

8 Pharmaceutical drugs

8.1 Summary

Total private pharmaceutical expenditure is decomposed into two components: expenditures on prescription and on non-prescription drugs. Attribution factors based on the 1990-91 Survey of Morbidity and Treatment in General Practice in Australia undertaken by Professor Bridges-Webb and colleagues (the GP survey), together with 1993-94 estimates of total costs and numbers of prescriptions for 40 categories of drug, are used to allocate total Australian expenditure on prescription pharmaceuticals to age-sex-disease groups. Expenditure on non-prescription (over-the-counter) pharmaceuticals is attributed to age-sex-disease groups using information from the 1989-90 Australian Bureau of Statistics (ABS) National Health Survey. The methodology addresses all pharmaceutical costs apart from the cost of pharmaceuticals dispensed in hospitals (covered in Chapters 2 and 3).

Box 8.1: Key assumptions

- *For each DCIS therapeutic drug group, the relative distribution of prescriptions by disease, age and sex for all community prescriptions in 1993-94 is the same as that for prescriptions by general practitioners in 1990-91. For diseases where a significant proportion of prescriptions are made by medical specialists, this assumption may have limited validity.*
- *Within each DCIS therapeutic drug group, each prescription is assumed to have equal cost.*
- *The utilisation pattern of drugs 'not prescribed or advised' in the National Health Survey is representative of the total use of over-the-counter medicines in 1993-94.*
- *Purchases of over-the-counter medications have the same average cost per purchase for each age-sex-disease group.*
- *Over-the-counter pharmaceutical expenditure for cancers and for heart disease are allocated to DCIS disease groups at sub-chapter level, assuming that they are distributed across diseases in proportion to numbers of medical visits for each age-sex group.*

Box 8.2: Data sources

- *1993-94 Household Expenditure Survey (ABS 1996).*
- *Prescription drug use and costs (1993 Australian Statistics on Medicines).*
- *1990-91 Survey of Morbidity and Treatment in General Practice in Australia.*
- *1989-90 ABS National Health Survey.*
- *AIHW Health Expenditure Database.*

8.2 Overview of pharmaceutical costs methodology

Pharmaceuticals represent the third largest sector of health expenditure after acute hospitals and medical services, accounting for almost 12% of total recurrent health expenditure in 1993-94. Pharmaceutical expenditure includes expenditure on drugs prescribed by private medical practitioners and non-prescription (over-the-counter) drugs purchased by

individuals. Hospital pharmaceuticals dispensed to inpatients and non-inpatients (including those prescribed for private patients and supplied by the hospital) are included in hospital costs and dealt with as part of the attribution of hospital expenditures (see Chapters 2 and 3).

Around 70% of non-hospital prescriptions are dispensed under one of two subsidisation schemes – the Pharmaceutical Benefits Scheme (PBS) and the Repatriation Pharmaceutical Benefits Scheme (RPBS). Under the PBS, general patients paid the full cost of a prescription up to a maximum of \$16.20 (as at August 1994) unless their family expenditure had reached a safety net limit. The other 30% of prescriptions include these unsubsidised prescriptions as well as private prescriptions for drugs not listed on the PBS or RPBS, where the patient pays the full cost of the drug.

Total expenditure on pharmaceutical drugs is known from the AIHW Health Expenditure Database. Estimates of over-the-counter drug expenditure from the 1993–94 ABS Household Expenditure Survey and of total expenditure on private prescriptions are used to split total pharmaceutical expenditure into two components for prescription and non-prescription drugs (see Section 8.3.1).

