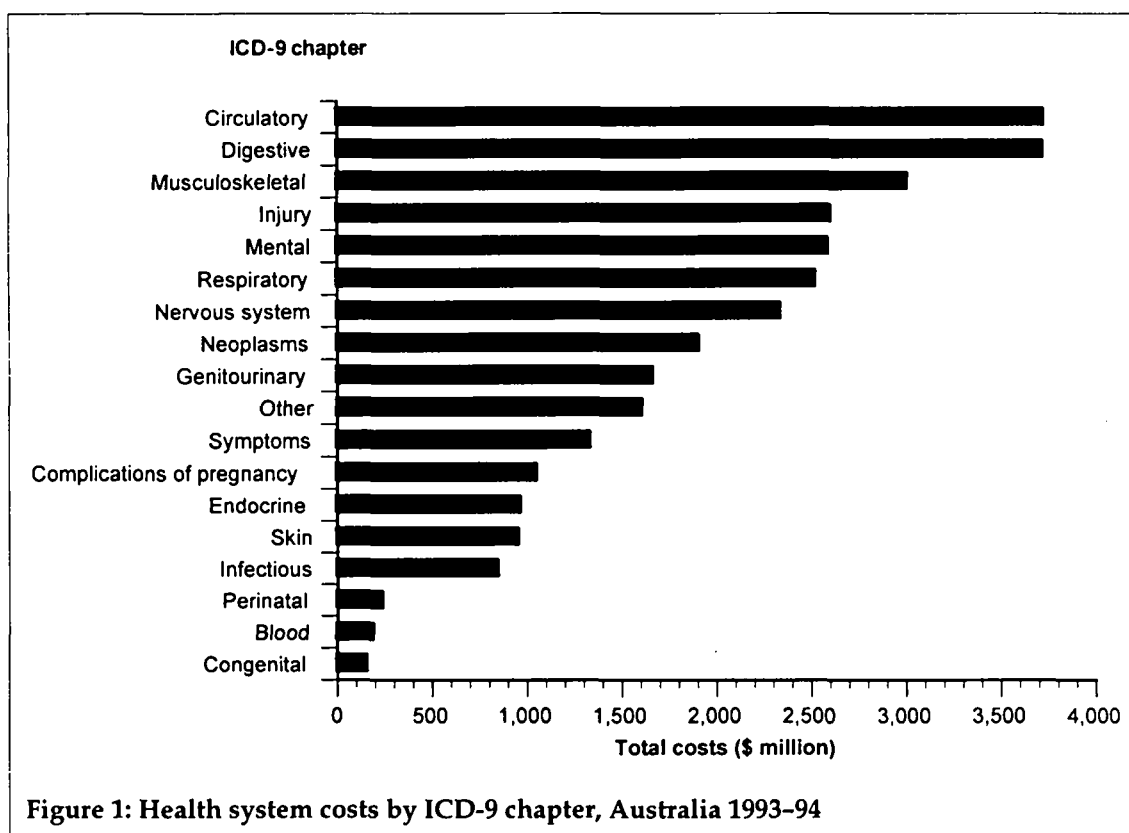


# 3 Health system costs by ICD-9 chapter

## Overview

The total health system costs of disease and injury in Australia in 1993–94, summarised at the broad disease group level according to ICD-9 chapters, are shown in Figure 1, ranked in descending order of total costs. Circulatory system disorders and digestive system diseases are the most expensive groups, the latter in part because of the large expenditure on dental services. It is interesting to note that mental disorders and musculoskeletal disorders, which include many long-term chronic disorders with relatively low fatality rates, rank highly in the direct cost estimates.



The health system costs of disease and injury in Australia in 1993–94 are presented in Table 1, by ICD-9 chapter and health sector. Also included in Table 1 are total numbers of deaths in 1994. Although digestive system diseases are one of the two most expensive groups, they account for relatively few deaths compared with disease groups such as circulatory system, neoplasms (cancers) and injury. A considerable component of the costs of digestive diseases is the \$1,849 million for allied health services, of which \$1,830 million represent dental services.

