iceland and Canada. Male life expectancy at age 80 in the U.S. ranked second along with Canada, Japan and Switzerland.

The discussion so far has looked at global measures of health outcomes. Subsequent circulars will examine mortality health outcomes for different conditions and explore some of the factors explaining these differences amongst industrialised countries.

Life expectancy is far from an ideal measure of quality of life or health outcome (Schieber et al., 1991: 36). An 'outcomes approach' represented by goals and targets is described in another circular. Without clear specification of expected outcomes it is impossible to evaluate the appropriateness of services, their quality, or their effectiveness in relation to cost (Nutbeam et al, 1992: 4-5).

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