# Medical care of cardiovascular disease in Australia

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# Medical care of cardiovascular disease in Australia

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# Preface

Despite great improvements in cardiovascular death rates in recent decades, the disease remains Australia's greatest health problem.

The disease kills almost 54,000 Australians each year, primarily as a result of coronary heart disease, stroke and peripheral vascular disease. Coronary heart disease and stroke alone claim a life every twelve minutes. The direct costs of health care, which include hospital, nursing home, medical and pharmaceutical costs, amounted to $3.7 billion in 1993–94. Of particular concern are the consumption of health resources for the invasive management of heart disease, and the heavy burden of disability due to stroke. Also, far too many Australians remain at higher risk of cardiovascular disease through cigarette smoking, high blood pressure, high blood cholesterol, overweight and insufficient physical activity.

For reasons such as these, Australian Health Ministers made cardiovascular health one of five priority areas in the National Health Priority Areas program (the others are cancer control, injury prevention and control, mental health and diabetes mellitus). The Commonwealth Government also funded the Australian Institute of Health and Welfare to establish a national system to monitor cardiovascular disease, its risk factors and management. The system comprises the National Centre for Monitoring Cardiovascular Disease (based at the Institute), an Advisory Committee and Regional Collaboration Centres.

To date, the focus of national reporting on cardiovascular disease has been on prevention (risk factors) and mortality, with treatment receiving less attention. This report, prepared within the National Centre, documents current patterns of medical care using national databases and discusses the uses and limitations of the data sources for monitoring purposes. The report represents the first comprehensive assessment of national data for monitoring the medical management of cardiovascular disease in Australia.

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# Summary

This report presents information on the medical care of cardiovascular disease in Australia in two ways. First, it describes the data sources relevant to monitoring medical care and assesses the uses and limitations of each collection. Second, it gives information on the prevalence of cardiovascular conditions in the community, their care in general practice and in hospital, the use of drugs to treat these conditions, the costs associated with cardiovascular health care, and the size of the specialised medical labour force involved with cardiovascular disease.

Among the main findings of the report are the following:

## Assessment of data sources

- Estimates of the prevalence of cardiovascular conditions in the community and related health actions are available from the National Health Survey 1995, however the information is self-reported and not medically verified.
- Information on the community use of prescription drugs and their cost is available from the Drug Utilization Sub-Committee Database but the condition for which the drug was prescribed is not recorded. The collection excludes over the counter drugs and drugs used in public hospitals.
- Information on use of medical services for cardiovascular disease and their cost is available from the Medicare claims database. However, claims for services to public patients in public hospitals and outpatient services in public hospitals are not included. As the database only covers about 75% of total services, figures derived from this source can be misleading. In addition, the underlying condition for which the service was provided is not recorded.
- Data on medical procedures provided to hospital admitted patients, their associated diagnosis and use of hospital resources are best obtained from the National Hospital Morbidity Database, subject to the accuracy of diagnostic coding. However, the system does not distinguish first admissions from readmissions or transfers so it is not possible to count patients individually. The lack of a unique patient identifier prevents linking to information on long term outcomes.
- An insight into the general practice management of cardiovascular conditions and patterns of prescribing cardiovascular drugs in general practice is given by the Survey of Morbidity and Treatment in General Practice in Australia 1990–91. A comparable continuous survey of morbidity in general practice began in 1998. The information relates only to problems managed at the recorded encounter and excludes any previous encounters, even for the same problem, and any other problems not treated at the encounter.
- Among other useful sources of information are the National Heart Foundation Cardiac Surgery Register and National Heart Foundation Coronary Angioplasty Register for cardiovascular procedures; the Disease Costs and Impact Study for health care costs; and the Medical Labour Force Survey for medical labour force related to cardiovascular conditions.

## Information on medical care

- In 1995 over 2.8 million Australians suffered from a cardiovascular condition. Of these people, over 2 million had a cardiovascular condition in the two weeks preceding the interview. This represents 11% of men and 12% of women.
- Almost all people who had a recent cardiovascular condition took some health related action for the condition. Most commonly this action was visiting a doctor.
- Hypertension was the most common cardiovascular condition reported in 1995.
- Cardiovascular conditions were the second most common problems managed in general practice after respiratory conditions in 1990–91, accounting for 12% of the total. Of these, about half were hypertension problems.
- Eight per cent of all public acute and private hospital separations in Australia in 1995–96 were associated with a principal diagnosis of cardiovascular disease. Of these, 37% were due to coronary heart disease, 12% to cerebrovascular disease and 10% to heart failure.
- The average length of stay in hospital for a cardiovascular condition was 6.6 days, compared with 4.3 days on average for all conditions. Of cardiovascular conditions, cerebrovascular disease had the longest average length of stay (12.5 days).
- Common cardiovascular procedures in 1995–96 included diagnostic cardiac catheterisation, coronary artery bypass surgery, diagnostic ultrasound, percutaneous transluminal coronary angioplasty, intracoronary stent implant, cardiac pacemaker insertion and checks, electrophysiology studies, and cardiac stress tests.
- Cardiovascular services, mostly for diagnostic procedures and investigations, accounted for just over 1% (2.2 million services) of all Medicare and Department of Veterans' Affairs medical services in 1994–95.
- Benefits paid for cardiovascular medical services by Medicare and Department of Veterans' Affairs in 1994–95 totalled $202 million, accounting for 3% of total benefits paid.
- About 17% of all prescriptions dispensed in the Australian community in 1994 were from the cardiovascular system group. This includes inotropic drugs, antiarrhythmics, nitrates, diuretics, beta blockers, calcium channel blockers, ACE inhibitors, other antihypertensives, and peripheral vasodilators.
- Antihypertensives were the drugs most frequently prescribed by general practitioners for cardiovascular conditions.
- Health care costs for cardiovascular disease totalled $3,719 million in 1993–94, representing 12% of the total health care costs for all diseases. Coronary heart disease was the major contributor to cardiovascular health care costs, accounting for 25% of the total.

# Introduction

This report presents information on the medical care of cardiovascular disease in Australia. Except for the first chapter (National data sources), the report has been organised into chapters that are generally based on type of care as follows:

Chapter 1—National data sources

Describes the national data sources that can be used for monitoring medical care in Australia. For each data source, information is provided on the types of data items available, their uses and limitations and how they can be used to monitor the medical care of cardiovascular disease.

Chapter 2—Non-hospital care

Examines the prevalence of cardiovascular conditions in the community; the health related actions taken for these conditions; and the care of cardiovascular conditions in general practice.

Chapter 3—Hospital care

Examines the use of hospital services for cardiovascular disease.

Chapter 4—Drug use

Examines the use of cardiovascular and other drugs for cardiovascular disease.

Chapter 5—Health care costs

Provides estimates of costs of hospital admitted patient and hospital outpatient services, medical services, allied health services and nursing homes for cardiovascular diseases in 1993–94.

Chapter 6—Medical labour force

Provides estimates of the number of practitioners registered and working in the specialities of cardiology, cardiothoracic surgery and vascular surgery in 1994.

# National data sources

This chapter presents information on the following national data sources:

- Australian Bureau of Statistics' National Health Survey 1995;
- Drug Utilization Sub-Committee Database;
- Medicare and Department of Veterans' Affairs medical benefits data;
- National Hospital Morbidity Database;
- Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Australian Bureau of Statistics' National Health Survey 1995

### Introduction

The aim of the 1995 Australian Bureau of Statistics' National Health Survey was to collect information about the health status of Australians, their use of health services and facilities, and health related aspects of their lifestyle (Australian Bureau of Statistics 1997a).

The survey was conducted during the 12 month period January 1995 to January 1996. Information was collected by personal interview in homes drawn from a random sample. Data on approximately 54,000 Australians of all ages was collected in the survey. Information collected that is of relevance to this report include data on:

- demographics;
- long-term, chronic health conditions (i.e. in the 12 months prior to interview);
- recent illness (i.e. in the two weeks prior to interview);
- conditions for which health related action was taken in the two weeks prior to interview;
- hospital admitted patient episodes;
- visits to casualty/emergency/outpatients;
- visits to day clinics;
- doctor consultations;
- consultations with other health professionals; and
- use of medications.

Definitions of these data items can be found in **Appendix A**.

### Uses for monitoring medical care of cardiovascular disease

The methodology used in the 1995 National Health Survey enables direct linkage of health related actions to medical conditions experienced as they were reported together. Therefore, information from the survey can be used to provide estimates of the proportion of Australians suffering from cardiovascular conditions and the health related actions they

may have taken for those conditions. Cardiovascular conditions included in the survey are shown in **Appendix B**.

The prevalence of cardiovascular conditions, and related health actions, can be estimated for the overall population and for population subgroups. The data can also be used to describe how the type of health related action taken varies for different cardiovascular conditions and for different population subgroups.

## Limitations

There are several limitations of the 1995 National Health Survey which may affect the size and accuracy of the estimates for cardiovascular conditions and action taken for those conditions. These limitations include the following:

- information collected in the National Health Survey is essentially self-reported and is not medically verified;
- information is reliant on the respondent's memory;
- cardiovascular conditions that have a considerable effect on the respondent are more likely to be reported than conditions having lesser effects;
- respondents may be unaware that they have a particular condition, especially if it has not been professionally diagnosed;
- medical conditions reported in the survey are those that are more commonly experienced in the community. Therefore, acute conditions requiring hospitalisation such as heart attack would be under represented particularly if potential respondents were still in hospital at the time of the survey or were too sick to respond;
- estimates for less prevalent conditions may be subject to high standard errors;
- some respondents may be reluctant to report some conditions and differences in response may influence data consistency; and
- institutionalised people, including hospital admitted patients and residents of nursing homes, were excluded from the survey.

# Drug Utilization Sub-Committee Database

The Drug Utilization Sub-Committee (DUSC) was formed by the Pharmaceutical Benefits Advisory Committee in 1988 (Commonwealth Department of Human Services and Health 1996).

The DUSC maintains a database which monitors the community (i.e. non-public hospital) use of prescription medicines in Australia. This database combines information on prescriptions subsidised by the Pharmaceutical Benefits Scheme and the Repatriation Pharmaceutical Benefits Scheme with an estimate, from the Pharmacy Guild Survey, of those prescriptions that are not subsidised (Edmonds et al. 1993).

The DUSC analyses data from the combined database and disseminates the information in special reports and in its annual publication *Australian Statistics on Medicines*, the most recent of which contains data for the 1995 calendar year (Commonwealth Department of Health and Family Services 1997a).

**Box 1: The Drug Utilization Sub-Committee's terms of reference**

- *To develop and advise on the mechanisms for the collection, analysis and interpretation of data on drug use in Australia, for use by the Pharmaceutical Benefits Advisory Committee and through it other bodies or individuals;*
- *To advise the Pharmaceutical Benefits Advisory Committee on changes in drug utilisation patterns as a consequence of changes in drug availability or restrictions on drug use, and to review the utilisation of drugs or therapeutic groups of drugs, including those showing large changes in utilisation rates;*
- *To identify potential health problems and benefits related to patterns of drug utilisation;*
- *To facilitate the dissemination of information on drug utilisation;*
- *To conduct international comparisons of drug utilisation by interaction with appropriate international bodies; and*
- *To contribute to educational initiatives which promote the quality use of medicines.*

## The Pharmaceutical Benefits Scheme

The Pharmaceutical Benefits Scheme (PBS) is a national scheme that subsidises the cost of a wide range of pharmaceuticals for the general community (Box 2). The Repatriation Pharmaceutical Benefits Scheme (RPBS) is a similar scheme for returned service men and women. These schemes aim to ensure that individuals have access to necessary pharmaceuticals at affordable prices. In 1995, approximately 74% of all community (i.e. non-public hospital) prescriptions in Australia were dispensed under the PBS or the RPBS (Drug Utilization Sub-Committee, personal communication).

The Health Insurance Commission processes all prescriptions submitted for payment of a subsidy under the PBS or RPBS and maintains a computerised database of information relating to these prescriptions. This database does not include any information on:

- medications for general beneficiaries where the PBS dispensed price* is lower than the general patient copayment. In 1995, 20% of all community prescribing was for under copayment prescriptions (Drug Utilization Sub-Committee, personal communication);
- prescriptions for drugs that are only available on private prescription with the patient paying the full cost. In 1995, private prescriptions accounted for 6% of community prescriptions (Drug Utilization Sub-Committee, personal communication);
- over the counter drugs, except for S3 Recordable. S3 Recordable medications are drugs that do not require a prescription but are available only from pharmacies. These drugs must be stored out of public reach and are processed through the pharmacy computer and receive a label. Drugs listed as S3 recordable vary by State and Territory;
- public hospital drug usage; and
- supply of highly specialised drugs to outpatients under section 100 of the National Health Act (Commonwealth Department of Human Services and Health 1996).

* The PBS dispensed price is the price to the pharmacist for the maximum quantity plus the pharmacist's mark up (10%) plus the dispensing fee.

**Box 2: The Pharmaceutical Benefits Scheme**

*The PBS groups patients into two classes¾ general beneficiaries and concessional beneficiaries. Concessional beneficiaries include holders of Pensioner Health Benefits Cards and certain other entitlement cards issued by the Departments of Social Security and Veterans' Affairs. All other people are general beneficiaries.*

*From 1 January 1997, concessional beneficiaries pay $3.20 per prescription for pharmaceuticals listed on the PBS. General beneficiaries currently pay up to $20.00 (to be indexed annually) per prescription.*

*If a general beneficiary, or anyone in their immediate family, incurs $612.60 worth of PBS expenditure in any calendar year, then prescriptions for every member of the immediate family cost $3.20 for the remainder of that year.*

*The safety net threshold for concessional beneficiaries is currently $166.40. Once PBS expenditure for concessional beneficiaries reaches this threshold, they are entitled to receive Pharmaceutical Benefits items free for the rest of the calendar year.*

*The Commonwealth Government subsidises all PBS prescriptions for which $3.20 is paid. This includes all prescriptions dispensed to concessional beneficiaries as well as prescriptions dispensed to general beneficiaries after they have reached the safety net limit for the year. PBS prescriptions costing more than the general patient copayment of $20.00 are also subsidised.*

*The RPBS is generally similar to the PBS for concessional beneficiaries.*

The PBS database can provide data on prescription numbers, quantity dispensed, benefits paid (i.e. cost to Government), and total cost of prescriptions (i.e. cost to Government plus patients' contributions). These data can be summarised by variables such as:

- generic drug name and formulation;
- category of recipient—general, concessional, repatriation, safety net or doctor's bag (emergency supplies used by doctors and provided through community pharmacists);
- date of dispensing; and
- postcode of dispensing pharmacy.

The data can also be linked to type of drug based on the Anatomical Therapeutic Chemical (ATC) code.

The PBS database does not include information on the medical condition for which the prescription was written. Further, the database does not include information on patient demographic characteristics for general beneficiaries. For concessional beneficiaries, information on sex and age can be obtained by linking to Department of Social Security data. However, the reliability of this information is limited as prescription use of dependants is also recorded against the concessional beneficiary's identification number once the safety net limit has been reached.

## The Pharmacy Guild Survey

The Pharmacy Guild Survey began in 1989. Each month, all dispensing information is collected from a random sample of approximately 300 pharmacies belonging to the Pharmacy Guild of Australia* (Commonwealth Department of Human Services and Health 1996). The pharmacies are stratified into three equal ranges by prescription volume (Edmonds et al. 1993). The survey is administered by Chemdata, a major pharmacy computer software supplier. Each month, participating pharmacies send their dispensing

* Approximately 80% of pharmacies in Australia are members of the Pharmacy Guild of Australia (Commonwealth Department of Human Services and Health 1996).

records to Chemdata in Canberra where the data are summarised by drug code and category.

Although the Pharmacy Guild Survey collects information on all drugs dispensed, the Department of Health and Family Services only uses the data to calculate estimates of prescription volumes for drugs in the non-subsidised categories, that is private prescriptions and prescriptions priced under the general patient copayment.

Chemdata only provides the Department of Health and Family Services with prescription count data aggregated at national level. No patient identifying or sociodemographic data are available, nor are data available on the cost of prescriptions or the medical condition for which a drug is prescribed.

## The Drug Utilization Sub-Committee Database

The Drug Utilization Sub-Committee Database combines the estimates of prescription counts for under copayment and private prescriptions from the Pharmacy Guild Survey with the actual counts of prescriptions submitted to the Health Insurance Commission for payment of a subsidy under the PBS/RPBS.

The DUSC combined database provides complete coverage of the community use of prescription drugs at the national level. The database includes the following data items for both PBS and Pharmacy Guild Survey items:

- Anatomical Therapeutic Chemical (ATC) code. The ATC code has five levels—anatomical main group, therapeutic main group, therapeutic subgroup, chemical/therapeutic subgroup, generic drug name;
- quantity dispensed;
- number of prescriptions; and
- defined daily dose.

The DUSC database also includes the following data items for PBS/RPBS subsidised prescriptions only:

- pay category of recipient (i.e. general, concessional, repatriation, safety net, doctor's bag, etc.);
- benefits paid (i.e. cost to Government);
- patients' contributions;
- total cost (i.e. cost to Government plus patients' contributions); and
- postcode of dispensing pharmacy.

The following data items can be derived for PBS/RPBS subsidised prescriptions:

- State and Territory of dispensing pharmacy; and
- Statistical Local Area (SLA) of dispensing pharmacy.

### Uses for monitoring cardiovascular drug use

Drugs used in the management of cardiovascular disease are classified by the Anatomical Therapeutic Chemical code under the Cardiovascular system group (ATC code 'C'). These include inotropic drugs, antiarrhythmics, nitrates, diuretics, beta blockers, calcium channel blockers, ACE inhibitors, other antihypertensives, and peripheral vasodilators. Also of interest are anticoagulants, antiplatelet drugs, thrombolytic drugs and serum lipid lowering drugs which are classified as drugs for Blood and blood forming organs (ATC code 'B'). A detailed list of drugs by generic drug name is provided in **Appendix C**.

The DUSC database can be used to monitor trends and patterns in cardiovascular drug use in the community. It can also be used to monitor the impact of interventions and PBS/RPBS policy decisions (Edmonds et al. 1993). For example, Henry et al. (1991) found that between 1987 and 1989 there had been an unusually large increase in prescribing the serum lipid lowering drug clofibrate. The increase was much greater than that observed for cholestyramine and colestipol which were generally recommended by experts as the treatment for hypercholesterolaemia.* As a result of this study a policy decision was made to restrict the availability of clofibrate on the PBS.

The community use of cardiovascular drugs can be estimated from the DUSC database using prescription counts or the defined daily dose (DDD) methodology (Box 3) (Commonwealth Department of Human Services and Health 1996; Hurley et al. 1988).

The DUSC database can be used to monitor trends in the costs of cardiovascular drugs where all, or the majority, of prescriptions are subsidised by the PBS/RPBS. Table 1 indicates the distribution of subsidised and non-subsidised prescriptions for cardiovascular drugs in 1995. However the proportion of subsidised drugs in a particular class can vary from year to year because of changes in the Pharmaceutical Benefits Schedule, the general patient copayment level and price.

**Box 3: The defined daily dose (DDD) methodology**

*The DDD is based on an assumed average dose per day for a drug when used for its main indication in adults. It can be adjusted for population and quantity dispensed, and expressed as the DDD per 1,000 population per day. Expressed this way, it provides an estimate of the prevalence of use of a drug in the population. However, the DDD methodology has a number of limitations including the following:*

- *DDD is based on overseas experience and may not adequately reflect the prescribed adult dose in Australia;*
- *not all drugs dispensed are necessarily consumed;*
- *the DDD per 1,000 population per day methodology assumes that every patient takes the defined daily dose continuously throughout the year; and*
- *the DDD per 1,000 population per day is calculated for a whole population and so does not take account of drug use that is concentrated in certain age groups or a particular sex.*

*The DDD/1,000/day is calculated from prescription data as*

$$N \times M \times Q \times 1{,}000 / DDD \times P \times D$$

*where* $N$ = *number of prescriptions dispensed in the year*

$M$ = *mass of each dose*

$Q$ = *average dispensed quantity per prescription*

$P$ = *mid-year Australian population*

$D$ = *number of days in a year*

Similarly, comparisons of drug use at regional levels can be made for cardiovascular drugs where the majority of prescriptions are subsidised by the PBS/RPBS. However, estimates for non-subsidised prescriptions are only available at national level. This means that for the

* It should be noted that, for most of the study period, written authority from the Health Insurance Commission was not required for prescribing clofibrate and so it was more readily available than cholestyramine and colestipol.

management of some conditions, such as hypertension, estimates of community drug use at regional and State and Territory levels would not be complete for older medications such as diuretics and beta blockers which are usually priced below the general copayment. Where regional comparisons can be made, they should be adjusted for factors such as the number of safety net cards issued and the number of people entitled to concessional status (Harvey 1991). Further, the interpretation of regional comparisons may be heavily biased by different prescribing patterns of doctors.

The usefulness of the DUSC database for monitoring cardiovascular disease would be enhanced if prescription use and costs for subsidised and non-subsidised drugs were recorded and available at the patient level and included patient demographic characteristics, indication for drug use, and geographic location of both prescribing doctor and dispensing pharmacy. The collection of data items that facilitate record linkage may be of use as well.

## Limitations

The DUSC combined database does not include any patient identifying or sociodemographic data. Therefore it is not possible to estimate the number of people receiving treatment with any type of drug, nor is it possible to monitor drug use by sex, age or population subgroups.

The database does not include any information on the condition for which the drug has been prescribed. This makes it difficult to use the database to monitor drug use for specific conditions, particularly for those drugs that can be used for multiple indications.

The combined database does not include any information on over the counter drugs (except for S3 Recordable), public hospital drug usage or supply of highly specialised drugs to outpatients under section 100 of the National Health Act (Commonwealth Department of Human Services and Health 1996).

Information on costs is only available for prescriptions subsidised by the PBS/RPBS. Similarly, information at regional and State and Territory levels is only available for subsidised drugs. This has limitations for older drugs with generic competition as they are usually priced below the general copayment and therefore their cost and level of use can only be estimated at national level.

**Table 1: Percentage distribution of subsidised[(a)] and non-subsidised[(b)] prescriptions for drugs used for the management of cardiovascular disease in 1995**

| Type of drug (ATC code) | Subsidised community use | Non-subsidised community use |
|---|---|---|
| Beta blockers (C07) | 72.2 | 27.8 |
| Calcium channel blockers (C08) | 98.0 | 2.0 |
| ACE inhibitors (C02E) | 99.9 | 0.1 |
| Diuretics (C03) | 85.1 | 14.9 |
| Low ceiling diuretics, thiazides (C03A) | 73.9 | 26.1 |
| Low ceiling diuretics excluding thiazides (C03B) | 94.4 | 5.6 |
| High ceiling diuretics (C03C) | 89.5 | 10.5 |
| Potassium sparing agents (C03D) | 84.9 | 15.1 |
| Diuretics and potassium sparing agents in combination (C03E) | 74.1 | 25.9 |
| Other antihypertensive drugs (C02A, C02C, C02D) | 88.9 | 11.1 |
| Centrally acting antiadrenergic agents (C02A) | 88.5 | 11.5 |
| Peripherally acting antiadrenergic agents (C02C) | 89.5 | 10.5 |
| Agents acting on arteriolar smooth muscle (C02D) | 84.2 | 15.8 |
| Antiarrhythmics (C01B) | 99.6 | 0.4 |
| Anticoagulants (B01AA, B01AB) | 78.2 | 21.8 |
| Antiplatelet drugs (B01AC) | 8.9 | 91.1 |
| Thrombolytic drugs (B01AD) | 97.4 | 2.6 |
| Inotropic drugs (C01A, C01C) | 88.5 | 11.5 |
| Cardiac glycosides (C01A) | 88.6 | 11.4 |
| Cardiac stimulants excluding glycosides (C01C) | 0.0 | 100.0 |
| Nitrates (C01D) | 98.7 | 1.3 |
| Peripheral vasodilators (C04) | 28.8 | 71.2 |
| Lipid lowering drugs (B04) | 99.8 | 0.2 |

(a) Subsidised by the PBS/RPBS.

(b) Estimated from the Pharmacy Guild Survey.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

# Medicare and Department of Veterans' Affairs medical benefits data

## Medicare data

Medicare is Australia's national health insurance scheme (Box 4). The scheme is administered by the Health Insurance Commission (HIC) and has been in operation since 1 February 1984 (Health Insurance Commission 1995).

The Health Insurance Commission processes all claims relating to private medical services provided out of hospital and medical services for private patients in public and private hospitals. It is from this claims database that Medicare statistics are derived.

**Box 4: Medicare**

*Under Medicare, all Australian residents, except foreign diplomats and their dependants, are entitled to free treatment in public hospitals as public patients or outpatients. Medicare also provides rebates for a range of other medical, optometrical and dental services. The benefits paid are based on the schedule of fees set by the Government. Limited benefits are available to short-term visitors from countries that have reciprocal health care arrangements for Australian citizens.*

*For out-of-hospital services, Medicare pays a benefit of up to 85% of the schedule fee (providing the benefit does not exceed the charge for the service), with a maximum gap between the schedule fee and benefit of $50.00 (indexed annually). If a practitioner directly bills the Health Insurance Commission for any service then the amount payable to the practitioner is the Medicare benefit and the patient must not pay any additional amount (Australian Institute of Health and Welfare 1996a). Otherwise the patient pays the difference between the schedule fee and the Medicare benefit. For services provided to private patients in private or public hospitals, the Medicare benefit is 75% of the schedule fee.*

*Under Medicare, benefits are payable for most privately provided medical services (for example, benefits are not payable for cosmetic surgery). Since 1995, changes to the National Health Act known as the private health insurance reform, have enabled individual private health funds to pay over the schedule fee for in hospital services if the fund has a Medical Purchaser Provider Agreement with the doctor concerned. For privately rendered medical services not covered by private health insurance reform contracts, private funds are able to offer insurance to cover the gap between the Medical Benefits Schedule fee and the benefit for medical services provided to private patients in hospital (i.e. 75% of the schedule fee). For non admitted patient services, and for admitted patient services not covered by private health insurance, amounts charged by the doctor above the Medical Benefits Schedule fee are not covered by insurance.*

*Medicare has a safety net scheme to protect patients whose accumulated 'gap' payments (i.e. the difference between the schedule fee and the Medicare benefit ) in any one calendar year exceed a specified amount (indexed annually). Individuals and registered families who qualify for the safety net scheme are entitled to receive up to 100% of the schedule fee for the remainder of the calendar year.*

The Medicare Estimates and Statistics Section of the Department of Health and Family Services maintains a number of summary files containing Medicare claims data. The main fields available in these files include:

- service provider number
- date of service
- date of processing
- Medicare item number
- bill type (i.e. direct billing or patient billing)
- fee charged
- benefit paid
- sex of patient
- age of patient
- postcode of patient
- State and Territory of patient.

## Uses for monitoring medical care of cardiovascular disease

The Medicare Benefits Schedule covers a range of medical services specifically for cardiovascular disease. These include cardiovascular diagnostic procedures and investigations; vascular, cardiothoracic and cerebrovascular operations; cardiac and vascular

ultrasound; angiography; and cardiac nuclear imaging procedures. Although there is no indicator to separately identify which procedures and investigations occur in hospital, it is reasonable to assume that most are admitted patient related. Therefore Medicare data may be a useful source of data for examining trends and variations in cardiovascular service use among private hospital patients. However, this information can also be obtained from hospital admitted patient databases, where coverage is more complete than that of the Medicare database.

Medicare data can also be used to examine the costs to Government (i.e. benefits paid) of cardiovascular medical services.

Medicare statistics can be disaggregated by sociodemographic characteristics of patients such as sex, age, State and Territory, and region. The data have also been linked to other databases such as the Australian Bureau of Statistics socioeconomic indexes by area to enable examination of variations by factors such as socioeconomic disadvantage (McClelland 1991).

The usefulness of Medicare data for monitoring medical care of cardiovascular disease would be enhanced if data facilitating linkage to other databases were collected.

## Limitations

### General limitations

The major limitation of Medicare data is its coverage of services. It has been estimated that the Medicare claims database only provides information for about 75% of medical services in Australia (Deeble 1991). Services not covered by the Medicare data, since they do not qualify for Medicare benefits, include:

- admitted patient services provided to public patients in public hospitals;
- outpatient services provided by public hospitals;
- services given to eligible military service veterans and their dependants;
- services covered by workers' compensation schemes and third party motor vehicle insurance (however, these services can attract an interim benefit pending settlement of a court case);
- services given by public authorities and most government funded community health services; and
- services not necessary for patient care such as health screening services and health examinations for life insurance or employment purposes.

Services to public patients in public hospitals together with outpatient services provided by public hospitals account for approximately 17% of all medical services (Deeble 1991). The remainder of services not covered by Medicare account for 6 to 7% of all services.

Another limitation is that it is not possible to determine from Medicare data the nature of medical consultations provided by general practitioners and specialists. Even for specific procedures, there is no information on the underlying medical condition.

Care should be exercised in interpreting trends based on Medicare statistics. Changes in use of services over time can be due to many factors. These include changes to the Medicare Benefits Schedule; changes to the coverage of Medicare as a result of Government policy; changes in the mix of services provided in public and private hospitals; population growth and net migration; ageing of the population; the proportion of the population with private health insurance; and cost shifting (i.e. services previously provided free of charge by States

and Territories, that are now only available under Medicare) (Commonwealth Department of Health and Family Services 1996a).

State and Territory comparisons can be affected by differences in the mix of public and private patients in hospitals as well as differences in age structures between States and Territories. These factors may need to be considered when undertaking State and Territory comparisons.

### Limitations for monitoring cardiovascular medical care

The major limitation of the database for monitoring cardiovascular medical care is that services provided to public patients in public hospitals are not covered. This means that where Medicare data suggest that use of a particular cardiovascular procedure is low, this may be because the procedure is routinely undertaken in public hospitals and so is under counted in the Medicare database.

The use of cardiovascular medical services among the elderly may also be underestimated in the Medicare claims database because it does not include data relating to services given to eligible military veterans and their dependants. To minimise the effect of this in the analysis presented in this report, Medicare data have been supplemented by medical benefits data from the Department of Veterans' Affairs.

## Department of Veterans' Affairs medical benefits database

The Health Program of the Department of Veterans' Affairs (DVA) provides eligible military veterans and their dependants access to medical services, allied health services, pharmaceuticals, community nursing, respite care and hospital treatment (Australian Institute of Health and Welfare 1994; Repatriation Commission and the Department of Veterans' Affairs 1995).

The DVA maintains a database of information relating to medical services for eligible persons. This database codes services using the same item numbers used in the Medicare Benefits Schedule.

DVA medical benefits data have been combined with Medicare data in this report to account for the fact that eligible military service veterans and their dependants tend to use both Medicare and DVA services.

# National Hospital Morbidity Database

Hospital morbidity data collections are maintained by all State and Territory health authorities. The collections are based on admitted patient episodes and include demographic, diagnostic, procedural and duration of stay information. The data items supplied to the Australian Institute of Health and Welfare by all the States and Territories are those which make up the national minimum data set for institutional health care (National Health Data Committee 1995). The database held at the Institute is called the National Hospital Morbidity Database. The latest year for which data are available and have been published is 1996–97 (Australian Institute of Health and Welfare 1998).

Diagnostic information and procedures performed in Australian hospitals are classified according to the Australian version of the International Classification of Diseases, Version 9, Clinical Modification (ICD-9-CM).

Statistics on hospital use are referred to as hospital separation statistics as most of the data are based on information recorded at the end of patients' hospital stays rather than at the

beginning (Australian Institute of Health and Welfare 1996a). This is because the length of stay and the procedures carried out are then known, and the diagnostic information is more accurate.

The National Hospital Morbidity Database includes the following items:

- data set year;
- establishment identifier;
- sector, that is, public or private;
- sex;
- date of birth (or age or age group, where date of birth not supplied);
- country of birth;
- Aboriginality;
- State and Territory and area of usual residence;
- patient accommodation status;
- compensable status;
- insurance status;
- episode type;
- admission and discharge dates;
- total number of leave days;
- length of stay;
- source of referral;
- separation mode;
- external cause and place of occurrence of external cause;
- diagnosis related group (AN-DRG);
- major diagnostic category;
- diagnoses (principal and up to 20 additional diagnoses in 1995–96); and
- procedures (principal and up to 28 additional procedures in 1995–96).

## Uses for monitoring medical care of cardiovascular disease

Hospital admitted patient data are useful for monitoring the use of surgical and medical procedures performed in hospital. The data are also useful for monitoring use of hospital resources.

The data cannot be directly used to monitor disease incidence. However, Boyle and Dobson (1995a) estimated rates and numbers of heart attacks in Australia from hospital morbidity data after adjusting by a factor determined from validation studies from the Newcastle MONICA Project.

The usefulness of hospital morbidity data would be enhanced by including unique patient identifiers to distinguish between first admissions, readmissions and transfers. Data items enabling record linkage to other databases would also be desirable. Record linkage has proved valuable in Western Australia (WA linked database) and New South Wales (part of HOIST data warehousing facility), where service level morbidity data were linked to several data sets (including mortality, cancer and midwives) to create data sets at the person level which can be used in health research. With this type of data development, it may be possible

to use hospital morbidity data to monitor the incidence of hospital-treated cardiovascular diseases at reasonable cost.

## Limitations

### General limitations

Hospital separations data have limitations as indicators of community morbidity (Australian Institute of Health and Welfare 1996a). Sick people who do not use hospitals are not counted, nor are people with undetected conditions. Hospital use is influenced by factors other than morbidity, such as availability of beds, admission policies and social factors (Bennett et al. 1995). Further, it is not possible to count patients individually. This is because people who are admitted more than once, or to more than one institution, are counted on each occasion and data that distinguish first admissions from readmissions or transfers are not collected.

Although diagnosis and procedure information is recorded using the national standard ICD-9-CM, there may have been some minor variation in its use among the States and Territories and over time.

Although all States and Territories provide for the identification of Aboriginal status in their hospital morbidity databases, the information is of variable reliability (Australian Institute of Health and Welfare 1996b).

The lack of a unique national patient identifier means that it is not possible to monitor long-term outcomes or undertake survival analysis of patients admitted to hospital.

### Limitations for monitoring cardiovascular medical care

The accuracy of diagnostic coding is a major issue for monitoring cardiovascular medical care. Several Australian studies have examined the accuracy of recording acute myocardial infarction (ICD-9-CM 410) in hospital admitted patient records. The latest such study by Boyle and Dobson (1995b) found that only about two thirds of cases with a hospital discharge diagnosis code of ICD-9-CM 410 actually had a definite acute myocardial infarction by an internationally set epidemiological standard. This highlights the difference, in this study, between the clinical and epidemiological definitions of acute myocardial infarction. The accuracy of hospital separations data for cardiovascular conditions other than acute myocardial infarction has not been assessed.

# Survey of Morbidity and Treatment in General Practice in Australia 1990–91

The Survey of Morbidity and Treatment in General Practice in Australia was conducted by the Family Medicine Research Unit at the University of Sydney from October 1990 to October 1991. The survey was the third national survey of morbidity in general practice undertaken in Australia. Previous surveys were conducted in 1962–63 and 1969–74 (Bridges-Webb et al. 1992).

The survey design involved a random sample of general practitioners, stratified by State. The final sample included 495 general practitioners, representing 50.4% of those contacted and eligible to participate. Each participating general practitioner recorded details of all surgery and home doctor-patient encounters for two periods of one week, six months apart. The total sample was spread evenly throughout the year. Weighting factors were applied to records at the State and Territory level to produce balanced national estimates.

Data items collected include:

- age of patient;
- sex of patient;
- patient's reasons for encounter (up to 3 per encounter);
- diagnoses or problems managed (up to 4 per encounter);
- types of pathology, other tests, and X-ray investigations ordered or undertaken;
- information regarding referrals to specialists or health professionals (up to 2 per encounter);
- admissions to a hospital or nursing home; and
- planned follow-up within three months of the encounter.

For each problem managed, further information was collected on prescriptions written or other treatments provided (up to 4 per problem managed) as well as whether the problem was a new or old problem.

The unit record data set provided to the Australian Institute of Health and Welfare includes non-identifiable information relating to 98,789 patient encounters at which 145,645 problems were managed. Problems managed were coded to the International Classification of Primary Care (ICPC). A brief description of the ICPC and its classification of cardiovascular disease is provided in **Appendix D**. The list of treatments and generic cardiovascular drugs used in the survey are presented in **Appendix E** and **Appendix F**, respectively.

Detailed information about the survey methodology can be found in Bridges-Webb et al. (1992).

## Uses for monitoring medical care of cardiovascular disease

Data from the Survey of Morbidity and Treatment in General Practice in Australia can be used to give a picture of cardiovascular morbidity and its treatment in general practice in Australia. The data are particularly useful for giving a snapshot of the general practice management of chronic cardiovascular conditions such as hypertension. However, the data are less useful for acute conditions such as heart attack, where a patient would normally go straight to hospital rather than consult a general practitioner.

Data relating to cardiovascular disease can be analysed by sex, age group and State and Territory. However, as noted above, the results of such analyses for specific cardiovascular conditions must be interpreted with care.

The survey data are very useful for linking drug and other treatments to specific diagnoses. Information on prescriptions written is available at the generic drug level as well as major drug group and drug subgroup levels. Information on other treatments for problems managed is also available at a detailed level.

As well as providing information on the management of cardiovascular conditions, the survey can provide information on patterns of prescribing cardiovascular drugs in general practice.

Data from the 1990–91 survey have been compared to data from the 1969–74 morbidity and prescribing survey (Bridges-Webb et al. 1992).

A comparable continuous survey on morbidity in general practice, run by the General Practice Statistics and Classification Unit (a collaborating unit of the University of Sydney and the Australian Institute of Health and Welfare) commenced in April 1998. Its usefulness for cardiovascular monitoring has been enhanced by the capacity to link information on all aspects of treatment to problems managed and by collecting more patient sociodemographic information, such as identification of non-English-speaking background and Indigenous status.

## Limitations

Bridges-Webb et al. (1992) have described several limitations of the 1990–91 survey:

- the survey only included general practitioners working in private practice on a fee for service system, i.e. no salaried practitioners from the public or private sectors were included;
- the survey does not give a picture of the incidence or prevalence of disease in the community, rather it describes what is happening in general practice consultations;
- the survey provides a snap shot of how illness is managed in general practice but the results cannot be extended to conclusions about disease episodes or the long term treatment of patients with chronic disease;
- the survey only captures information about the problems managed during the recorded encounters and does not include information about any other problems not treated at the encounter;
- similarly, the survey only includes information about the prescriptions issued and treatments recorded for problems managed at the recorded encounter, i.e. prescriptions and treatments at previous encounters, even for the same problem, are not included; and
- tests and investigations ordered or undertaken, referrals to specialists and health professionals, admissions to a hospital or nursing home, and planned follow-up cannot be directly linked to a specific problem unless only one problem was managed at the recorded encounter.