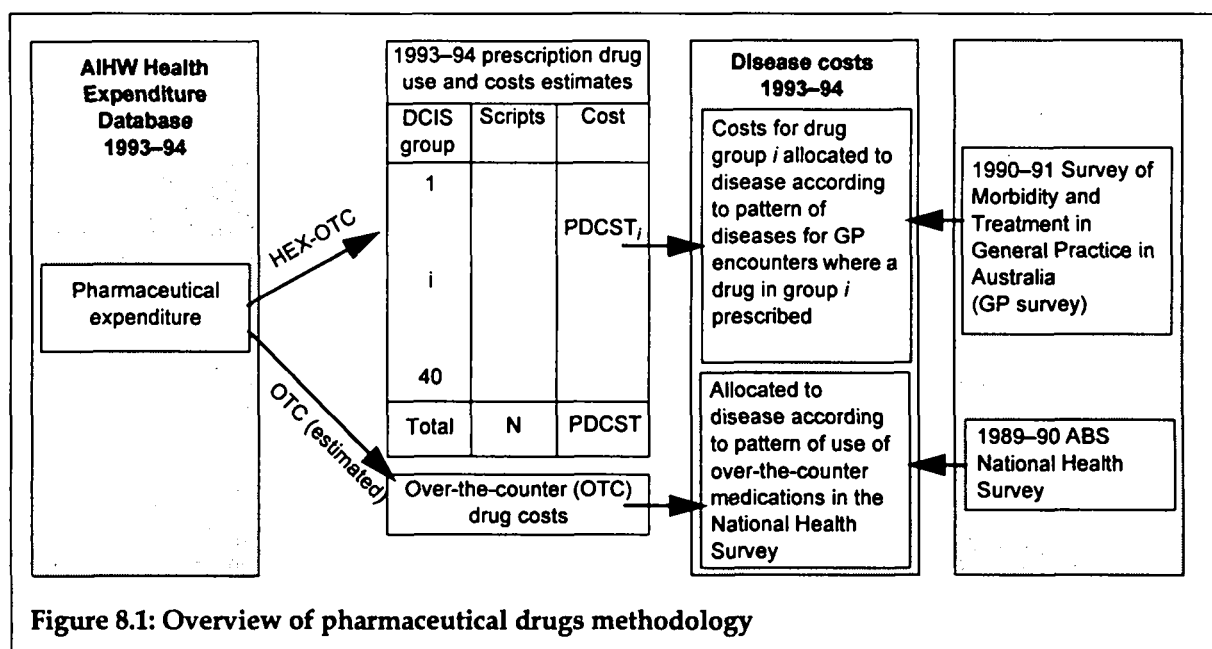
Detailed estimates of 1993–94 utilisation and expenditure for 40 drug categories are used as a starting point for attribution to age–sex–disease groups. This takes into account differences in average drug costs across therapeutic categories, average numbers of repeats, and relative changes in utilisation and costs across drug categories between 1989–90 and 1993–94.

Total prescriptions and costs for each Disease Costs and Impact Study (DCIS) drug category are attributed to disease in accordance with the pattern of diseases for which that category of drug was prescribed in the GP survey encounters. This method takes into account differences between disease groups in the average cost per prescription and in the average number of repeats, changes in relative prescription volume of different classes of drugs, and also substitution of specific drugs used for a disease in 1990 by new or alternate drugs within the same therapeutic category in 1993–94. However, the method assumes that the relative distribution of prescriptions by disease, age and sex for all community prescriptions in 1993–94 is the same as that for prescriptions by general practitioners in 1990–91. For diseases where a significant proportion of prescriptions are made by medical specialists, this assumption may have limited validity, and care should be taken in the interpretation of prescription drug costs at disease sub-group level for such diseases.

Allocation of over-the-counter drug costs to disease, age and sex groups was based on the reported use of medications in the two weeks prior to interview in the National Health Survey. Expenditure at the chapter level is apportioned to specific disease groups at the sub-chapter level, to the extent possible, using the specific codes used to record health conditions in the National Health Survey.

The level of detail of these codes varies with chapter and, where it is necessary to apportion costs at a finer level of detail than available in the National Health Survey, costs are allocated in proportion to total estimated doctor visits.

The key assumptions and data sources used for the allocation of pharmaceutical costs to disease are summarised in Boxes 8.1 and 8.2. Figure 8.1 gives an overview of the pharmaceutical drugs methodology.



8.3 Pharmaceuticals methodology in detail

8.3.1 Total expenditure on over-the-counter drugs

The AIHW has estimated total expenditure on unsubsidised prescription drugs from 1989-90 to 1992-93 (AIHW 1994:143), with expenditure in 1992-93 estimated at \$691 million. Total expenditure on unsubsidised pharmaceuticals in 1992-93 was \$1,472 million (AIHW 1994), so that an estimated \$781 million was spent on non-prescription drugs. This represents 22.8% of total pharmaceutical expenditure in 1992-93. If the same proportion is applied to 1993-94 pharmaceutical expenditure of \$4,042 million, the total estimated expenditure on over-the-counter drugs is \$920 million.