**Table 1: Diseases and injury by ICD-9 chapter: health system costs by health sector, 1993-94 (\$ million) and number of deaths 1994**

ICD-9 chapter	Total costs	Hospitals <sup>(a)</sup>	Medical <sup>(b)</sup>	Pharmaceuticals	Dental & allied health services	Nursing home	Other <sup>(c)</sup>	No. of deaths
Circulatory	3,719	1,657	503	715	40	587	218	54,888
Digestive <sup>(d)</sup>	3,715	1,070	284	275	1,849	35	202	3,859
Musculoskeletal	3,002	1,207	518	276	416	430	154	775
Injury	2,601	1,663	393	127	160	112	146	7,189
Mental	2,586	1,007	432	198	83	718	147	2,985
Respiratory	2,521	833	624	784	37	107	135	9,958
Nervous system	2,334	766	431	248	227	503	159	2,944
Cancer	1,904	1,327	261	53	12	32	219	34,206
Genitourinary	1,662	997	383	143	17	32	90	2,110
Symptoms	1,334	478	426	302	57	5	66	547
Complications of pregnancy	1,051	941	32	11	6	0	60	16
Endocrine	966	235	222	309	54	47	98	4,112
Skin	956	336	247	259	56	6	53	211
Infectious	849	246	316	193	15	13	65	1,042
Perinatal	239	221	1	0	0	3	14	695
Blood	192	101	42	24	1	5	18	401
Congenital	159	116	18	2	0	13	8	754
Other <sup>(e)</sup>	1,607	859	505	122	44	0	77	—
<b>Total</b>	<b>31,397</b>	<b>14,062</b>	<b>5,640</b>	<b>4,042</b>	<b>3,075</b>	<b>2,647</b>	<b>1,932</b>	<b>126,692</b>

(a) Public and private acute hospitals, repatriation hospitals and psychiatric hospitals. Includes public hospital non-inpatient services.

(b) Medical services for private patients in hospitals are included under 'Hospitals'.

(c) Includes breast, cervix, lung and skin cancer public health programs, research and other institutional, non-institutional and administration expenditure. Does not include other public health services, community health services, ambulances, or medical aids and appliances.

(d) Dental costs are classified to Diseases of the Digestive System and included under the allied health services sector.

(e) Other contact with health services: fertility control, reproduction and development, cosmetic surgery, general health examination, and treatment for unspecified disease.

Circulatory diseases rank highly on both indices: having the highest direct costs (\$3,719 million) and accounting for the largest number of deaths (53,240, which represent 44% of all deaths). Circulatory diseases and cancer combined account for over 70% of deaths yet only 18% of total direct costs.

Musculoskeletal and mental disorders, which rank highly in terms of costs (\$3,002 million and \$2,586 million respectively) and relatively low in terms of deaths (681 and 2,344 deaths respectively), contain chronic diseases with low fatality rates.

Cancer ranks eighth in terms of direct costs, yet is the second highest contributor to deaths (33,176 deaths, which represent 27% of all deaths). Health system costs of cancer are examined in detail in a companion report (Mathers et al. 1998b).

**Table 2: Institutional and non-institutional health costs (\$ million) and institutional costs as a per cent of total costs, by ICD-9 chapter, 1993–94**