The Family Medicine Research Unit has conducted several studies to examine the reliability and validity of the data recorded by general practitioners in this survey. In a collaborative study with the University of Queensland, it was found that general practice data obtained from encounter forms, such as those used in the Survey of Morbidity and Treatment in General Practice in Australia, were more comprehensive and coded more reliably than data drawn from medical records (Britt et al. 1996). In another collaborative project with Monash

University, the Family Medicine Research Unit examined the reliability and validity of the data collected by general practitioners in active data collections (H Britt, personal communication). It was found that the data collection method used in the Survey of Morbidity and Treatment in General Practice in Australia 1990–91 provides a reliable overview of the morbidity managed in general practice. It was also found that morbidity data recorded at a patient encounter are reliable and valid at International Classification of Primary Care chapter level. However, at the individual rubric level (ICPC 3-digit code), the validity and reliability of the data are less certain because of the considerable variance between individual practitioners in the selection of the label to describe the problem managed (H Britt, personal communication). This has implications for the data presented in this report, as results are presented for specific cardiovascular conditions as well as the cardiovascular chapter. These results must be interpreted with care, particularly as they have been further broken down by sex, age, prescriptions written and other treatments provided.

# Non-hospital care

## Introduction

This chapter presents information on the non-hospital management of cardiovascular disease in Australia. Detailed analysis from two national sources of data (the Australian Bureau of Statistics' National Health Survey 1995; and the Survey of Morbidity and Treatment in General Practice in Australia 1990–91) are presented as well as results from the National Heart Foundation Risk Factor Prevalence Study 1989 survey and the Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study.

The limitations of the national data sources, as discussed in the chapter *National data sources,* should be kept in mind when interpreting the results presented here.

### Data sources

- **The Australian Bureau of Statistics' National Health Survey 1995** (Australian Bureau of Statistics 1997a; 1997b)**.** Provides national estimates of the self-reported prevalence of cardiovascular conditions and health related actions taken for these conditions.
- **The Survey of Morbidity and Treatment in General Practice in Australia 1990–91** (Bridges-Webb et al. 1992)**.** Provides national estimates of cardiovascular morbidity and its treatment in general practice.
- **The National Heart Foundation Risk Factor Prevalence Study** (Risk Factor Prevalence Study Management Committee 1990)**.** Surveys were conducted in 1980, 1983 and 1989. Participants were randomly selected from Commonwealth electoral rolls. The 1989 survey included men and women aged 20 to 69 years from all capital cities (about 9,300 respondents). Information on history of medical conditions and treatment was obtained in a clinical setting from a self-completion questionnaire.
- **The Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study** (Alexander et al. 1995). Surveys were conducted in 1983, 1988–89 and 1994. Participants were selected from the New South Wales electoral roll. The 1994 survey included people aged 35–69 years living in the local government areas of Newcastle, Lake Macquarie, Cessnock, Maitland and Port Stephens. Potential respondents who did not participate in the main study were invited to complete a brief postal questionnaire. There were 1,670 participants in the main study. Information on history of medical conditions and treatment was obtained from a self-completion questionnaire completed in a clinical setting. A further 303 people completed the brief postal questionnaire, which asked about history of medical conditions as well as whether the respondent was currently taking medication for high blood pressure.

# Estimates from the Australian Bureau of Statistics' National Health Survey 1995

## Prevalence of recent cardiovascular conditions

Based on data from the National Health Survey, an estimated 2,848,342 Australians suffered from a cardiovascular condition in 1995. Of these people, 2,062,938 reported having a recent cardiovascular condition (i.e. experienced in the two weeks prior to interview). Almost all (99.5%) people reporting having a cardiovascular condition in the two weeks prior to interview also reported taking one or more health related action for the condition.

**Box 5: Cardiovascular conditions codes**

*The Australian Bureau of Statistics coded all self-reported conditions to the Ninth Revision (1975) of the International Classification of Diseases (ICD-9). The code list for cardiovascular conditions represents a collapsed ICD-9 list, with most conditions reflecting a broad category of related or similar cardiovascular diseases/conditions. The overall approach in the survey was to classify and code the manifesting condition and not the cause. The Australian Bureau of Statistics' coding procedure reflects the nature of a self-report household survey, where respondents' information was not medically verified. Further, more detailed coding would have resulted in high relative standard errors due to low frequencies that would occur for some conditions and/or population groups.*

*A detailed list of the cardiovascular conditions for which estimates are provided, their ICD-9 codes and their derived Australian Bureau of Statistics' codes are provided in* ***Appendix B****. A summarised list of those cardiovascular conditions follows:*

| Condition | ICD-9-CM code | ABS code |
|---|---|---|
| Hypertension | 401–405 | 072 |
| Heart disease | 391, 394, 398, 410–429 | 082 |
| Atherosclerosis | 440 | 015 |
| Cerebrovascular disease | 430–435, 437 | 219 |
| Stroke after effects | 436, 438 | 119 |
| Other diseases of the circulatory system | 390, 441–448, 451–453, 457–459, 745–747 | 019 |
| Ill-defined signs and symptoms of heart conditions | Includes heart problems/trouble, irregular heart beat, palpitations | 182 |

### Prevalence of recent cardiovascular condition by age

The prevalence of self-reported recent cardiovascular conditions (i.e. in the two weeks prior to interview) increased with age for males and females. Overall, in 1995 10.7% of males and 12.2% of females reported having a recent cardiovascular condition. Males reported a higher proportion of heart disease than females in all age groups. Females reported a greater prevalence of hypertension (9.3%) than did males (7.2%) (Table 2).

### Box 6: National Health Survey explanatory notes

*Age-specific and age-standardised estimates are provided here. The standard population used for age standardisation was the estimated total mid–year Australian population in 1991 (refer to the Glossary).*

*Very small estimates are subject to high standard errors (relative to the size of the estimate). In this report, only estimates which were derived from a numerator estimate with a relative standard error of less than 25% are considered reliable. However, estimates with relative standard errors between 25% and 50% have been included and are preceded by an asterisk (e.g. *1.6) to indicate that they should be interpreted with caution. Estimates with relative standard errors greater than 50% have not been shown as they are considered too unreliable for use (Australian Bureau Statistics 1997a). These estimates have been replaced by an asterisk (*).*

*Definitions of the items included in the tables below are provided in* ***Appendix A****.*

**Table 2: Percentage of males and females reporting a recent cardiovascular condition by age group, 1995**

| | Age group (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sex/Type of condition** | **<25** | **25–34** | **35–44** | **45–54** | **55–64** | **65–74** | **75+** | **All ages** |
| **Males** | | | | | | | | |
| Hypertension | *0.0 | 0.9 | 3.6 | 10.4 | 22.2 | 31.4 | 31.9 | **7.2** |
| Heart disease | 0.1 | 0.2 | 0.4 | 1.5 | 6.2 | 11.6 | 16.1 | **2.2** |
| Atherosclerosis | — | — | — | *0.1 | 0.3 | 0.6 | 0.8 | **0.1** |
| Cerebrovascular disease[a] | *0.0 | *0.1 | *0.1 | *0.1 | 1.0 | 3.0 | 2.2 | **0.3** |
| Other diseases of the circulatory system | 0.1 | 0.3 | 0.7 | 2.0 | 5.6 | 12.3 | 11.7 | **2.2** |
| Ill-defined signs and symptoms of heart conditions | *0.1 | *0.1 | 0.3 | 0.9 | 2.9 | 7.3 | 9.7 | **1.3** |
| **All cardiovascular[b]** | **0.3** | **1.5** | **4.6** | **13.3** | **31.5** | **48.9** | **53.6** | **10.7** |
| **Females** | | | | | | | | |
| Hypertension | *0.2 | 0.9 | 2.5 | 10.8 | 25.6 | 38.9 | 40.7 | **9.3** |
| Heart disease | * | *0.1 | 0.2 | 0.7 | 2.7 | 6.1 | 13.3 | **1.6** |
| Atherosclerosis | — | — | — | * | *0.1 | *0.3 | *1.9 | **0.1** |
| Cerebrovascular disease[a] | — | *0.0 | * | *0.1 | 0.4 | 0.9 | 1.0 | **0.2** |
| Other diseases of the circulatory system | 0.1 | 0.4 | 0.7 | 1.5 | 3.4 | 8.5 | 11.1 | **1.9** |
| Ill-defined signs and symptoms of heart conditions | 0.1 | 0.2 | *0.1 | 0.7 | 3.1 | 5.8 | 11.0 | **1.5** |
| **All cardiovascular[b]** | **0.4** | **1.6** | **3.3** | **13.2** | **31.4** | **49.8** | **57.5** | **12.2** |

**(a) Includes after-effects of stroke.**

(b) Each person may have reported more than one type of condition and therefore components do not add to totals.

—nil

* Subject to high sampling variability.

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Prevalence of recent cardiovascular condition by sex

After adjusting for age, the self-reported prevalence of recent cardiovascular condition in 1995 was about 11.0% for both males and females (Table 3). Hypertension was the most common condition for both females and males. Males reported a slightly higher prevalence rate than females for heart disease and 'other diseases of the circulatory system', while for hypertension the converse was true.

**Table 3: Percentage[a] of people reporting a recent cardiovascular condition by sex, 1995**

| Type of condition | Males | Females |
|---|---|---|
| | Per cent (SE) | |
| Hypertension | 7.3 (0.1) | 8.4 (0.1) |
| Heart disease | 2.3 (0.1) | 1.4 (0.1) |
| Atherosclerosis | 0.1 (0.0) | 0.0 (0.0) |
| Cerebrovascular disease[b] | 0.3 (0.0) | 0.2 (0.0) |
| Other diseases of the circulatory system | 2.2 (0.1) | 1.7 (0.1) |
| Ill-defined signs and symptoms of heart conditions | 1.4 (0.1) | 1.3 (0.1) |
| **All cardiovascular** | **10.9 (0.1)** | **11.0 (0.1)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Includes after-effects of stroke.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Prevalence of recent cardiovascular condition by State and Territory

Age-standardised prevalence rates for a cardiovascular condition were highest in Tasmania (12.3%) and New South Wales (12.0%), and lowest in the Northern Territory (6.8%) (Table 4). It should be noted that prevalence estimates for atherosclerosis and cerebrovascular disease were too small to report and are not included as separate conditions in Table 4. Hypertension was the most prevalent condition reported in all States and Territories, with Tasmania and New South Wales having the highest rates and the Northern Territory the lowest.

**Table 4: Percentage[a] of people reporting a recent cardiovascular condition by State and Territory, 1995**

| Type of condition | NSW | Vic | Qld | WA | SA | Tas | ACT | NT |
|---|---|---|---|---|---|---|---|---|
| | | | | Per cent (SE) | | | | |
| Hypertension | 8.8 (0.2) | 7.4 (0.2) | 7.7 (0.2) | 6.9 (0.3) | 7.4 (0.3) | 9.1 (0.6) | 6.8 (0.7) | 4.6 (0.8) |
| Heart disease | 1.8 (0.1) | 1.8 (0.1) | 1.8 (0.1) | 1.6 (0.1) | 1.7 (0.1) | 2.6 (0.3) | 2.0 (0.4) | 0.7 (0.3) |
| Other diseases of the circulatory system[b] | 2.2 (0.1) | 1.7 (0.1) | 2.0 (0.1) | 1.7 (0.1) | 2.4 (0.1) | 1.7 (0.2) | 1.4 (0.3) | 0.7 (0.3) |
| Ill-defined signs and symptoms of heart conditions | 1.6 (0.1) | 1.2 (0.1) | 1.2 (0.1) | 1.2 (0.1) | 1.0 (0.1) | 1.4 (0.2) | 1.2 (0.3) | 1.5 (0.5) |
| **All cardiovascular[c]** | **12.0 (0.2)** | **10.4 (0.2)** | **10.5 (0.2)** | **9.9 (0.4)** | **10.3 (0.4)** | **12.3 (0.7)** | **9.5 (0.9)** | **6.8 (1.1)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Does not include atherosclerosis, cerebrovascular disease or after-effects of stroke.

(c) Includes atherosclerosis, cerebrovascular disease and after-effects of stroke.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

# Action taken for a recent cardiovascular condition

## Action taken for a recent cardiovascular condition by age

Over 99% of people reporting a recent cardiovascular condition also reported taking a health related action for that condition. The proportion of people with a recent condition reporting taking action for that condition, was lowest among people aged less than 34 years (Table 5).

More males aged 65–74 years than females in that age group reported consulting a doctor for a recent cardiovascular condition. Females aged 25–34 and 45–54 years were more likely than males in those age groups to visit a doctor for a recent cardiovascular condition (Table 6).

**Table 5: Percentage of males and females reporting taking action for a recent cardiovascular condition by age group, 1995**

| | Age group (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sex** | **<25** | **25–34** | **35–44** | **45–54** | **55–64** | **65–74** | **75+** | **All ages** |
| Males | 91.1 | 97.7 | 99.8 | 99.6 | 99.3 | 99.8 | 99.8 | **99.5** |
| Females | 89.7 | 94.2 | 99.1 | 99.5 | 99.5 | 99.8 | 99.7 | **99.4** |

*Source:* AIHW derived from the ABS National Health Survey 1995.

**Table 6: Percentage of males and females reporting consulting a doctor for a recent cardiovascular condition by age group, 1995**

| | Age group (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sex** | **<25** | **25–34** | **35–44** | **45–54** | **55–64** | **65–74** | **75+** | **All ages** |
| Males | 41.0 | 26.0 | 12.0 | 11.4 | 11.7 | 12.9 | 12.4 | **12.8** |
| Females | 41.1 | 30.5 | 12.0 | 18.2 | 11.6 | 8.8 | 12.9 | **12.6** |

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Action taken for a recent cardiovascular condition by sex

After adjusting for age, 96.3% of males and 94.9% of females who reported a recent cardiovascular condition reported taking some action for the condition (Table 7). Males (99.7%) were more likely than females (88.6%) to report taking action for 'other diseases of the circulatory system'. Females were more likely than males to take action for hypertension and 'ill-defined signs and symptoms of heart conditions' (Table 7).

**Table 7: Percentage[a] of people reporting taking action for a recent cardiovascular condition by sex, 1995**

| Type of condition | Males | Females |
|---|---|---|
| | Per cent (SE) | |
| Hypertension | 69.9 (1.2) | 90.1 (1.3) |
| Heart disease | 81.4 (2.6) | 80.6 (3.1) |
| Atherosclerosis | 24.6 (3.5) | 24.6 (4.7) |
| Cerebrovascular disease[b] | 50.0 (4.8) | 45.5 (5.1) |
| Other diseases of the circulatory system | 99.7 (3.2) | 88.6 (3.0) |
| Ill-defined signs and symptoms of heart conditions | 72.8 (3.1) | 89.0 (3.5) |
| **All cardiovascular** | **96.3 (1.3)** | **94.9 (1.2)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Includes after-effects of stroke.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

Visiting a doctor was the most commonly reported action taken for a recent cardiovascular condition among both males (21.0%) and females (22.8%) (Table 8).

Males were more likely than females to report a day of reduced activity for a recent cardiovascular condition (7.3% compared to 2.5%) and a day off work or school (5.0% compared to 1.6%) (Table 8). However, this may reflect that fewer women are among the employed workforce.

**Table 8: Percentage[a] of people reporting taking action for a recent cardiovascular condition by action taken and sex, 1995**

| Action taken | Males | Females |
|---|---|---|
| | Per cent (SE) | |
| Doctor consultation | 21.0 (0.9) | 22.8 (1.0) |
| Consulted other health professional | 0.8 (0.1) | 4.0 (0.5) |
| Day of reduced activity | 7.3 (0.7) | 2.5 (0.2) |
| Day off work or school | 5.0 (0.8) | 1.6 (0.4) |

(a) Age-standardised to the mid-1991 total Australian population.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Action taken for a recent cardiovascular condition by State and Territory

After age standardisation, the proportions of people taking some action for a recent cardiovascular condition varied between the States and Territories from 98.2% in Queensland to 69.0% in the Australian Capital Territory. The proportions of people taking action for heart disease varied from 68.7% in Queensland to 45.1% in Western Australia (Table 9).

**Table 9: Percentage[a] of people reporting taking action for a recent cardiovascular condition by State and Territory, 1995**

| Type of condition | NSW | Vic | Qld | WA | SA | Tas | ACT | NT |
|---|---|---|---|---|---|---|---|---|
| | | | | | Per cent (SE) | | | |
| Hypertension | 75.9 (1.4) | 77.4 (1.8) | 75.6 (2.1) | 69.4 (2.9) | 76.1 (3.1) | 70.1 (4.5) | 60.4 (6.7) | 54.0 (9.8) |
| Heart disease | 61.9 (2.6) | 61.7 (3.0) | 68.7 (4.1) | 45.1 (4.0) | 49.3 (4.1) | 46.2 (5.6) | 62.1 (12.0) | *54.3 (26.1) |
| Other diseases of the circulatory system[b] | 85.0 (3.3) | 81.1 (4.1) | 57.4 (3.3) | 63.3 (5.2) | 72.2 (5.0) | 46.2 (6.5) | 69.6 (15.2) | *37.5 (17.1) |
| Ill-defined signs and symptoms of heart conditions | 61.2 (2.6) | 72.0 (4.3) | 60.8 (4.3) | 61.8 (6.0) | 61.3 (6.5) | 46.3 (7.4) | 29.8 (7.2) | *48.9 (17.9) |
| **All cardiovascular[c]** | **90.9 (1.4)** | **93.0 (1.8)** | **98.2 (2.3)** | **80.3 (2.9)** | **90.0 (3.1)** | **77.4 (4.5)** | **69.0 (6.4)** | **74.9 (12.1)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Does not include atherosclerosis, cerebrovascular disease or after-effects of stroke.

(c) Includes atherosclerosis, cerebrovascular disease and after-effects of stroke.

SE: Standard error

* Estimate subject to high sampling variability.

*Source:* AIHW derived from the ABS National Health Survey 1995.

# Estimates from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91

## Cardiovascular problems managed

On average, 147 problems were managed at every 100 encounters. Of all problems managed, 45.2% were new problems. A new problem is one that is new to the patient and has not been treated by a general practitioner before; it is the first consultation for a new episode of an acute problem, or the first consultation for a new chronic problem (Bridges-Webb et al. 1992).

In 1990–91, cardiovascular conditions were the second most frequently managed problems in general practice after respiratory conditions (Bridges-Webb et al. 1992). Cardiovascular problems accounted for 12.5% of all problems managed and were managed at an average rate of 18.4 problems per 100 encounters (Table 10). Approximately 14% of cardiovascular problems managed were new problems (Table 11).

For both males and females, the average number of cardiovascular problems managed per 100 encounters rose with age (Figure 1). In the younger age groups (< 25 years) there was little difference between males and females in the rate of problems managed. Between the ages of 25 and 74 years, males had higher rates of cardiovascular problems managed per 100 encounters than females. However, from age 75 years onwards, the rate of cardiovascular problems managed was higher for females than males.

During the survey period there were 98,789 patient encounters. At least one cardiovascular problem was managed at 16,486 of these encounters (16.7%) (Table 10). At 90% of these encounters only one cardiovascular problem was managed. However at 9%, two cardiovascular problems were managed while at the remaining 1%, three cardiovascular problems were managed.

Of all specific conditions managed in general practice in 1990–91, hypertension was the most frequent (Sayer et al. 1994). It accounted for 6.4% of all problems managed, and an average of 9.5 hypertension problems were managed at every 100 encounters (Table 10). Only 5% of all hypertension problems managed were new, reflecting the chronic nature of hypertension (Table 11).

The rate of hypertension problems managed per 100 encounters peaked for both males and females in the 65–74 year age group (Figure 2). From age 65 years, the average number of hypertension problems managed per 100 encounters was higher for females than males.

Other frequently managed cardiovascular conditions were heart failure, 'other and chronic coronary heart disease', angina and cerebrovascular disease (Table 10). For each of these conditions, the average number of problems managed per 100 encounters increased with age, and males tended to have higher rates of problems managed than females (Figure 3).

## Table 10: Problems managed and patient encounters[a] for cardiovascular conditions, 1990–91

| Condition | ICPC code(s) [b] | Number of patient encounters | Number of problems managed | Percentage of all problems managed (N=145,645) | Problems managed per 100 encounters (N=98,789) |
|---|---|---|---|---|---|
| Rheumatic heart disease | K71 | 49 | 49 | < 0.1 | < 0.1 |
| Angina | K74 | 731 | 731 | 0.5 | 0.7 |
| Acute myocardial infarction | K75 | 71 | 71 | < 0.1 | 0.1 |
| 'Other and chronic coronary heart disease' | K76 | 1,347 | 1,347 | 0.9 | 1.4 |
| *All coronary heart disease* | *K74, K75, K76* | *2,131* | *2,149* | *1.5* | *2.2* |
| Heart failure | K77 | 1,621 | 1,621 | 1.1 | 1.6 |
| Hypertension | K86, K87 | 9,348 | 9,351 | 6.4 | 9.5 |
| Cerebrovascular disease | K89, K90 | 614 | 615 | 0.4 | 0.6 |
| Atherosclerosis | K91 | 44 | 44 | < 0.1 | < 0.1 |
| Peripheral vascular disease | K92 | 427 | 427 | 0.3 | 0.4 |
| **All cardiovascular conditions** | **K** | **16,486** | **18,194** | **12.5** | **18.4** |

(a) Number of encounters where at least one problem was managed for the condition.

(b) Refer to Appendix D.

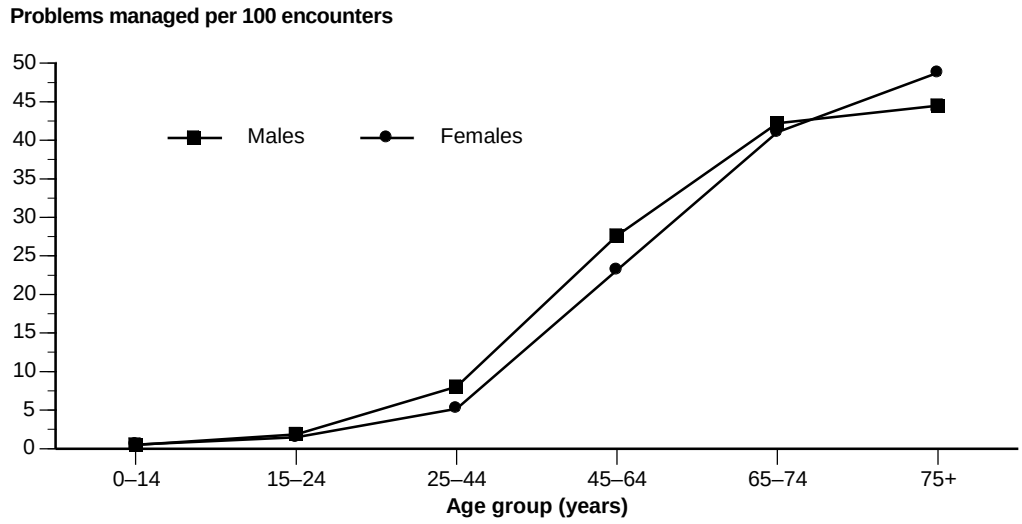
*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table 11: Distribution of new and old cardiovascular problems managed, 1990–91

| Condition | ICPC code(s)[a] | Problem status | | |
|---|---|---|---|---|
| | | New problems | Old problems | Unknown status |
| | | | Per cent | |
| Rheumatic heart disease | K71 | 3.8 | 85.2 | 10.9 |
| Angina | K74 | 17.5 | 77.6 | 4.9 |
| Acute myocardial infarction | K75 | 42.2 | 55.1 | 2.7 |
| 'Other and chronic coronary heart disease' | K76 | 6.3 | 88.0 | 5.7 |
| *All coronary heart disease* | *K74, K75, K76* | *11.3* | *83.4* | *5.3* |
| Heart failure | K77 | 10.2 | 82.8 | 7.0 |
| Hypertension | K86, K87 | 5.4 | 89.2 | 5.4 |
| Cerebrovascular disease | K89, K90 | 26.8 | 68.6 | 4.7 |
| Atherosclerosis | K91 | 14.2 | 79.4 | 6.4 |
| Peripheral vascular disease | K92 | 23.1 | 72.0 | 4.9 |
| **All cardiovascular conditions** | **K** | **13.6** | **80.0** | **6.4** |

(a) Refer to Appendix D.

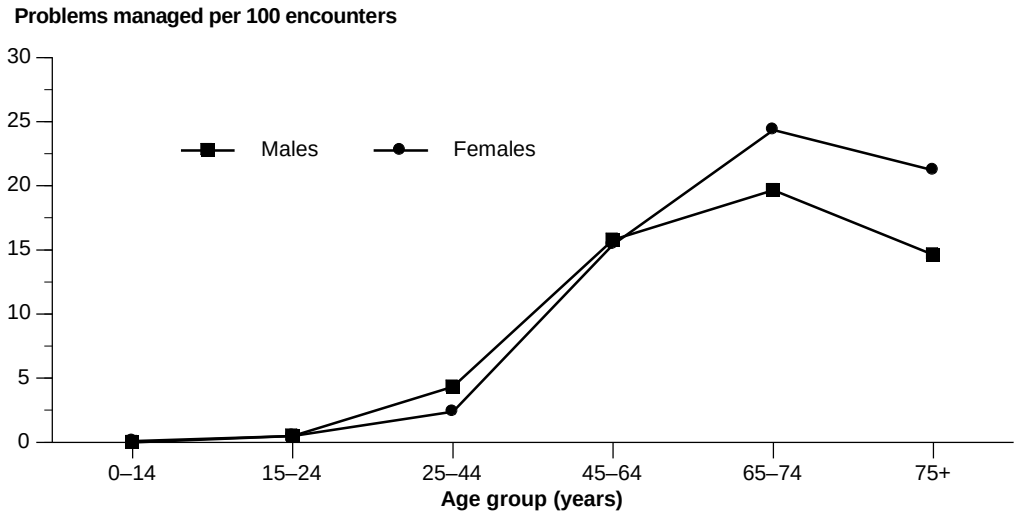
*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.




Refer to Table S2

*Source*: AIHW derived from the Australian Survey of Morbidity and Treatment in General Practice 1990–91.

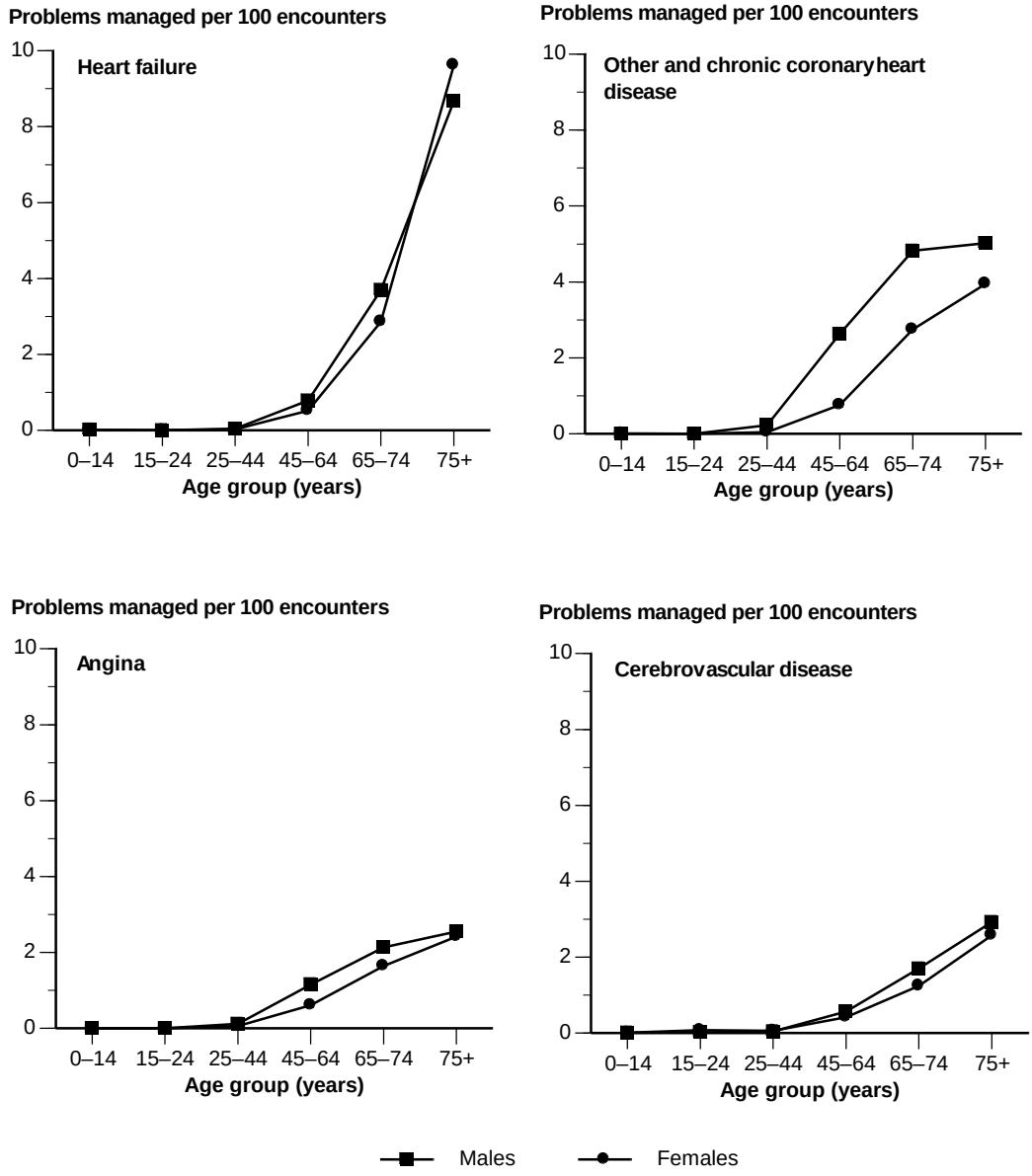
**Figure 1: Cardiovascular problems, age-sex specific rates per 100 encounters, 1990–91**




Refer to Table S3

*Source*: AIHW derived from the Australian Survey of Morbidity and Treatment in General Practice 1990–91.

**Figure 2: Hypertension problems, age–sex specific rates per 100 encounters, 1990–91**




Refer to Tables S4–S7

*Source*: AIHW derived from the Australian Survey of Morbidity and Treatment in General Practice 1990–91.

**Figure 3: Other frequently managed cardiovascular problems, age-sex specific rates per 100 encounters, 1990–91**

## Treatment other than prescribing

For each problem managed, doctors were asked to record therapeutic procedures, other procedures, and counselling and advice given (Bridges-Webb et al. 1992). Up to four such treatments could be recorded for each problem managed.

When interpreting the results in this section, it should be remembered that the survey only collected information about treatment provided at the recorded encounter. No information was collected about treatment provided at previous encounters that were not included in the

survey, even if the same problem was managed. This may be a limitation for chronic conditions.

A list of treatments recorded in the Survey of Morbidity and Treatment in General Practice in Australia 1990–91 is provided in **Appendix E**.

The unit record data set provided to the Australian Institute of Health and Welfare included information relating to a total of 39,681 treatments, an average of 40.2 treatments per 100 encounters and 27.2 treatments per 100 problems managed. At least one treatment was recorded at 32.8% of all encounters and for 24.6% of all problems managed.

A total of 2,306 treatments was recorded for cardiovascular problems under management (Table 12). This represented 5.8% of all treatments recorded during the survey period. At least one treatment was recorded for 11.3% of all cardiovascular problems managed.

Although hypertension was the most frequently managed problem in general practice in 1990–91, non prescription treatment for the condition was recorded at only 7.9% of all problems managed for hypertension (Table 12). Sayer et al. (1994) suggest that, due to the chronic nature of hypertension, treatment such as advice and counselling may well have been given at previous visits.

At least one treatment was recorded for nearly one quarter of all peripheral vascular disease problems under management and for 18.7% of all cerebrovascular disease problems (Table 12).

**Table 12: Number of treatments recorded for cardiovascular conditions**

| Condition (ICPC code) | Number of problems managed for condition for which at least one treatment recorded | Percentage of problems managed for condition | Total number of treatments recorded for condition | Percentage of all treatments recorded (N=39,681) |
|---|---|---|---|---|
| Rheumatic heart disease (K71) | 3 | 6.1 | 4 | < 0.1 |
| Angina (K74) | 61 | 8.3 | 64 | 0.2 |
| Acute myocardial infarction (K75) | 4 | 5.6 | 4 | < 0.1 |
| Other and chronic coronary heart disease (K76) | 107 | 7.9 | 122 | 0.3 |
| Coronary heart disease (K74-K76) | 172 | 8.0 | 186 | 0.5 |
| Heart failure (K77) | 105 | 6.5 | 124 | 0.3 |
| Hypertension (K86, K87) | 740 | 7.9 | 826 | 2.1 |
| Cerebrovascular disease (K89, K90) | 115 | 18.7 | 124 | 0.3 |
| Atherosclerosis (K91) | 5 | 11.4 | 5 | < 0.1 |
| Peripheral vascular disease (K92) | 103 | 24.1 | 115 | 0.3 |
| **All cardiovascular disease (K)** | **2,053** | **11.3** | **2,306** | **5.8** |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

Overall, unspecified advice was the most frequently recorded treatment for cardiovascular conditions (Table 13). The next four most commonly recorded treatments for managing cardiovascular disease were counselling about nutrition and weight, providing reassurance and support; treatment advice such as bed rest; and advice to increase drug dosage.

Advice to increase drug dosage was the most frequent form of treatment for heart failure. For hypertension, counselling about nutrition and weight was most commonly given, while for peripheral vascular disease, counselling about smoking was the most frequently recorded treatment. Unspecified advice was the treatment most frequently recorded for angina, 'other and chronic coronary heart disease', and cerebrovascular disease.

**Table 13: Five most frequent types of treatment recorded for selected cardiovascular conditions**

| Condition/treatment | Number of treatments recorded | Percentage of all treatments recorded for condition | Treatments recorded per 100 problems managed for condition |
|---|---|---|---|
| **All cardiovascular disease (K)** | | | |
| Advice Not Otherwise Specified | 320 | 13.9 | 1.8 |
| Counselling—nutrition/weight | 302 | 13.1 | 1.7 |
| Reassurance, support | 232 | 10.1 | 1.3 |
| Treatment advice[a] | 214 | 9.3 | 1.2 |
| Advice to increase drug dosage | 162 | 7.0 | 0.9 |
| **Angina (K74)** | | | |
| Advice Not Otherwise Specified | 14 | 20.9 | 1.8 |
| Counselling—health not elsewhere classified | 9 | 13.5 | 1.2 |
| Treatment advice[a] | 7 | 10.7 | 0.9 |
| Advice to increase drug dosage | 6 | 8.7 | 0.8 |
| Counselling—smoking | 5 | 7.4 | 0.7 |
| **Other and chronic coronary heart disease** | | | |
| Advice Not Otherwise Specified | 24 | 19.8 | 1.7 |
| Counselling—health not elsewhere classified | 13 | 10.3 | 0.9 |
| Reassurance, support | 11 | 9.0 | 0.8 |
| Treatment advice[a] | 11 | 8.9 | 0.8 |
| Counselling—nutrition/weight | 10 | 8.0 | 0.7 |
| **Heart failure (K77)** | | | |
| Advice to increase drug dosage | 37 | 30.2 | 2.3 |
| Treatment advice[a] | 20 | 16.5 | 1.3 |
| Reassurance, support | 12 | 9.9 | 0.8 |
| Advice Not Otherwise Specified | 9 | 6.9 | 0.5 |
| Advice to decrease drug dosage | 8 | 6.7 | 0.5 |
| **Hypertension (K86, K87)** | | | |
| Counselling—nutrition/weight | 184 | 22.3 | 2.0 |
| Advice to increase drug dosage | 95 | 11.5 | 1.0 |
| Advice Not Otherwise Specified | 94 | 11.4 | 1.0 |
| Advice to stop medication | 62 | 7.5 | 0.7 |
| Treatment advice[a] | 53 | 6.4 | 0.6 |
| **Cerebrovascular disease (K89, K90)** | | | |
| Advice Not Otherwise Specified | 23 | 18.5 | 3.7 |
| Treatment advice[a] | 15 | 12.4 | 2.5 |
| Reassurance, support | 15 | 12.2 | 2.5 |
| Counselling—health not elsewhere classified | 13 | 10.8 | 2.2 |
| Rest ordered | 10 | 7.9 | 1.6 |
| **Peripheral vascular disease (K92)** | | | |
| Counselling—smoking | 15 | 13.3 | 3.6 |
| Bandage/dressing[b] | 12 | 10.7 | 2.9 |
| Treatment advice[a] | 11 | 9.3 | 2.5 |
| Exercise | 10 | 8.8 | 2.4 |
| Advice Not Otherwise Specified | 10 | 8.7 | 2.3 |

(a) Go to bed; take panadol when needed; clear fluids; R.I.C.E.

(b) E.g. clean wound

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

# National Heart Foundation Risk Factor Prevalence Study

The 1989 survey of the National Heart Foundation Risk Factor Prevalence Study asked whether respondents had ever been told whether they had any of the following conditions (Risk Factor Prevalence Study Management Committee 1990):

- high blood pressure
- angina
- heart attack (a 'coronary', coronary occlusion, coronary thrombosis, myocardial infarction)
- stroke
- high cholesterol
- high triglycerides.

The survey also asked whether respondents were:

- on tablets for blood pressure;
- having treatment to lower blood fat; and
- on tablets or other treatment for angina.

Similar data were collected in surveys run by the National Heart Foundation in 1980 and 1983. Consistency in survey methods allows trends analysis over this period.

## Results

Among males aged 20 to 69 years and living in Australian capital cities in 1989, 17.0% reported having been told that they had high blood pressure (Table 14). For females, the corresponding proportion was 19.7%. The prevalence tended to increase with age for both males and females. Eight per cent of males and females reported being on tablets for blood pressure (Table 15).

An average of 3% of males and 2% of females reported having been told they had angina, and about 1% of males and females were on tablets or other treatment for angina (Tables 14 & 15).

Two per cent of males and 1% of females reported being told they had suffered a heart attack (Table 14). In each age group, the prevalence was generally higher for males than females.

Fewer than 1% of males and females reported having been told they had suffered a stroke.

Males were more likely than females to have been told they had high cholesterol (Table 14). This was also true for high triglycerides. Three per cent of males and 2% of females reported having treatment to lower blood fat (Table 15).