An alternative source of data for estimating over-the-counter drug expenditure is provided by the 1993-94 ABS Household Expenditure Survey (ABS 1996). According to this survey, an average of \$3.55 per household per week was spent on non-prescription medicines and pharmaceutical products in 1993-94 (estimated by adding expenditure categories 460-463 and 467). This corresponds to total national expenditure of \$1,221 million for over-the-counter medicines, with an estimated 95% confidence interval of \$1,100 to \$1,340 million. The lower bound of this interval is almost 20% higher than the estimate based on estimated expenditure for unsubsidised prescription drugs.

For allocation of over-the-counter drug expenditure in the DCIS, total expenditure for 1993-94 for over-the-counter drugs is estimated as the average of the two estimates described above, that is, \$1,070 million. The estimated total expenditure on prescription drugs is thus \$2,972 million.

Data sources

- AIHW estimates of expenditure on private prescriptions.
- 1993-94 ABS Household Expenditure Survey (ABS 1996).

8.3.2 Expenditure on prescription drugs

The 1989–90 methodology attributed total pharmaceutical expenditure (prescription and non-prescription) to diseases using the pattern of drugs prescribed or advised in the GP survey data (see Chapter 5 for details of this data set). Each prescription (or advice) was given equal cost weight. This methodology did not allow for differences in average cost per prescription or in the average number of repeat prescriptions for different diseases. Additionally, it did not allow for changes in relative prescription volume of different classes of drugs since 1990.

To address these problems, it was decided to use detailed estimates for 1993–94 of total prescriptions and total costs of drugs, disaggregated into a reasonably large set of therapeutic categories, as the starting point for attribution of prescription drug costs. Within each of these therapeutic categories, total prescriptions and costs are attributed to disease in accordance with the pattern of diseases for which that category of drug was prescribed in the GP survey encounters. This method takes into account differences between disease groups in the average cost per prescription and in the average number of repeats, changes in relative prescription volume of different classes of drugs, and also substitution of specific drugs used for a disease in 1990 by new or alternate drugs within the same therapeutic category in 1993–94.

The therapeutic categories used for the DCIS (Table 8.1) are based on an aggregation of the therapeutic groups used by the Pharmaceutical Benefits Pricing Authority (1994). Table 8.1 also shows the corresponding Anatomical Therapeutic Chemical (ATC) codes for these categories. The ATC classification is used by the Drug Utilisation Sub-Committee of the Pharmaceutical Benefits Advisory Committee to report annual estimates of the total numbers of community prescriptions filled in Australia (Commonwealth Department of Human Services and Health 1995).

The estimates are based on data from the PBS/RPBS for prescriptions submitted for payment of a subsidy, together with data on non-subsidised prescriptions derived from an ongoing survey of a representative sample of community pharmacies. For those drugs which are listed on the PBS, total costs (government and patient) are estimated assuming that, under co-payment, prescriptions for a particular drug cost the same as prescriptions for that drug which attract a subsidy. Costs for private prescriptions are not estimated.