ICD-9 chapter	Institutional <sup>(a)</sup>	Non-institutional <sup>(b)</sup>	Total	Institutional as per cent of total
Circulatory	2,401	1,318	3,719	65
Injury	1,886	715	2,601	73
Mental	1,835	751	2,586	71
Musculoskeletal	1,765	1,236	3,002	59
Neoplasms	1,504	401	1,904	79
Nervous system	1,367	967	2,334	59
Digestive	1,263	2,452	3,715	34
Genitourinary	1,100	562	1,662	66
Respiratory	1,048	1,473	2,521	42
Complications of pregnancy	986	65	1,051	94
Other <sup>(c)</sup>	928	680	1,607	58
Symptoms	540	793	1,334	41
Skin	382	574	956	40
Endocrine	322	644	966	33
Infectious	295	554	849	35
Perinatal	234	5	239	98
Congenital	137	22	159	86
Blood	114	78	192	59
<b>Total</b>	<b>18,106</b>	<b>13,291</b>	<b>31,397</b>	<b>58</b>

(a) Includes recognised public hospitals, private hospitals, psychiatric hospitals, repatriation hospitals, nursing homes, other institutional and administration expenditure.

(b) Includes out-of-hospital medical services, pharmaceutical drugs, dental and allied health services, research, public health (breast, cervix, lung and skin cancer programs only), and other non-institutional expenditure.

(c) Other contact with health services: fertility control, reproduction and development (including normal birth), cosmetic surgery, general health examination, and treatment for unspecified disease.

The disease groups with the lowest direct health system costs are congenital malformations (\$159 million) and blood diseases (\$192 million), which account for relatively few deaths (739 and 394 respectively).

For all diseases, 45% of direct costs are within the hospital sector (which includes inpatient and non-inpatient services in public, private and repatriation hospitals), 18% medical, 13% pharmaceutical, 10% allied health, 8% nursing homes and 6% other. Table 2 shows institutional (hospital and nursing home) and non-institutional (medical, pharmaceutical and allied health services) costs by ICD-9 chapter, ranked in descending order of institutional costs. The disease groups with largest institutional costs are cardiovascular diseases, followed by injury then mental health.

The ICD-9 chapters for which institutional health costs represent the greatest proportion of total health system costs are those relating to problems with reproduction: perinatal problems, complications of pregnancy and congenital malformations. After these three chapters comes neoplasms, where institutional health costs represent 79% of total health costs. At the other end of the spectrum are

**Table 3: Diseases and injury by ICD-9 chapter: health system costs for treatment and prevention, 1993-94 (\$ million) and number of deaths and potential years of life lost to age 75 (PYLL 75), 1994**

ICD-9 chapter	Treatment (\$ million)	Prevention <sup>(a)</sup> (\$ million)	Other <sup>(b)</sup> (\$ million)	Total costs (\$ million)	Deaths 1994	PYLL 75 1994
Circulatory	3,490	11	216	3,719	54,888	184,316
Digestive	3,389	124	202	3,715	3,859	26,582
Musculoskeletal	2,838	10	153	3,002	775	3,884
Injury	2,455	—	147	2,601	7,189	223,308
Mental	2,428	11	149	2,586	2,985	21,195
Respiratory	2,375	10	135	2,521	9,958	42,038
Nervous system	2,165	10	159	2,334	2,944	26,861
Neoplasms	1,619	135	150	1,904	34,206	283,166
Genitourinary	1,561	11	90	1,662	2,110	5,512
Symptoms	1,268	—	66	1,334	547	20,833
Complications of pregnancy	991	—	60	1,051	16	736
Skin	894	9	53	956	211	502
Endocrine	857	11	98	966	4,112	41,346
Infectious	626	158	65	849	1,042	12,759
Other <sup>(c)</sup>	361	1,169	77	1,607	—	—
Perinatal	225	—	14	239	695	51,220
Blood	164	9	18	192	401	2,673
Congenital	150	0	9	159	754	44,999
<b>Total</b>	<b>27,857</b>	<b>1,677</b>	<b>1,863</b>	<b>31,397</b>	<b>126,692</b>	<b>991,510</b>

(a) Includes prevention and screening activities within the hospital, medical and allied health sectors (see Appendix Table A.1), and breast, cervix, lung and skin cancer public health programs. Does not include other public health services, or preventive activities within community health services.