**Table 14: Percentage of males and females reporting cardiovascular conditions, 1989**

| Sex/Condition | Age (years) | | | | | | | | | | Total (20–69 years) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | 65–69 | |
| **Males** | | | | | | | | | | | |
| High blood pressure | 5.1 | 6.3 | 12.9 | 15.6 | 15.0 | 21.0 | 22.2 | 32.1 | 32.4 | 36.0 | **17.0** |
| Angina | — | 0.4 | 0.2 | 0.2 | 0.7 | 2.7 | 5.1 | 7.4 | 12.7 | 12.4 | **2.9** |
| Heart attack | — | 0.0 | 0.6 | 0.1 | 1.1 | 2.9 | 2.6 | 6.5 | 10.1 | 10.4 | **2.4** |
| Stroke | — | 0.2 | — | 0.1 | 0.1 | 0.0 | 1.3 | 2.5 | 2.8 | 5.3 | **0.8** |
| High cholesterol | 2.7 | 5.0 | 9.0 | 12.3 | 21.2 | 23.1 | 25.8 | 29.2 | 25.7 | 21.1 | **15.3** |
| High triglycerides | 0.8 | 0.4 | 2.7 | 6.0 | 9.5 | 8.0 | 13.9 | 13.1 | 12.9 | 10.8 | **6.6** |
| **Females** | | | | | | | | | | | |
| High blood pressure | 6.1 | 10.8 | 14.0 | 15.5 | 14.7 | 19.3 | 32.0 | 33.4 | 38.0 | 47.5 | **19.7** |
| Angina | — | 0.0 | 0.2 | 1.5 | 0.9 | 0.3 | 1.8 | 2.4 | 5.9 | 11.7 | **1.8** |
| Heart attack | 0.1 | — | 0.2 | 0.3 | 1.0 | 0.0 | 1.2 | 1.6 | 4.1 | 5.9 | **1.1** |
| Stroke | — | 0.1 | — | — | 0.5 | 0.1 | 0.8 | 0.6 | 1.9 | 3.6 | **0.5** |
| High cholesterol | 3.9 | 4.9 | 6.2 | 5.5 | 8.5 | 9.6 | 16.0 | 32.4 | 30.3 | 28.8 | **11.8** |
| High triglycerides | 0.1 | 0.8 | 0.6 | 1.5 | 1.0 | 2.5 | 5.0 | 8.4 | 6.4 | 7.1 | **2.6** |

Note: 0.0 denotes < 0.05

– nil

*Source:* Risk Factor Prevalence Study Management Committee 1990.

**Table 15: Percentage of males and females having treatment for cardiovascular conditions, 1989**

| Sex/Treatment | Age (years) | | | | | | | | | | Total (20–69 years) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 20–24 | 25–29 | 30–34 | 35–39 | 40–44 | 45–49 | 50–54 | 55–59 | 60–64 | 65–69 | |
| **Males** | | | | | | | | | | | |
| On tablets for blood pressure | 0.8 | 0.5 | 0.8 | 3.6 | 6.6 | 6.1 | 13.6 | 20.3 | 24.8 | 30.3 | **7.9** |
| On tablets or other treatment for angina | — | 0.2 | — | 0.2 | 0.1 | 0.6 | 2.6 | 3.8 | 8.0 | 5.6 | **1.4** |
| Having treatment to lower blood fat | — | 0.2 | 3.0 | 2.1 | 2.6 | 4.6 | 6.3 | 6.6 | 6.0 | 10.6 | **3.3** |
| **Females** | | | | | | | | | | | |
| On tablets for blood pressure | 0.3 | 0.3 | 1.2 | 0.9 | 4.5 | 8.3 | 15.8 | 20.5 | 29.1 | 35.5 | **8.4** |
| On tablets or other treatment for angina | 0.1 | — | 0.1 | 0.0 | 0.6 | — | 0.9 | 1.5 | 3.2 | 7.0 | **0.9** |
| Having treatment to lower blood fat | — | 0.0 | 0.1 | 0.8 | 0.6 | 1.1 | 3.1 | 6.2 | 8.6 | 11.2 | **2.2** |

*Source:* Risk Factor Prevalence Study Management Committee 1990.

# Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study

The 1994 survey of the Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study asked whether respondents had ever been told whether they had any of the following conditions (Alexander et al. 1995):

- angina
- heart attack (a 'coronary', coronary occlusion, coronary thrombosis, myocardial infarction)
- stroke
- high triglycerides.

Respondents were also asked if they had ever been told by a doctor or other medical person that they had high blood pressure, and whether they were currently having treatment with medications for high blood pressure.

For blood cholesterol, respondents were asked if they had ever been told by a doctor or medical person that they had high cholesterol. Participants in the main study who answered yes were then asked whether they were on medication, or a special diet prescribed by a doctor or other medical person for high cholesterol.

Respondents in the main study were also asked if they had ever had pain or discomfort in their chest. If they answered yes, they were then asked if they sought medical attention for it and if they had ever been referred to a heart specialist for it.

## Summary of results

In 1994, 5% of males and 3% of females aged 35 to 64 years and living in the Hunter region of New South Wales reported having been told they had angina (Alexander et al. 1995). The reported prevalence of heart attack among males was 3%, while for females it was 2%. One per cent of males and 2% of females reported having been told that they had suffered a stroke.

Chest pain or discomfort had been experienced by 44% of males and 41% of females aged 35 to 64 years and living in the Hunter region of New South Wales in 1994. Of those who had experienced chest pain or discomfort, 64% of males and 72% of females had sought medical attention for it, and 27% of males and 18% of females had been referred to a heart specialist for it.

More than one quarter of Hunter region residents aged 35 to 64 years reported having been told they had high blood pressure (26% of males and 30% of females). Fourteen per cent of males and females were taking medication for high blood pressure in 1994.

Males were more likely than females to have been told they had high triglycerides (7% compared to 4%). Similarly more males than females reported having been told they had high cholesterol (28% compared to 20%). Of those with high cholesterol, most were using no treatment for it (68% of males and 64% of females). Fifteen per cent of males and 21% of females with high cholesterol were on a special diet to control it; 12% of males and 7% of females were using medication for it; and 5% of males and 9% of females were using a combination of special diet and medication to control it.

# Hospital care

## Introduction

This chapter presents information on hospital care for cardiovascular disease in Australia. Detailed analysis from three national sources of data (the National Hospital Morbidity Database; Medicare and Department of Veterans' Affairs medical benefits data; and the Australian Bureau of Statistics' National Health Survey 1995) are presented as well as results from several other sources (the National Heart Foundation cardiac surgery and coronary angioplasty registers; 1994–95 Australian casemix data; the 1995 Public Hospital Elective Surgery Waiting List Survey; the Australian and New Zealand Cardiothoracic Organ Transplant Registry; and the Newcastle MONICA project).

The limitations of the national data sources, as discussed in the chapter *National data sources,* should be kept in mind when interpreting the results presented here.

### Data sources

- **The National Hospital Morbidity Database.** National estimates are provided for the number of separations and the average length of stay for cardiovascular conditions and cardiovascular procedures in public acute (including the Department of Veterans' Affairs hospitals) and private hospitals in 1995–96.
- **Medicare and Department of Veterans' Affairs medical benefits data.** National information is provided on the number of medical services provided and benefits paid for cardiovascular medical services that qualify for benefits under Medicare or the Department of Veterans' Affairs medical benefits schemes in 1992–93, 1993–94 and 1994–95.
- **The Australian Bureau of Statistics' National Health Survey 1995 (**Australian Bureau of Statistics 1997a; 1997b)**.** Provides national estimates of the self-reported prevalence of recent hospitalisation (i.e. in the two weeks prior to interview) and hospitalisation in the 12 months prior to interview, for cardiovascular conditions.
- **The National Heart Foundation cardiac surgery register** (National Heart Foundation of Australia 1996a). Provides information on all cardiac surgery performed in Australia since 1953.
- **The National Heart Foundation coronary angioplasty register** (National Heart Foundation of Australia 1996b). Provides information on all coronary angioplasty performed in Australia since 1980.
- **Australian casemix data** (Commonwealth Department of Health and Family Services 1996b). Provides information on hospital activity for cardiovascular disease as measured by Australian National Diagnosis Related Groups (AN-DRGs).
- **The 1995 Public Hospital Elective Surgery Waiting List Survey** (Moon 1996). Provides information about elective surgery waiting lists in Australian public hospitals. Data relevant to this report are available for cardiothoracic surgery, neurosurgery and vascular surgery.

- **The Australian and New Zealand Cardiothoracic Organ Transplant Registry** (Australian and New Zealand Cardiothoracic Organ Transplant Registry 1997). The sixth annual report provides information about all heart and heart-lung transplants performed in Australia and New Zealand between February 1984 and December 1996.
- **The Newcastle MONICA project** (Steele & McElduff 1995a; Steele & McElduff 1995b). The Newcastle MONICA Project collected data on all suspected cases of heart attack or coronary death among residents aged 25 to 69 years in the local government areas of Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens. The study was conducted over a 10-year period and registration began in August 1984. Information on acute care was collected.

# The National Hospital Morbidity Database

For 1995–96, the National Hospital Morbidity Database includes all public acute hospitals in Australia, except those that are not within the jurisdiction of a State or Territory health authority or the Department of Veterans' Affairs. All private acute and psychiatric hospitals are also included except the private hospital in the Northern Territory and the private freestanding day hospital facilities in the Australian Capital Territory. The National Hospital Morbidity Database also includes public psychiatric hospitals except for Queensland; however, these data have not been included in this report.

This section presents summary statistics on separations and average length of stay for cardiovascular conditions and cardiovascular procedures in public acute (including the Department of Veterans' Affairs hospital) and private hospitals in 1995–96.

In 1995–96 there were 5,151,094 hospital separations from public acute and private hospitals in Australia (Australian Institute of Health and Welfare 1997a). The average length of stay for a separation (including same day separations) was 4.3 days.

In 1995–96, the National Hospital Morbidity Database included information on principal diagnosis and up to 20 additional diagnoses (Australian Institute of Health and Welfare 1997a).

**Box 7: Cardiovascular conditions codes**

*Information is provided in this section for the following cardiovascular conditions:*

| Condition | ICD-9-CM diagnostic code |
|---|---|
| Rheumatic heart disease | 390–398 |
| Hypertensive disease | 401–405 |
| Acute myocardial infarction | 410 |
| Coronary heart disease | 410–414 |
| Heart failure | 428 |
| Cerebrovascular disease | 430–438 |
| Peripheral vascular disease | 441–444 |
| All cardiovascular disease | 390–459 |
| Chest pain with heart disease | 786.5 + (410–414 or 420–429) |

## Cardiovascular disease as principal diagnosis only

Eight per cent of all public acute and private hospital separations in 1995–96 were associated with a principal diagnosis of cardiovascular disease (Table 16). Of those separations, 37% were due to coronary heart disease, 12% to cerebrovascular disease and 10% to heart failure.

**Table 16: Separations and average length of stay for principal diagnosis of cardiovascular conditions by sex, public acute and private hospitals, Australia, 1995–96**

| Condition/sex | Number of separations | Average length of stay (days) | Crude rate[a] | Age-standardised rate[b] | 95% confidence interval for age-standardised rate |
|---|---|---|---|---|---|
| **Males** | | | | | |
| Rheumatic heart disease | 727 | 7.6 | 8.0 | 8.1 | 7.5–8.7 |
| Hypertensive disease | 3,121 | 6.2 | 34.3 | 34.6 | 33.3–35.8 |
| Acute myocardial infarction | 21,818 | 6.7 | 239.6 | 243.6 | 240.4–246.9 |
| Coronary heart disease | 99,557 | 5.1 | 1,093.5 | 1,103.7 | 1,096.9–1,110.4 |
| Heart failure | 20,187 | 8.9 | 221.7 | 243.2 | 239.9–246.6 |
| Cerebrovascular disease | 26,382 | 11.6 | 289.8 | 309.4 | 305.6–313.1 |
| Peripheral vascular disease | 9,488 | 9.1 | 104.2 | 110.0 | 107.8–112.2 |
| **All cardiovascular disease** | **231,283** | **6.2** | **2,540.3** | **2,608.2** | **2,598.0–2,618.3** |
| Chest pain with heart disease[c] | 5,820 | 2.7 | 63.9 | 64.4 | 62.7–66.0 |
| **Females** | | | | | |
| Rheumatic heart disease | 1,192 | 7.5 | 13.0 | 12.2 | 11.5–12.9 |
| Hypertensive disease | 5,324 | 8.3 | 58.0 | 50.9 | 49.5–52.3 |
| Acute myocardial infarction | 11,183 | 8.0 | 121.8 | 101.5 | 99.6–103.4 |
| Coronary heart disease | 53,179 | 5.7 | 579.0 | 500.6 | 496.3–504.8 |
| Heart failure | 20,523 | 10.4 | 223.5 | 169.3 | 167.0–171.6 |
| Cerebrovascular disease | 24,906 | 13.5 | 271.2 | 217.3 | 214.6–220.1 |
| Peripheral vascular disease | 4,844 | 9.0 | 52.7 | 43.8 | 42.6–45.1 |
| **All cardiovascular disease** | **181,502** | **7.1** | **1,976.2** | **1,698.5** | **1,690.8–1,706.2** |
| Chest pain with heart disease[c] | 4,390 | 3.1 | 47.8 | 41.8 | 40.5–43.0 |

(a) Separations per 100,000 mid-1996 total Australian population.

(b) Age-standardised to the mid-1991 total Australian population.

(c) Principal diagnosis of chest pain plus additional diagnosis of heart disease.

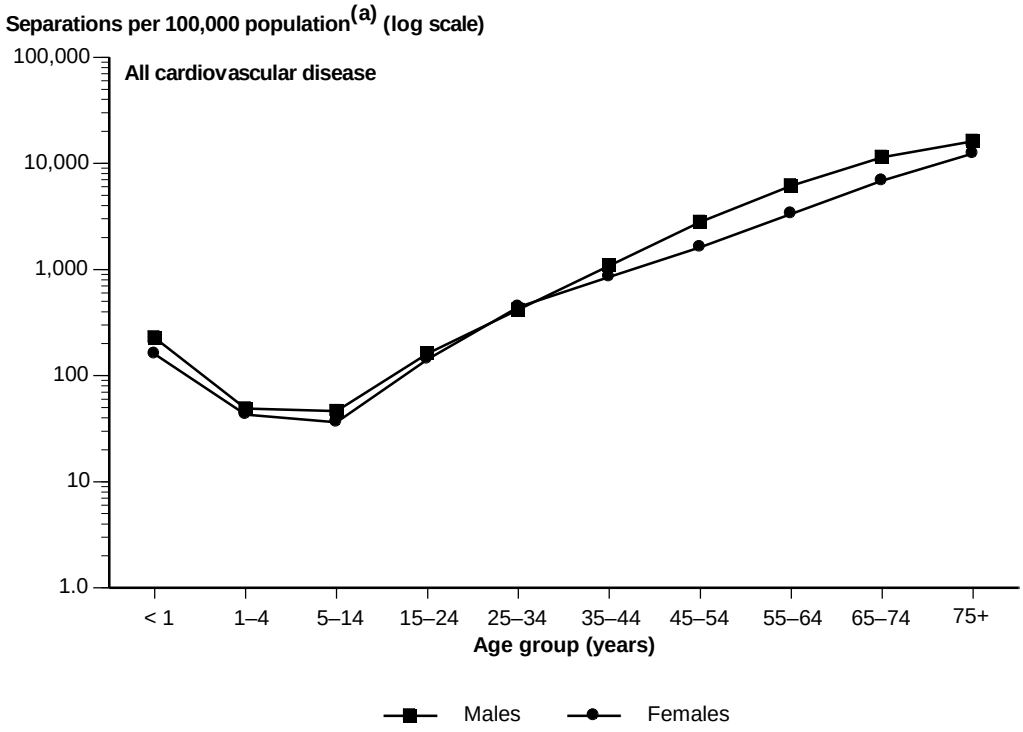
For each of the cardiovascular conditions included here, hospital separation rates tended to increase with age but were usually higher among males and females under the age of 1 year than among children aged 1–15 years (Figures 4–6).

Age-specific and age-standardised separation rates indicate that, in 1995–96, males were significantly more likely than females to have a principal diagnosis of cardiovascular disease (Figure 4, Table 16). In general, males also had significantly higher separation rates than females for principal diagnoses of coronary heart disease, heart failure, cerebrovascular disease, peripheral vascular disease and chest pain associated with heart disease (Figures 5–6, Table 16). However, separation rates for principal diagnoses of rheumatic heart disease and hypertensive disease tended to be higher among females than males.

The average length of stay associated with a principal diagnosis of cardiovascular disease was 6.6 days in 1995–96 (based on a total of 2,722,415 patient days). Of the specific cardiovascular conditions included here, cerebrovascular disease had the longest average

length of stay (12.5 days), followed by heart failure (9.6 days), peripheral vascular disease (9.1 days), rheumatic heart disease and hypertensive disease (7.5 days), acute myocardial infarction (7.2 days), and coronary heart disease (5.3 days). Patients with a principal diagnosis of chest pain associated with heart disease had an average length of stay of 2.9 days.

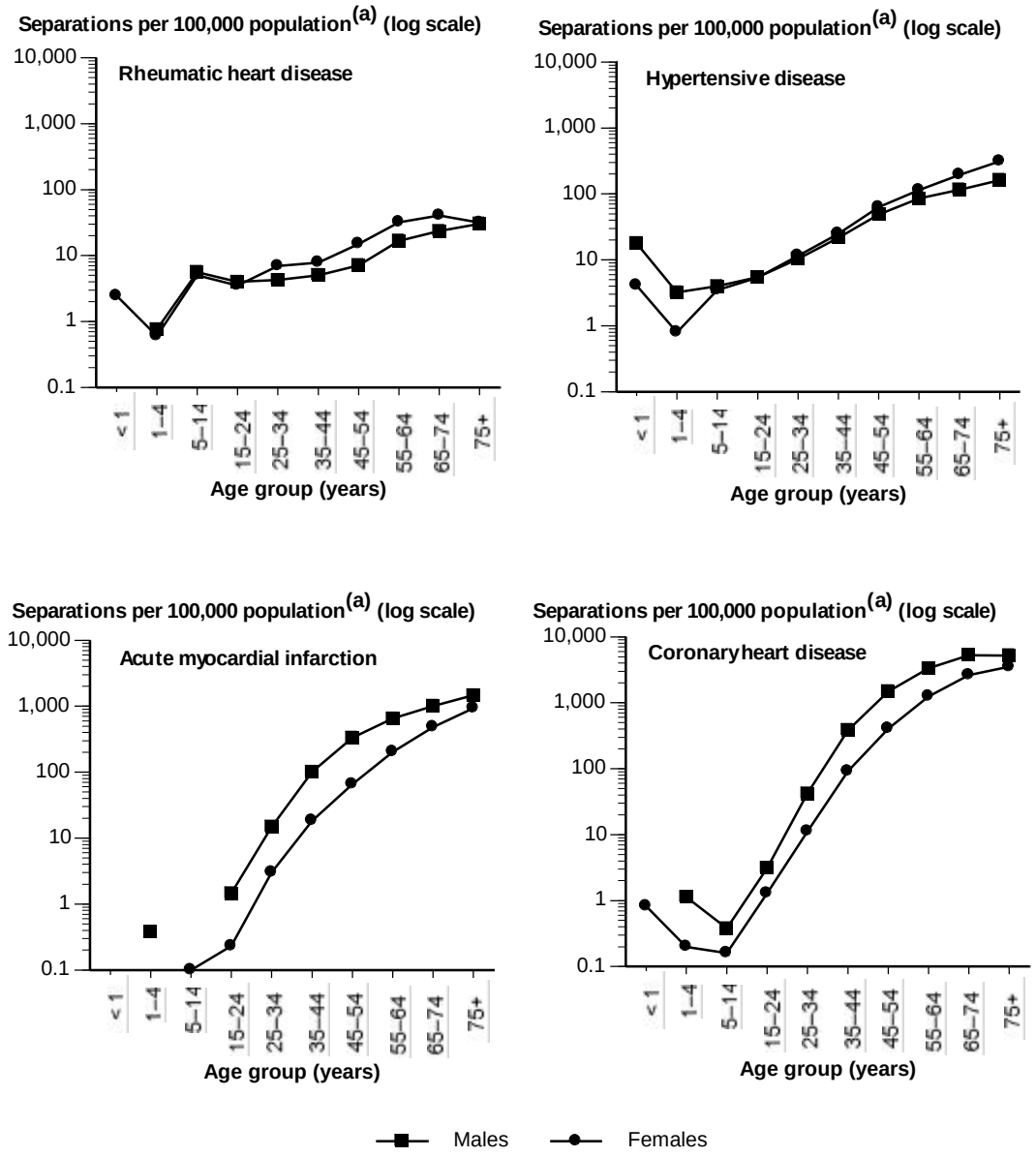
Although males generally had higher separation rates than females for principal diagnosis of cardiovascular conditions, females tended to have slightly longer average lengths of stay for most of these conditions than males (Table 16).




(a) Separations per 100,000 1996 mid-year population for each age group.

Refer to Table S17

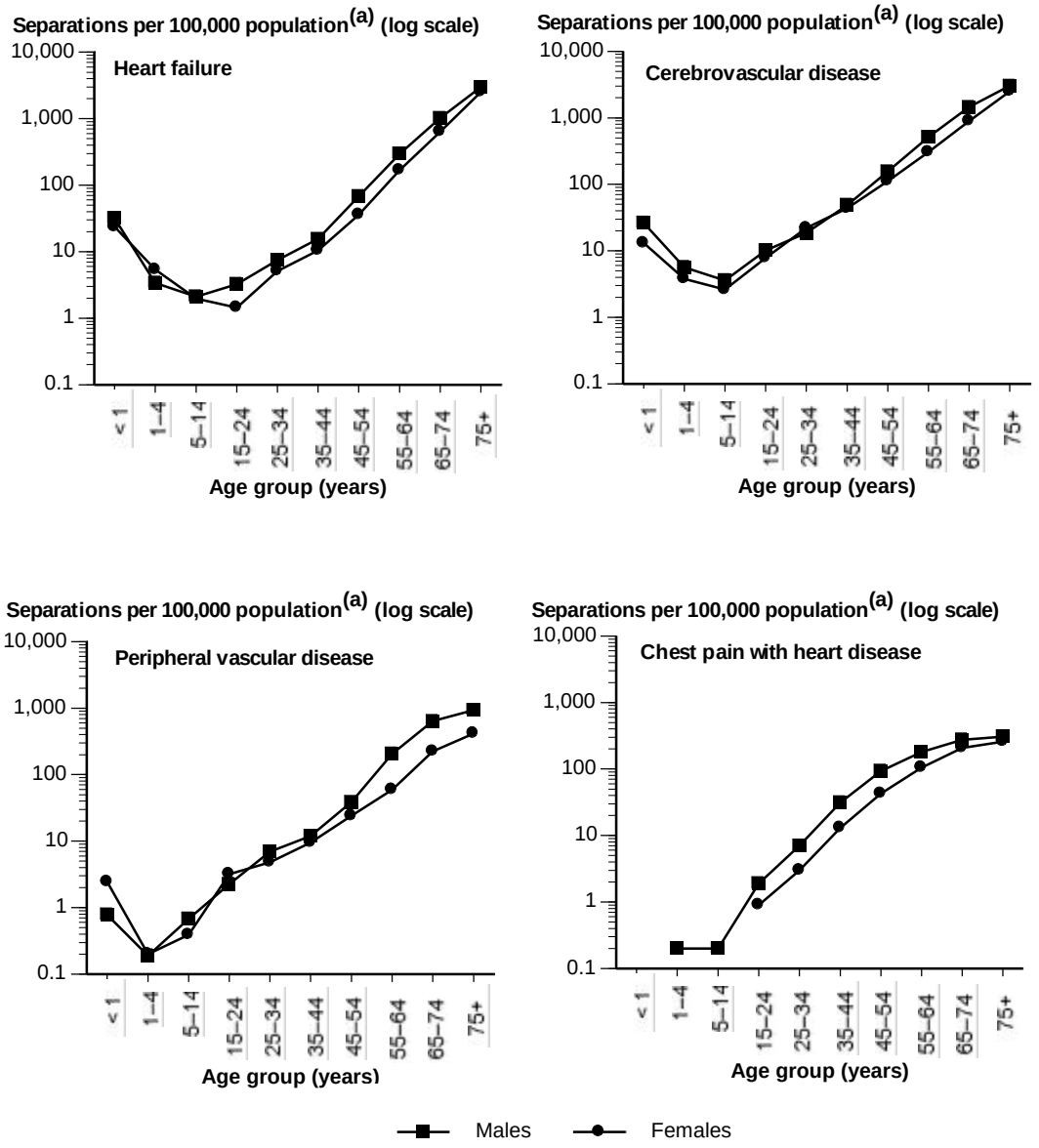
**Figure 4: Age-specific hospital separation rates for principal diagnosis of cardiovascular disease by sex, public acute and private hospitals, Australia, 1995–96**




(a) Separations per 100,000 1996 mid-year population for each age group.

Refer to Tables S18–S21

**Figure 5: Age-specific hospital separation rates for principal diagnosis of rheumatic heart disease, hypertensive disease, acute myocardial infarction and coronary heart disease by sex, public acute and private hospitals, Australia, 1995–96**




(a) Separations per 100,000 1996 mid-year population for each age group.

Refer to Tables S22–S25

**Figure 6: Age-specific hospital separation rates for principal diagnosis of heart failure, cerebrovascular disease, peripheral vascular disease, and chest pain with heart disease by sex, public acute and private hospitals, Australia, 1995–96**

## Cardiovascular disease as principal or additional diagnosis

Almost one fifth of all public acute and private separations in 1995–96 were associated with at least one diagnosis of cardiovascular disease (1,027,934 separations).

The number of separations with a diagnosis of hypertensive disease increased dramatically when principal or additional diagnosis was considered and accounted for 9% (464,890 separations) of all separations in 1995–96. This indicates that most (98%) hypertensive

disease was reported as a comorbidity rather than as a principal diagnosis (2%). In contrast, acute myocardial infarction was reported as the principal diagnosis in 69% of separations where it was diagnosed.

With the exception of rheumatic heart disease, males had higher age-standardised separation rates than females for all the cardiovascular conditions included here but females had slightly higher average lengths of stay than males (Table 17).

**Table 17: Separations and average length of stay for principal or additional diagnosis of cardiovascular conditions by sex, public acute and private hospitals, Australia, 1995–96**

| Condition/sex | Number of separations[a] | Average length of stay (days) | Crude rate[b] | Age-standardised rate[c] | 95% confidence interval for age-standardised rate |
|---|---|---|---|---|---|
| **Males** | | | | | |
| Rheumatic heart disease | 3,522 | 8.7 | 38.7 | 40.7 | 39.3–42.0 |
| Hypertensive disease | 210,616 | 6.3 | 2,313.3 | 2,388.8 | 2,379.0–2,398.5 |
| Acute myocardial infarction | 31,317 | 7.3 | 344.0 | 350.9 | 347.0–354.8 |
| Coronary heart disease | 212,291 | 6.4 | 2,331.7 | 2,425.5 | 2,415.7–2,435.2 |
| Heart failure | 72,462 | 10.5 | 795.9 | 878.7 | 872.6–884.9 |
| Cerebrovascular disease | 60,176 | 14.0 | 660.9 | 708.6 | 703.0–714.1 |
| Peripheral vascular disease | 33,464 | 10.6 | 367.6 | 392.4 | 388.2–396.5 |
| **All cardiovascular disease[d]** | **524,275** | **7.2** | **5,758.3** | **5,984.0** | **5,970.1–5,997.9** |
| Chest pain with heart disease[e] | 7,867 | 4.0 | 86.4 | 87.7 | 85.7–89.6 |
| **Females** | | | | | |
| Rheumatic heart disease | 6,564 | 8.6 | 71.5 | 62.6 | 61.1–64.1 |
| Hypertensive disease | 254,274 | 7.4 | 2,768.5 | 2,371.2 | 2,362.3–2,380.1 |
| Acute myocardial infarction | 16,556 | 9.8 | 180.3 | 149.1 | 146.8–151.4 |
| Coronary heart disease | 144,661 | 8.4 | 1,575.1 | 1,294.8 | 1,288.3–1,301.3 |
| Heart failure | 81,020 | 13.0 | 882.1 | 667.0 | 662.5–671.5 |
| Cerebrovascular disease | 54,700 | 16.8 | 595.6 | 476.5 | 472.5–480.5 |
| Peripheral vascular disease | 20,336 | 11.6 | 221.4 | 182.2 | 179.6–184.7 |
| **All cardiovascular disease[d]** | **503,659** | **8.5** | **5,483.8** | **4,675.2** | **4,663.4–4,687.1** |
| Chest pain with heart disease[e] | 6,320 | 4.9 | 68.8 | 59.5 | 58.0–61.0 |

(a) Only one diagnosis per separation counted for each condition.

(b) Separations per 100,000 mid-1996 total Australian population.

(c) Age-standardised to the mid-1991 total Australian population.

(d) Components do not add to totals as each separation may have more than one type of cardiovascular condition reported.

(e) Principal or additional diagnosis of chest pain plus principal or additional diagnosis of heart disease.

## Cardiovascular procedures

In 1995–96, the National Hospital Morbidity Database included information on principal procedure and up to 28 additional procedures.

Commonly recorded cardiovascular procedures in 1995–96 included diagnostic cardiac catheterisation, open heart coronary artery bypass surgery, diagnostic ultrasound, percutaneous transluminal coronary angioplasty (PTCA), percutaneous intracoronary stent implant, cardiac pacemaker insertion, electrophysiology studies, and cardiac stress tests and pacemaker checks (Tables 18 & 19).

## Box 8: Cardiovascular procedures explanatory notes

*Information is provided here for major cardiac procedures, and for other cardiovascular operations and investigations. For each type of procedure, a separation was counted once only if it included a principal or additional procedure in the appropriate range. Separations were identified for the following procedures:*

| Procedure | ICD-9-CM procedure code |
|---|---|
| **Open heart—valve surgery** | |
| Reconstruction | 35.1 |
| Replacement | 35.2 |
| **Interventional cardiology** | |
| Percutaneous transluminal coronary angioplasty (PTCA) | 36.01, 36.02, or 36.05 |
| Percutaneous intracoronary stent implant | 36.06 |
| Other | 35.96, 36.04, or 36.09 |
| **Open heart—coronary bypass surgery** | |
| Coronary bypass surgery | 36.1 |
| Coronary bypass surgery with valve procedure | 36.1 & (35.1 or 35.2) |
| Coronary bypass surgery with excision of aneurysm or infarct | 36.1 & (37.32 or 37.33) |
| Coronary bypass surgery with repair of ventricular septal defect | 36.1 & (35.50, 35.53, 35.60, 35.62, 35.70, or 35.72) |
| **Other cardiothoracic surgery** | |
| With cardiopulmonary bypass | 39.61 & (35.00–35.04, 35.31–35.39, 35.42, 35.50–35.99, 36.03, 36.20–36.99, 37.10–37.12, 37.24, 37.31–37.33, 37.4, 37.61–37.64, 37.91, 37.99, 38.05, 38.15, 38.35, 38.45, 38.55, 38.65, 38.85, 39.00, 39.21, or 39.23) |
| Without cardiopulmonary bypass | No procedure code of 39.61 & (35.00–35.04, 35.31–35.39, 35.42, 35.50–35.99, 36.03, 36.20–36.99, 37.10–37.12, 37.24, 37.31–37.33, 37.4, 37.61–37.64, 37.91, 37.99, 38.05, 38.15, 38.35, 38.45, 38.55, 38.65, 38.85, 39.00, 39.21, or 39.23) |
| **Other cardiovascular procedures** | |
| Catheter ablation of lesion of heart | 37.34 |
| Electrophysiology studies | 37.26 or 37.27 |
| Heart or heart-lung transplant | 37.5 or 33.6 |
| Cardiac pacemaker device insertion (permanent) | 37.80–37.87 |
| Implantation of automatic implantable cardiac defibrillator (AICD) | 37.94–37.98 |
| Operations on vessels | 38 or 39 |
| **Diagnostic and nonsurgical procedures** | |
| Arteriography using contrast material | 88.40–88.45 or 88.47–88.49 |
| Cardiac catheterisation (diagnostic) or angiocardiography using contrast material | 37.21–37.23 or 88.5 |
| Coronary arteriography | 88.55–88.57 |
| Other angiocardiography using contrast medium | 88.50–88.54 or 88.58 |
| Diagnostic ultrasound | 88.72 or 88.77 |
| Cardiac stress tests and pacemaker checks | 89.4 |
| Other non-operative cardiac and vascular diagnostic procedures | 89.5 |

**Table 18: Separations and average length of stay for cardiovascular procedures for males, public acute and private hospitals, Australia, 1995–96**

| Procedure | Number of separations[(a)] | Average length of stay (days) | Crude rate[(b)] | Age-standardised rate[(c)] | 95% confidence interval for age-standardised rate |
|---|---|---|---|---|---|
| **Open heart valve surgery** | | | | | |
| Reconstruction | 335 | 11.9 | 3.7 | 3.7 | 3.3–4.1 |
| Replacement | 2,043 | 13.7 | 22.4 | 22.9 | 21.9–23.9 |
| **Interventional cardiology** | | | | | |
| Percutaneous transluminal coronary angioplasty (PTCA) | 9,086 | 4.2 | 99.8 | 97.6 | 95.6–99.6 |
| Percutaneous intracoronary stent implant | 2,762 | 4.8 | 30.3 | 29.6 | 28.5–30.7 |
| Other | 153 | 6.7 | 1.7 | 1.7 | 1.4–1.9 |
| **Open heart coronary bypass surgery** | | | | | |
| Coronary bypass surgery | 13,492 | 11.3 | 148.2 | 148.3 | 145.8–150.8 |
| Coronary bypass surgery with valve procedure | 882 | 13.6 | 9.7 | 10.1 | 9.4–10.8 |
| Coronary bypass surgery with excision of aneurysm or infarct | 51 | 13.2 | 0.6 | 0.6 | 0.4–0.7 |
| Coronary bypass surgery with repair of ventricular septal defect | 13 | 10.5 | 0.1 | *0.2 | 0.1–0.2 |
| **Other cardiothoracic surgery** | | | | | |
| With cardiopulmonary bypass | 1,520 | 13.8 | 16.7 | 16.9 | 16.0–17.7 |
| Without cardiopulmonary bypass | 1,051 | 13.4 | 11.5 | 11.8 | 11.0–12.5 |
| **Other cardiovascular procedures** | | | | | |
| Catheter ablation of lesion of heart | 688 | 2.9 | 7.6 | 7.5 | 6.9–8.1 |
| Electrophysiology studies | 1,701 | 4.8 | 18.7 | 18.6 | 17.7–19.5 |
| Heart or heart-lung transplant | 85 | 19.7 | 0.9 | 0.9 | 0.7–1.1 |
| Cardiac pacemaker device insertion (permanent) | 3,455 | 5.5 | 38.0 | 41.2 | 39.8–42.6 |
| Implantation of automatic implantable cardiac defibrillator (AICD) | 214 | 13.6 | 2.4 | 2.4 | 2.0–2.7 |
| Operations on vessels | 252,271 | 3.3 | 2,770.8 | 2,767.4 | 2,756.9–2,777.9 |
| **Diagnostic and nonsurgical procedures** | | | | | |
| Arteriography using contrast material | 15,293 | 8.7 | 168.0 | 173.1 | 170.3–175.8 |
| Cardiac catheterisation (diagnostic) or angiocardiography using contrast material | 45,661 | 4.2 | 501.5 | 495.4 | 490.8–499.9 |
| Coronary arteriography | 42,870 | 4.0 | 470.9 | 464.8 | 460.4–469.2 |
| Other angiocardiography using contrast medium | 31,156 | 4.2 | 342.2 | 337.9 | 334.2–341.7 |
| Diagnostic ultrasound | 12,716 | 11.6 | 139.7 | 143.5 | 141.0–146.0 |
| Cardiac stress tests and pacemaker checks | 2,547 | 6.3 | 28.0 | 27.9 | 26.8–29.0 |
| Other non-operative cardiac and vascular diagnostic procedures | 3,409 | 6.5 | 37.4 | 38.9 | 37.6–40.2 |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 total Australian population.

(c) Age-standardised to the mid-1991 total Australian population.

* Estimate has a relative standard error greater than 25% and therefore should be interpreted with caution.

**Table 19: Separations and average length of stay for cardiovascular procedures for females, public acute and private hospitals, Australia, 1995–96**

| Procedure | Number of separations[a] | Average length of stay (days) | Crude rate[b] | Age-standardised rate[c] | 95% confidence interval for age-standardised rate |
|---|---|---|---|---|---|
| **Open heart valve surgery** | | | | | |
| Reconstruction | 245 | 13.2 | 2.7 | 2.6 | 2.3–3.0 |
| Replacement | 1,364 | 14.0 | 14.9 | 13.5 | 12.8–14.3 |
| **Interventional cardiology** | | | | | |
| Percutaneous transluminal coronary angioplasty (PTCA) | 3,168 | 5.2 | 34.5 | 32.2 | 31.1–33.4 |
| Percutaneous intracoronary stent implant | 874 | 6.0 | 9.5 | 8.9 | 8.3–9.5 |
| Other | 198 | 5.2 | 2.2 | 2.0 | 1.7–2.3 |
| **Open heart coronary bypass surgery** | | | | | |
| Coronary bypass surgery | 4,184 | 12.9 | 45.6 | 41.8 | 40.6–43.1 |
| Coronary bypass surgery with valve procedure | 372 | 15.4 | 4.1 | 3.6 | 3.2–3.9 |
| Coronary bypass surgery with excision of aneurysm or infarct | 23 | 16.8 | 0.3 | *0.2 | 0.1–0.3 |
| Coronary bypass surgery with repair of ventricular septal defect | 17 | 13.2 | 0.2 | *0.2 | 0.1–0.2 |
| **Other cardiothoracic surgery** | | | | | |
| With cardiopulmonary bypass | 1,027 | 13.4 | 11.2 | 11.2 | 10.5–11.9 |
| Without cardiopulmonary bypass | 847 | 11.7 | 9.2 | 9.1 | 8.4–9.7 |
| **Other cardiovascular procedures** | | | | | |
| Catheter ablation of lesion of heart | 844 | 2.3 | 9.2 | 9.0 | 8.4–9.6 |
| Electrophysiology studies | 1,469 | 3.1 | 16.0 | 15.5 | 14.7–16.3 |
| Heart or heart-lung transplant | 26 | 15.7 | 0.3 | 0.3 | 0.2–0.4 |
| Cardiac pacemaker device insertion (permanent) | 2,581 | 5.8 | 28.1 | 22.7 | 21.8–23.6 |
| Implantation of automatic implantable cardiac defibrillator (AICD) | 83 | 12.6 | 0.9 | 0.8 | 0.7–1.0 |
| Operations on vessels | 196,421 | 3.0 | 2,138.6 | 2,040.1 | 2,031.3–2,049.0 |
| **Diagnostic and nonsurgical procedures** | | | | | |
| Arteriography using contrast material | 10,302 | 9.3 | 112.2 | 100.4 | 98.4–102.3 |
| Cardiac catheterisation (diagnostic) or angiocardiography using contrast material | 21,630 | 4.5 | 235.5 | 220.5 | 217.6–223.4 |
| Coronary arteriography | 20,155 | 4.4 | 219.5 | 204.7 | 201.9–207.6 |
| Other angiocardiography using contrast medium | 14,922 | 4.5 | 162.5 | 152.2 | 149.7–154.6 |
| Diagnostic ultrasound | 10,843 | 11.8 | 118.1 | 105.6 | 103.6–107.6 |
| Cardiac stress tests and pacemaker checks | 1,510 | 6.9 | 16.4 | 15.0 | 14.3–15.8 |
| Other non-operative cardiac and vascular diagnostic procedures | 2,842 | 7.7 | 30.9 | 27.1 | 26.1–28.1 |

(a) Principal or additional procedure; only one procedure per separation counted.