Table 8.1: Drug groups used in the DCIS

DCIS group	Review group (minor codes)	Type of drug	ATC group
1	10	Penicillins	J01C
2	11	Tetracyclines	J01A
3	12	Macrolides	J01FA
4	14	Cephalosporins	J01D
5	13, 15–19, 82	Other antibiotics and antiparasitics	D01B, G04AA–AC, J01B, J01E, J01FF, J01G, J01M, J01XA–XB, J01XD, J05, P01B, P02, P03
6	20	Anti-malarials	P01B
7	21	Antituberculars and antileprotics	J04
8	22	Anthelmintics	P02
9	23	Vaccines	J07
10	25	Narcotics analgesics	N02A, N02BA51, N02BE51
11	28	Anti-depressants	N06A, N06C
12	26, 27, 29	Benzodiazepines, sedatives, hypnotics, tranquilisers and anti-migraine	N02C, N05
13	30	Anti-epileptics	N03A
14	31	Anti-Parkinsonism drugs	N04A–N04B
15	32	Central nervous system stimulants	N06B, G02C
16	33	Smooth muscle stimulants	N07A
17	34	Muscle relaxants	M03
18	36	Non-narcotic analgesics	M02, N02BE excl. BA51, BE51
19	37	Non-steroidal anti-inflammatory drugs	M01, N02BA
20	38	Uricosurics	M04
21	40	Diuretics	C03
22	41–42	Anti-hypertensives and beta-blockers	C02, C07, C08
23	43–44	Anti-anginals and anti-arrhythmics	C01B–C01D
24	45	Anti-hyperlipidaemics	B04
25	46	Cardiac stimulants	C01A
26	47	Coagulants and anti-coagulants	B01–B02
27	55	Antihaemorrhoidal drugs	C05
28	49–54, 56, 57, 65	Alimentary system drugs	A02, A03A–B, A03F, A04, A06, A07–A09, A10B, H01AA–BA
29	60	Oral contraceptives	G03A
30	39, 58, 59, 61, 62, 63	Other hormones	A14, G03B–X, H02, H03, H05
31	64	Insulins	A10A
32	66, 71, 77	Nasal preparations, coughs and colds	R01, R02, R05
33	69,70	Anti-asthmatics, anti-bronchitics, anti-histamines	D04AA, R03, R06
34	72	Anti-neoplastics and immunosuppressants	L
35	73–75	Vitamins, dietary, electrolytes	A11, A12, B03, G04B
36	76	Intravenous infusion	B05
37	78–80	Topical anti-infectives	D01, D06, G01
38	81,83	Other dermatologicals	D02, D03, D04AB–AX, D05,
39	84–88	Eye and ear drugs	S
40	48, 67, 68, 90, 95	Various other drugs	C04, G02A, H01BB, V01, V03

The total prescriptions, numbers of private prescriptions and total costs for PBS-listed drugs were estimated for the 40 DCIS drug groups by adding estimates for the corresponding ATC groups (Table 8.2) (Commonwealth Department of Human Services and Health 1995). Private prescriptions represented just over 4% of total prescriptions overall. Costs for these drugs were estimated at the ATC sub-group level using the average cost per prescription of PBS-listed drugs in that sub-group. Assuming that the cost per private prescription is twice the average cost per prescription for PBS-listed drugs at the ATC sub-group level results in a total estimated expenditure on private prescriptions of \$274 million (or 9.2% of total expenditure on prescription drugs). This is very close to total expenditure on private prescriptions for 1993-94, estimated by extrapolating data for 1991-92 and 1992-93 (AIHW 1994:143).

Total expenditure, $PDCST_i$, for each DCIS drug group i was inflated by approximately 10% to ensure that the sum across all drug groups equalled the total estimated in Section 8.3.1 of \$2,972 million for prescription drugs. The final estimates for the DCIS drug groups are shown in Table 8.2.

Assumptions

- Under co-payment, prescriptions for a specific drug preparation cost the same as prescriptions for that drug preparation which attract a subsidy.
- Private prescriptions are assumed to cost twice the average cost of prescriptions for PBS-listed drugs in the same therapeutic group.

Data sources

- Prescription drug use and costs (1993 Australian Statistics on Medicines).