(b) Includes research and other institutional, non-institutional and administration expenditure.

(c) Other contact with health services: fertility control, reproduction and development (including normal delivery), cosmetic surgery, general health examination, and treatment for unspecified disease.

endocrine, metabolic, nutritional and immunity disorders, where institutional health costs represent only 33% of total health system costs for the chapter.

Table 3 shows estimated treatment and prevention costs by ICD-9 chapter, together with numbers of deaths and years of life lost to age 75 in 1994, ranked by chapter in descending order of treatment costs. As noted above, health service casemix information does not always allow classification into treatment or prevention and the majority of public health and community health expenditure has not yet been included in the estimates. As a result, estimates of health system expenditure for prevention should be interpreted with caution.

Detailed information on health system costs by ICD-9 chapter and health sector are provided in Appendix Table C.2. The accompanying table provides estimates of health services utilisation by sector and ICD-9 chapter (Appendix Table C.3).

Diseases of the circulatory system, neoplasms (cancers) and injury stand out from all other chapters of ICD-9 in terms of deaths and potential years of life lost to age 75 compared with health system treatment expenditures (Figure 2).

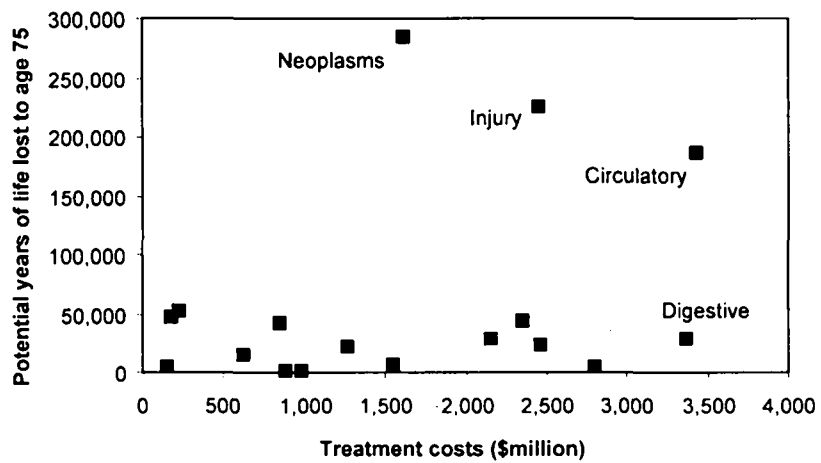
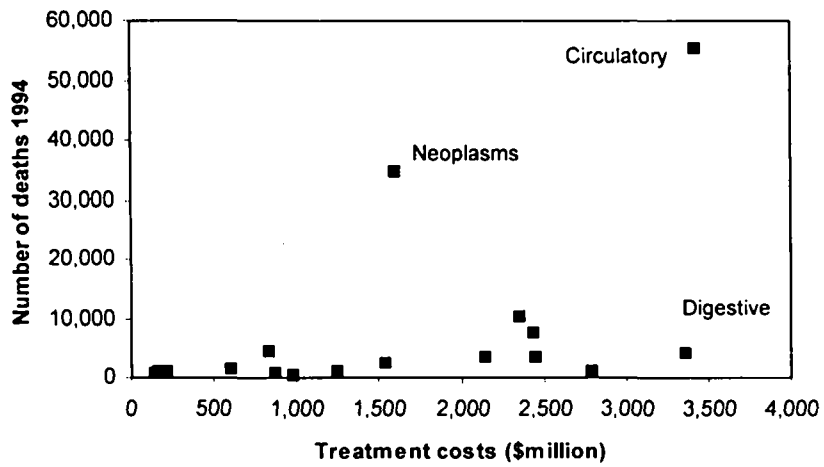


Figure 2: Total treatment costs in 1993-94 compared with number of deaths (upper chart) and potential years of life lost to age 75 (lower chart) in 1994, by ICD-9 chapter. Refer to Table 3 for more information.