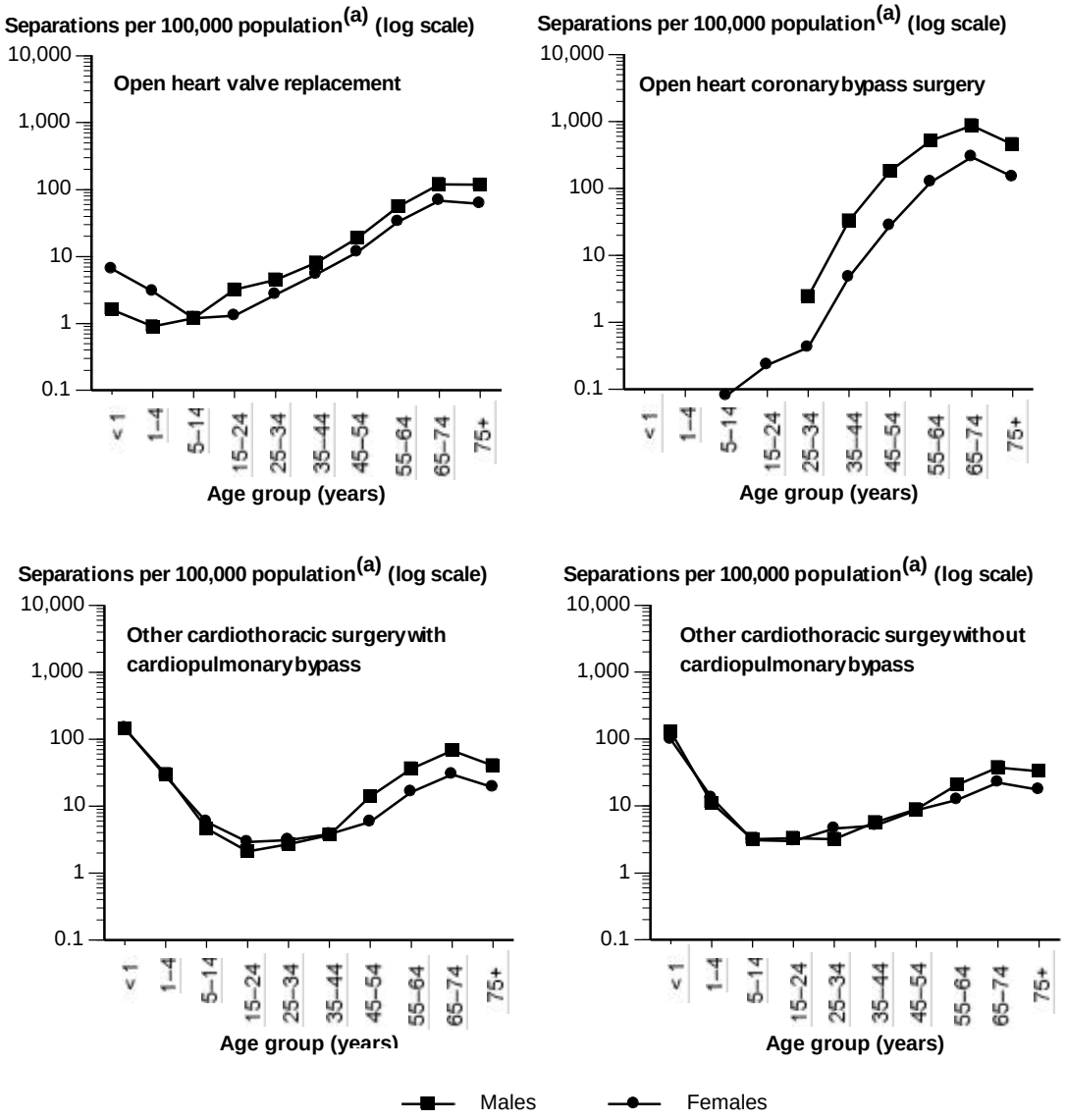
(b) Separations per 100,000 mid-1996 total Australian population.

(c) Age-standardised to the mid-1991 total Australian population.

* Estimate has a relative standard error greater than 25% and therefore should be interpreted with caution.

Separation rates for cardiovascular procedures were generally higher for males than females (Tables 18 & 19, Figures 7–9). However, for most of the procedures included here, females tended to have slightly longer average lengths of stay than males.

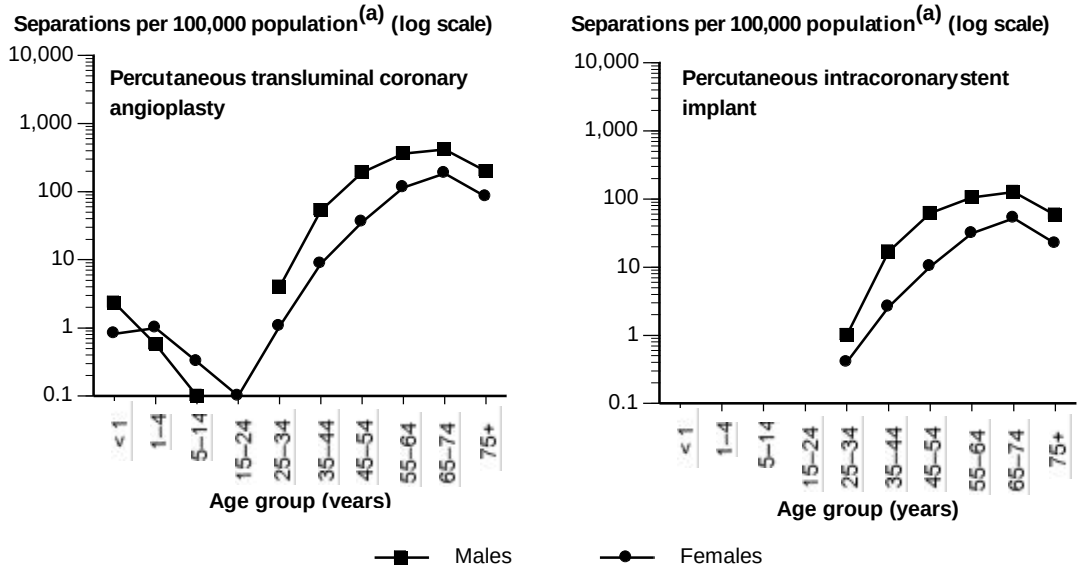
Age-specific rates indicate a general increase in separations for cardiovascular procedures with age, particularly in the age groups from 15 to 74 years (Figures 7–9).




(a) Separations per 100,000 1996 mid-year population for each age group.

Refer to Tables S26–S29

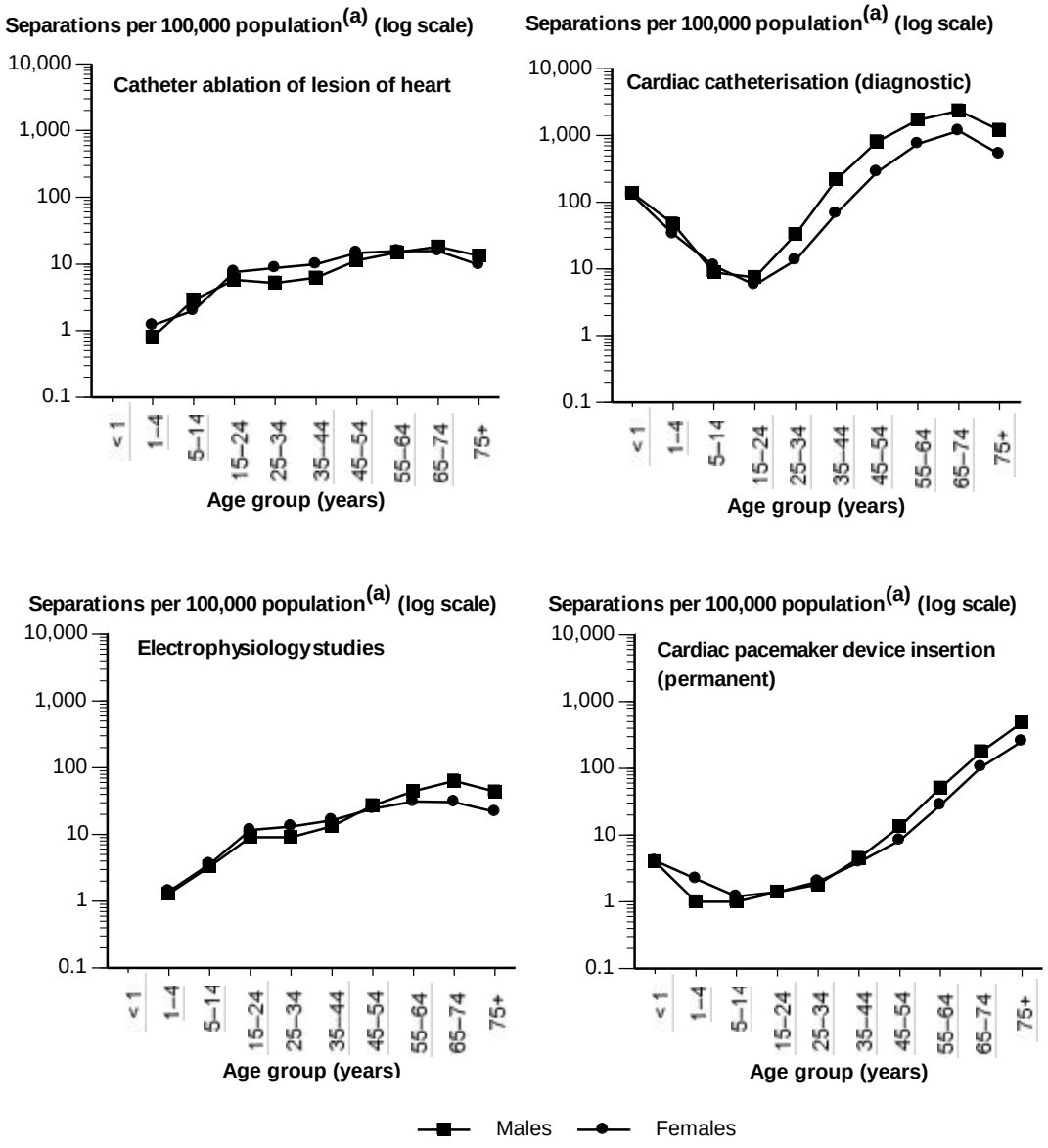
**Figure 7: Age-specific hospital separation rates for principal or additional procedure of cardiothoracic surgery by sex, public acute and private hospitals, Australia, 1995–96**




(a) Separations per 100,000 1996 mid-year population for each age group.

Refer to Tables S30–S31

**Figure 8: Age-specific hospital separation rates for principal or additional procedure of interventional cardiology by sex, public acute and private hospitals, Australia, 1995–96**




(a) Separations per 100,000 1996 mid-year population for each age group.
Refer to Tables S32–S35

**Figure 9: Age-specific hospital separation rates for principal or additional procedure of selected other cardiovascular procedures by sex, public acute and private hospitals, Australia, 1995–96**

## Cardiac procedures for congenital heart disease

Information is provided for cardiac procedures undertaken for congenital heart disease.

Of the congenital heart conditions included here, atrial septal defect was associated with the largest number of cardiac procedures for both males and females in 1995–96 (Tables 20 & 21). This was followed by ventricular septal defect and valve defects.

The number of separations for persons with congenital heart conditions who underwent cardiac procedures was highest in the under 1 year age group for all the conditions included here. The separation rate per 100,000 population was higher for males under the age of one year than for females of the same age for all conditions except valve defects.

Among males, average length of stay was highest for those undergoing cardiac procedures for transposition of the great vessels (21.4 days) (Tables 20 & 21). For females, average length of stay was highest for patent ductus arteriosus (19.7 days). Among those aged under one year, females had higher average lengths of stay than males for patent ductus arteriosus, coarctation of aorta, atrial septal defect and valve defects.

**Box 9: Congenital heart disease explanatory notes**

*For each category, a separation was counted once only if it included a principal or additional diagnosis of the relevant congenital condition as well as a principal or additional procedure in the appropriate range. Identification of separations was as follows:*

| Congenital heart condition (ICD-9-CM diagnostic code) | ICD-9-CM procedure codes |
|---|---|
| Transposition of the great vessels (745.1) | 35.30–35.39, 35.81–35.99, 36.91–36.99, 37.31–37.5, 38.00, 38.04, 38.05, 38.10, 38.14, 38.15, 30.30, 38.34, 38.35, 38.40, 38.45, 39.0, 39.21, 39.22 or 39.23 |
| Patent ductus arteriosus (747.0) | 35.30–35.39, 35.81–35.99, 36.91–36.99, 37.31–37.5, 38.00, 38.04, 38.05, 38.10, 38.14, 38.15, 30.30, 38.34, 38.35, 38.40, 38.45, 39.0, 39.21, 39.22 or 39.23 |
| Coarctation of aorta (747.1) | 35.30–35.39, 35.81–35.99, 36.91–36.99, 37.31–37.5, 38.00, 38.04, 38.05, 38.10, 38.14, 38.15, 30.30, 38.34, 38.35, 38.40, 38.45, 39.0, 39.21, 39.22 or 39.23 |
| Tetralogy of Fallot (745.2) | 35.00–36.99, 37.10–37.12, 37.31–37.5, 38.00, 38.04, 38.05, 38.10, 38.14, 38.15, 30.30, 38.34, 38.35, 38.40, 38.45, 39.0, 39.21 39.22 or 39.23 |
| Ventricular septal defect (745.4) | 35.50–35.99 or 37.4 |
| Atrial septal defect (745.5) | 35.50–35.99 or 37.4 |
| Valve defects (746.0–746.6) | 35.10–35.14, 35.20–35.28, 35.81–35.99 or 37.4 |

**Table 20: Separations and average length of stay for cardiac procedures for congenital heart disease for males, public acute and private hospitals, Australia, 1995–96**

| | Age group (years) | | | | |
|---|---|---|---|---|---|
| **Congenital heart condition** | **< 1** | **1–4** | **5–14** | **15+** | **All ages** |
| **Transposition of the great vessels** | | | | | |
| Number of separations[a] | 70 | 24 | 8 | 6 | **108** |
| Age-specific rate[b] | 54.3 | 4.5 | 0.6 | 0.1 | **1.2** |
| Average length of stay (days) | 26.0 | 14.8 | 9.4 | 11.2 | **21.4** |
| **Patent ductus arteriosus** | | | | | |
| Number of separations[a] | 92 | 8 | 3 | 2 | **105** |
| Age-specific rate[b] | 71.4 | 1.5 | 0.2 | 0.0 | **1.2** |
| Average length of stay (days) | 23.1 | 5.1 | 2.0 | 12.0 | **20.9** |
| **Coarctation of aorta** | | | | | |
| Number of separations[a] | 44 | 8 | 12 | 9 | **73** |
| Age-specific rate[b] | 34.1 | 1.5 | 0.9 | 0.1 | **0.8** |
| Average length of stay (days) | 14.5 | 18.3 | 5.4 | 4.2 | **12.2** |
| **Tetralogy of Fallot** | | | | | |
| Number of separations[a] | 29 | 35 | 3 | 5 | **72** |
| Age-specific rate[b] | 22.5 | 6.6 | 0.2 | 0.1 | **0.8** |
| Average length of stay (days) | 16.5 | 11.6 | 27.7 | 9.0 | **14.1** |
| **Ventricular septal defect** | | | | | |
| Number of separations[a] | 88 | 68 | 20 | 15 | **191** |
| Age-specific rate[b] | 68.3 | 12.8 | 1.5 | 0.2 | **2.1** |
| Average length of stay (days) | 16.6 | 12.5 | 7.7 | 14.0 | **14.0** |
| **Atrial septal defect** | | | | | |
| Number of separations[a] | 78 | 51 | 27 | 59 | **215** |
| Age-specific rate[b] | 60.5 | 9.6 | 2.0 | 0.8 | **2.4** |
| Average length of stay (days) | 15.7 | 8.2 | 6.3 | 10.4 | **11.3** |
| **Valve defects** | | | | | |
| Number of separations[a] | 40 | 34 | 22 | 94 | **190** |
| Age-specific rate[b] | 31.0 | 6.4 | 1.7 | 1.3 | **2.1** |
| Average length of stay (days) | 13.2 | 10.4 | 6.8 | 12.0 | **11.4** |

(a) Principal or additional procedure.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table 21: Separations and average length of stay for cardiac procedures for congenital heart disease for females, public acute and private hospitals, Australia, 1995–96**

| | Age group (years) | | | | |
|---|---|---|---|---|---|
| **Congenital heart condition** | **< 1** | **1–4** | **5–14** | **15+** | **All ages** |
| **Transposition of the great vessels** | | | | | |
| Number of separations[(a)] | 32 | 12 | 6 | 0 | **50** |
| Age-specific rate[(b)] | 26.2 | 2.4 | 0.5 | 0.0 | **0.5** |
| Average length of stay (days) | 14.3 | 12.8 | 7.3 | 0.0 | **13.1** |
| **Patent ductus arteriosus** | | | | | |
| Number of separations[(a)] | 54 | 17 | 6 | 3 | **80** |
| Age-specific rate[(b)] | 44.1 | 3.4 | 0.5 | 0.0 | **0.9** |
| Average length of stay (days) | 26.9 | 6.2 | 1.8 | 1.3 | **19.7** |
| **Coarctation of aorta** | | | | | |
| Number of separations[(a)] | 31 | 5 | 6 | 12 | **54** |
| Age-specific rate[(b)] | 25.3 | 1.0 | 0.5 | 0.2 | **0.6** |
| Average length of stay (days) | 21.2 | 6.6 | 6.8 | 6.4 | **15.0** |
| **Tetralogy of Fallot** | | | | | |
| Number of separations[(a)] | 24 | 24 | 5 | 5 | **58** |
| Age-specific rate[(b)] | 19.6 | 4.8 | 0.4 | 0.1 | **0.6** |
| Average length of stay (days) | 16.0 | 13.0 | 10.4 | 13.6 | **14.1** |
| **Ventricular septal defect** | | | | | |
| Number of separations[(a)] | 82 | 44 | 20 | 18 | **164** |
| Age-specific rate[(b)] | 67.0 | 8.8 | 1.6 | 0.2 | **1.8** |
| Average length of stay (days) | 16.7 | 11.8 | 8.0 | 11.3 | **13.7** |
| **Atrial septal defect** | | | | | |
| Number of separations[(a)] | 68 | 75 | 33 | 113 | **289** |
| Age-specific rate[(b)] | 55.6 | 14.9 | 2.6 | 1.5 | **3.2** |
| Average length of stay (days) | 17.1 | 7.0 | 6.6 | 8.6 | **9.9** |
| **Valve defects** | | | | | |
| Number of separations[(a)] | 39 | 42 | 19 | 39 | **139** |
| Age-specific rate[(b)] | 31.9 | 8.4 | 1.5 | 0.5 | **1.5** |
| Average length of stay (days) | 14.7 | 9.9 | 7.5 | 10.3 | **11.1** |

(a) Principal or additional procedure.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

# Medicare and Department of Veterans' Affairs medical benefits data

This section describes the use of cardiovascular medical services covered by Medicare and the Department of Veterans' Affairs for the financial year 1994–95. Trend data for the period 1992–93 to 1994–95 are also presented. The data were provided by the Medicare Statistics Section of the Department of Health and Family Services and the Statistics Section of the Department of Veterans' Affairs. It should be noted that the data correspond to use of services for claims processed in the financial year under consideration, irrespective of when those services were provided. It should also be noted that Medicare data covers only about 75% of medical services (refer to the chapter *National data sources*).

**Box 10: Cardiovascular medical diagnostic procedures and investigations codes**

*Information is provided here for the following groups of cardiovascular medical services:*

| Diagnostic procedures and investigations | Medical Benefits Schedule Item Number (as at 1 November 1995) |
|---|---|
| Cardiovascular | 11700–11715 |
| Pacemaker testing | 11718, 11721 |
| Therapeutic procedures (operations)—vascular | |
| Arterial surgery (Bypass or anastomosis for occlusive arterial disease, bypass, replacement, ligation of aneurysms, endarterectomy and arterial patch, embolectomy, thrombectomy and vascular trauma) | 32700–32769, 33100–33172, 33500–33554, 33800–33848 |
| Transluminal balloon angioplasty | 35300–35305 |
| Transluminal stent insertion | 35306–35310 |
| Therapeutic procedures (operations)—cardiothoracic | |
| Selective coronary arteriography | 38215, 38218 |
| Permanent pacemakers insertion / replacement | 38250, 38253, 38259, 38470, 38473 |
| Heart catheterisation, electrophysiological studies and other miscellaneous cardiac procedures | 38200–38212, 38256 |
| Valvular procedures | 38480–38483, 38387–38489 |
| Coronary artery bypass | 38497, 38500, 38503 |
| Congenital cardiac surgery | 38700–38766 |
| Therapeutic procedures (operations)—neurosurgical | |
| Cerebrovascular disease | 39800–39818 |
| Diagnostic imaging | |
| Cardiac ultrasound | 55102–55130 |
| Vascular ultrasound | 55201–55237 |
| Serial angiocardiography | 59900–59906 |
| Selective coronary arteriography | 59912 |
| Other angiography and report | 59915–59924, 60000–60078 |
| Cardiac nuclear medicine imaging | 61300–61323 |

***Appendix G*** *provides detailed information on the procedures and investigations that make up these groups.*

## Use of cardiovascular medical services in 1994–95

### Overall use

In 1994–95, Medicare processed claims for 188.1 million medical services and the Department of Veterans' Affairs (DVA) processed claims for 11.2 million medical services (Health Insurance Commission 1995; Statistics Section, Department of Veterans' Affairs, personal communication). In comparison to the overall use of medical services, the incidence of cardiovascular Medicare and DVA services is small. The cardiovascular services included here accounted for just over 1% (2.2 million services) of all Medicare and DVA medical services in 1994–95.

Of the 199.3 million medical services for which claims were processed by Medicare or the Department of Veterans' Affairs in 1994–95, 10.5 million services were for diagnostic imaging (10.0 million Medicare and 0.5 million DVA) and 5.6 million (5.1 million Medicare and 0.5 million DVA) were for operations. Cardiovascular diagnostic imaging accounted for 5% of all diagnostic imaging in 1994–95, while vascular, cardiothoracic and cerebrovascular operations accounted for 1% of all operations (Table 22).

Diagnostic procedures and investigations were the most frequently used services in 1994–95, accounting for 71% of all cardiovascular medical services (Table 22). The next three most common medical services for cardiovascular disease were cardiac ultrasound, vascular ultrasound and selective coronary arteriography.

The number of Medicare and DVA services for cerebrovascular operations and congenital cardiac surgery is small, however this may reflect higher 'public' hospital provision of these services rather than low service use (Table 22).

### Use of cardiovascular medical services by age and sex

For both males and females, the incidence of cardiovascular Medicare and DVA services, except congenital cardiac surgery, tended to increase with age until age 75 years (Tables 23 & 24). Incidence rates for congenital cardiac surgery were highest among 0–24 year olds.

In most age groups and for all services except cerebrovascular operations and vascular ultrasound, incidence rates were higher among males than females. The difference in rates between males and females reduces slightly if only Medicare services are considered, however the differential remains. This is in contrast to the overall use of Medicare services which is higher for females than males (12.5 services per capita for females compared with 8.4 services per capita for males) (Australian Institute of Health and Welfare 1996a).

## Table 22: Use of Medicare and Department of Veterans' Affairs cardiovascular services, 1994–95

| Type of service | Medicare | Department of Veterans' Affairs | Total |
|---|---|---|---|
| | | Number of services | |
| **Diagnostic procedures and investigations** | | | |
| Cardiovascular | 1,425,304 | 115,103 | **1,540,407** |
| Pacemaker testing | 13,368 | 1,346 | **14,714** |
| **Vascular operations** | | | |
| Arterial surgery | 10,666 | 3,369 | **14,035** |
| Transluminal balloon angioplasty | 6,550 | 1,187 | **7,737** |
| Transluminal stent insertion | 1,008 | 188 | **1,196** |
| **Cardiothoracic operations** | | | |
| Selective coronary arteriography | 29,994 | 8,296 | **38,290** |
| Permanent pacemaker insertion or replacement | 3,858 | 952 | **4,810** |
| Heart catheterisation and electrophysiological studies | 2,521 | 317 | **2,838** |
| Valvular procedures | 1,674 | 293 | **1,967** |
| Coronary artery bypass | 7,819 | 1,390 | **9,209** |
| Congenital cardiac surgery | 915 | 0 | **915** |
| **Neurosurgical operations** | | | |
| Cerebrovascular disease | 440 | 28 | **468** |
| **Diagnostic imaging** | | | |
| Cardiac ultrasound | 192,638 | 14,396 | **207,034** |
| Vascular ultrasound | 186,279 | 17,491 | **203,770** |
| Serial angiocardiography | 28,932 | 3,219 | **32,151** |
| Selective coronary arteriography | 30,243 | 0 | **30,243** |
| Other angiography and report | 27,450 | 4,544 | **31,994** |
| Cardiac nuclear imaging | 11,334 | 3,431 | **14,765** |
| **Total** | **1,980,993** | **175,550** | **2,156,543** |

*Note:* These estimates do not include services for public patients in public hospitals.

*Sources:* Medicare Estimates and Statistics Section, Department of Health and Family Services; Statistics Section, Department of Veterans' Affairs.

**Table 23: Age-specific incidence rates[(a)] for cardiovascular Medicare and DVA services by type of service, males, 1994-95**

| | Age group (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Type of service** | **0–24** | **25–34** | **35–44** | **45–54** | **55–59** | **60–64** | **65–69** | **70–74** | **75+** | **All ages** |
| **Diagnostic procedures and investigations** | | | | | | | | | | |
| Cardiovascular | 746.7 | 2,632.2 | 6,124.7 | 12,869.5 | 20,857.5 | 27,732.7 | 34,508.2 | 41,350.5 | 38,995.2 | **9,241.7** |
| Pacemaker testing | 4.3 | 6.1 | 10.5 | 31.9 | 79.9 | 172.4 | 356.5 | 602.2 | 1,167.9 | **92.7** |
| **Vascular operations** | | | | | | | | | | |
| Arterial surgery | 1.5 | 1.6 | 5.5 | 33.7 | 152.7 | 284.9 | 550.6 | 968.1 | 827.5 | **103.9** |
| Transluminal balloon angioplasty | 0.4 | 1.1 | 18.4 | 84.9 | 162.5 | 243.1 | 294.5 | 359.6 | 216.8 | **60.4** |
| Transluminal stent insertion | (b) | (b) | 2.6 | 13.3 | 29.1 | 43.2 | 50.5 | 53.4 | 30.7 | **9.7** |
| **Cardiothoracic operations** | | | | | | | | | | |
| Selective coronary arteriography | 1.0 | 9.6 | 94.6 | 430.4 | 849.9 | 1,164.6 | 1,476.1 | 2,086.9 | 9417 | **306.9** |
| Permanent pacemaker insertion or replacement | 0.7 | 1.5 | 2.0 | 11.2 | 30.1 | 57.8 | 114.3 | 251.2 | 385.2 | **31.8** |
| Heart catheterisation and electro-physiological studies | 6.9 | 4.3 | 8.0 | 21.5 | 36.4 | 53.3 | 76.3 | 95.4 | 63.1 | **18.9** |
| Valvular procedures | 1.4 | 1.3 | 3.1 | 11.7 | 27.9 | 43.2 | 63.5 | 93.1 | 67.7 | **13.3** |
| Coronary artery bypass | (b) | (b) | 13.4 | 92.7 | 242.4 | 350.2 | 448.5 | 538.8 | 254.1 | **80.8** |
| Congenital cardiac surgery | 12.3 | 0.4 | 1.0 | 1.7 | (b) | 2.0 | 3.9 | (b) | (b) | **5.4** |
| **Neurosurgical therapeutic procedures** | | | | | | | | | | |
| Cerebrovascular disease | 0.3 | 0.9 | 2.3 | 3.2 | 6.8 | 4.3 | 8.0 | (b) | (b) | **1.9** |
| **Diagnostic imaging** | | | | | | | | | | |
| Cardiac ultrasound | 385.4 | 305.7 | 575.6 | 1,259.3 | 2,274.9 | 3,291.1 | 4,362.8 | 5,426.2 | 4,970.4 | **1,179.2** |
| Vascular ultrasound | 54.9 | 196.0 | 393.6 | 999.2 | 2,110.9 | 3,304.0 | 4,709.2 | 6,370.2 | 5,954.0 | **1,047.7** |
| Serial angiocardiography | 9.5 | 9.9 | 84.2 | 380.1 | 778.0 | 1,077.3 | 1,206.0 | 1,290.2 | 591.4 | **248.7** |
| Selective coronary arteriography | 0.5 | 9.9 | 96.0 | 425.0 | 848.9 | 1,115.9 | 1,132.1 | 825.6 | 397.4 | **233.7** |
| Other angiography and report | 14.2 | 21.0 | 48.8 | 162.7 | 436.2 | 728.5 | 1,130.0 | 1,538.5 | 1,243.1 | **218.8** |
| Cardiac nuclear imaging | 4.7 | 11.3 | 35.3 | 118.0 | 221.9 | 328.2 | 482.3 | 814.9 | 483.6 | **106.9** |
| **Total** | **1,244.7** | **3,213.3** | **7,519.4** | **16,949.9** | **29,146.9** | **39,996.9** | **50,973.1** | **62,670.0** | **56,591.7** | **13,002.6** |

(a) Incidence per 100,000 mid-1995 Australian population for each sex and age group.

(b) Rate not shown for confidentiality reasons.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

## Table 24: Age-specific incidence rates[(a)] for cardiovascular Medicare and DVA services by type of service, females, 1994–95

| | Age group (years) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Type of service** | **0–24** | **25–34** | **35–44** | **45–54** | **55–59** | **60–64** | **65–69** | **70–74** | **75+** | **All ages** |
| **Diagnostic procedures and investigations** | | | | | | | | | | |
| Cardiovascular | 776.8 | 2,491.0 | 5,071.3 | 10,001.5 | 15,728.7 | 20,494.2 | 25,283.7 | 29,319.8 | 28,068.2 | **7,833.1** |
| Pacemaker testing | 4.5 | 5.6 | 11.3 | 24.7 | 54.5 | 98.3 | 220.8 | 332.1 | 613.5 | **70.4** |
| **Vascular operations** | | | | | | | | | | |
| Arterial surgery | 0.7 | 3.0 | 6.0 | 22.6 | 50.2 | 108.8 | 215.2 | 313.5 | 360.0 | **51.8** |
| Transluminal balloon angioplasty | (b) | (b) | 3.6 | 16.8 | 49.5 | 71.6 | 115.9 | 161.1 | 126.2 | **25.5** |
| Transluminal stent insertion | 0.0 | 0.0 | 0.7 | 3.4 | 7.3 | 12.2 | 19.4 | 16.8 | 14.5 | **3.5** |
| **Cardiothoracic operations** | | | | | | | | | | |
| Selective coronary arteriography | 0.3 | 2.5 | 25.0 | 136.4 | 299.6 | 456.7 | 625.3 | 673.2 | 302.4 | **118.1** |
| Permanent pacemaker insertion or replacement | 1.1 | 1.7 | 1.9 | 6.1 | 12.1 | 28.7 | 59.9 | 106.1 | 203.3 | **21.6** |
| Heart catheterisation and electro-physiological studies | 5.7 | 6.1 | 10.3 | 15.5 | 26.3 | 23.9 | 31.5 | 32.9 | 27.4 | **12.5** |
| Valvular procedures | 0.9 | 0.6 | 2.3 | 7.9 | 14.1 | 23.3 | 30.9 | 55.9 | 35.2 | **8.5** |
| Coronary artery bypass | (b) | (b) | 0.9 | 10.7 | 35.1 | 86.9 | 124.9 | 159.5 | 76.9 | **21.5** |
| Congenital cardiac surgery | 10.8 | 1.0 | 0.7 | 1.4 | 2.3 | 2.6 | 2.8 | 3.4 | 1.1 | **4.8** |
| **Neurosurgical therapeutic procedures** | | | | | | | | | | |
| Cerebrovascular disease | 0.4 | 2.0 | 2.5 | 8.4 | 7.6 | 6.8 | 9.8 | 5.9 | 3.3 | **3.2** |
| **Diagnostic imaging** | | | | | | | | | | |
| Cardiac ultrasound | 377.6 | 501.1 | 667.7 | 1,129.8 | 1,875.1 | 2,589.5 | 3,3219.0 | 4,061.4 | 3,492.1 | **1,115.2** |
| Vascular ultrasound | 83.4 | 464.3 | 803.1 | 1,483.5 | 2,230.6 | 2,975.8 | 4,007.9 | 4,859.9 | 4,417.8 | **1,209.6** |
| Serial angiocardiography | 6.5 | 2.6 | 25.4 | 135.2 | 304.7 | 438.5 | 553.3 | 546.2 | 229.9 | **108.1** |
| Selective coronary arteriography | 0.4 | 2.5 | 25.1 | 132.8 | 293.3 | 442.5 | 522.9 | 488.8 | 228.1 | **101.9** |
| Other angiography and report | 12.7 | 24.6 | 49.9 | 110.4 | 224.2 | 338.6 | 477.3 | 709.8 | 668.9 | **136.0** |
| Cardiac nuclear imaging | 3.1 | 10.3 | 29.6 | 65.7 | 119.2 | 160.5 | 245.6 | 293.6 | 172.5 | **56.9** |
| **Total** | **1,285.3** | **3,519.5** | **6,737.1** | **13,312.7** | **21,334.4** | **28,359.3** | **35,8661** | **42,139.8** | **39,041.3** | **10,902.3** |

(a) Incidence per 100,000 mid-1995 Australian population for each sex and age group.

(b) Rate suppressed for confidentiality reasons.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

## Use of cardiovascular medical services by State and Territory

There was a great deal of variation in the use of cardiovascular Medicare and DVA services by the States and Territories in 1994–95. Overall, New South Wales had the highest incidence with an age-standardised rate of 14,596 cardiovascular services per 100,000 population, while the Northern Territory had the lowest incidence (4,160 cardiovascular services per 100,000 population) (Table 25).

However, for specific cardiovascular services, the highest use of services did not always occur in New South Wales nor did the lowest always occur in the Northern Territory. In 1994–95, New South Wales had the highest age-standardised incidence rates of cardiovascular diagnostic procedures, transluminal stent insertion, heart catheterisation and electrophysiological studies, congenital cardiac surgery and most cardiovascular diagnostic imaging procedures (Table 25). The highest incidence of pacemaker testing occurred in Victoria, where the age-standardised rate was 2 times the national average. Victoria also had the highest rate of permanent pacemaker insertion or replacement. Transluminal balloon angioplasty was most frequently undertaken in Western Australia where the rate of use was almost 1.5 times the national average. The age-standardised incidence rate of selective coronary arteriography was also highest in Western Australia. The incidence of coronary artery bypass was highest in South Australia but New South Wales and Queensland also had rates that were higher than the national average. Use of cardiac nuclear imaging services in the Australian Capital Territory and New South Wales were 1.9 and 1.8 times higher than the Australian average, respectively.

While age-standardised rates have been compared to adjust for differences in age structures between States and Territories, there are other factors that may affect the differences observed. For example, State and Territory differences may reflect different mixes of public and private patients in hospital and different types of service provision. The lower use of most cardiovascular services in the Northern Territory may also be because a number of services provided to Aboriginal and Torres Strait Islander people are provided through programs other than Medicare and therefore are not included here (Australian Institute of Health and Welfare 1996a).