Table 8.2: Total prescriptions and expenditure for DCIS drug groups, 1993-94

DCIS group <i>i</i>	Type of drug	Total scripts ('000s)	Private scripts ('000s)	Total cost ('\$000) PDCST _{<i>i</i>}	Average cost per script (\$)
1	Penicillins	11,913	8	153,273	13
2	Tetracyclines	4,025	31	39,882	10
3	Macrolides	3,621	19	39,306	11
4	Cephalosporins	3,242	1	43,549	13
5	Other antibiotics and antiparasitics	4,242	59	82,918	20
6	Anti-malarials	811	88	14,559	18
7	Antituberculars and antileprotics	9	3	213	23
8	Anthelmintics	26	0	284	11
9	Vaccines	2,155	436	56,622	26
10	Narcotics analgesics	5,249	1,454	71,183	14
11	Anti-depressants	5,221	10	77,892	15
12	Benzodiazepines, sedatives, hypnotics, tranquilisers and anti-migraine	11,527	478	92,848	8
13	Anti-epileptics	1,177	4	37,129	32
14	Anti-Parkinsonism drugs	668	2	24,737	37
15	Central nervous system stimulants	109	31	2,139	20
16	Smooth muscle stimulants	41	1	869	21
17	Muscle relaxants	78	19	5,732	74
18	Non-narcotic analgesics	3,982	108	31,452	8
19	Non-steroidal anti-inflammatory drugs	8,818	131	110,893	13
20	Uricosurics	1,244	1	13,515	11
21	Diuretics	3,911	1	44,208	11
22	Anti-hypertensives and beta-blockers	15,923	12	403,670	25
23	Anti-anginals and anti-arrhythmics	5,615	2	134,648	24
24	Anti-hyperlipidaemics	2,560	6	144,725	57
25	Cardiac stimulants	876	0	7,075	8
26	Coagulants and anti-coagulants	960	262	13,184	14
27	Antihæmorrhoidal drugs	413	44	6,500	16
28	Alimentary system drugs	10,483	522	395,030	38
29	Oral contraceptives	3,851	100	58,471	15
30	Other hormones	8,349	207	142,509	17
31	Insulins	331	1	46,755	141
32	Nasal preparations, coughs and colds	1,680	330	30,226	18
33	Anti-asthmatics, anti-bronchitics, anti-histamines	13,993	1,333	313,744	22
34	Anti-neoplastics and immunosuppressants	431	0	51,748	120
35	Vitamins, dietary, electrolytes	3,228	62	36,434	11
36	Intravenous infusion	133	1	2,508	19
37	Topical anti-infectives	3,193	289	30,565	10
38	Other dermatologicals	5,531	487	103,342	19
39	Eye and ear drugs	7,658	21	84,325	11
40	Various other	583	14	23,341	40
Total	Total drugs	157,856	6,578	2,972,000	19

8.3.3 Allocation of prescription drug costs to disease

Total prescriptions and costs for each DCIS drug category are attributed to disease in accordance with the pattern of diseases for which that category of drug was prescribed in the GP survey encounters. Drugs coded in the GP survey included prescription drugs (PBS and private) as well as non-prescription medicines advised by general practitioners. GP survey drug codes were classified as either prescription or non-prescription through comparison with prescription drugs listed in the 1993 Australian Statistics on Medicine and with advice from the Pharmaceutical Benefits Branch of the Department of Human Services and Health. The attribution fractions for use and costs of prescription drugs in DCIS group i ($i = 1, \dots, 40$) are calculated based on the set of prescriptions for drugs in that group in the GP survey. Unlike referrals to specialists and allied health practitioners, the reason or reasons for each prescription are recorded in the encounter record. If more than one reason for a given prescription is recorded, the prescription is assumed to be equally attributable to all the reasons given. The attribution fraction for disease group d , DCIS drug group i , sex s and age a is then:

$$\alpha_{disa} = \frac{\sum_{p=1}^{P_{isa}} \left(\frac{wb_p \times n_{pd}}{n_p} \right)}{\sum_s \sum_a \sum_{p=1}^{P_{isa}} wb_p} \quad (8.1)$$

- where:
- P_{isa} = Total prescriptions for drugs in DCIS group i for age a and sex s
 - wb_p = GP survey weight for encounter in which prescription p is made
 - n_{pd} = Number of diseases in disease group d specified as reasons for prescription p
 - n_p = Number of diseases specified as reasons for prescription p

This definition of α_{disa} ensures that the sum of the attribution fractions for any specific drug group i , sex s and age a across all disease, age and sex groups is unity.

Assumptions

- For each DCIS drug group, the relative distribution of prescriptions by disease, age and sex for all community prescriptions in 1993–94 is the same as that for prescriptions by general practitioners in 1990–91. For diseases where a significant proportion of prescriptions are made by medical specialists, this assumption may have limited validity.
- Within each DCIS drug group, each prescription is assumed to generate equal utilisation and costs.

Data sources

- 1990–91 National Survey of Morbidity and Treatment in General Practice in Australia.

8.3.4 Allocation of over-the-counter drug costs to disease

Allocation of over-the-counter drug costs to disease, age and sex groups was based on the reported use of medications in the two weeks prior to interview in the National Health Survey. The attribution was based on the sum of the use of 10 medication types: vitamins, cough medicines, allergy medications, skin preparations, laxatives, heart medications, tranquillisers, pain-killers, sleeping medications and other medications. For each medication used, up to three reasons for use (in terms of health conditions) were coded.

For each instance m of use of a class of medication k , the respondent was asked whether the medication was 'prescribed or advised by a doctor'. If the response was 'No/none' or 'Yes/some', then n_{mk} uses of an over-the-counter medication were assumed to have occurred

- where: n_{mk} = 1 for cough medicines, allergy medications, skin preparations, laxatives and heart medications
- = t for sleeping medications, pain-killers and tranquillisers, where t is the number of types of medications listed and doctor prescribed 'No/none'
- = $t/2$ for sleeping medications, pain-killers and tranquillisers, where t is the number of types of medications listed and doctor prescribed 'Yes/some'; t is rounded down to nearest integer
- = 1 if one type of vitamin or other medication taken and doctor prescribed 'No/none' or if more than one type of vitamin or other medication taken and doctor prescribed 'Yes/some'
- = 2 if more than one type of vitamin or other medication taken and doctor prescribed 'No/none'

The reported number of uses of over-the-counter medications during the two weeks prior to interview will be substantially higher than the actual number of over-the-counter purchases of medications, since a given over-the-counter medication is often likely to be used for periods substantially longer than two weeks. Analysis of the National Health Survey data by Schofield (1997) found that the reported number of uses of prescribed or advised medications in two weeks amounted to 15% of total prescriptions for 1989-90. This represents an inflation factor of 6.67 rather than 26 to convert 'use of medications in 2 weeks' to an estimate of medications prescribed (and purchased) in 12 months. The inflation factor for over-the-counter medications is likely to be even lower than that for prescription drugs, but in the absence of any additional information, the factor 6.67 is used in the Disease Costs and Impact Study to convert 'use of medications' to annual purchases of medications. To the extent that this factor is an overestimate, the DCIS will underestimate the annual purchases of over-the-counter medications and overestimate the average unit cost per purchase. The total estimated expenditure on over-the-counter medications for a specific age-sex-disease group will not be biased by this assumption.

Using this assumption, there are estimated to be a total of approximately 140 million purchases of over-the-counter medications per annum in Australia at an average unit cost of \$7.60. In comparison, there were a total of 161 million prescriptions filled in 1993.

These estimates exclude non-prescription medications 'advised' by a doctor. Based on the GP survey data, there are approximately 400,000 'advices' per year by general practitioners for patients to use non-prescription medications. The actual number of advised purchases is probably lower, as not all patients will follow such advice and some will already have the

advised medication. Since the 'advised' medications are likely to represent less than 5% of total over-the-counter purchases, the model does not attempt to separately estimate use patterns of these, but assumes that the utilisation pattern of drugs 'not prescribed or advised' in the National Health Survey is representative of the use of over-the-counter medicines.

Attribution fractions by ICD-9 chapter

Numbers of uses of over-the-counter medications were calculated from the National Health Survey data as described above. The reasons given were grouped into ICD-9 chapters as specified in Table 1.4, and attribution fractions to age-sex group and Chapter c calculated assuming that all over-the-counter drug purchases were of equal average cost:

$$\beta_{csa} = \frac{\sum_{k=1}^{10} \sum_{m=1}^{m_{ksa}} \frac{(n_{mk} \times wn_m \times r_{md})}{r_m}}{\sum_s \sum_a \sum_{k=1}^{10} \sum_{m=1}^{m_{ksa}} n_{mk} \times wn_m} \quad (8.2)$$

- where:
- m_{ksa} = Total number of instances of use of over-the-counter medication in class k for respondents of age a and sex s
 - wn_m = National Health Survey weight for instance m of medication use
 - n_{mk} = Number of uses of medication in class k and instance m (as defined above)
 - r_{md} = Number of diseases in disease group d specified as reasons for use of medication in instance m
 - r_m = Total number of diseases specified as reasons for use of medication in instance m

Attribution fractions for disease at sub-chapter level

The expenditure allocated to over-the-counter drugs at the chapter level is apportioned to specific disease groups at the sub-chapter level, to the extent possible, using the specific codes used to record health conditions in the National Health Survey. The level of detail of these codes varies with chapter and, where it is necessary to apportion costs at a finer level of detail than available in the National Health Survey, costs are allocated in proportion to total estimated doctor visits.