**Table 25: Age-standardised incidence rates[(a)] for cardiovascular Medicare and DVA services by type of service and State and Territory, 1994–95**

| | State/Territory | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Type of service** | **NSW** | **Vic** | **Qld** | **WA** | **SA** | **Tas** | **ACT** | **NT** | **Australia** |
| **Diagnostic procedures and investigations** | | | | | | | | | |
| Cardiovascular | 10521.6 | 7861.3 | 7061.3 | 6307.7 | 5965.4 | 5604.9 | 6896.2 | 2944.4 | **8234.6** |
| Pacemaker testing | 51.8 | 160.2 | 39.5 | 36.1 | 76.4 | 7.1 | 38.2 | (b) | **76.8** |
| **Vascular operations** | | | | | | | | | |
| Arterial surgery | 64.0 | 81.9 | 113.0 | 44.2 | 58.5 | 62.3 | 38.1 | 42.4 | **74.5** |
| Transluminal balloon angioplasty | 39.1 | 53.7 | 21.1 | 60.8 | 42.2 | 24.7 | 41.7 | 6.8 | **41.3** |
| Transluminal stent insertion | 7.9 | 5.9 | 5.9 | 5.8 | 5.5 | 2.9 | 4.9 | 0.0 | **6.4** |
| **Cardiothoracic operations** | | | | | | | | | |
| Selective coronary arteriography | 203.5 | 221.5 | 171.7 | 270.2 | 189.2 | 179.5 | 152.7 | 51.4 | **205.0** |
| Permanent pacemaker insertion or replacement | 23.7 | 31.2 | 21.2 | 28.1 | 21.5 | 15.8 | 19.7 | (b) | **25.1** |
| Heart catheterisation and electrophysiological studies | 19.7 | 13.5 | 10.3 | 14.8 | 16.8 | 9.0 | 17.8 | 4.7 | **15.4** |
| Valvular procedures | 9.9 | 10.8 | 12.0 | 9 | 12.9 | 6.8 | 7.4 | 3.7 | **10.5** |
| Coronary artery bypass | 56.4 | 41.3 | 51.6 | 40.9 | 59.3 | 33.0 | 35.8 | 16.5 | **49.6** |
| Congenital cardiac surgery | 6.5 | 6.3 | 1.1 | 6.3 | 5.2 | 5.7 | 2.2 | 4.7 | **5.2** |
| **Neurosurgical operations** | | | | | | | | | |
| Cerebrovascular disease | 2.6 | 3.0 | 2.4 | 1.2 | 2.4 | 3.5 | (b) | (b) | **2.5** |
| **Diagnostic imaging** | | | | | | | | | |
| Cardiac ultrasound | 1544.7 | 946.0 | 933.1 | 873.2 | 781.1 | 688.2 | 813.1 | 509.1 | **1118.1** |
| Vascular ultrasound | 1339.7 | 1070.0 | 1074.4 | 723.9 | 749.0 | 730.9 | 868.3 | 391.0 | **1088.7** |
| Serial angiocardiography | 219.6 | 175.4 | 126.6 | 172.5 | 148.0 | 3.8 | 75.6 | 41.4 | **173.0** |
| Selective coronary arteriography | 137.0 | 207.7 | 138.8 | 213.8 | 158.6 | 129.3 | 92.0 | 52.8 | **162.9** |
| Other angiography and report | 209.4 | 174.3 | 134.1 | 158.0 | 130.7 | 92.6 | 152.6 | 44.5 | **171.0** |
| Cardiac nuclear imaging | 138.6 | 73.7 | 18.4 | 20.4 | 31.6 | 74.8 | 150.9 | 41.0 | **78.9** |
| **Total** | **14595.7** | **11137.7** | **9936.3** | **8986.9** | **8454.3** | **7674.6** | **9408.4** | **4160.2** | **11539.5** |

(a) Rate per 100,000 population, age-standardised to the mid-1991 total Australian population.

(b) Rate suppressed for confidentiality reasons.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

## Trends in the use of cardiovascular medical services

Between 1992–93 and 1994–95, the use of most cardiovascular Medicare and DVA services increased or remained steady. This was true for both males and females (Tables 26 & 27).

Those services with the greatest increases were transluminal stent insertion and serial angiocardiography. Use of serial angiocardiography also grew rapidly between 1992–93 and 1993–94 but the rate of growth slowed considerably in the following financial year.

Transluminal stent insertion was included on the Medicare Benefits Schedule from 1 April 1992. Over the period from 1992–93 to 1994–95, use of transluminal stent insertion increased by an average of 110% per year, with the rate of growth between 1993–94 and 1994–95 being more than double that between 1992–93 and 1993–94.

The incidence of cardiac nuclear imaging services fell over the period 1992–93 to 1994–95, from 146 to 109 services per 100,000 population for males and from 82 to 53 services per 100,000 population for females. Use of arterial surgery also fell between 1992–93 and 1994–95.

Care should be exercised in interpreting the trends however, as changes in use of medical services over time can be influenced by many factors. These include changes in the Medicare Benefits Schedule; changes in the coverage of Medicare as a result of Government policy; changes in the mix of services provided in public and private hospitals; population growth and net migration; ageing of the population; the proportion of the population with private health insurance; and cost shifting (i.e. services previously provided free of charge by States and Territories, that are now only available under Medicare) (Commonwealth Department of Health and Family Services 1996a).

## Table 26: Age-standardised incidence rates[(a)] and standard errors for cardiovascular Medicare and DVA services by type of service, males, 1992–93 to 1994–95

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 1992–93 | | 1993–94 | | 1994–95 | |
| Type of service | Rate | Standard error | Rate | Standard error | Rate | Standard error |
| **Diagnostic procedures and investigations** | | | | | | |
| Cardiovascular | 9,023.2 | 9.0 | 9,197.4 | 8.9 | 9,389.7 | 8.9 |
| Pacemaker testing | (b) | (b) | 74.9 | 1.0 | 102.5 | 1.1 |
| **Vascular operations** | | | | | | |
| Arterial surgery | 117.4 | 1.2 | 117.3 | 1.2 | 110.1 | 1.1 |
| Transluminal balloon angioplasty | 32.8 | 0.6 | 55.9 | 0.8 | 61.1 | 0.8 |
| Transluminal stent insertion | 2.1 | 0.2 | 3.7 | 0.2 | 9.8 | 0.3 |
| **Cardiothoracic operations** | | | | | | |
| Selective coronary arteriography | 251.2 | 1.7 | 288.5 | 1.8 | 308.5 | 1.9 |
| Permanent pacemaker insertion or replacement | 15.9 | 0.5 | 31.0 | 0.6 | 34.9 | 0.7 |
| Heart catheterisation and electrophysiological studies | 19.2 | 0.5 | 20.2 | 0.5 | 19.2 | 0.5 |
| Valvular procedures | 7.1 | 0.3 | 13.9 | 0.4 | 13.7 | 0.4 |
| Coronary artery bypass | 39.8 | 0.7 | 80.0 | 1.0 | 81.8 | 1.0 |
| Congenital cardiac surgery | 3.3 | 0.2 | 5.2 | 0.2 | 5.4 | 0.3 |
| **Neurosurgical operations** | | | | | | |
| Cerebrovascular disease | 2.1 | 0.2 | 1.8 | 0.1 | 1.9 | 0.1 |
| **Diagnostic imaging** | | | | | | |
| Cardiac ultrasound | 858.9 | 3.2 | 1,063.6 | 3.5 | 1,204.8 | 3.7 |
| Vascular ultrasound | 655.1 | 2.8 | 873.4 | 3.2 | 1,083.7 | 3.5 |
| Serial angiocardiography | 69.9 | 0.9 | 220.3 | 1.6 | 248.8 | 1.7 |
| Selective coronary arteriography | 202.5 | 1.5 | 222.9 | 1.6 | 231.8 | 1.6 |
| Other angiography and report | 332.9 | 2.0 | 210.2 | 1.6 | 227.1 | 1.6 |
| Cardiac nuclear imaging | 146.1 | 1.3 | 120.0 | 1.2 | 109.0 | 1.1 |
| **Total** | **11,804.4** | **9.7** | **12,600.1** | **9.7** | **13,243.8** | **9.6** |

(a) Rate per 100,000 population age-standardised to the mid-1991 total Australian population.

(b) Rate not presented because data are available for part of the year only.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

## Table 27: Age-standardised incidence rates[(a)] and standard errors for cardiovascular Medicare and DVA services by type of service, females, 1992–93 to 1994–95

| | Year | | | | | |
|---|---|---|---|---|---|---|
| | 1992–93 | | 1993–94 | | 1994–95 | |
| Type of service | Rate | Standard error | Rate | Standard error | Rate | Standard error |
| **Diagnostic procedures and investigations** | | | | | | |
| Cardiovascular | 6,894.4 | 7.8 | 7,034.6 | 7.8 | 7,215.4 | 7.8 |
| Pacemaker testing | 14.5 | 0.4 | 44.1 | 0.7 | 58.6 | 0.7 |
| **Vascular operations** | | | | | | |
| Arterial surgery | 47.8 | 0.7 | 45.3 | 0.7 | 44.8 | 0.7 |
| Transluminal balloon angioplasty | 14.2 | 0.4 | 21.3 | 0.5 | 22.7 | 0.5 |
| Transluminal stent insertion | 0.9 | 0.1 | 1.2 | 0.1 | 3.2 | 0.2 |
| **Cardiothoracic operations** | | | | | | |
| Selective coronary arteriography | 91.2 | 1.0 | 104.8 | 1.1 | 110.1 | 1.1 |
| Permanent pacemaker insertion or replacement | 8.6 | 0.3 | 15.3 | 0.4 | 17.7 | 0.4 |
| Heart catheterisation and electrophysiological studies | 10.9 | 0.4 | 12.5 | 0.4 | 12.0 | 0.4 |
| Valvular procedures | 3.9 | 0.2 | 8.0 | 0.3 | 7.7 | 0.3 |
| Coronary artery bypass | 8.3 | 0.3 | 19.4 | 0.5 | 19.8 | 0.5 |
| Congenital cardiac surgery | 2.3 | 0.2 | 5.3 | 0.3 | 5.0 | 0.2 |
| **Neurosurgical operations** | | | | | | |
| Cerebrovascular disease | 3.1 | 0.2 | 2.6 | 0.2 | 3.1 | 0.2 |
| **Diagnostic imaging** | | | | | | |
| Cardiac ultrasound | 775.3 | 2.9 | 939.5 | 3.1 | 1,048.3 | 3.3 |
| Vascular ultrasound | 669.5 | 2.7 | 875.2 | 3.0 | 1,112.6 | 3.3 |
| Serial angiocardiography | 27.1 | 0.6 | 92.3 | 1.0 | 101.8 | 1.0 |
| Selective coronary arteriography | 81.6 | 0.9 | 92.2 | 1.0 | 95.9 | 1.0 |
| Other angiography and report | 215.9 | 1.5 | 118.7 | 1.1 | 122.2 | 1.1 |
| Cardiac nuclear imaging | 81.6 | 0.9 | 60.9 | 0.8 | 52.8 | 0.7 |
| **Total** | **8,951.1** | **8.7** | **9,493.3** | **8.8** | **10,053.9** | **8.9** |

(a) Rate per 100,000 population age-standardised to the mid-1991 total Australian population.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

## Benefits paid for cardiovascular medical services in 1994–95

In 1994–95, the Health Insurance Commission paid $5,697 million in Medicare benefits for claims processed in that year (Health Insurance Commission 1995). DVA medical benefits for the same year totalled $695.0 million (Statistics Section, Department of Veterans' Affairs, personal communication). Benefits paid for cardiovascular Medicare and DVA services in 1994–95 totalled $202 million, accounting for 3% of total benefits paid (Table 28).

In line with service use, the cardiovascular Medicare and DVA services for which the highest benefits were paid in 1994–95 were cardiovascular diagnostic procedures and investigations ($54.1 million), cardiac ultrasound ($42.8 million) and vascular ultrasound ($31.8 million) (Table 28).

**Table 28: Benefits paid ($) for cardiovascular Medicare and DVA services by type of service, 1994–95**

| Type of service | Medicare | Department of Veterans' Affairs | Total |
|---|---|---|---|
| **Diagnostic procedures and investigations** | | | |
| Cardiovascular | 50,105,497 | 3,959,430 | **54,064,927** |
| Pacemaker testing | 431,329 | 52,750 | **484,079** |
| **Vascular operations** | | | |
| Arterial surgery | 5,041,402 | 2,296,325 | **7,337,727** |
| Transluminal balloon angioplasty | 1,403,564 | 356,835 | **1,760,399** |
| Transluminal stent insertion | 376,064 | 87,689 | **463,753** |
| **Cardiothoracic operations** | | | |
| Selective coronary arteriography | 11,832,581 | 3,455,602 | **15,288,183** |
| Permanent pacemaker insertion or replacement | 900,793 | 291,168 | **1,191,961** |
| Heart catheterisation and electrophysiological studies | 1,122,932 | 165,002 | **1,287,934** |
| Valvular procedures | 1,343,030 | 292,242 | **1,635,272** |
| Coronary artery bypass | 9,234,614 | 2,138,349 | **11,372,963** |
| Congenital cardiac surgery | 629,930 | 0 | **629,930** |
| **Neurosurgical operations** | | | |
| Cerebrovascular disease | 604,254 | 47,097 | **651,351** |
| **Diagnostic imaging** | | | |
| Cardiac ultrasound | 39,355,384 | 3,408,623 | **42,764,007** |
| Vascular ultrasound | 28,644,222 | 3,172,228 | **31,816,450** |
| Serial angiocardiography | 2,542,520 | 374,645 | **2,917,165** |
| Selective coronary arteriography | 7,041,767 | 0 | **7,041,767** |
| Other angiography and report | 13,115,731 | 2,535,386 | **15,651,117** |
| Cardiac nuclear imaging | 3,444,457 | 1,922,004 | **5,366,461** |
| **Total** | **177,170,071** | **24,555,375** | **201,725,446** |

*Sources:* Medicare Estimates and Statistics Section, Department of Health and Family Services; Statistics Section, Department of Veterans' Affairs.

## Trends in benefits paid for cardiovascular medical services

In general, trends in benefits paid between 1992–93 and 1994–95 were consistent with trends in the services (Table 29). One exception was arterial surgery, where benefits paid increased by an average of almost 5% per year over the 3-year period, but incidence fell by an average of 3.6% per year.

**Table 29: Benefits paid ($) for cardiovascular Medicare and DVA services by type of service, 1992–93 to 1994–95 (1994–95 prices[(a)])**

| | Year | | |
|---|---|---|---|
| **Type of service** | **1992–93** | **1993–94** | **1994–95** |
| **Diagnostic procedures and investigations** | | | |
| Cardiovascular | 47,955,420 | 51,089,064 | 54,064,927 |
| Pacemaker testing | 113,347 | 335,484 | 484,079 |
| **Vascular operations** | | | |
| Arterial surgery | 6,693,652 | 6,827,406 | 7,337,727 |
| Transluminal balloon angioplasty | 1,018,178 | 1,581,667 | 1,760,399 |
| Transluminal stent insertion | 94,773 | 161,677 | 463,753 |
| **Cardiothoracic operations** | | | |
| Selective coronary arteriography | 12,242,600 | 14,260,172 | 15,288,183 |
| Permanent pacemaker insertion or replacement | 260,901 | 952,975 | 1,191,961 |
| Heart catheterisation and electrophysiological studies | 1,133,746 | 1,298,421 | 1,287,934 |
| Valvular procedures | 770,190 | 1,619,584 | 1,635,272 |
| Coronary artery bypass | 5,195,765 | 10,941,304 | 11,372,963 |
| Congenital cardiac surgery | 357,864 | 652,036 | 629,930 |
| **Neurosurgical operations** | | | |
| Cerebrovascular disease | 682,008 | 586,181 | 651,351 |
| **Diagnostic imaging** | | | |
| Cardiac ultrasound | 25,268,234 | 36,404,295 | 42,764,007 |
| Vascular ultrasound | 19,124,527 | 25,266,737 | 31,816,450 |
| Serial angiocardiography | 762,879 | 2,543,613 | 2,917,165 |
| Selective coronary arteriography | 5,908,465 | 6,661,476 | 7,041,767 |
| Other angiography and report | 9,364,364 | 13,826,391 | 15,651,117 |
| Cardiac nuclear imaging | 7,855,327 | 5,985,125 | 5,366,461 |
| **Total** | **144,802,241** | **180,993,608** | **201,725,446** |

(a) The 'Doctor' price index from the Private Final Consumption Expenditure (PFCE) deflators produced by the Australian Bureau of Statistics was used to adjust figures to 1994–95 prices.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

# Estimates from the Australian Bureau of Statistics' National Health Survey 1995

## Hospital use in the two weeks prior to interview for a recent cardiovascular condition

### Hospital use in the two weeks prior to interview for a recent cardiovascular condition by age

Age-specific estimates were too small to report.

### Hospital use in the two weeks prior to interview for a recent cardiovascular condition by sex

After adjusting for age, of those males reporting a recent cardiovascular condition, 8.0% also reported being hospitalised for the condition in the two weeks prior to interview, a rate much greater than that reported by females (1.0%). Males (8.4%) were more likely than females (0.3%) to report being hospitalised for heart disease in the two weeks prior to interview (Table 30).

**Table 30: Percentage[(a)] of people reporting a recent cardiovascular condition being hospitalised in the last two weeks by sex, 1995**

| Type of condition | Males | Females |
|---|---|---|
| | Per cent (SE) | |
| Heart disease | 8.4 (2.2) | 0.3 (0.1) |
| Other diseases of the circulatory system[(b)] | 3.3 (0.9) | 3.7 (1.0) |
| Ill-defined signs and symptoms of heart conditions | 1.8 (0.7) | 1.3 (0.5) |
| **All cardiovascular[(c)]** | **8.0 (1.5)** | **1.0 (0.2)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Does not include atherosclerosis, cerebrovascular disease or after-effects of stroke.

(c) Includes atherosclerosis, cerebrovascular disease or after-effects of stroke.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

Of those reporting a recent cardiovascular condition, 3.4% of males and 2.7% of females reported visiting casualty/emergency/outpatients or a day clinic for the condition (Table 31).

**Table 31: Percentage[(a)] of people reporting a recent cardiovascular condition visiting casualty/emergency/outpatients or a day clinic by sex, 1995**

| Action taken | Males | Females |
|---|---|---|
| | Per cent (SE) | |
| Visited casualty/emergency/outpatients/day clinic | 3.4 (0.4) | 2.7 (0.4) |

(a) Age-standardised to the mid-1991 total Australian population.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

### Hospital use in the two weeks prior to interview for a recent cardiovascular condition by State and Territory

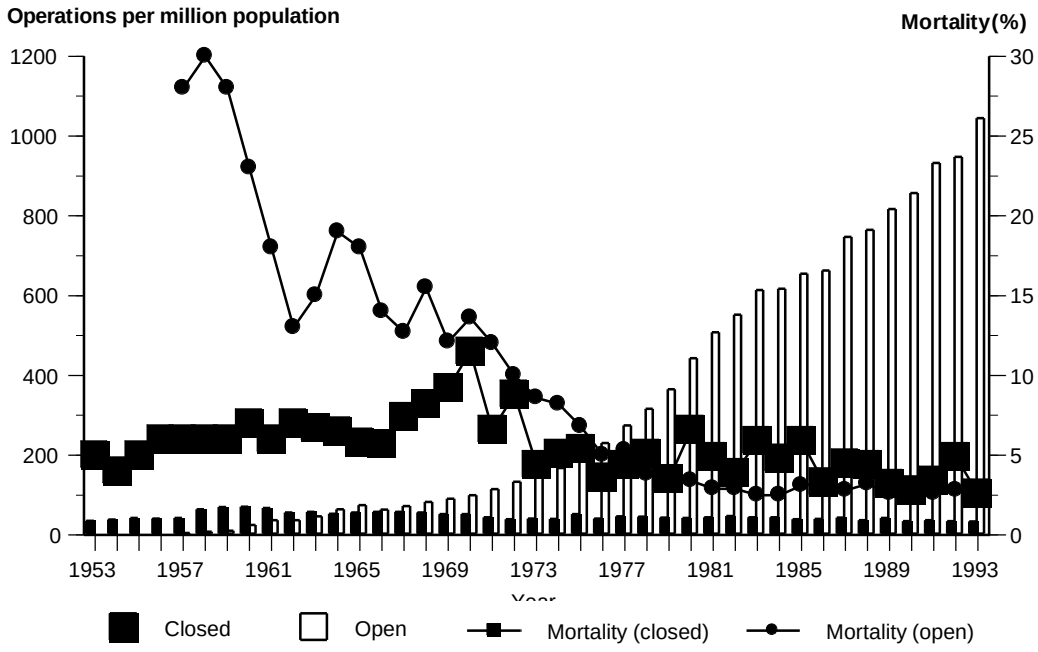
After adjusting for age, estimates by State or Territory were too small to report.

# National Heart Foundation cardiac surgery register

In 1993, a total of 18,936 heart operations were performed in Australia (National Heart Foundation of Australia 1996a). Over 90% of all heart operations performed in 1993 were for acquired heart disease. Mortality associated with heart surgery (i.e. death within 30 days of the operation or during the post-operative period in hospital) in 1993 was 2.6% for closed operations and 2.5% for open operations.

Only 6% of open heart operations performed in 1993 were for congenital heart conditions (National Heart Foundation of Australia 1996a). In contrast, over 80% of all closed heart operations undertaken in that year were for congenital heart defects. Most congenital heart surgery performed between 1989 and 1993 was for ventricular and atrial septal defects.

Since the mid-1950s the rate of open heart surgery in Australia has increased by an average of 19% per year, from 1.9 operations per million population in 1957 to 1042.0 operations per million population in 1993. Over the same period, mortality from open heart surgery has fallen by an average of 6.5% per year.




Refer to Table S37

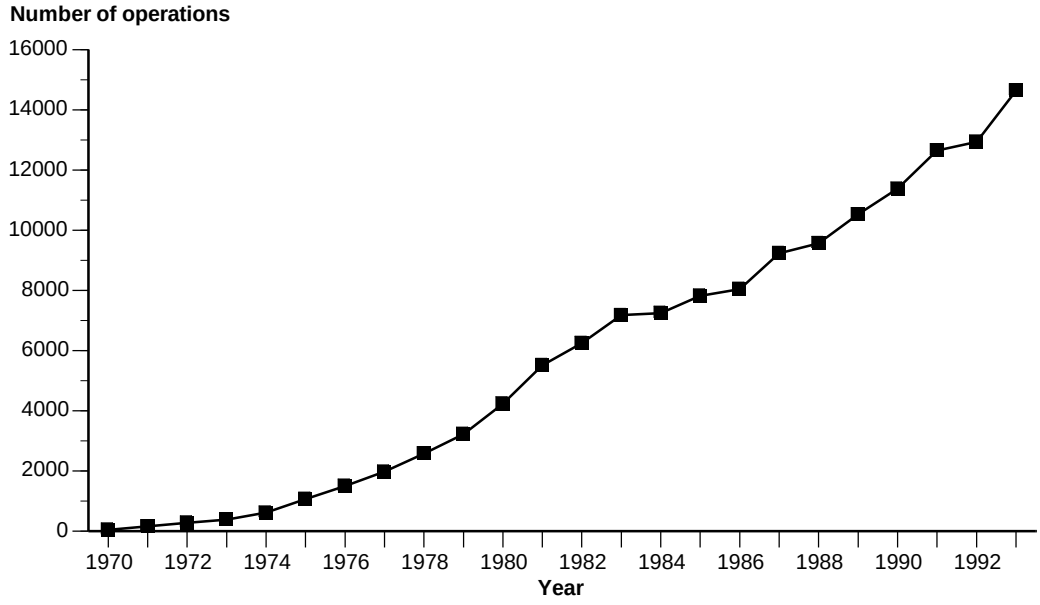
*Source:* National Heart Foundation of Australia 1996a.

**Figure 10: Rates of open and closed heart operations and percentage mortality, 1953–1993**

Between 1953 and 1960, closed heart surgery rates increased by an annual average of 11% (Figure 10). However since 1960, the rate of closed heart surgery in Australia has fallen. Mortality rates from closed heart surgery have varied from year to year with no real trend apparent.

The first coronary artery bypass operations in Australia were performed in 1970 (National Heart Foundation of Australia 1996a). Since that time, the number of coronary bypass graft operations has increased markedly from 50 operations to 14,638 operations in 1993 (Figure 11). Mortality associated with coronary artery bypass graft operations is currently around 2%. About 8% of coronary artery bypass graft operations were re-operations, with an associated mortality rate of 5.3%.

Ten per cent of coronary artery bypass operations performed in 1993 were undertaken with concomitant procedures such as valve surgery, excision of infarct or aneurysm, or surgery for ventricular septal defects (National Heart Foundation of Australia 1996a).




Refer to Table S38

*Source*: National Heart Foundation of Australia 1996a.

**Figure 11: Coronary artery bypass graft operations, 1970–1993**

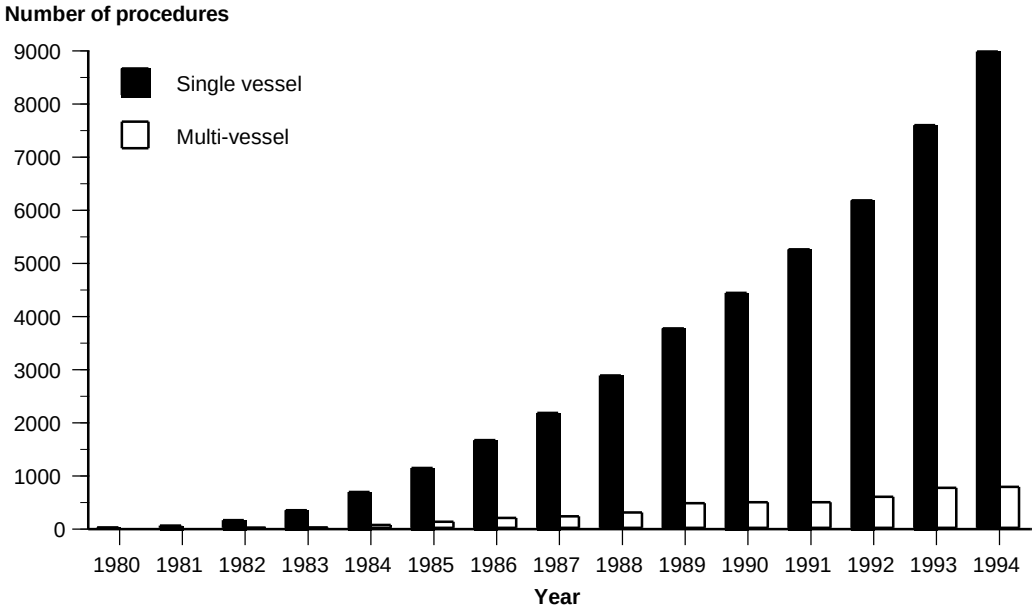
In 1993 there were 3,552 operations for heart valve defects, most of them in aortic (58%) and mitral (38%) valves. The majority of these procedures (81%) entailed replacing the damaged valves, most commonly with artificial prostheses (74%). About 4% of valve interventions were re-operations for valve failures.

# National Heart Foundation coronary angioplasty register

Coronary angioplasty was first performed in Australia in 1980 (National Heart Foundation 1996b). Since that time the number of angioplasty procedures performed each year has increased rapidly (Figure 12).

In 1994, there were 9,732 coronary angioplasty procedures performed in Australia (National Heart Foundation 1996b). Most of these procedures were single vessel procedures (92%). Procedures involving two vessels accounted for 7.5% of angioplasty procedures, while procedures on more than two vessels accounted for only 0.5% of all angioplasty in 1994. On average, 1.14 lesions were attempted per procedure.

Information about repeat procedures was available for 9,431 of the angioplasties performed in 1994 (National Heart Foundation 1996b). One fifth of these procedures were repeat procedures. More than half of the repeat procedures (57%) were for patients who had undergone previous angioplasty in 1994. Among units where the information was available, 75% of repeat procedures where the previous angioplasty was in 1994 were to the same lesion. Where the previous angioplasty was performed before 1994, 52% of repeat procedures were to the same lesion.




Refer to Table S39

*Source:* National Heart Foundation of Australia 1996b.

**Figure 12: Number of angioplasty procedures, 1980–1994**

In 1994, information about the indication for angioplasty was available for 8,472 procedures (National Heart Foundation 1996b). For 52% of angioplasty procedures in that year the indication was stable angina pectoris. Unstable angina and acute myocardial infarction accounted for another 40% and 7% of procedures, respectively. The remaining angioplasties were performed for prognostic and other reasons.

Information about the use of thrombolytic therapy before angioplasty was available for 7,173 procedures in 1994 (National Heart Foundation 1996b). In approximately 7% of angioplasties, thrombolytic therapy was administered prior to the procedure.

Stents were used in 9% of angioplasty procedures in 1994 (National Heart Foundation 1996b).

The National Heart Foundation coronary angioplasty register collects information about complications following the procedure that occur during the same hospital admission. Of the angioplasty procedures performed in 1994, 185 patients required coronary artery bypass graft surgery for angioplasty failure or complications during the same hospital admission (National Heart Foundation 1996b). This represents a rate of 1.9 coronary artery bypass grafts per 100 angioplasty procedures. The rate of coronary artery bypass grafting following angioplasty has fallen markedly since the early 1980s.

The rate of patients suffering acute myocardial infarction following angioplasty has also tended to fall since the early 1980s. Among the units for which data on acute myocardial

infarction following angioplasty were available in 1994, the rate of complication was 1.4 per 100 procedures (National Heart Foundation 1996b).

Deaths during the same hospital admission in which angioplasty was performed occurred at a rate of 0.45 per 100 procedures in 1994 (National Heart Foundation 1996b).

# Australian casemix data

The term 'casemix' refers to the numbers of each diagnostic category a hospital treats and to the mix of treatments and procedures provided to patients (Australian Institute of Health and Welfare 1996a). It enables the use of resources in treating patients to be related to the number of patients treated and their diagnosis.

The most common casemix classifications used for describing admitted hospital patients are Diagnosis Related Groups (DRGs) (Australian Institute of Health and Welfare 1996a). These use information such as the patient's age, sex, diagnosis, comorbidities and procedures to group patient episodes of similar clinical condition and resource use.

The Commonwealth Department of Health and Family Services publishes the *Australian Casemix Report* annually. The report provides national information on public and private acute hospital activity for each financial year (Commonwealth Department of Health and Family Services 1997b). This hospital activity is measured by Australian National Diagnosis Related Groups (AN-DRGs).

## Hospital separations for cardiovascular disease

In 1995–96, there were 3.6 million separations from public acute hospitals (Australian Institute of Health and Welfare 1997a). This represents a rate of 198.1 separations per 1,000 population. The average length of stay in public acute hospitals was 4.8 days in 1995–96.

For private acute and free-standing day facilities, there were 1.6 million separations in 1995–96, representing a rate of 87.7 separations per 1,000 population (Australian Institute of Health and Welfare 1997a). The average length of stay was 3.7 days.

Version 3.0 of the AN-DRG classification was released in July 1995 (Commonwealth Department of Health and Family Services 1996b). Only information about the most common AN-DRGs for cardiovascular disease is presented here. Detailed information can be found in the report by the Commonwealth Department of Health and Family Services (Commonwealth Department of Health and Family Services 1997b) and in *Australian Hospital Statistics 1995–96* (Australian Institute of Health and Welfare 1997a).

In terms of public acute hospital separations in 1995–96, 'heart failure & shock' (AN-DRG 252) was the leading cardiovascular AN-DRG with 32,700 separations (Table 32). Overall, it accounted for 1% of all public acute hospital separations and was ranked 10th highest for public acute hospital separations in that year (Australian Institute of Health and Welfare 1997a). The most common principal diagnoses for 'heart failure & shock' were congestive heart failure (ICD-9-CM 428.0) and left heart failure (ICD-9-CM 428.1). Just over half (50.4%) of all separations for 'heart failure & shock' were for females, and 95% of separations were for persons aged 55 years and over.

'Chest pain' (AN-DRG 261) was the second leading cardiovascular AN-DRG for public acute hospital separations in 1995–96 (Table 32). It ranked 18th highest among all AN-DRGs for public acute hospitals (Australian Institute of Health and Welfare 1997a).

Six of the top 10 cardiovascular AN-DRGs for public acute hospital separations were also among the top 10 for private acute hospital separations in 1995–96 (Table 32). However, the ranking of cardiovascular AN-DRGs differed between the public and private hospitals.

**Table 32: The 10 cardiovascular AN-DRGs (V3.0) that account for the highest number of hospital separations by type of hospital, Australia, 1995–96**

| Hospital type / AN-DRG | Description | Number of separations | % of total separations for hospital type | Average length of stay (days) |
|---|---|---|---|---|
| **Public acute** | | | | |
| 252 | Heart Failure & Shock | 32,700 | 0.9 | 9.0 |
| 261 | Chest Pain | 28,088 | 0.8 | 2.2 |
| 274 | Circ Dsr W/O AMI W Invas Card Inves Proc W/O Comp Dx & W/O Maj C | 21,252 | 0.6 | 1.8 |
| 270 | Unstable Angina W/O CC | 19,432 | 0.5 | 3.8 |
| 249 | Circ Disorders W AMI W/O Invasive Cardiac Inves Proc W/O Major CC | 17,521 | 0.5 | 6.7 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 13,378 | 0.4 | 17.6 |
| 256 | Coronary Atherosclerosis W/O CC | 13,314 | 0.4 | 3.5 |
| 280 | Non-Major Arrhythmia & Conduction Disorders Age>69 or W N-Maj CC | 12,564 | 0.3 | 4.1 |
| 269 | Unstable Angina W CC | 12,074 | 0.3 | 5.5 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 11,804 | 0.3 | 12.6 |
| **Private acute** | | | | |
| 274 | Circ Dsr W/O AMI W Invas Card Inves Proc W/O Comp Dx & W/O Maj C | 15,925 | 1.0 | 1.7 |
| 239 | Vein Ligation & Stripping | 9,941 | 0.6 | 2.4 |
| 252 | Heart Failure & Shock | 6,594 | 0.4 | 11.8 |
| 297 | Trans-Vascular Percutaneous Cardiac Intervention | 5,135 | 0.3 | 3.6 |
| 261 | Chest Pain | 4,475 | 0.3 | 2.4 |
| 291 | Coronary Bypass W/O Invasive Cardiac Inves Proc W/O Major CC | 3,576 | 0.2 | 10.0 |
| 273 | Circ Dsr W/O AMI W Invas Card Inves Proc W Comp Dx or W Maj CC | 3,136 | 0.2 | 3.2 |
| 280 | Non-Major Arrhythmia & Conduction Disorders Age>69 or W N-Maj CC | 2,817 | 0.2 | 5.0 |
| 256 | Coronary Atherosclerosis W/O CC | 2,742 | 0.2 | 7.3 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 2,414 | 0.2 | 18.8 |

*Notes:* AMI—Acute Myocardial Infarction

Card—Cardiac

CC—Complications and Comorbidities

Circ—Circulatory

Comp—Complicated

Dsr—Disorder

Dx—Diagnosis

Invas—Invasive

Inves—Investigation

N—No

Proc—Procedure

TIA—Transient Ischaemic Attack

W—With

W/O—Without

*Source*: Australian Institute of Health and Welfare 1997a.

## Hospital length of stay for cardiovascular disease

'Heart failure and shock' was the leading cardiovascular AN-DRG for public acute hospital patient days in 1995–96 (Table 33). Further, it ranked eighth highest among all AN-DRGs for overall public hospital patient days in that year (Australian Institute of Health and Welfare 1997a).

Other cardiovascular AN-DRGs that featured among the top 20 AN-DRGs for public hospital patient days in 1995–96 were 'cerebrovascular disorders except transient ischaemic attack with complications and comorbidities' (AN-DRG 037), 'circulatory disorders with acute myocardial infarction without invasive cardiac investigation procedure without major complications and comorbidities' (AN-DRG 249), and 'cerebrovascular disorders except transient ischaemic attack without complications and comorbidities' (AN-DRG 038) (Table 33).

For AN-DRG 037 (see above), the most common principal diagnosis in 1995–96 was cerebrovascular accident (ICD-9-CM 436) which accounted for 35.6% of public hospital separations for this group (Commonwealth Department of Health and Family Services 1997b). Just over 51% of public hospital episodes for AN-DRG 037 were for females, and 95% of episodes were for persons aged 50 years and over.

Cerebrovascular accident (ICD-9-CM 436) was the most common principal diagnosis for public hospital episodes of AN-DRG 038 in 1995–96 (Commonwealth Department of Health and Family Services 1997b). Slightly more than half (51.4%) of public hospital separations for AN-DRG 038 were for males, and 86% were for persons aged 50 years and over.

In 1995–96, acute myocardial infarction was the most common principal diagnosis for public acute hospital episodes of AN-DRG 249 (Commonwealth Department of Health and Family Services 1997b). Almost two thirds of public hospital separations for AN-DRG 249 in 1995–96 were for males, and almost 90% were for persons aged 50 years and over.

Only five of the top 10 cardiovascular AN-DRGs for public hospital patient days were among the top 10 for private hospital patient days. 'Heart failure and shock' was the leading cardiovascular AN-DRG for private acute hospital patient days in 1995–96 (Table 33). Further, it ranked 10th highest among all AN-DRGs for private hospital patient days in that year (Australian Institute of Health and Welfare 1997a).

The leading cardiovascular AN-DRGs for average length of stay in 1995–96 were very different from those for separations and patient days (Table 34). 'Cardiothoracic/vascular procedures for neonates' (AN-DRG 704) ranked first for length of stay in public hospitals. 'Amputation for circulatory system except upper limb & toe' (AN-DRG 233) had the highest length of stay in private acute hospitals. Seven of the 10 cardiovascular AN-DRGs with the highest average length of stay in public acute hospitals were also among the top 10 for private acute hospitals.

**Table 33: The 10 cardiovascular AN-DRGs (V3.0) that account for the highest number of hospital patient days by type of hospital, Australia, 1995–96**

| Hospital type / AN-DRG | Description | Number of patient days | % of total patient days for hospital type | Average length of stay (days) |
|---|---|---|---|---|
| **Public acute** | | | | |
| 252 | Heart Failure & Shock | 294,074 | 1.7 | 9.0 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 235,796 | 1.4 | 17.6 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 149,249 | 0.9 | 12.6 |
| 249 | Circ Disorders W AMI W/O Invasive Cardiac Inves Proc W/O Major CC | 117,567 | 0.7 | 6.7 |
| 270 | Unstable Angina W/O CC | 73,372 | 0.4 | 3.8 |
| 269 | Unstable Angina W CC | 65,983 | 0.4 | 5.5 |
| 261 | Chest Pain | 61,548 | 0.4 | 2.2 |
| 291 | Coronary Bypass W/O Invasive Cardiac Inves Proc W/O Major CC | 59,334 | 0.3 | 8.8 |
| 280 | Non-Major Arrhythmia & Conduction Disorders Age>69 or W N-Maj CC | 51,175 | 0.3 | 4.1 |
| 255 | Coronary Atherosclerosis W CC | 48,814 | 0.3 | 6.6 |
| **Private acute** | | | | |
| 252 | Heart Failure & Shock | 77,806 | 1.3 | 11.8 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 45,294 | 0.8 | 18.8 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 43,438 | 0.7 | 18.3 |
| 291 | Coronary Bypass W/O Invasive Cardiac Inves Proc W/O Major CC | 35,936 | 0.6 | 10.0 |
| 274 | Circ Dsr W/O AMI W Invas Card Inves Proc W/O Comp Dx & W/O Maj C | 26,314 | 0.4 | 1.7 |
| 239 | Vein Ligation & Stripping | 24,101 | 0.4 | 2.4 |
| 256 | Coronary Atherosclerosis W/O CC | 19,987 | 0.3 | 7.3 |
| 297 | Trans-Vascular Percutaneous Cardiac Intervention | 18,495 | 0.3 | 3.6 |
| 288 | Coronary Bypass W Invasive Card Inves Proc Age>64 or W N-Maj CC | 17,155 | 0.3 | 14.1 |
| 255 | Coronary Atherosclerosis W CC | 15,077 | 0.3 | 9.0 |

*Notes:* AMI—Acute myocardial infarction

Card—Cardiac

CC—complications and comorbidities

Circ—Circulatory

Comp—Complicated

Dsr—Disorder

Dx—Diagnosis

Invas—Invasive

Inves—investigation

Proc—procedure

TIA—Transient Ischaemic Attack

W—With

W/O—Without

*Source:* Australian Institute of Health and Welfare 1997a.

**Table 34: The 10 cardiovascular AN-DRGs (V3.0) with the highest average length of stay by type of hospital, Australia, 1995–96**

| Hospital type / AN-DRG | Description | Number of separations | Average length of stay (days) |
|---|---|---|---|
| **Public acute** | | | |
| 704 | Cardiothoracic/Vascular Procedures for Neonates | 284 | 38.0 |
| 233 | Amputation for Circ System Except Upper Limb & Toe | 1,425 | 27.3 |
| 228 | Major Reconstruct Vascular Proc W/O Pump W Major CC | 1,302 | 22.8 |
| 221 | Cardiac Valve Proc W Pump W Invasive Cardiac Inves Proc W CC | 250 | 19.9 |
| 008 | Heart Transplant | 99 | 19.3 |
| 287 | Coronary Bypass W Invasive Card Inves Proc W Major CC | 483 | 18.4 |
| 251 | Infective Endocarditis | 615 | 17.8 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 13,378 | 17.6 |
| 160 | Major Chest Procedures W Major CC | 524 | 17.4 |
| 234 | Upper Limb & Toe Amputation for Circ System Disorders | 682 | 16.2 |
| **Private acute** | | | |
| 233 | Amputation for Circ System Except Upper Limb & Toe | 260 | 31.3 |
| 228 | Major Reconstruct Vascular Proc W/O Pump W Major CC | 430 | 20.7 |
| 251 | Infective Endocarditis | 88 | 19.3 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 2,414 | 18.8 |
| 275 | Skin Ulcers for Circulatory Disorders | 249 | 18.5 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 2,374 | 18.3 |
| 221 | Cardiac Valve Proc W Pump W Invasive Cardiac Inves Proc W CC | 220 | 17.6 |
| 287 | Coronary Bypass W Invasive Card Inves Proc W Major CC | 350 | 17.1 |
| 257 | Hypertension W CC | 416 | 16.4 |
| 234 | Upper Limb & Toe Amputation for Circ System Disorders | 188 | 15.5 |

*Notes:* Card—Cardiac

CC—complications and comorbidities

Circ—Circulatory

Comp—Complicated

Dx—Diagnosis

Invas—Invasive

Inves—investigation

Proc—procedure

TIA—Transient Ischaemic Attack

W—With

W/O—Without

*Source:* Australian Institute of Health and Welfare 1997a.

# Waiting times for elective surgery in Australian public hospitals

The Australian Institute of Health and Welfare has conducted two surveys on elective surgery waiting times, one in 1994 and the other in 1995 (Mays 1995; Moon 1996). These surveys aimed to collect nationally consistent information about elective surgery waiting times in as many public acute hospitals in Australia as possible. The surveys did not collect information about waiting lists or waiting times in private hospitals or for medical or emergency treatment. The results of the 1995 survey are published in the report *Waiting for Elective Surgery in Australian Public Hospitals, 1995* (Moon 1996).

Throughput data for 1995 indicate that overall there were more additions to waiting lists during the survey period than total deletions (total deletions includes admissions for the awaited procedure plus removals for admissions other than admission). This was also true for the specialities of cardiothoracic surgery and vascular surgery.

Thirty per cent of all patients admitted during the survey period were classified as Category 1 patients. The proportions of patients admitted for cardiothoracic surgery, neurosurgery and vascular surgery who were classified as Category 1 patients were 46%, 44% and 44% respectively. For coronary artery bypass graft surgery, 53% of patients admitted were classified as Category 1.

At the census date, 94% of all patients on waiting lists were classified as Category 2 and the remaining 6% as Category 1. Just over 1% of all patients were waiting for cardiothoracic surgery, 2% were waiting for vascular surgery, and another 1% were waiting for neurosurgery. Patients in these 3 speciality groups were more likely to be Category 1 patients compared with the other groups. Eighteen per cent of cardiothoracic patients were classified as Category 1, while 10% of patients in each of the neurosurgery and vascular surgery groups were classified as Category 1. Under 1% of all patients were waiting for coronary artery bypass surgery, and 17% of these were classified as Category 1 patients.

The estimated clearance time for the total waiting lists was 2.7 months. The clearance times for cardiothoracic surgery, coronary artery bypass grafting, and neurosurgery were lower than the aggregate clearance time (1.1 months, 1.4 months and 1.3 months respectively). For patients in the vascular surgery group the estimated clearance time was 2.5 months.

When split by urgency classification the estimated clearance times were:

- All patients—0.6 months for Category 1 and 3.5 months for Category 2;
- Cardiothoracic surgery—0.5 months for Category 1 and 1.5 months for Category 2;
- Neurosurgery—0.4 months for Category 1 and 1.9 months for Category 2;
- Vascular surgery—0.5 months for Category 1 and 3.9 months for Category 2; and
- Coronary artery bypass graft—0.6 months for Category 1 and 2.2 months for Category 2.

Admission data indicate that 10.5% of Category 1 patients waited more than 30 days before admission for elective surgery in 1995, and 3.8% of Category 2 patients waited more than 12 months before admission. For cardiothoracic patients, 10.7% of Category 1 patients and 1.0% of Category 2 patients had an extended wait (i.e. Category 1 waited for over 30 days; and Category 2 waited for over 12 months). The corresponding proportions for neurosurgery were 5.5% (Category 1) and 0.6% (Category 2); for vascular surgery were 9.2% (Category 1) and 3.7% (Category 2); and for coronary artery bypass grafting were 13.3% (Category 1) and 1.3% (Category 2).

**Box 11: Waiting times explanatory notes**

*The results presented in this section are a summary of results from* Waiting for elective surgery in Australian public hospitals, 1995 *(Moon 1996). The information is based on data from all States and Territories except Queensland. Information is available by State and Territory, and by type of hospital (i.e. teaching and non-teaching). However, only national estimates (excluding Queensland) are presented here because of the differences between States and Territories that may affect estimates. These differences are discussed in detail by Moon (1996).*

*The 1995 survey included data collected by the State and Territory health authorities. Two types of information were collected:*

- *information about patients added to and removed from waiting lists during the survey period and, for patients admitted, the lengths of time prior to admission (throughput data); and*
- *information about 'ready for care' patients (i.e. patients who are prepared to accept an offer of a hospital admission or to begin the process leading directly to admission) waiting to be admitted for elective surgery on the census date (census data).*

*All States and Territories, except South Australia and Queensland, provided data relating to the period 1 January 1995 to 30 June 1995. For South Australia the survey period was 1 February 1995 to 31 July 1995. Data for Queensland covered the period 1 October to 30 November 1995; however, due to the difference in survey period Queensland data are not comparable with those obtained from the other States and Territories. For all States and Territories, the census date fell on the last day of the survey period.*

*The 1995 survey collected throughput and census data for 11 surgical specialties – cardiothoracic; ear, nose and throat; general; gynaecology; neurosurgery; ophthalmology; orthopaedic; plastic/reconstructive; urology; vascular; and other (refers to data about elective surgery patients who were not classified into one of 10 categories). In addition, data are collected for 15 indicator procedures, one of which is coronary artery bypass graft.*

*There are two urgency categories:*

- *Category 1 – admission desirable within 30 days; and*
- *Category 2 – admission desirable within 31 days and over (there is no time limit placed on Category 2 patients).*

*Clearance time is the theoretical length of time that it would take to clear the waiting list of all patients waiting at a point in time if the rate of clearance remained constant and patients could be treated at any hospital. It is calculated as the number of patients waiting at a point in time (the census count) divided by the mean number cleared (admitted and removed) from the waiting list per month. Where the clearance time for patients is longer than the desirable maximum wait (30 days for Category 1 patients), the system is unlikely to provide timely care for all patients.*

At the census date, an estimated 27% of all Category 1 patients were overdue for surgery (i.e. had been on an elective surgery waiting list for more than 30 days), and 11% of all Category 2 patients had been on waiting lists for more than 12 months. Proportionately less patients were overdue for cardiothoracic surgery (14% Category 1 and 3% Category 2), coronary artery bypass surgery (20% Category 1 and 2% Category 2) and neurosurgery (11% Category 1 and 8% Category 2). For vascular surgery, 19% of Category 1 patients and 22% of Category 2 patients were overdue for surgery at the census date.

# Cardiothoracic transplants

The Australian and New Zealand Cardiothoracic Organ Transplant Registry has collected information about all heart and heart-lung transplants performed in Australia and New Zealand since February 1984, when heart transplants were first done in Australia. Annual reports are produced, the latest of which covers the period from February 1984 to December 1996 (Australian and New Zealand Cardiothoracic Organ Transplant Registry 1997). The transplant units which supply data to the register are Alfred Hospital (Melbourne), Prince Charles Hospital (Brisbane), Royal Children's Hospital (Melbourne), Royal Perth Hospital, St Vincent's Hospital (Sydney) and Green Lane Hospital (Auckland). These are the only units performing heart transplant surgery in Australia and New Zealand.

Since 1984, there have been 919 heart transplants performed in Australia (Table 35). The age of recipients ranges from 1 to 68 years with a mean age of 45 years. Over 80% of recipients are males.

**Table 35: Number of heart and heart-lung transplants, Australia, 1986–1996**

| | Year | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of transplant | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | Total |
| Heart[(a)] | 14 | 19 | 32 | 28 | 51 | 85 | 97 | 98 | 104 | 106 | 94 | 101 | 90 | **919** |
| Heart-lung | 0 | 0 | 1 | 1 | 2 | 14 | 12 | 19 | 18 | 13 | 13 | 13 | 7 | **113** |

(a) Includes 3 heterotopic transplants.

*Source:* Australian and New Zealand Cardiothoracic Organ Transplant Registry, 1997.

The main diagnoses for which heart transplants have been performed since 1984 are coronary artery disease (41%) and idiopathic cardiomyopathy (39%). Other diagnoses are congenital heart disease (5%), myocarditis (3%), familial cardiomyopathy (2%), peripartum cardiomyopathy (2%), and miscellaneous (9%).

Since 1984, the average waiting time for heart transplants has tended to increase (Table 36). It is important to bear in mind that waiting times for heart transplants are affected by the availability of a suitable donor organ, and do not necessarily reflect resource constraints. Overall, the average waiting time was 122 days with a range of 1 to 1,687 days. In contrast, average length of stay for heart transplants has decreased since 1984 (Table 36). Currently, the average length of stay is 17 days.

Actuarial survival rates for Australian and New Zealand heart transplant recipients are 87% at one year, 84% at two years and 77% at five years.

There have been 113 heart-lung transplants performed in Australia since 1984 (Table 35). The mean age of heart-lung transplant recipients is 33 years (range 11–52), and 48% of recipients are males.

The main diagnoses leading to heart-lung transplants performed since 1984 are primary pulmonary hypertension (28%) and Eisenmenger's syndrome (25%). Congenital heart disease was the main diagnosis for 13% of heart-lung transplants.

Actuarial survival rates for Australian heart-lung transplant recipients are 79% at one year, 72% at two years and 43% at five years.

**Table 36: Average waiting time and average length of stay for heart transplants by year of transplant, Australia and New Zealand, 1984–1996**

| | Waiting time (days) | | | Length of stay (days) | | |
|---|---|---|---|---|---|---|
| Year | Mean | Standard deviation | Min-max | Mean | Standard deviation | Min-max |
| | | | Days | | | |
| 1984 | 44 | 77 | 4–295 | 50 | 14 | 32–79 |
| 1985 | 48 | 54 | 3–209 | 72 | 100 | 2–383 |
| 1986 | 71 | 78 | 3–295 | 29 | 16 | 3–88 |
| 1987 | 61 | 80 | 3–424 | 27 | 16 | 1–58 |
| 1988 | 77 | 103 | 1–400 | 27 | 18 | 1–106 |
| 1989 | 85 | 86 | 1–445 | 25 | 24 | 1–199 |
| 1990 | 99 | 154 | 1–842 | 23 | 20 | 1–107 |
| 1991 | 102 | 129 | 1–633 | 22 | 39 | 1–379 |
| 1992 | 88 | 119 | 1–790 | 20 | 14 | 2–87 |
| 1993 | 118 | 129 | 1–626 | 19 | 35 | 1–373 |
| 1994(a) | 185 | 205 | 1–876 | 16 | 13 | 1–62 |
| 1995(b) | 184 | 200 | 3–835 | 16 | 10 | 1–61 |
| 1996 | 165 | 195 | 2–>1000 | 17 | 14 | 1–93 |

(a) 1 patient who waited 1403 days was not included in the mean data for waiting time.

(b) 3 patients who waited 1005, 1117, 1687 days were not included in the mean data for waiting time.

*Source:* Australian and New Zealand Cardiothoracic Organ Transplant Registry, 1997.

# Newcastle MONICA project

The Newcastle MONICA Project was part of a World Health Organization international epidemiological project which monitored trends and determinants in cardiovascular disease over a 10-year period.

The Newcastle MONICA centre collected data on all suspected cases of heart attack or coronary death among residents aged 25 to 69 years in the local government areas of Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens.

Results from the Newcastle MONICA study have been published in two reports—*Newcastle MONICA Data Book – Coronary Events 1984–1994* and *Newcastle MONICA Data Book – Acute Care 1984–1994* (Steele & McElduff 1995a; Steele & McElduff 1995b). A coronary event was defined as a MONICA diagnosis of non-fatal definite myocardial infarction (MI), non-fatal possible MI, fatal definite MI, fatal possible MI or fatal coronary events with insufficient information for further classification. A fatal event is defined as one in which the patient was dead 28 days after the date of onset of symptoms.

Acute care data have been published for the following time periods (Steele & McElduff 1995b):

- August 1984–December 1985
- July 1988–December 1989
- 1990—calendar year
- 1991—calendar year
- 1992—calendar year

- 1993—calendar year
- January 1994–March 1994.

## Acute coronary care 1984–94

Most coronary events registered in the Newcastle MONICA Project were managed in hospital (Table 37). An average of 16% of coronary events were medically unattended. The proportion of events managed in hospital tended to increase over the data registration period, while the proportion of those that were medically unattended generally fell.

**Table 37: Place of management for patients suffering coronary events, persons aged 25 to 69 years, Newcastle, 1984–1994**

| Place of management | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1984[a] | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994[b] |
| | Number of events | | | | | | | | | | |
| In hospital | 235 | 893 | 1,005 | 1,092 | 1,007 | 1,019 | 1,053 | 984 | 991 | 1,056 | 245 |
| In nursing home | 1 | 6 | 10 | 12 | 8 | 4 | 6 | 5 | 4 | 11 | 2 |
| At home by doctor | 1 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| Medically unattended | 55 | 186 | 227 | 215 | 192 | 213 | 196 | 182 | 180 | 149 | 25 |
| Other medical consultation without bed rest, in hospital or at home | 7 | 13 | 0 | 4 | 2 | 0 | 5 | 8 | 5 | 1 | 0 |
| Insufficient data | 14 | 52 | 21 | 12 | 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **313** | **1,152** | **1,263** | **1,335** | **1,225** | **1,236** | **1,260** | **1,179** | **1,180** | **1,217** | **272** |
| | Per cent of events | | | | | | | | | | |
| In hospital | 75.1 | 77.5 | 79.6 | 81.8 | 82.2 | 82.4 | 83.6 | 83.5 | 84.0 | 86.8 | 90.1 |
| In nursing home | 0.3 | 0.5 | 0.8 | 0.9 | 0.7 | 0.3 | 0.5 | 0.4 | 0.3 | 0.9 | 0.7 |
| At home by doctor | 0.3 | 0.2 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Medically unattended | 17.6 | 16.1 | 18.0 | 16.1 | 15.7 | 17.2 | 15.6 | 15.4 | 15.3 | 12.2 | 9.2 |
| Other medical consultation without bed rest, in hospital or at home | 2.2 | 1.1 | 0.0 | 0.3 | 0.2 | 0.0 | 0.4 | 0.7 | 0.4 | 0.1 | 0.0 |
| Insufficient data | 4.5 | 4.5 | 1.7 | 0.9 | 1.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| **Total** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |

(a) From 27 August 1984.

(b) To 31 March 1994.

*Source:* Steele & McElduff 1995a.

Approximately two thirds of patients suffering coronary events were admitted to a coronary (cardiac) care or intensive care unit (Table 38). The average length of stay in a coronary care unit tended to increase over the data registration period (Table 39). In contrast the average length of stay in hospital tended to decrease (Table 39).

**Table 38: Admission to coronary (cardiac) care or intensive care unit for patients suffering coronary events, persons aged 25 to 69 years, Newcastle, 1984–1994**

| Admission to coronary (cardiac) care or intensive care unit | Year | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1984–85 | 1988–89 | 1990 | 1991 | 1992 | 1993 | 1994 |
| | Number of events | | | | | | |
| Yes | 884 | 1,080 | 813 | 805 | 715 | 717 | 180 |
| No | 194 | 250 | 228 | 173 | 266 | 331 | 61 |
| Did not go to hospital | 243 | 335 | 207 | 193 | 188 | 159 | 26 |
| Unknown | 144 | 202 | 12 | 8 | 11 | 10 | 5 |
| **Total** | **1,465** | **1,867** | **1,260** | **1,179** | **1,180** | **1,217** | **272** |
| | Per cent of events | | | | | | |
| Yes | 60 | 58 | 65 | 68 | 61 | 59 | 66 |
| No | 13 | 13 | 18 | 15 | 23 | 27 | 22 |
| Did not go to hospital | 17 | 18 | 16 | 16 | 16 | 13 | 10 |
| Unknown | 10 | 11 | 1 | 1 | 1 | 1 | 2 |
| **Total** | **100** | **100** | **100** | **100** | **100** | **100** | **100** |

*Source:* Steele & McElduff 1995b.

**Table 39: Days in hospital for patients suffering coronary events, persons aged 25 to 69 years, Newcastle, 1984–1994**

| | Year | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1984–85 | 1988–89 | 1990 | 1991 | 1992 | 1993 | 1994 |
| | Duration in coronary care unit | | | | | | |
| Number of cases | 884 | 1077 | 812 | 801 | 713 | 716 | 180 |
| Mean (days) | 2.8 | 3.1 | 3.2 | 3.3 | 3.6 | 4.0 | 3.9 |
| Standard deviation (days) | 2.5 | 2.7 | 2.4 | 2.6 | 2.7 | 3.2 | 3.5 |
| | Number of days in hospital altogether | | | | | | |
| **Males** | | | | | | | |
| Number of cases | 691 | 862 | 702 | 676 | 684 | 713 | 167 |
| Mean (days) | 9.4 | 7.9 | 7.4 | 6.7 | 6.7 | 6.8 | 6.9 |
| Standard deviation (days) | 5.7 | 5.2 | 5.0 | 5.1 | 4.9 | 5.2 | 5.4 |
| **Females** | | | | | | | |
| Number of cases | 315 | 386 | 319 | 286 | 294 | 330 | 75 |
| Mean (days) | 9.5 | 7.3 | 7.7 | 6.9 | 6.8 | 7.4 | 6.4 |
| Standard deviation (days) | 6.8 | 5.7 | 5.5 | 5.1 | 5.5 | 5.4 | 4.9 |
| **Persons** | | | | | | | |
| Number of cases | 1006 | 1248 | 1021 | 962 | 978 | 1043 | 242 |
| Mean (days) | 9.4 | 7.7 | 7.5 | 6.8 | 6.7 | 7.0 | 6.7 |
| Standard deviation (days) | 6.0 | 5.4 | 5.2 | 5.1 | 5.1 | 5.2 | 5.2 |

*Source:* Steele & McElduff 1995b.

# Drug use

## Introduction

This chapter presents information on drug use for cardiovascular disease in Australia. Detailed analysis from three national sources of data (the Drug Utilization Sub-Committee Database; the Survey of Morbidity and Treatment in General Practice in Australia 1990–91; and the Australian Bureau of Statistics' National Health Survey 1995) are presented as well as results from the Newcastle and Perth MONICA Projects and the Hunter Region Heart Disease Prevention Programme's Risk Factor Prevalence Study 1994.

The limitations of the national data sources, as discussed in the chapter *National data sources,* should be kept in mind when interpreting the results presented here. In particular, no information is available on drugs used in public hospitals.

### Data sources

- **The Drug Utilization Sub-Committee Database.** Provides estimates of the community (i.e. non-public hospital) use of prescription medicines in Australia, and the costs of prescriptions subsidised by the Pharmaceutical Benefits Scheme.
- **The Australian Bureau of Statistics' National Health Survey 1995** (Australian Bureau of Statistics 1997a; 1997b)**.** Provides estimates of the self-reported use of medications for cardiovascular conditions.
- **The Survey of Morbidity and Treatment in General Practice in Australia 1990–91** (Bridges-Webb et al. 1992)**.** Provides estimates of drugs prescribed for cardiovascular conditions and the use of specific cardiovascular drugs.
- **The Newcastle MONICA Project** (Steele & McElduff 1995a; Steele & McElduff 1995b). Information is provided on drugs prescribed before onset of the coronary event, during the event for those who went to hospital, and at discharge for those who went to hospital and were discharged alive.
- **The Perth MONICA Project** (Thompson et al. 1992). Information is available on drugs prescribed before onset of the coronary event, during the event for those who went to hospital, and at discharge for those who went to hospital and were discharged alive.
- **The Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study** (Alexander et al. 1995). Surveys were conducted in 1983, 1988–89 and 1994. Participants were selected from the New South Wales electoral roll. The 1994 survey included people aged 35–69 years living in the local government areas of Newcastle, Lake Macquarie, Cessnock, Maitland and Port Stephens. Potential respondents who did not participate in the main study were invited to complete a brief postal questionnaire. There were 1,670 participants in the main study. Information on aspirin use was obtained from participants in the main study only.

# Estimates from the Drug Utilization Sub-Committee Database

Drugs used in the management of cardiovascular disease are classified by the Anatomical Therapeutic Chemical code under the Cardiovascular system group (ATC code 'C'). These include inotropic drugs, antiarrhythmics, nitrates, diuretics, beta blockers, calcium channel blockers, ACE inhibitors, other antihypertensives and peripheral vasodilators. Also of interest in this report are anticoagulants, antiplatelet drugs, thrombolytic drugs and serum lipid lowering drugs which are classified as drugs for Blood and blood forming organs (ATC code 'B'). A detailed list of drugs by generic drug name is given in **Appendix C**.

## Use and cost of prescriptions subsidised by the PBS in 1995–96

### Cardiovascular drugs

Almost 125 million prescriptions were subsidised by the PBS in 1995–96 (Table 40). The total cost (i.e. cost to Government plus patient contributions) of these prescriptions was $2,686 million. Of the highest cost medicine groups, ACE inhibitors ranked second with a total cost of $275 million. Calcium channel blockers, cardiac therapy drugs, beta blockers and diuretics were the 6th, 11th, 17th and 20th highest cost medicine groups, respectively, in 1995–96. The total cost for each of these groups, with the exception of beta blockers, increased between 1994–95 and 1995–96.

### Serum lipid lowering drugs

In 1995–96, serum lipid lowering drugs subsidised by the PBS ranked fourth highest in terms of total cost, accounting for 7% of the total cost of all drugs subsidised by the PBS in that year (Table 40). Further, between 1994–95 and 1995–96, the total cost of lipid lowering drugs increased by 30%.

## Table 40: Total costs of prescriptions subsidised by the PBS, by therapeutic main group, 1995–96

| Group | Total cost ($) | Percentage of total cost | Percentage increase in total cost over 1994–95 | Prescription volume |
|---|---|---|---|---|
| **The 20 highest cost medicine groups** | | | | |
| Antacids, drugs for treatment of peptic ulcer | 308,146,238 | 11.47 | 24.01 | 7,356,937 |
| ACE inhibitors | 275,093,904 | 10.24 | 14.17 | 8,270,940 |
| Antiasthmatics | 240,594,649 | 8.96 | 15.68 | 9,514,228 |
| Serum lipid lowering drugs | 194,887,133 | 7.26 | 30.36 | 4,040,388 |
| Antibacterials for systemic use | 178,731,272 | 6.66 | -3.46 | 13,451,656 |
| Calcium channel blockers | 177,722,293 | 6.62 | 11.20 | 7,179,788 |
| Psychoanaleptics | 167,520,633 | 6.24 | 50.16 | 5,316,648 |
| Sex hormones and modulators of the genitals | 104,202,768 | 3.88 | 6.56 | 5,296,422 |
| Analgesics | 88,071,114 | 3.28 | 13.81 | 9,102,266 |
| Drugs used in diabetes | 78,874,722 | 2.94 | 13.28 | 2,271,266 |
| Cardiac therapy(a) | 68,132,391 | 2.54 | 6.97 | 3,376,501 |
| Psycholeptics | 64,955,657 | 2.42 | 17.45 | 8,188,460 |
| Antiinflammatory and antirheumatic products | 60,122,105 | 2.24 | 3.58 | 4,679,312 |
| Ophthalmologicals | 55,078,156 | 2.05 | 6.72 | 4,742,190 |
| Endocrine therapy | 50,033,702 | 1.86 | 15.66 | 305,247 |
| Antiepileptics | 49,068,201 | 1.83 | 19.84 | 1,227,194 |
| Beta blocking agents | 40,337,389 | 1.50 | –1.40 | 3,523,607 |
| Vaccines | 38,231,357 | 1.42 | 2.75 | 1,972,280 |
| Antivirals for systemic use | 33,598,641 | 1.25 | 11.22 | 157,000 |
| Diuretics | 33,242,771 | 1.24 | 2.23 | 2,902,906 |
| **Other drugs used in the management of cardiovascular disease** | | | | |
| Other antihypertensive drugs | 17,870,609 | 0.67 | –4.64 | 1,047,800 |
| Antithrombotic agents | 9,328,922 | 0.35 | 29.56 | 914,597 |
| Peripheral vasodilators | 60,057 | 0.00 | 15.02 | 3,275 |
| **Total** | | | | |
| **All medicine groups** | **2,685,548,163** | **100.00** | **14.67** | **124,888,280** |

(a) Includes inotropic drugs, antiarrhythmics and nitrates.

*Notes*: Costs include patients' contributions but exclude expenditure on miscellaneous items other than Doctor's Bag.
Prescriptions subsidised by the RPBS not included.
Excludes drug use in public hospitals.

*Source:* Pharmaceutical Benefits Branch, Department of Health and Family Services.

# Use and cost of drugs dispensed in the community in 1994 and 1995

## Cardiovascular drugs

Over 163 million prescriptions were dispensed in the Australian community in 1994 (Table 41). Of these prescriptions, 16.8% were for drugs from the cardiovascular system group (ATC code 'C'). Ninety per cent of the cardiovascular prescriptions dispensed in 1994 were subsidised by the PBS or the RPBS.

**Table 41: Distribution of prescription numbers for cardiovascular system drugs, 1992–1994**

| ATC group/source | 1992 | 1993 | 1994 |
|---|---|---|---|
| **Cardiovascular system (ATC code 'C')** | **Number (%)** | **Number (%)** | **Number (%)** |
| Subsidised prescriptions (PBS/RPBS) | 21,623,055 (13.9) | 23,908,255 (14.8) | 24,578,784 (15.0) |
| Estimated non-subsidised prescriptions ('Survey') | 3,668,189 (2.4) | 3,025,609 (1.9) | 2,800,920 (1.7) |
| *Total cardiovascular system* | *25,291,244 (16.3)* | *26,933,864 (16.7)* | *27,379,704 (16.8)* |
| **All other groups** | | | |
| Subsidised prescriptions (PBS/RPBS) | 84,950,147 (54.6) | 92,164,284 (57.1) | 94,169,303 (57.6) |
| Estimated non-subsidised prescriptions ('Survey') | 45,210,328 (29.1) | 42,255,095 (26.2) | 41,871,431 (25.6) |
| *Total all other groups* | *130,160,475 (83.7)* | *134,419,379 (83.3)* | *136,040,734 (83.2)* |
| **All groups** | | | |
| **Total** | **155,451,719 (100.0)** | **161,353,243 (100.0)** | **163,420,438 (100.0)** |

*Source:* Commonwealth Department of Human Services and Health 1996.

From 1992 to 1994, there was an average increase of 4.0% per year in community prescriptions for cardiovascular drugs (Table 41). This increase was due to an increase in the number of subsidised prescriptions over the 3-year period, as the number of non-subsidised prescriptions actually fell.

At the generic drug level, several cardiovascular drugs were among the ten most frequently dispensed drugs in 1994 in terms of defined daily dose per 1,000 population per day (DDD per 1,000 population per day) (Commonwealth Department of Human Services and Health 1996):

- frusemide (22.645 DDD/1,000/day; ranked second),
- captopril (11.701 DDD/1,000/day; ranked fifth), and
- enalapril maleate (10.295 DDD/1,000/day; ranked ninth).

In 1995, five cardiovascular drugs were among the top ten for defined daily dose per 1,000 (Commonwealth Department of Health and Family Services 1997a):

- frusemide (22.869 DDD/1,000/day; ranked second),
- enalapril (22.191 DDD/1,000/day; ranked third; DDD change since 1994),
- hydrochlorothiazide with amiloride (14.147 DDD/1,000/day; ranked fifth; DDD change since 1994),
- felodipine (12.638 DDD/1,000/day; ranked seventh; DDD change since 1994), and
- captopril (11.813 DDD/1,000/day; ranked ninth).

In terms of prescription numbers in 1994, enalapril maleate was the only cardiovascular drug in the top ten and ranked sixth highest with a total of 3,127,370 prescriptions

(Commonwealth Department of Human Services and Health 1996). Almost all prescriptions for enalapril maleate were subsidised by the PBS or RPBS in 1994.

In 1995, enalapril maleate still ranked sixth highest for prescription numbers with 3,264,467 prescriptions (Commonwealth Department of Health and Family Services 1997c). However, atenolol was also among the top ten with 2,821,699 prescriptions (9th highest).

If only subsidised prescriptions are considered, enalapril maleate and atenolol ranked third and tenth highest in terms of prescription numbers in 1994. In contrast, no non-subsidised cardiovascular drugs were among the top ten for prescription numbers in 1994.

Cost information is available for subsidised drugs only. In 1994, enalapril maleate ranked third highest in terms of cost to government with a cost of $77 million (Commonwealth Department of Human Services and Health 1996). Other cardiovascular drugs that ranked among the top ten for cost to government in 1994 were captopril (fourth highest) and felodipine (ninth highest) with costs of $59 million and $34 million respectively.

In 1995, enalapril maleate, captopril and felodipine were still among the ten highest cost drugs to government (Commonwealth Department of Health and Family Services 1997c). Enalapril maleate ranked fourth highest with a cost to government of $82 million, captopril ranked fifth highest with a cost to government of $59 million, and felodipine ranked ninth highest with a cost to government of $37 million.

### Serum lipid lowering drugs

Simvastatin was the highest cost subsidised drug in 1994 with a total cost to government of $95 million (Commonwealth Department of Human Services and Health 1996). In terms of prescriptions subsidised by the PBS in 1994, simvastatin ranked ninth highest with 2,065,826 prescriptions.

In 1995, simvastatin ranked 8th highest for defined daily dose per 1,000 population per day (12.284 DDD/1,000/day). It had the tenth highest prescription count (2,757,201 prescriptions) and had the highest cost to government of any drug in that year ($117 million). Almost all prescriptions for simvastatin were subsidised by the PBS or RPBS in 1995.

## Trends in the use of cardiovascular drugs

The data described in this section relate mainly to cardiovascular drugs at a broad level (i.e. the ATC code therapeutic main group and subgroup levels). Therefore it should be noted that the trends observed are average trends and may not reflect trends at the individual generic drug level.

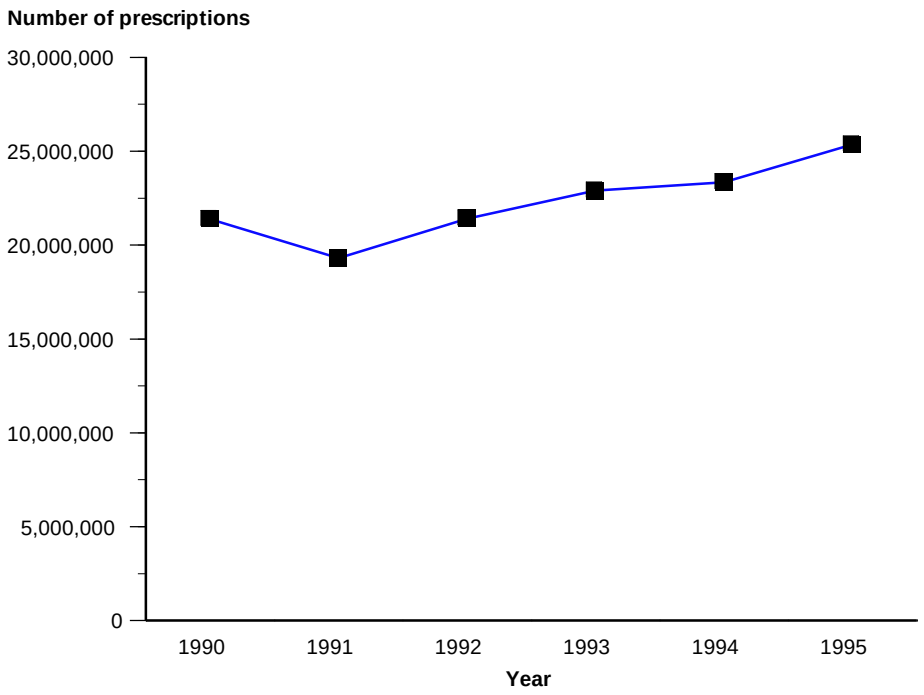
The trend data described in this section are based on numbers of prescriptions; however trend data based on DDD per 1,000 population per day are provided in Tables S40 to S47.

### Drugs used in the management of hypertension

Henry et al. (1994) reviewed trends in the use of antihypertensive drugs between 1986 and 1993. Data from various sources were analysed—the PBS/RPBS database, the Pharmacy Guild Survey (available from 1989), and the Australian Medical and Pharmaceutical Indices maintained by Intercontinental Medical Statistics. Between 1986 and 1993, an average of 1.6 million people per year were receiving drug treatment for hypertension. The type of antihypertensive drugs prescribed for hypertensive patients changed over the study period, with a fall in the use of diuretics, beta blockers and other antihypertensives (i.e. centrally and peripherally acting antiadrenergic agents and agents acting on arteriolar smooth

muscle) and an increase in the use of ACE inhibitors and calcium channel blockers. Further, the co-prescribing of antihypertensive agents fell from 1.4 items per patient in 1986 to just over 1.2 items per patient in 1993.

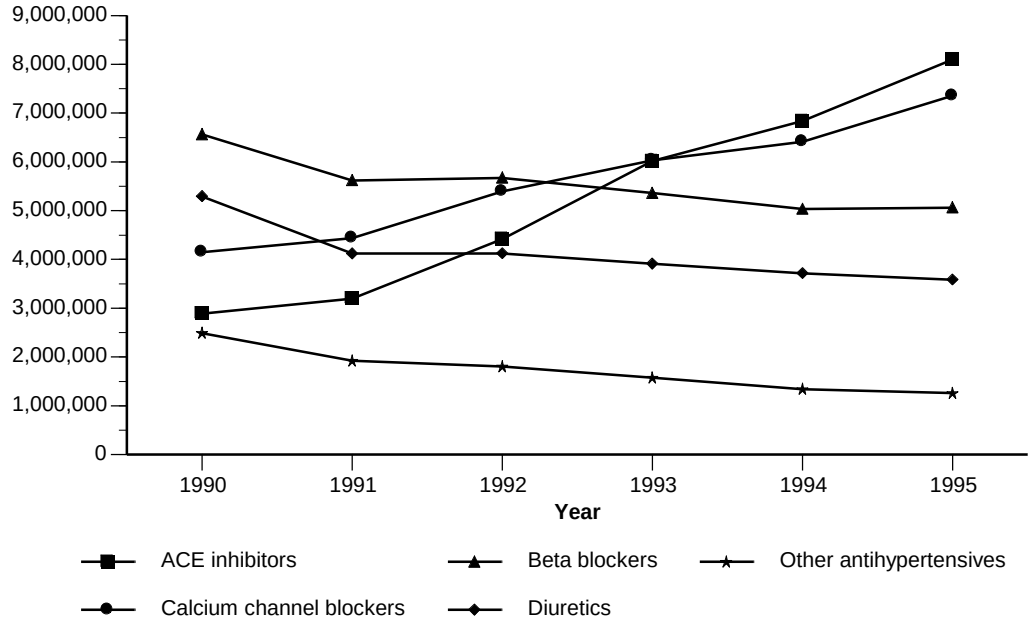
Data on the community use of antihypertensive drugs in 1994 and 1995 indicate that the trends observed by Henry et al. have continued (Figures 13 and 14).




Refer to Table S40

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Figure 13: Community use of drugs for the management of hypertension, 1990-1995**



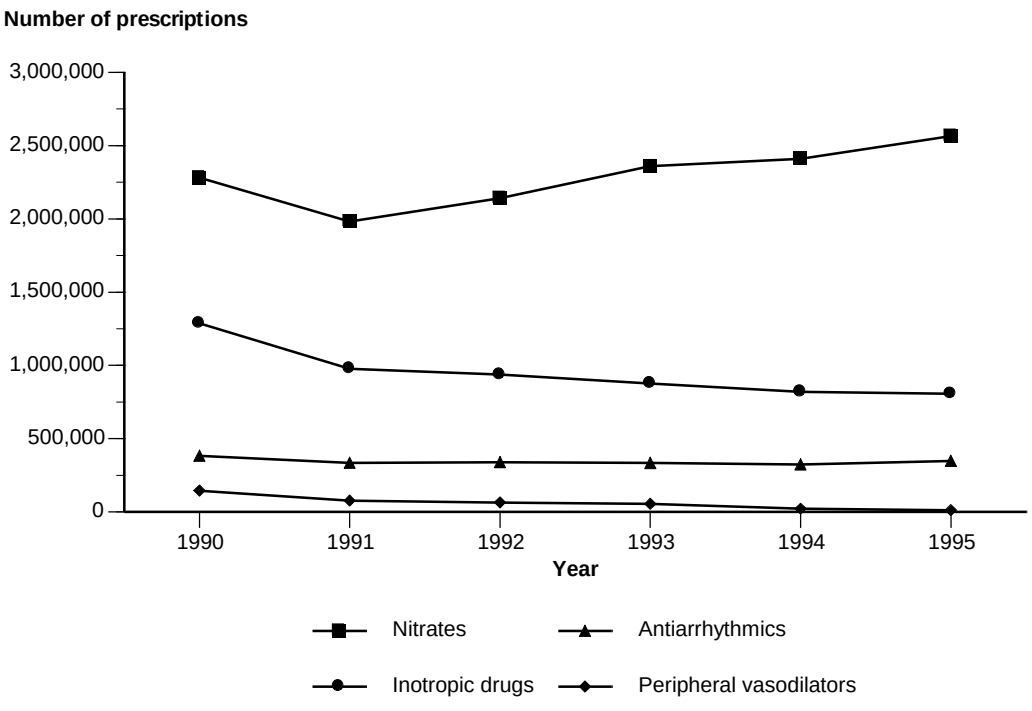

Refer to Table S40

*Source*: Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Figure 14: Community use of drugs for the management of hypertension by class, 1990–1995**

### Other cardiovascular drugs

Between 1990 and 1995, nitrates were the most commonly dispensed cardiovascular drugs other than antihypertensives. Further, over the 6-year period, prescriptions for nitrates increased from 2.3 million to 2.6 million, an average rise of 2% per year (Figure 15).The number of prescriptions dispensed in the community for inotropic drugs and peripheral vasodilators fell between 1990 and 1995. There was also a small decrease in the use of antiarrhythmic drugs over the 6-year period.