Neoplasms are coded to a single category in the National Health Survey. For neoplasms, the attribution fraction for age, sex and disease at sub-chapter level of Chapter c is given by:

$$\gamma_{cdsa} = \frac{(\text{Doctor visits for disease group } d, \text{ sex } s, \text{ age } a)}{(\text{Total doctor visits for Chapter } c, \text{ sex } s, \text{ age } a)}$$

Cardiovascular disease codes in the National Health Survey are mapped to DCIS disease sub-groups as shown in Table 8.3.

Table 8.3. Allocation of over-the-counter expenditures for cardiovascular disease to DCIS sub-groups at sub-chapter level

National Health Survey code	Allocation to DCIS disease sub-group
15 Atherosclerosis	7.7 Diseases of arteries etc.
17 Varicose veins	7.8 Diseases of veins etc.
18 Haemorrhoids	7.8 Diseases of veins etc.
72 Hypertension	7.2 Hypertensive disease
82 Heart disease	Distribute to 7.1 (Rheumatic heart disease), 7.3 (Ischaemic heart disease), 7.4 (Diseases of pulmonary circulation) and 7.5 (Other forms of heart disease) in proportion to total medical visits
182 Signs and symptoms of heart problems	
119 Stroke after-effects	7.6 Cerebrovascular disease
219 Cerebrovascular disease	

Assumptions

- The utilisation pattern of drugs 'not prescribed or advised' in the National Health Survey is representative of the use of over-the-counter medicines in 1993–94.
- Purchases of over-the-counter medications have the same average cost for each age–sex–disease group.
- Each reported use of a medication in the last two weeks corresponds to 6.67 annual purchases (this assumption used only for estimating utilisation rates).
- Over-the-counter pharmaceutical expenditures for cancers and for heart disease are allocated to DCIS disease groups at sub-chapter level assuming that they are distributed across diseases in proportion to numbers of medical visits for each age–sex group.

Data sources

- 1989–90 ABS National Health Survey.

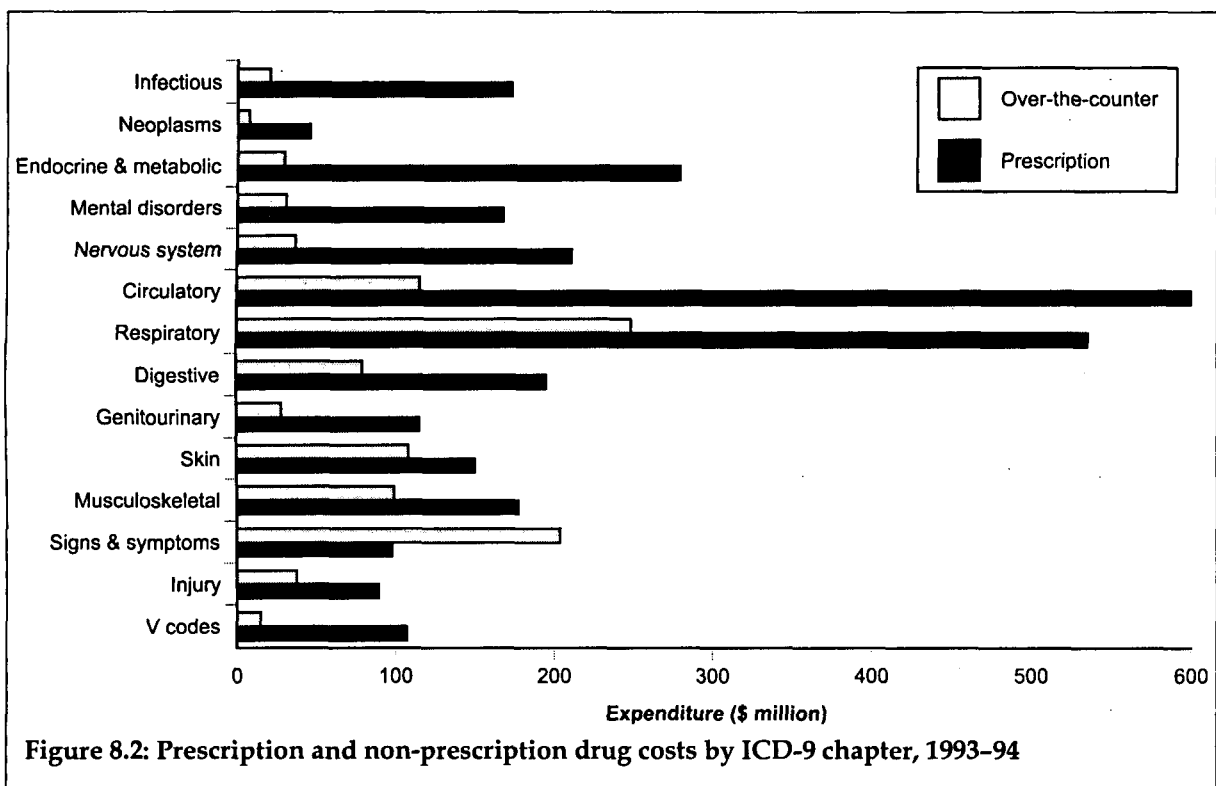
8.3.5 Total pharmaceutical expenditure by disease