Refer to Table S41

*Source*: Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

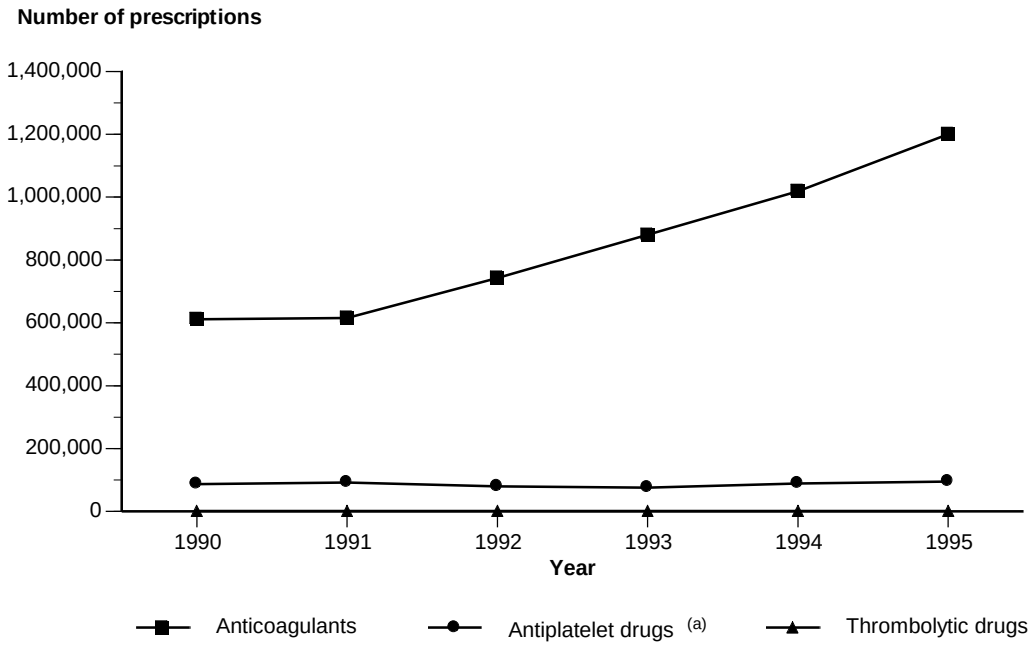
**Figure 15: Community use of other cardiovascular drugs, 1990–1995**

## Trends in the use of antithrombotic agents

The number of prescriptions dispensed in the community for anticoagulants, which include vitamin K antagonists and the heparin group, doubled between 1990 and 1995, from 0.6 million prescriptions to 1.2 million prescriptions (Figure 16).

The community use of antiplatelet drugs, excluding aspirin obtained over the counter, is quite small. Before 1993, there were no antiplatelet drugs listed on the PBS, although aspirin in standard doses was classified under analgesics in the central nervous system (ATC group 'N'). Therefore the use of antiplatelet drugs could only be monitored through the Pharmacy Guild survey if identification was via the ATC therapeutic subgroup B01AC. However, in 1993, ticlopidine hydrochloride was listed on the PBS. From 1990 to 1995, there was a slight increase in prescriptions for antiplatelets (Figure 16).

Prescription counts for thrombolytic drugs (streptokinase) are also small, but increased by an average of 14% per year between 1990 and 1995. This increase most likely represents use in private hospitals that dispense under the PBS.




Refer to Table S42

(a) Excluding aspirin obtained over-the-counter.

*Source*: Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Figure 16: Community use of antithrombotic agents, 1990–1995**

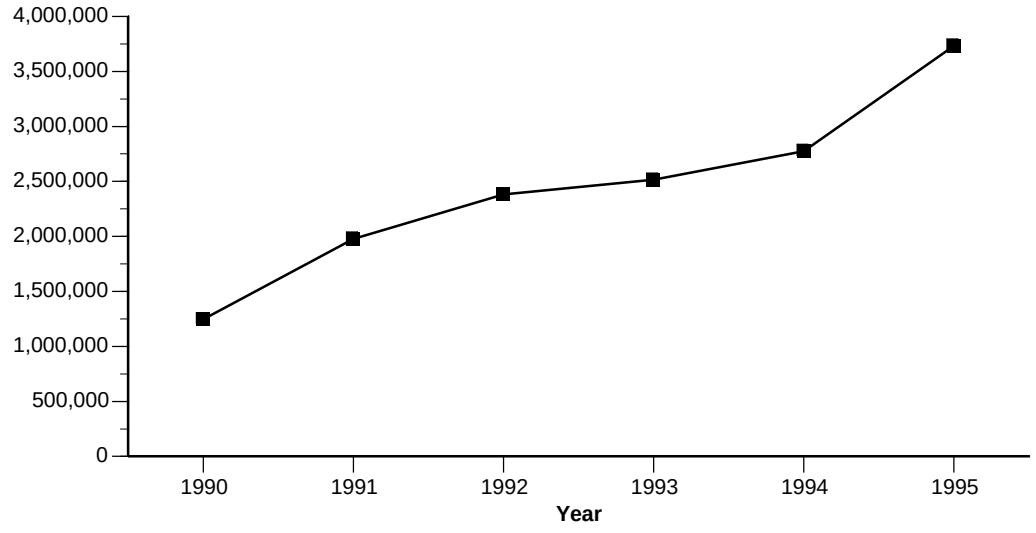
## Trends in the use of serum lipid lowering drugs

Dispensing of lipid lowering drugs through community pharmacies increased substantially over the period 1990 to 1995, from 1.2 million prescriptions to 3.7 million prescriptions (Figure 17).

The increase in the community use of lipid lowering drugs over the last few years has resulted mainly from an increase in the use of statins (Figures 18 and 19), particularly simvastatin which was listed on the PBS in late 1990 (Commonwealth Department of Human Services and Health 1996). Between 1991 and 1995, dispensing of simvastatin through community pharmacies increased by an average of 21% per year, from 1,282,289 prescriptions to 2,757,201 prescriptions (Figure 19). Community use of pravastatin, which was not listed on the PBS until 1992, also increased rapidly between 1993 and 1995.

Prescriptions for fibrates fell between 1990 and 1991 and then remained fairly steady until 1995 when they began to increase again. However at the generic drug level, the use of clofibrate has fallen since 1990, in response to a policy decision to restrict its availability on the PBS, while that of gemfibrozil has increased.

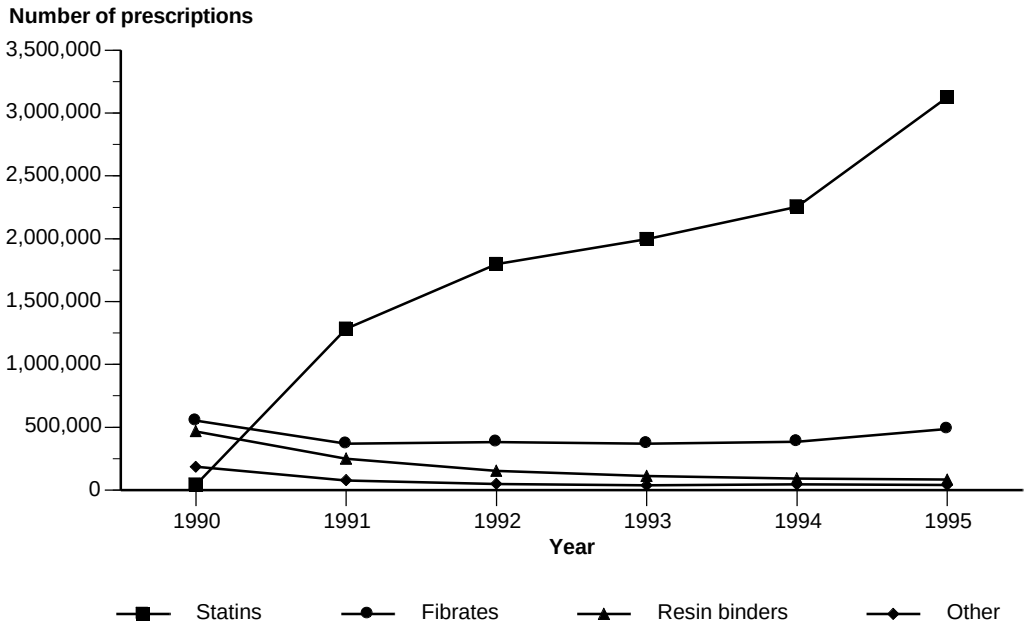
The community use of other classes of lipid lowering drugs, namely resin binders, nicotinic acid and other cholesterol and triglyceride reducers, decreased over the period from 1990 to 1995.




Refer to Table S43

*Source*: Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

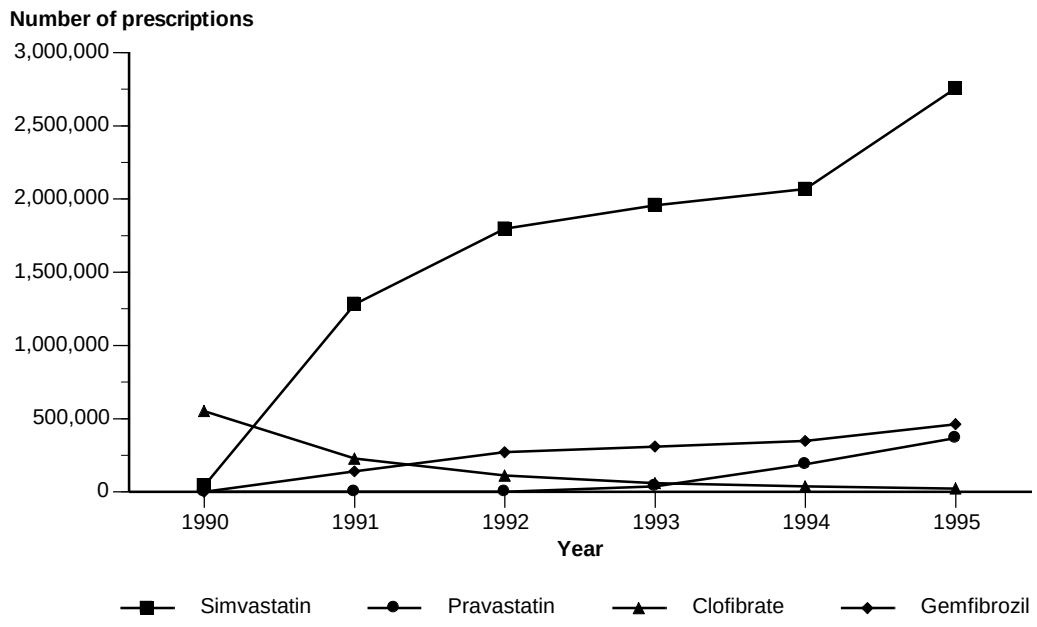
**Figure 17: Community use of lipid lowering drugs, 1990–1995**




Refer to Table S43

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Figure 18: Community use of serum lipid lowering drugs by class, 1990–1995**




Refer to Table S43

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Figure 19: Community use of serum lipid lowering drugs by generic drug name, 1990–1995**

## Trends in the cost of subsidised cardiovascular drugs

### Drugs used in the management of hypertension

Between 1990 and 1995, the total cost of subsidised prescriptions for ACE inhibitors increased from $158 million to $270 million (Table 42). This increase was consistent with the increase in the community use of ACE inhibitors over the same period. The total cost of subsidised prescriptions for calcium channel blockers also increased over the 6-year period, from $120 million in 1990 to $177 million in 1995.

For diuretics, the total cost of subsidised prescriptions decreased by 40% between 1990 and 1991 but has since remained fairly steady. A similar pattern occurred for beta blockers.

The cost of subsidised prescriptions for other antihypertensive drugs fell by an average of 15% between 1990 and 1995 which was consistent with the pattern observed for the community use of antihypertensive drugs over that period.

### Other cardiovascular drugs

There was no real trend in total costs of subsidised prescriptions for antiarrhythmics or inotropic drugs over the period 1990 to 1995 (Table 42). The total cost of nitrates subsidised by the PBS/RPBS increased by an average of 9% per annum over the 6-year period, while the cost of subsidised prescriptions for peripheral vasodilators fell from $0.6 million in 1990 to less than $0.1 million in 1995.

## Trends in the cost of subsidised antithrombotic agents

For subsidised anticoagulants, there was an average increase of approximately 16% per year in total costs between 1990 and 1995 (Table 42). Antiplatelets have only been subsidised by the PBS/RPBS since 1993, and since then there has been a dramatic rise in the total cost of subsidised prescriptions for these drugs. Between 1990 and 1993 there was little change in the total cost of subsidised thrombolytic drugs. However between 1993 and 1995, the total cost of thrombolytic drugs subsidised by the PBS/RPBS increased threefold.

## Trends in the cost of subsidised serum lipid lowering drugs

The total cost of subsidised lipid lowering drugs increased significantly between 1990 and 1995 (Table 42). In 1990, the total cost was $49 million and by 1995 this had risen to $178 million, an average annual increase of almost 30%. This trend was consistent with the increase in the community use of lipid lowering drugs over the 6-year period.

## Table 42: Total costs for subsidised drugs used in the management of cardiovascular disease, 1990–1995 (1995 prices[a])

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| | | | $'000 | | | |
| Beta blockers (C07) | 71,978 | 39,417 | 41,374 | 41,988 | 41,041 | 42,583 |
| Calcium channel blockers (C08) | 119,911 | 103,933 | 119,760 | 138,387 | 155,057 | 176,745 |
| ACE inhibitors (C02E) | 157,544 | 135,713 | 165,122 | 207,388 | 230,892 | 269,747 |
| **Diuretics** | | | | | | |
| Low ceiling diuretics, thiazides (C03A) | 5,767 | 3,851 | 3,742 | 3,578 | 3,293 | 3,128 |
| Low ceiling diuretics excluding thiazides (C03B) | 8,142 | 5,074 | 7,213 | 6,200 | 7,878 | 10,619 |
| High ceiling diuretics (C03C) | 14,308 | 10,272 | 10,716 | 11,122 | 10,857 | 10,881 |
| Potassium sparing agents (C03D) | 5,146 | 3,756 | 3,817 | 4,251 | 4,186 | 4,099 |
| Diuretics and potassium sparing agents in combination (C03E) | 18,849 | 8,163 | 7,836 | 6,869 | 6,201 | 5,803 |
| **Total diuretics (C03)** | **52,212** | **31,116** | **33,324** | **32,018** | **32,415** | **34,531** |
| **Other antihypertensive drugs** | | | | | | |
| Centrally acting antiadrenergic agents (C02A) | 16,133 | 8,958 | 8,269 | 7,210 | 6,266 | 6,088 |
| Peripherally acting antiadrenergic agents (C02C) | 24,375 | 13,206 | 13,453 | 12,888 | 12,019 | 12,051 |
| Agents acting on arteriolar smooth muscle (C02D) | 1,071 | 678 | 657 | 626 | 553 | 568 |
| **Total other antihypertensives (C02A, C02C, C02D)** | **41,580** | **22,842** | **22,379** | **20,723** | **18,837** | **18,708** |
| Antiarrhythmics (C01B) | 11,362 | 8,771 | 9,411 | 9,513 | 9,311 | 10,064 |
| **Inotropic drugs** | | | | | | |
| Cardiac glycosides (C01A) | 6,967 | 6,172 | 5,703 | 5,641 | 5,569 | 5,717 |
| Cardiac stimulants excluding glycosides (C01C) | — | — | — | — | — | — |
| **Total inotropic drugs (C01A, C01C)** | **6,967** | **6,172** | **5,703** | **5,641** | **5,569** | **5,717** |
| Nitrates (C01D) | 35,904 | 33,244 | 40,347 | 49,632 | 50,916 | 55,721 |
| Peripheral vasodilators (C04) | 563 | 294 | 266 | 284 | 103 | 80 |
| Anticoagulants (B01AA, B01AB) | 3,678 | 3,550 | 4,271 | 5,227 | 6,149 | 7,570 |
| Antiplatelet drugs (B01AC) | n.a.. | n.a. | n.a. | 123 | 619 | 1,396 |
| Thrombolytic drugs (B01AD) | 81 | 86 | 92 | 92 | 123 | 285 |
| Lipid lowering drugs (B04) | 48,604 | 92,153 | 115,645 | 125,671 | 140,384 | 177,969 |

(a) 'Chemist' price index from the Private Final Consumption Expenditure (PFCE) deflators produced by the Australian Bureau of Statistics used to adjust figures to 1995 prices.

*Note:* n.a. not applicable; — data not available.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

# Estimates from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91

## Prescriptions written for cardiovascular conditions

For each problem managed, doctors were asked to record the brand or generic names of up to four prescriptions issued at the encounter for that problem (Bridges-Webb et al. 1992). Non-prescription drugs recommended by the doctor were not included. Where a drug was prescribed for more than one problem, it was only recorded under the problem for which it was most required. While dosage and regimen were not recorded, doctors were asked to specify the form of presentation where several presentations were available (e.g. nystatin—oral, topical, vaginal). Drugs were classified under an in house Family Medicine Research Unit classification, however the system is similar to that used in MIMS and the classification used is compatible with the Anatomical Therapeutic Chemical (ATC) code.

When interpreting the results in this section, it should be remembered that the survey only collected information about prescriptions written at the recorded encounter. No information was collected about prescriptions written at previous encounters that were not included in the survey, even if the same problem was managed. This may be a limitation for chronic conditions.

The unit record data set provided to the Australian Institute of Health and Welfare included information relating to a total of 98,556 prescriptions, an average of 99.8 prescriptions per 100 encounters and 67.7 prescriptions per 100 problems managed. At least one prescription was written at 63.6% of all encounters and for 53.5% of all problems managed.

Approximately 15,000 prescriptions were issued for cardiovascular problems (Table 43), representing 15.2% of all prescriptions written during the survey period. At least one prescription was written for 56.7% of cardiovascular problems managed.

Over 8% of all prescriptions issued were for hypertension (Table 43). A further 2.0% were written for heart failure, 1.4% for other and chronic coronary heart disease, 0.8% for angina and 0.3% for cerebrovascular disease.

At least one prescription was issued for 71.3% of all angina problems managed (Table 43). Similarly, at least one script was written for the majority (i.e. > 50%) of heart failure, hypertension, rheumatic heart disease, and other and chronic coronary heart disease problems managed.

**Table 43: Prescriptions written for cardiovascular conditions**

| Condition (ICPC code) | Number of problems managed where at least one prescription written for condition | Percentage of problems managed where at least 1 prescription written for condition | Total number of prescriptions written for condition | Percentage of all prescriptions written (N=98,556) |
|---|---|---|---|---|
| Rheumatic heart disease (K71) | 31 | 63.3 | 61 | 0.1 |
| Angina (K74) | 521 | 71.3 | 800 | 0.8 |
| Acute myocardial infarction (K75) | 29 | 40.8 | 55 | 0.1 |
| Other and chronic coronary heart disease (K76) | 812 | 60.3 | 1,425 | 1.4 |
| Coronary heart disease (K74-K76) | 1,361 | 63.3 | 2,279 | 2.3 |
| Heart failure (K77) | 1,080 | 66.6 | 1,968 | 2.0 |
| Hypertension (K86, K87) | 5,979 | 63.9 | 8,309 | 8.4 |
| Cerebrovascular disease (K89, K90) | 262 | 42.6 | 299 | 0.3 |
| Atherosclerosis (K91) | 14 | 31.8 | 19 | < 0.1 |
| Peripheral vascular disease (K92) | 121 | 28.3 | 140 | 0.1 |
| **All cardiovascular disease (K)** | **10,311** | **56.7** | **14,947** | **15.2** |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

Overall, antihypertensive drugs were the most frequently prescribed type of drugs for cardiovascular conditions, accounting for 28.6% of all prescriptions for cardiovascular problems (Table 44). On average, 23.5 prescriptions for antihypertensive drugs were issued for every 100 cardiovascular problems managed. Diuretics, beta blockers, antiangina agents and cardiac glycosides were also frequently prescribed for cardiovascular conditions, accounting for a further 54.3% of all prescriptions written for cardiovascular disease.

Not surprisingly, antihypertensive agents were the most commonly prescribed type of drugs for hypertension, while antiangina agents were the most commonly prescribed type of drugs for angina and other and chronic coronary heart disease. For heart failure, diuretics were the most frequently prescribed type of drug and, for cerebrovascular disease, simple analgesics were the preferred form of drug therapy.

## Table 44: Five most frequently prescribed drug subgroups for selected cardiovascular conditions

| Condition (ICPC code)/drug subgroup | Number of prescriptions written for condition | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| **All cardiovascular disease (K)** | | | |
| Antihypertensive agents | 4,270 | 28.6 | 23.5 |
| Diuretics | 2,796 | 18.7 | 15.4 |
| Beta blockers | 2,470 | 16.5 | 13.6 |
| Antiangina agents | 2,020 | 13.5 | 11.1 |
| Cardiac glycosides | 836 | 5.6 | 4.6 |
| **Angina (K74)** | | | |
| Antiangina agents | 601 | 75.1 | 82.2 |
| Beta blockers | 66 | 8.3 | 9.0 |
| Antihypertensive agents | 37 | 4.7 | 5.1 |
| Simple analgesics | 34 | 4.2 | 4.6 |
| Diuretics | 15 | 1.9 | 2.1 |
| **Other and chronic coronary heart disease (K76)** | | | |
| Antiangina agents | 735 | 51.6 | 54.6 |
| Diuretics | 151 | 10.6 | 11.2 |
| Beta blockers | 138 | 9.7 | 10.2 |
| Antihypertensives | 104 | 7.3 | 7.7 |
| Cardiac glycosides | 94 | 6.6 | 7.0 |
| **Heart failure (K77)** | | | |
| Diuretics | 885 | 45.0 | 54.6 |
| Cardiac glycosides | 375 | 19.1 | 23.2 |
| Mineral tonic | 277 | 14.1 | 17.1 |
| Antihypertensive agents | 216 | 11.0 | 13.3 |
| Antiangina agents | 79 | 4.0 | 4.9 |
| **Hypertension (K86, K87)** | | | |
| Antihypertensive agents | 3,682 | 44.3 | 39.4 |
| Beta blockers | 2,122 | 25.5 | 22.7 |
| Diuretics | 1,437 | 17.3 | 15.4 |
| Antiangina agents | 469 | 5.6 | 5.0 |
| Mineral tonic | 227 | 2.7 | 2.4 |
| **Cerebrovascular disease (K89, K90)** | | | |
| Simple analgesics | 142 | 47.3 | 23.0 |
| Anti emetic | 43 | 14.2 | 6.9 |
| Other blood | 32 | 10.6 | 5.2 |
| Antiangina agents | 15 | 4.9 | 2.4 |
| Antihypertensive agents | 7 | 2.4 | 1.2 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

At the generic drug level, frusemide was the most frequently prescribed drug for cardiovascular disease (Figure 20). On average, 6.7 prescriptions for frusemide were written for every 100 cardiovascular problems managed. Other commonly prescribed generic drugs for cardiovascular conditions included atenolol, digoxin and verapamil.

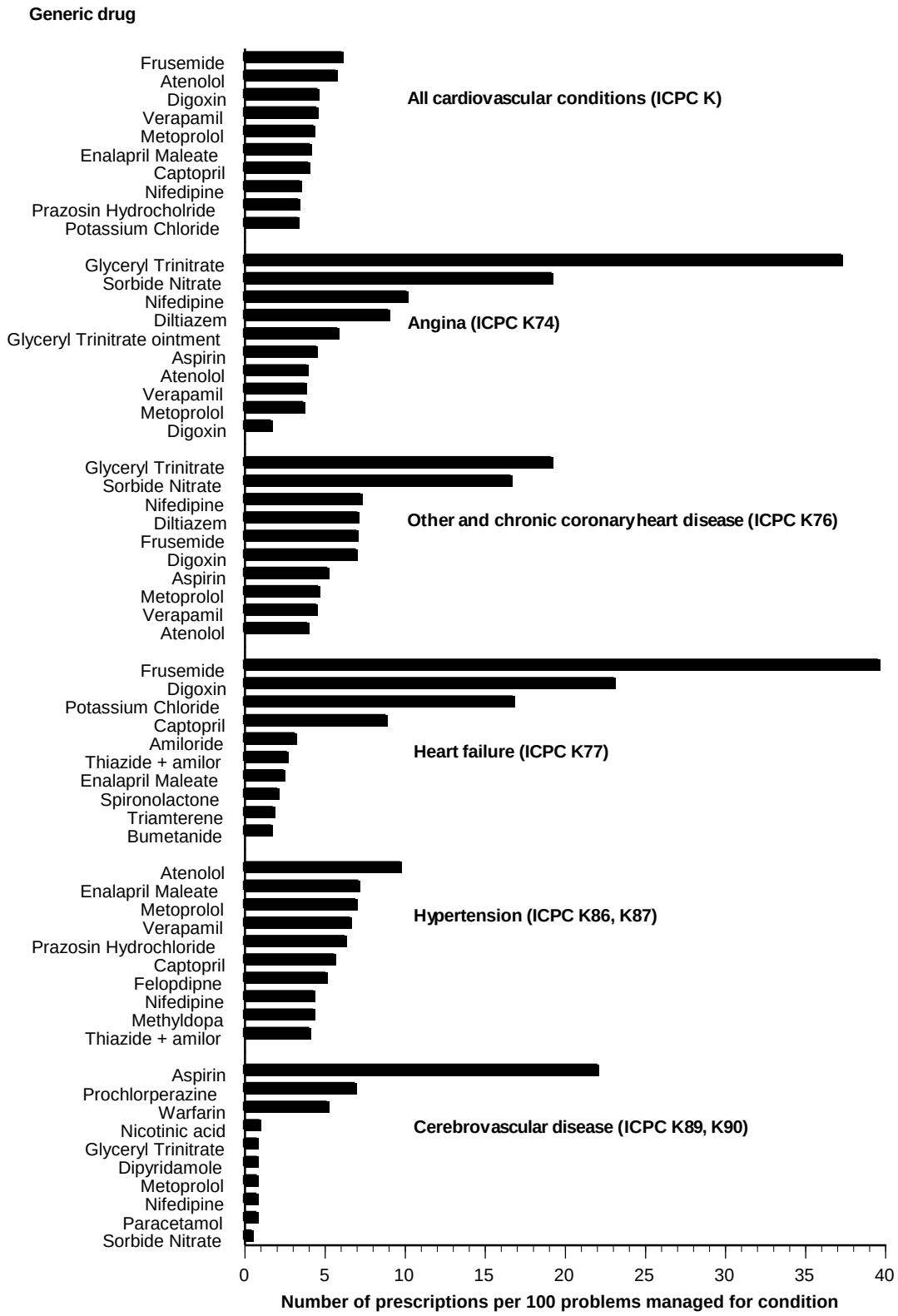
The most frequently prescribed drug for angina was glyceryl trinitrate, which accounted for 34.1% of all prescriptions for angina and was prescribed at an average rate of 37.2 prescriptions per 100 angina problems managed (Figure 20). Other antiangina agents commonly prescribed for angina were sorbide nitrate, nifedipine, diltiazem and glyceryl trinitrate ointment. These four drugs accounted for a further 40.4% of all prescriptions for angina.

For other and chronic coronary heart disease, the most commonly prescribed drugs were glyceryl trinitrate, sorbide nitrate, nifedipine and diltiazem (Figure 20). On average, 19.2 prescriptions for glyceryl trinitrate were written for every 100 diagnoses of other and chronic coronary heart disease. Sorbide nitrate, nifedipine and diltiazem were prescribed at rates of 16.6, 7.3 and 7.1 prescriptions, respectively, per 100 diagnoses.

Frusemide was the most frequently prescribed drug for heart failure. Frusemide accounted for 32.6% of all prescriptions for heart failure, and was prescribed at an average rate of 39.6 prescriptions per 100 heart failure diagnoses (Figure 20). Digoxin, potassium chloride, captopril, and amiloride were also commonly prescribed for heart failure, accounting for a further 42.7% of prescriptions for heart failure.

The five most frequently prescribed drugs for hypertension were atenolol (9.7 scripts per 100 diagnoses), enalapril maleate (7.1 scripts per 100 diagnoses), metoprolol (6.9 scripts per 100 diagnoses), verapamil (6.6 scripts per 100 diagnoses), and prazosin hydrochloride (6.3 scripts per 100 diagnoses) (Figure 20). Just over 40% of all prescriptions written for hypertension were for these five drugs.

Aspirin accounted for 45% of all prescriptions written for cerebrovascular disease (Table S14). On average, 22.1 scripts for aspirin were issued for every 100 cerebrovascular problems managed (Figure 20). Prochlorperazine and warfarin were the second and third most frequently prescribed drugs for cerebrovascular disease.




Refer to Tables S9–S14

*Source*: AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

**Figure 20: Distribution of the ten most frequently written prescriptions for selected cardiovascular conditions, 1990–91**

## Prescribing of cardiovascular drugs

The Survey of Morbidity and Treatment in General Practice in Australia 1990–91 classifies cardiovascular drugs into the following nine groups:

- antihypertensive agents;
- antiarrythmic agents;
- antiangina agents;
- cardiac glycosides;
- beta blockers;
- adrenergenic stimulants;
- peripheral vasodilators;
- antimigraine drugs; and
- other cardiovascular drugs.

The survey classifies diuretics as urogenital drugs but in the analysis that follows diuretics have been included as cardiovascular drugs. The lipid lowering drugs clofibrate and cholestyramine, and the antithrombotic drugs warfarin, heparin and phenindione, are classified under the blood system and are not included in the analysis presented here.

A list of cardiovascular drugs by group and generic drug name is provided in **Appendix F**.

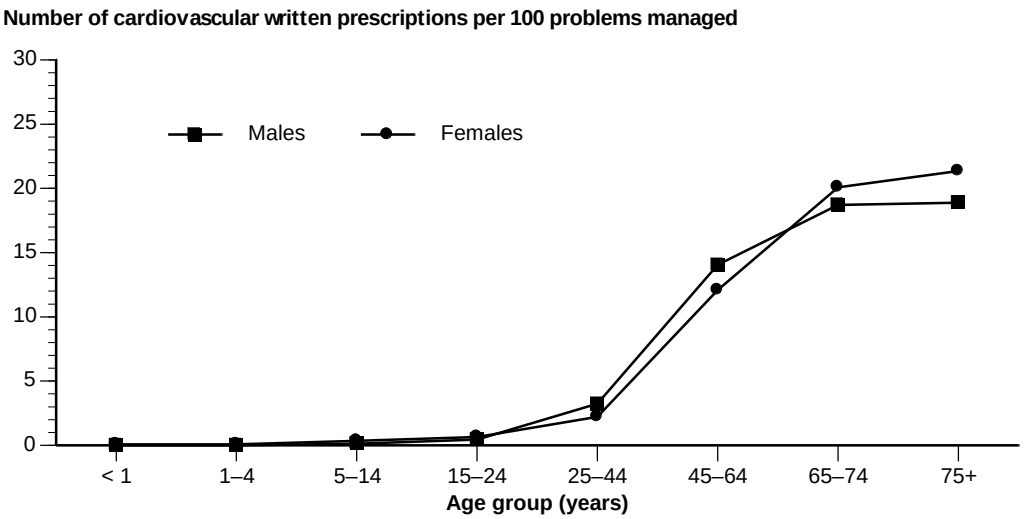
The unit record data set provided to the Australian Institute of Health and Welfare included information relating to a total of 98,556 prescriptions, an average of 99.8 prescriptions per 100 encounters and 67.7 prescriptions per 100 problems managed. At least one prescription was recorded at 63.6% of all encounters and for 53.5% of all problems managed.

Prescriptions for cardiovascular drugs (14,047 prescriptions) accounted for 14.3% of all prescriptions written during the survey period and were issued at an average rate of 9.6 prescriptions per 100 problems managed (Table S15).

The number of cardiovascular prescriptions written per 100 problems managed increased with age for both males and females (Figure 21). Between the ages of 25 and 64 years, the rate of cardiovascular prescriptions written was slightly greater for males than females, however the reverse was true from age 65 years onwards.

The four most frequently prescribed types of cardiovascular drugs were antihypertensive agents, diuretics, beta blockers and antiangina agents (Table 45). Together these four categories accounted for 86.6% of all cardiovascular prescriptions. Antihypertensive drugs were prescribed at an average rate of 3.0 prescriptions per 100 problems managed, while diuretics, beta blockers and antiangina agents were prescribed at average rates of 2.1, 1.8 and 1.4 scripts per 100 problems managed.

At the generic drug level, frusemide and atenolol were the most commonly prescribed drugs (Table S16).




Refer to Table S15

Source: Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

**Figure 21: Number of cardiovascular prescriptions written, age-sex specific rates per 100 problems managed, 1990–91**

### Table 45: Distribution of cardiovascular drugs by drug subgroup

| Drug subgroup | Number of prescriptions written | Percentage of all cardiovascular prescriptions written | Percentage of all prescriptions written | Number of prescriptions written per 100 problems managed (N=145,645) |
|---|---|---|---|---|
| Antihypertensive agents | 4,390 | 31.3 | 4.5 | 3.0 |
| Diuretics | 3,058 | 21.8 | 3.1 | 2.1 |
| Beta blockers | 2628 | 18.7 | 2.7 | 1.8 |
| Antiangina agents | 2083 | 14.8 | 2.1 | 1.4 |
| Cardiac glycosides | 859 | 6.1 | 0.9 | 0.6 |
| Other cardiovascular system drugs | 547 | 3.9 | 0.6 | 0.4 |
| Antimigraine drugs | 225 | 1.6 | 0.2 | 0.2 |
| Antiarrhythmic agents | 173 | 1.2 | 0.2 | 0.1 |
| Peripheral vasodilators | 66 | 0.5 | 0.1 | < 0.1 |
| Adrenergenic stimulants | 14 | 0.1 | < 0.1 | < 0.1 |
| Other cardiovascular drugs | 6 | 0.0 | < 0.1 | < 0.1 |
| **All cardiovascular drugs(a)** | **14,047** | **100.0** | **14.3** | **9.6** |

(a) Components may not add to total due to rounding.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

Nearly 90% of all cardiovascular prescriptions (12,613 prescriptions) were written as part of the management for cardiovascular conditions. In terms of the management of specific conditions, 55.4% of all cardiovascular prescriptions were written for hypertension (Table 46). A further 11% were written for heart failure, followed by 9% for other and chronic coronary heart disease and 5% for angina.

**Table 46: Ten conditions most frequently managed by cardiovascular prescriptions**

| Problem managed (ICPC code) | Total number of cardiovascular prescriptions written for condition | Percentage of all cardiovascular prescriptions (N=14,047) |
|---|---|---|
| Hypertension (K86 + K87) | 7,779 | 55.4 |
| Heart failure (K77) | 1,580 | 11.2 |
| Other and chronic coronary heart disease (K76) | 1,246 | 8.9 |
| Angina pectoris (K74) | 735 | 5.2 |
| Lipid metabolism disorder (T93) | 480 | 3.4 |
| Atrial fibrillation/flutter (K78) | 290 | 2.1 |
| Migraine (N89) | 255 | 1.8 |
| Disease of heart Not Otherwise Specified (K84) | 198 | 1.4 |
| Circulatory check up (K31) | 127 | 0.9 |
| Swollen ankles/ooedema (K07) | 122 | 0.9 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

Cardiovascular prescriptions accounted for more than 50% of all scripts written for people with hypertension, angina, other and chronic coronary heart disease, heart failure, acute myocardial infarction and rheumatic heart disease (Table 47). Further, at least one cardiovascular prescription was issued as part of the management regimen for 69.1% of angina problems, 63.9% of heart failure problems, 62.8% of hypertension and 56.3% of other and chronic coronary heart disease.

**Table 47: Number of cardiovascular prescriptions written for cardiovascular conditions**

| Condition (ICPC code) | Number of cardiovascular prescriptions written for condition | Percentage of all prescriptions written for condition | Number of cardiovascular prescriptions written per 100 problems managed for condition | Percentage of problems managed for which at least one cardiovascular prescription written for condition |
|---|---|---|---|---|
| Rheumatic heart disease (K71) | 32 | 52.5 | 65.3 | 36.7 |
| Angina (K74) | 735 | 91.9 | 100.5 | 69.1 |
| Acute myocardial infarction (K75) | 33 | 60.0 | 46.5 | 29.6 |
| Other and chronic coronary heart disease (K76) | 1,246 | 87.4 | 92.5 | 56.3 |
| Coronary heart disease (K74-K76) | 2,014 | 88.4 | 93.7 | 59.8 |
| Heart failure (K77) | 1,580 | 80.3 | 97.5 | 63.9 |
| Hypertension (K86, K87) | 7,779 | 93.6 | 83.2 | 62.8 |
| Cerebrovascular disease (K89, K90) | 52 | 17.4 | 8.5 | 6.7 |
| Atherosclerosis (K91) | 4 | 21.1 | 9.1 | 4.5 |
| Peripheral vascular disease (K92) | 52 | 37.1 | 12.2 | 10.5 |
| **All cardiovascular disease (K)** | **12,613** | **84.4** | **69.3** | **50.4** |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

# Estimates from the Australian Bureau of Statistics' National Health Survey 1995

## Use of medication for recent cardiovascular condition

### Use of medication for recent cardiovascular condition by age

The percentage of males and females reporting taking any medication for a recent cardiovascular condition increased dramatically with age until the 45–54 year age group, after which it remained fairly constant at about 98%. The proportions of males and females taking any medication for cerebrovascular disease and 'ill-defined signs and symptoms of heart conditions' were less than for the other cardiovascular conditions (Table 48).