The total pharmaceutical expenditure for disease d , sex s and age a , PEX_{dsa} , is estimated by summing the relevant costs for prescription drugs across the 40 DCIS groups and adding the expenditure for over-the-counter drugs:

$$PEX_{dsa} = \sum_{i=1}^{40} \alpha_{disa} \times PDCST_i \times \beta_{csa} \times \gamma_{cdsa} \times OTC \quad (8.3)$$

- where: PEX_{dsa} = Total expenditure on pharmaceuticals for disease d , sex s , age a
- α_{disa} = Attribution fraction to the treatment classification for disease group d for age a and sex s , from Equation 8.1
- β_{csa} = Attribution fraction to Chapter c from Equation 8.2
- γ_{cdsa} = Attribution fraction to the disease grouping d at sub-chapter level of Chapter c
- $PDCST_i$ = Total expenditure for DCIS drug group

Figure 8.2 shows the estimated total expenditures for prescription and non-prescription drugs for 1993–94 by ICD-9 chapter. It can be seen that the distribution of these expenditures across chapters is quite different.



8.4 Data issues

The estimation of total utilisation and costs for prescription drugs by DCIS drug group for 1993–94 was complicated by the fact that two different classifications of drugs are used for reporting statistics on prescription drug use. Mapping of these classifications to a consistent set of drug groups was not always straightforward, and some inaccuracies may have occurred. This problem should be reduced for future years, when the ATC groups are used consistently for all drug statistics.

It was not possible to accurately and consistently estimate the number of over-the-counter drug uses in the last two weeks in the National Health Survey across the 10 categories of medicines as different sets of questions were used for some of these categories. The 1995 National Health Survey contains more detailed and consistent information on the use of medicines and it should be possible to improve these estimates for future years.

8.5 Differences from 1989–90 methodology

- The 1989–90 methodology used the GP survey data on all drugs (prescribed or advised) for attribution of total pharmaceutical expenditure to disease group at an age–sex level. The revised methodology uses the GP survey data for prescribed drugs and National Health Survey data for over-the-counter medicines.
- The 1989–90 methodology assumed that each prescription in a GP survey encounter generated equal utilisation and costs. This took no account of differences in average prescription drug cost for different diseases or for systematic variations in the average number of repeats authorised on prescriptions. The revised methodology uses detailed estimates of 1993–94 utilisation and expenditure for 40 drug categories as a starting point for attribution to age–sex–disease groups. This takes into account differences in average drug costs across therapeutic categories, average numbers of repeats, and relative changes in utilisation and costs across drug categories between 1989–90 and 1993–94.

Figure 8.3 compares estimates of total pharmaceutical expenditure by ICD-9 chapter for 1993–94 using the old methodology and the revised methodology. It can be seen that the revised methodology has resulted in substantial changes in these estimates at chapter level for many of the chapters.