**Table 48: Percentage of males and females reporting taking any medication for a recent cardiovascular condition by age group, 1995**

| | Age group (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sex/Type of condition** | **<25** | **25–34** | **35–44** | **45–54** | **55–64** | **65–74** | **75+** | **All ages** |
| **Males** | | | | | | | | |
| Hypertension | *79.2 | 87.6 | 96.0 | 96.8 | 98.6 | 98.4 | 97.4 | 97.6 |
| Heart disease | *43.1 | 85.5 | 97.1 | 94.2 | 92.2 | 90.6 | 95.8 | 92.1 |
| Atherosclerosis | — | — | — | * | *95.4 | 100.0 | *100. | 92.2 |
| Cerebrovascular disease[a] | *100.0 | — | * | *77.4 | * | 67.4 | 59.8 | 61.8 |
| Other diseases of the circulatory system | 97.0 | 72.6 | 89.2 | 98.9 | 97.0 | 96.5 | 91.5 | 95.2 |
| Ill-defined signs and symptoms of heart conditions | *28.2 | — | 72.9 | 74.7 | 60.6 | 74.5 | 75.1 | 69.7 |
| **All cardiovascular[b]** | **64.3** | **81.8** | **95.4** | **96.6** | **96.6** | **95.2** | **94.4** | **95.1** |
| **Females** | | | | | | | | |
| Hypertension | 64.5 | 79.5 | 96.9 | 97.0 | 98.4 | 98.4 | 97.8 | 97.5 |
| Heart disease | * | * | 100.0 | 97.4 | 89.1 | 95.1 | 97.3 | 94.8 |
| Atherosclerosis | — | — | — | * | 85.2 | 100.0 | 100.0 | 91.9 |
| Cerebrovascular disease[a] | — | *100.0 | *100.0 | *40.8 | *27.1 | 84.6 | 77.4 | 69.9 |
| Other diseases of the circulatory system | *39.4 | 57.4 | 83.1 | 81.1 | 97.2 | 98.0 | 97.1 | 92.8 |
| Ill-defined signs and symptoms of heart conditions | *32.1 | *22.1 | *82.2 | 77.8 | 72.1 | 82.8 | 78.5 | 76.5 |
| **All cardiovascular[b]** | **49.6** | **68.2** | **95.2** | **94.2** | **96.2** | **97.7** | **97.0** | **95.4** |

(a) Includes after-effects of stroke.

(b) Each person may have reported more than one type of condition and therefore components do not add to totals.

—nil

* Subject to high sampling variability.

*Source:* AIHW derived from the ABS National Health Survey 1995.

**Box 12: National Health Survey explanatory notes**

*Age-specific and age-standardised estimates are provided here. The standard population used for age standardisation was the estimated total mid-year Australian population in 1991 (refer to the Glossary).*

*Very small estimates are subject to high standard errors (relative to the size of the estimate). In this report, only estimates which were derived from a numerator estimate with a relative standard error of less than 25% are considered reliable. However, estimates with relative standard errors between 25% and 50% have been included and are preceded by an asterisk (e.g. *1.6) to indicate that they should be interpreted with caution. Estimates with relative standard errors greater than 50% have not been shown as they are considered too unreliable for use (Australian Bureau Statistics 1997a). These estimates have been replaced by an asterisk (*).*

*Definitions of the items included in the tables below are provided in* ***Appendix A****.*

Just over 90% of males and females reported taking 'heart' medication (i.e. medication for fluid, the heart or blood pressure) for a recent cardiovascular condition. Over 95% of males and females reporting hypertension, reported taking 'heart' medication for that condition. Relatively more males (68.8%) than females (53.2%) took 'heart' medication in the 25–34 year age category (Table 49).

**Table 49: Percentage of males and females reporting taking 'heart' medication for a recent cardiovascular condition by age group, 1995**

| | Age group (years) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sex/Type of condition** | **<25** | **25–34** | **35–44** | **45–54** | **55–64** | **65–74** | **75+** | **All ages** |
| **Males** | | | | | | | | |
| Hypertension | *79.2 | 84.4 | 96.0 | 95.7 | 98.3 | 96.9 | 94.5 | **96.3** |
| Heart disease | *26.8 | *52.4 | 85.7 | 87.5 | 87.3 | 81.7 | 91.1 | **84.8** |
| Atherosclerosis | — | — | — | — | *95.4 | *60.6 | *67.5 | **67.3** |
| Other diseases of the circulatory system | * | *38.0 | 36.5 | 54.9 | 72.2 | 58.8 | 51.8 | **57.8** |
| Ill-defined signs and symptoms of heart conditions | *28.2 | * | 100.0 | 92.5 | 89.9 | 91.2 | 94.4 | **89.6** |
| **All cardiovascular[a, b]** | **28.8** | **68.8** | **88.3** | **91.7** | **94.5** | **90.7** | **92.0** | **90.7** |
| **Females** | | | | | | | | |
| Hypertension | 53.5 | 77.5 | 93.1 | 94.6 | 96.2 | 96.6 | 96.2 | **95.4** |
| Heart disease | * | * | *86.0 | 86.8 | 82.0 | 89.7 | 88.4 | **87.0** |
| Atherosclerosis | — | — | — | * | *61.7 | *100.0 | *100.0 | **91.2** |
| Other diseases of the circulatory system | — | — | *9.1 | 36.0 | 53.4 | 54.4 | 61.5 | **49.6** |
| Ill-defined signs and symptoms of heart conditions | *32.1 | *55.8 | *75.7 | 69.2 | 85.5 | 89.1 | 93.1 | **86.9** |
| **All cardiovascular[a, b]** | **32.9** | **53.2** | **78.4** | **88.2** | **91.6** | **93.4** | **93.7** | **90.3** |

(a) Includes cerebrovascular disease and after-effects of stroke.

(b) Each person may have reported more than one type of condition and therefore components do not add to totals.

—nil

* Subject to high sampling variability.

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Use of medication for recent cardiovascular condition by sex

After adjusting for age, 84.8% of males and 75.8% of females reported taking some form of medication for a recent cardiovascular condition. The prevalence of people taking 'heart' medication for a recent cardiovascular condition was around 63% for both males and females (Table 50).

Females reported higher rates of taking medication for hypertension, atherosclerosis and 'ill-defined signs and symptoms of heart conditions'. Males reported higher rates (33.6%) than females (15.9%) for taking 'heart' medication for 'other diseases of the circulatory system', whereas females reported greater rates (18.0%) than males (3.5%) for cerebrovascular disease (Table 50).

**Table 50: Percentage[(a)] of males and females reporting taking medication for a recent cardiovascular condition by sex, 1995**

| Type of condition | Any medication | | Heart medication | |
|---|---|---|---|---|
| | Males (SE) | Females (SE) | Males (SE) | Females (SE) |
| Hypertension | 65.7 (1.1) | 83.5 (1.3) | 64.6 (1.1) | 73.5 (1.1) |
| Heart disease | 74.9 (2.5) | 67.7 (2.7) | 55.7 (2.0) | 56.0 (2.3) |
| Atherosclerosis | 19.2 (2.7) | 21.9 (4.3) | 13.8 (2.3) | 21.9 (4.3) |
| Cerebrovascular disease[(b)] | 40.6 (4.7) | 35.6 (4.5) | 3.5 (0.6) | 18.0 (3.0) |
| Other diseases of the circulatory system | 91.5 (3.0) | 60.3 (2.2) | 33.6 (1.4) | 15.9 (0.9) |
| Ill-defined signs and symptoms of heart conditions | 55.5 (2.4) | 64.6 (2.6) | 53.8 (2.3) | 58.5 (2.4) |
| **All cardiovascular** | **84.8 (1.2)** | **75.8 (1.0)** | **63.3 (0.9)** | **63.7 (0.8)** |

(a) Age-standardised to the mid-1991 total Australian population.

(b) Includes after-effects of stroke.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

## Use of medication for recent cardiovascular condition by State and Territory

After adjusting for age, the reported rate for taking any medication for a recent cardiovascular condition was highest in Queensland (88.0%) and Victoria (83.2%) and lowest in South Australia (59.6%) and the Australian Capital Territory (58.6%). For use of specific 'heart' and blood pressure medications, reported rates were highest in Queensland (78.9%) and Victoria (68.3%) and lowest in South Australia (48.7%), Western Australia (51.1%) and the Australian Capital Territory (51.4%) (Table 51).

**Table 51: Percentage[(a)] of people reporting taking any medication for a recent cardiovascular condition by State and Territory, 1995**

| Medication | NSW | Vic | Qld | WA | SA | Tas | ACT | NT |
|---|---|---|---|---|---|---|---|---|
| | | | | Per cent (SE) | | | | |
| **Any medication** | 69.6(1.1) | 83.2 (1.6) | 88.0 (2.1) | 68.0 (2.5) | 59.6 (2.1) | 74.9 (4.4) | 58.6 (5.6) | 68.7 (11.3) |
| **Heart medication** | 55.8 (0.9) | 68.3 (1.4) | 78.9 (1.9) | 51.1 (1.9) | 48.7 (1.8) | 60.5 (3.6) | 51.4 (5.0) | 64.0 (10.7) |

(a) Age-standardised to the mid-1991 total Australian population.

SE: Standard error

*Source:* AIHW derived from the ABS National Health Survey 1995.

# Data from the Newcastle and Perth MONICA Projects

## Newcastle MONICA project

This study is described in detail on page 76. Information is available on drugs prescribed before onset of a coronary event, during the event for those who went to hospital, and at discharge for those who went to hospital and were discharged alive.

As there is a lack of national data on drug use in hospitals, a summary is provided here of the Newcastle MONICA results on drugs prescribed during hospitalisation for patients suffering coronary events. In 1994, anticoagulants were the most common type of drug prescribed during hospitalisation for persons suffering coronary events and were prescribed for 81% of cases managed (Table 52). Aspirin was the second most commonly prescribed drug in that year, being prescribed during hospitalisation for 80% of cases managed in hospital. Other drugs commonly prescribed during hospitalisation were beta blockers and calcium channel blockers.

Trends indicate that the use of most cardiovascular drugs during hospitalisation for coronary events has generally increased since 1984–85 (Table 52). This was true for anticoagulants, aspirin, antiarrhythmic drugs, beta blockers, calcium channel blockers, ACE inhibitors, thrombolytic therapy, and hypolipidaemic agents. However, the use of digoxin/digitalis during hospitalisation for coronary events fell over the 10-year period. The use of diuretics and 'other antihypertensive drugs' during hospitalisation fell between 1984–85 and 1988–89 but have remained fairly stable since.

**Table 52: Percentage of patients suffering coronary events who were prescribed certain drugs during hospital admission, persons aged 25 to 69 years, Newcastle, 1984–1994**

| | Year | | | | | | |
|---|---|---|---|---|---|---|---|
| **Type of drug** | **1984–85** | **1988–89** | **1990** | **1991** | **1992** | **1993** | **1994** |
| Anticoagulants | 65.1 | 66.2 | 72.0 | 77.0 | 74.7 | 78.6 | 81.2 |
| Aspirin | 17.4 | 56.8 | 66.3 | 69.9 | 76.1 | 80.5 | 80.0 |
| Other antiplatelet agents | 0.2 | 1.2 | 0.5 | — | — | — | — |
| Antiarrhythmic-not Beta blockers | 23.3 | 17.9 | 20.3 | 20.1 | 22.0 | 25.6 | 28.6 |
| Beta blockers | 41.0 | 40.9 | 44.3 | 44.9 | 49.4 | 51.9 | 55.5 |
| Calcium channel blockers | 26.7 | 41.8 | 48.5 | 49.5 | 52.3 | 54.1 | 52.2 |
| Ace inhibitors | 2.7 | 16.9 | 22.8 | 29.8 | 31.2 | 36.6 | 35.5 |
| Diuretics | 40.6 | 31.0 | 29.8 | 31.2 | 30.4 | 31.9 | 29.8 |
| Other antihypertensive drugs | 19.4 | 7.5 | 6.7 | 5.5 | 4.9 | 5.7 | 6.5 |
| Digoxin/digitalis | 25.3 | 19.3 | 17.1 | 17.6 | 15.3 | 16.0 | 15.5 |
| Nitrates | 71.9 | 75.0 | 79.8 | 85.1 | — | — | — |
| Hypolipidaemic agents | 0.8 | 5.0 | 6.1 | 7.6 | 9.4 | 12.0 | 9.8 |
| Thrombolytic therapy | 0.2 | 15.4 | 18.6 | 20.8 | 18.3 | 19.5 | 22.0 |
| Insulin | — | 5.6 | 5.6 | 5.9 | 5.5 | 7.4 | 3.7 |
| Oral hypoglycaemic agents | — | 4.5 | 4.6 | 4.7 | 6.0 | 5.1 | 5.7 |

—nil

*Source:* Steele & McElduff 1995b.

## Perth MONICA project

The Perth MONICA centre collected data on all suspected cases of heart attack or coronary death among residents aged 25 to 64 years living within the Perth statistical division. The study was conducted over a 10-year period and registration began in 1984.

Trends in the drug treatment of patients treated in hospital for acute myocardial infarction have been published by Thompson et al. (1992) for the period 1984 to 1990. In their paper, Thompson and colleagues defined a coronary event as a 'definite acute myocardial infarction or a fatal possible acute myocardial infarction or a final clinical diagnosis coded to the ICD-9 codes 410 or 411 (except 411.1)'.

For drug therapy during the hospital stay, there was a steady increase in the use of beta blockers from 52% in 1984 to 76% in 1990 (Table 53). The use of antiplatelet drugs (mainly aspirin), lipid lowering drugs and thrombolytic agents (principally streptokinase) also increased over the 7-year period. However, the proportion of patients receiving digitalis, other antiarrhythmics and diuretics during their hospital stay fell between 1984 and 1990.

**Table 53: Percentage of patients aged 25 to 64 years with acute coronary symptoms prescribed certain drugs during hospital admission(a), Perth, 1984–1990**

| | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Type of drug** | **1984** | **1985** | **1986** | **1987** | **1988** | **1989** | **1990** | **All** |
| Beta blockers | 51.5 | 56.8 | 62.4 | 64.3 | 71.0 | 75.9 | 76.1 | 65.6 |
| Calcium channel blockers | 52.8 | 54.2 | 53.1 | 57.6 | 54.4 | 49.1 | 45.6 | 52.3 |
| Diuretics | 42.0 | 41.6 | 39.1 | 33.8 | 33.8 | 35.7 | 33.3 | 37.0 |
| Other antihypertensive agents | 9.8 | 13.1 | 11.3 | 9.9 | 14.2 | 16.6 | 17.5 | 13.2 |
| Digitalis | 12.2 | 10.5 | 10.0 | 7.8 | 10.2 | 9.8 | 7.8 | 9.7 |
| Other inotropic agents | 10.9 | 11.1 | 12.5 | 12.8 | 13.6 | 14.0 | 14.3 | 12.8 |
| Antiarrhythmic agents | 49.3 | 36.4 | 35.4 | 33.0 | 28.9 | 29.3 | 22.6 | 33.4 |
| Anticoagulants | 83.1 | 84.1 | 86.5 | 86.9 | 84.9 | 74.2 | 80.7 | 82.9 |
| Thrombolytic agents | 2.4 | 7.9 | 12.2 | 17.4 | 24.6 | 30.5 | 32.4 | 18.4 |
| Antiplatelet agents | 25.1 | 47.2 | 48.6 | 63.1 | 80.4 | 88.9 | 87.9 | 63.3 |
| Intravenous nitrates | 44.8 | 48.3 | 42.3 | 41.9 | 40.5 | 45.3 | 48.5 | 44.5 |
| Insulin | 5.2 | 8.5 | 10.4 | 12.3 | 10.2 | 9.5 | 11.2 | 9.6 |
| Hypolipidaemic agents | 0.7 | 0.4 | 1.4 | 3.0 | 4.8 | 3.7 | 4.2 | 2.6 |
| Number of patients | 745 | 718 | 782 | 757 | 748 | 748 | 796 | 5,294 |

(a) Information on drugs prescribed during admission was not available for approximately 2% of patients each year. These patients were treated in non-teaching hospitals and are assumed not to have been prescribed the drug in question.

*Source:* Thompson et al. 1992.

# Data from the Hunter Region Heart Disease Prevention Programme

The 1994 survey of the Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study asked several questions about aspirin use (Alexander et al. 1995). Specifically, respondents were asked how often they took aspirin, and whether they had taken aspirin during the last two weeks to prevent or treat heart disease.

In 1994, 5% of males and 2% of females aged 35 to 64 years reported that they had taken aspirin in the two weeks before interview to prevent or treat heart disease (Table 54). The

proportion of males and females taking aspirin to prevent or treat heart disease increased with age. Those aged 65 to 69 years were particularly more likely to have taken aspirin than those aged 64 years and under.

**Table 54: Percentage[(a)] of males and females who took aspirin in the two weeks before interview to prevent or treat heart disease, 35 to 69 year olds, Hunter region, 1994**

| Age group (years) | Males | Females |
|---|---|---|
| 35–39 | — | 1 |
| 40–44 | 1 | — |
| 45–49 | 3 | 1 |
| 50–54 | 9 | 1 |
| 55–59 | 9 | 4 |
| 60–64 | 12 | 6 |
| 65–69 | 22 | 11 |
| **Total (35–64)** | **5** | **2** |

(a) Weighted per cent

—nil

*Source:* Alexander et al. 1995

Over the period 1983 to 1994, the proportion of males aged 35 to 64 years taking aspirin every day increased from 3% to 8% (Table 55). In fact, in each age group, males in 1994 were more likely to take aspirin every day than their counterparts in 1983 and 1988–89. Among females, however, this was only true for those aged 55 to 69 years, and overall the proportion of females taking aspirin every day remained constant at 3%.

**Table 55: Percentage[(a)] of males and females taking aspirin every day, 35 to 69 year olds, Hunter region, 1983–1994**

| Sex / age group (years) | Year | | |
|---|---|---|---|
| | 1983 | 1988–89 | 1994 |
| **Males** | | | |
| 35–39 | 1 | — | — |
| 40–44 | 2 | 2 | — |
| 45–49 | 3 | — | 6 |
| 50–54 | 4 | 6 | 17 |
| 55–59 | 5 | 12 | 16 |
| 60–64 | 4 | 12 | 17 |
| 65–69 | n.a. | 18 | 28 |
| **Total (35–64)** | **3** | **5** | **8** |
| **Females** | | | |
| 35–39 | 2 | 1 | 1 |
| 40–44 | 2 | 1 | — |
| 45–49 | 5 | 4 | 1 |
| 50–54 | 4 | 5 | 1 |
| 55–59 | 3 | 4 | 7 |
| 60–64 | 4 | 8 | 11 |
| 65–69 | n.a. | 15 | 18 |
| **Total (35–64)** | **3** | **3** | **3** |

(a) Weighted per cent

—nil

n.a. not applicable, people aged 65–69 years were not included in the 1983 survey.

*Source:* Alexander et al. 1995.

# Health care costs

## Introduction

This chapter presents information on the costs of health care for cardiovascular diseases in Australia. Results from two sources are presented—the Disease Costs and Impact Study 1993–94; and 1994–95 Australian casemix data.

## The Disease Costs and Impact Study

This section provides estimates of the health care costs of cardiovascular disease. These estimates come from the Disease Costs and Impact Study (DCIS) which is conducted by the Australian Institute of Health and Welfare. The DCIS estimates the direct costs of health services by taking known aggregate expenditures on health care and apportioning them to disease categories using Australian data on disease prevalence and costs (Australian Institute of Health and Welfare 1996a). Estimates for the health care costs (i.e. the costs of hospital admitted patient and outpatient services, nursing homes, medical services, allied health services, pharmaceuticals, and 'other') of cardiovascular diseases in 1993–94 are provided here.

### Cardiovascular health care costs in 1993–94

In 1993–94, health care costs for cardiovascular diseases totalled $3,719 million (Table 56). This represented 12% of the total health care costs for all diseases in that year ($31,397 million). Hospital admitted patient expenditure accounted for 41% of the health care costs of cardiovascular disease. Pharmaceutical costs accounted for a further 20%, while nursing home and medical services expenditure each accounted for approximately 15%.

Coronary heart disease was the major contributor to cardiovascular health care costs in 1993–94, accounting for 25% ($894 million) of the total (Table 56). Approximately one fifth ($168 million) of the cost of coronary heart disease was attributable to acute myocardial infarction.

Other major contributors to the health care costs of cardiovascular disease in 1993–94 were hypertensive disease, cerebrovascular disease, and 'other forms of heart disease', particularly heart failure (Table 56).

In terms of specific sectors of expenditure for cardiovascular diseases, coronary heart disease was the major contributor to hospital admitted patient costs (Table 56). Cerebrovascular disease dominated nursing home costs, while hypertensive disease was the major contributor to medical, pharmaceutical, allied health professional and outpatient costs.

Overall, the health care costs of cardiovascular disease were similar for males and females (Table 57). The largest relative differences were for nursing home costs, which were higher for females; and hospital admitted patient costs, which were higher for males.

For specific cardiovascular conditions, the differences in costs between males and females were more pronounced (Tables S48–S59). The health care costs of coronary heart disease,

atherosclerosis and peripheral vascular disease were higher for males than females across nearly all sectors of expenditure. In contrast, the costs of hypertensive disease, cerebrovascular disease, rheumatic heart disease and heart failure were generally higher for females than males.

**Box 13: Health expenditure explanatory notes**

*The categories of recurrent expenditure on health are apportioned using hospital morbidity data, casemix data, the Survey of Morbidity and Treatment in General Practice in Australia 1990–91, and the Australian Bureau of Statistics' National Health Survey 1989–90. The sectors of expenditure included here are hospital admitted patients and outpatients; nursing homes; medical services; allied health professional services; pharmaceuticals; and 'other', which includes research, other institutional (not elsewhere classified), administration, and other non-institutional. An overview of the disease costing methodology can be found in* ***Appendix H*** *and more detailed information on the methodology can be found in* Disease Costing Methodology Used in the Disease Costs and Impact Study 1993–94 *by Mathers et al. (in press).*

*The cardiovascular conditions included have been classified according to the International Classification of Diseases Ninth Revision (ICD-9-CM) and are listed here along with their corresponding International Classification of Primary Care codes.*

| Cardiovascular disease | ICD-9-CM codes | ICPC codes |
|---|---|---|
| Rheumatic heart disease | 390–398 | K71 |
| Hypertensive disease | 401–405 | K86, K87 |
| Coronary heart disease | 410–414 | K74-K76 |
| acute myocardial infarction | 410 | K75(p) |
| other coronary heart disease | 411–414 | K74, K75(p), K76 |
| Other forms of heart disease | 420–429 | K77-K80, K83, K84(p) |
| cardiac dysrhythmias | 426–427 | K78-K80, K84(p) |
| heart failure | 428 | K77 |
| other | 420–425, 429 | K70(p), K84(p), K83 |
| Cerebrovascular disease | 430–438 | K89, K90, K92(p) |
| Diseases of arteries, arterioles and capillaries | 440–448 | K91, K92(p), K99(p) |
| atherosclerosis | 440 | K91 |
| peripheral vascular disease | 441–444 | K92(p), K99(p) |
| other diseases of arteries, arterioles and capillaries | 446–448 | K99(p) |
| Other cardiovascular disease | 415–417, 451–459 | K82, K84(p), K88, K93–K96, K96, K99(p) |

The health care costs of cardiovascular diseases increased with age for both males and females in 1993–94. For all cardiovascular disease, costs were of a similar order of magnitude for males and females up to age 44 years (Figure 22). Between the ages of 45 and 74 years, costs were substantially higher for males than females. However, from age 75 onwards costs were higher for females.

For coronary heart disease, health care costs were higher for males than females at every age group except 75+ years (Figure 23). Among males, health care costs rose rapidly between the ages of 35 and 74 years but fell in the older age group. For females, the rise in costs also began at age 35 years and continued to increase through to the oldest age group.

**Table 56: Health care costs of cardiovascular diseases, Australia, 1993-94 ($ '000)**

| Disease | Hospital admitted patient[a] | Hospital out-patient | Nursing home | Medical[b] | Allied health pro-fessional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| Rheumatic heart disease | 17,660 | 1,106 | 525 | 1,824 | 203 | 1,473 | 1,198 | **23,987** |
| Hypertensive disease | 23,014 | 31,774 | 6,680 | 216,620 | 20,138 | 476,063 | 56,670 | **830,990** |
| Coronary heart disease | 556,514 | 17,724 | 72,533 | 87,978 | 5,491 | 105,365 | 48,839 | **894,443** |
| Acute myocardial infarction | 128,575 | 451 | 25,274 | 3,217 | 73 | 1,063 | 9,165 | **167,819** |
| Other | 427,939 | 17,273 | 47,259 | 84,760 | 5,418 | 104,302 | 39,674 | **726,624** |
| Other forms of heart disease | 311,237 | 41,450 | 167,112 | 92,860 | 4,679 | 81,073 | 42,509 | **740,921** |
| Cardiac dysrhythmias | 96,008 | 18,319 | 28,718 | 35,777 | 695 | 30,890 | 13,173 | **223,581** |
| Heart failure | 143,262 | 18,017 | 135,252 | 47,235 | 3,931 | 45,237 | 23,180 | **416,113** |
| Other | 71,967 | 5,114 | 3,142 | 9,848 | 53 | 4,946 | 6,156 | **101,227** |
| Cerebrovascular disease | 269,417 | 13,652 | 265,403 | 31,415 | 4,752 | 13,026 | 32,813 | **630,476** |
| Diseases of arteries, arterioles, & capillaries | 164,617 | 15,519 | 36,522 | 21,721 | 2,067 | 10,673 | 17,913 | **269,034** |
| Atherosclerosis | 36,181 | 6,797 | 8,092 | 1,633 | 139 | 1,636 | 5,142 | **59,619** |
| Peripheral vascular disease | 112,999 | 5,921 | 25,377 | 15,420 | 1,705 | 7,044 | 10,998 | **179,465** |
| Other | 15,437 | 2,802 | 3,053 | 4,668 | 223 | 1,994 | 1,773 | **29,950** |
| Other cardiovascular disease | 166,588 | 12,343 | 37,427 | 48,476 | 2,387 | 25,259 | 16,854 | **309,334** |
| Unspecified treatment & aftercare | 4,394 | 1,126 | 648 | 1,057 | — | 884 | 507 | **8,616** |
| Prevention & screening | 81 | 8,497 | — | 1,470 | — | 911 | 684 | **11,644** |
| **Total** | **1,513,522** | **143,191** | **586,850** | **503,421** | **39,717** | **714,726** | **217,987** | **3,719,414** |

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

Up to the age of 74 years, the health care costs of 'other forms of heart disease' were slightly higher for males than females (Figure 23). However, between the age groups 65–74 years and 75+ years, the costs for females rose by 248% compared to a rise of 55% for males.

For cerebrovascular disease, the patterns by age group and sex were very similar to that of 'other forms of heart disease'.

Among both males and females, the health care costs of hypertensive disease increased steadily with age until age 74 years and then fell (Figure 23). From age 45 years onwards, costs were higher for females than males.

**Table 57: Health care costs of all cardiovascular disease by sex and sector of expenditure, Australia, 1993–94 ($ '000)**

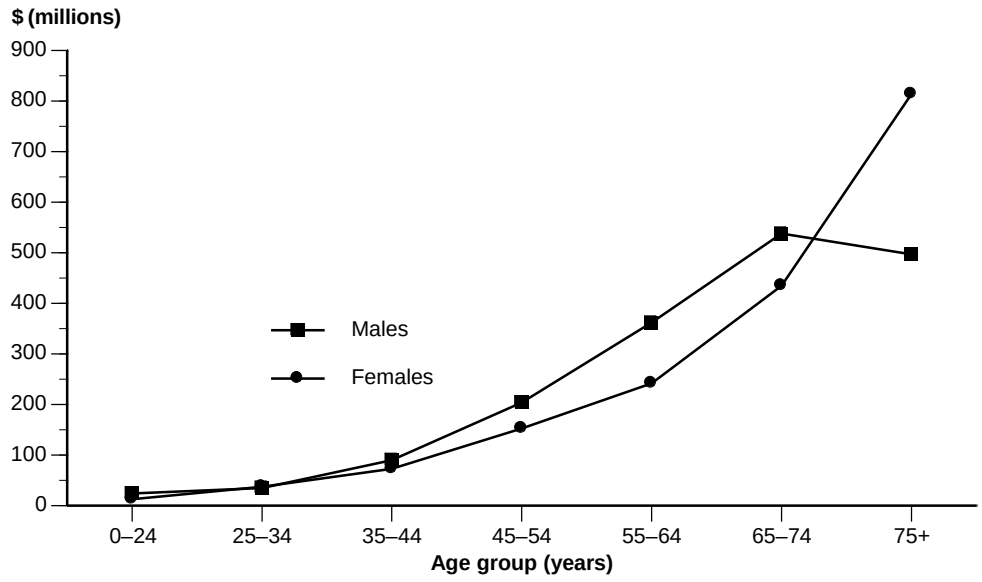
| Sector of expenditure | Males | Females | Ratio of costs for males to costs for females |
|---|---|---|---|
| Hospital admitted patient[a] | 876,458 | 637,064 | 1.4 |
| Hospital outpatient | 73,258 | 69,933 | 1.0 |
| Nursing home | 217,177 | 369,673 | 0.6 |
| Medical[b] | 243,960 | 259,461 | 0.9 |
| Allied health professional | 20,987 | 18,730 | 1.1 |
| Pharmaceutical | 303,065 | 411,662 | 0.7 |
| Other[c] | 107,514 | 110,472 | 1.0 |
| **Total** | **1,842,419** | **1,876,995** | **1.0** |

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

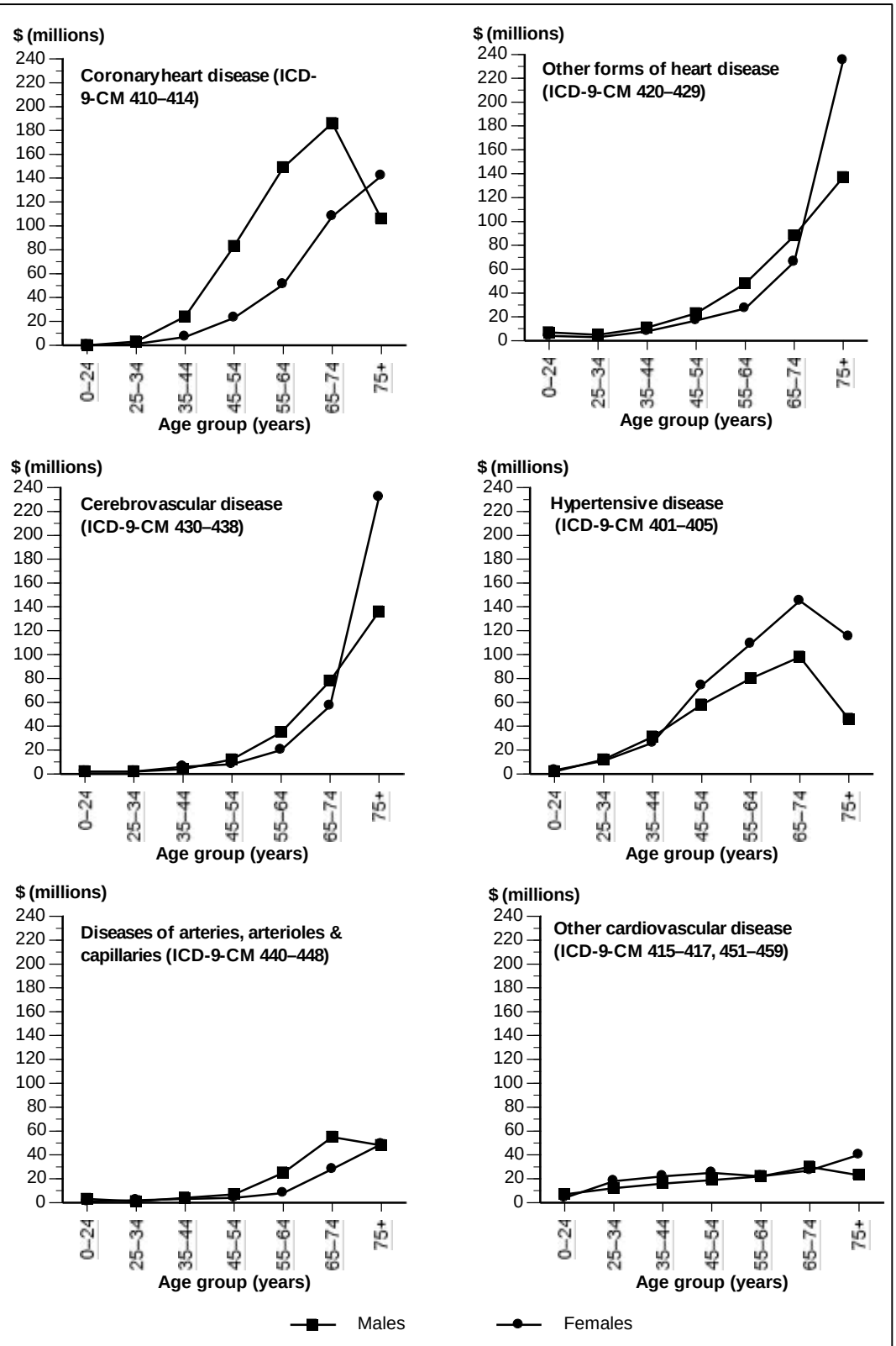



Refer to Table S48

*Source*: AIHW, Disease Costs and Impact Study.

**Figure 22: Health care costs of cardiovascular disease by age, Australia, 1993–94**

The health care costs of diseases of the arteries, arterioles and capillaries increased substantially from middle age onwards (45–54 years) for females (Figure 23). For males, the rise in costs also began from age 45 years; however costs for the 75+ year age group were slightly lower than for the 65–74 year age group.

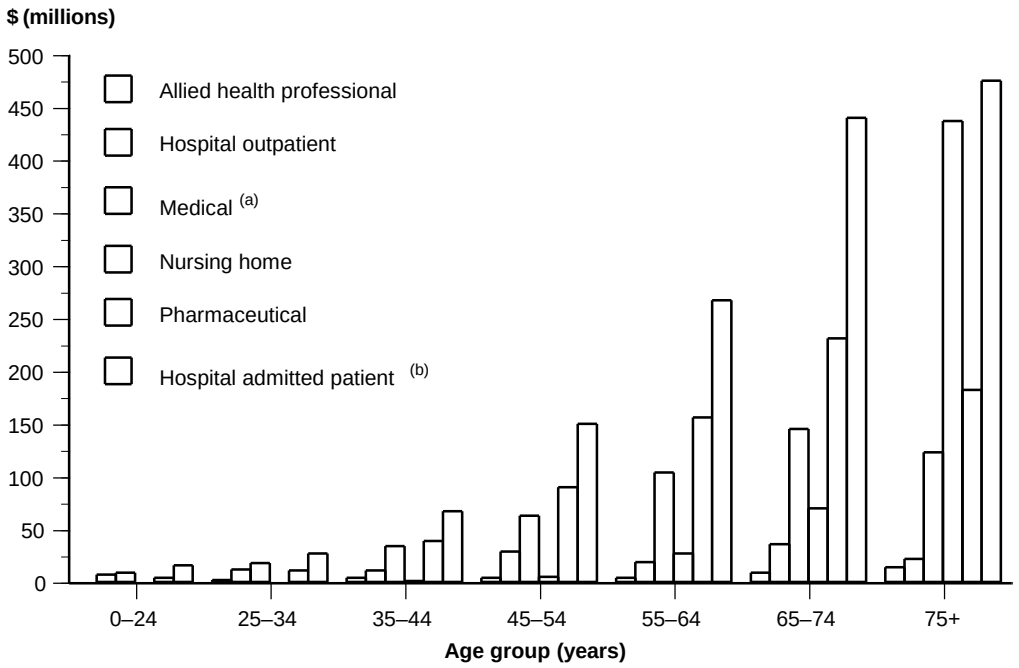



Refer to Tables S50–S51, S53, S56–S57

*Source*: AIHW, Disease Costs and Impact Study.

**Figure 23: Health care costs for selected cardiovascular diseases by age and sex, Australia, 1993–94**

The costs of all cardiovascular disease also tended to increase with age for each sector of expenditure (Figure 24). In each age group, the highest costs were for hospital admitted patient services. The second most costly sector of expenditure was medical for persons aged 0–34 years, pharmaceutical for persons aged 35–74 years, and nursing home for persons aged 75 years and over. Between the age groups 65–74 years and 75+ years, nursing home costs for cardiovascular disease increased by over 500% from $75 million to $489 million.




(a) Medical services for private patients in hospitals are included under 'Hospital inpatient'.

(b) Includes public, private and repatriation hospitals.

Refer to Table S48

*Source*: AIHW, Disease Costs and Impact Study.

**Figure 24: Health care costs for cardiovascular disease by age group and sector of expenditure, Australia, 1993–94**

# Australian casemix data

The term 'casemix' and its classification into Diagnosis Related Groups (DRGs) are explained on page 68. The *Australian Casemix Report* provides national information on public and private acute hospital activity for each financial year (Commonwealth Department of Health and Family Services 1997b). This hospital activity is measured by Australian National Diagnosis Related Groups (AN-DRGs). Information is available on average cost and cost by volume for AN-DRGs.

## AN-DRG costs in 1995–96

Public and private cost weights are calculated in different ways, using different cost components (Commonwealth Department of Health and Family Services 1996b). Therefore it is not appropriate to use the cost estimates provided in this section to suggest that the private sector is more cost effective than the public sector or vice versa.

In terms of cost by volume, 'heart failure & shock' (AN-DRG 252) was the leading cardiovascular AN-DRG in public acute hospitals with a total cost of $117 million in 1995–96 (Table 58). Among private hospitals, AN-DRG 291 ('coronary bypass without invasive cardiac investigation procedure without major complications and comorbidities') was the leading cardiovascular AN-DRG for cost by volume. Five of the cardiovascular AN-DRGs with the highest cost by volume in public hospitals were also among the top ten in private hospitals.

**Table 58: The 10 cardiovascular AN-DRGs (V3.0) with the highest cost by volume, by type of hospital, Australia, 1995–96**

| Hospital type / AN-DRG | Description | Number of separations | Cost by volume ($ million) | % of total cost by volume for hospital type |
|---|---|---|---|---|
| **Public acute** | | | | |
| 252 | Heart Failure & Shock | 32,700 | 117 | 1.3 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 13,378 | 106 | 1.2 |
| 249 | Circ Disorders W AMI W/O Invasive Cardiac Inves Proc W/O Major CC | 17,521 | 73 | 0.8 |
| 291 | Coronary Bypass W/O Invasive Cardiac Inves Proc W/O Major CC | 6,721 | 68 | 0.7 |
| 038 | Cerebrovascular Disorders Except TIA W/O CC | 11,804 | 65 | 0.7 |
| 297 | Trans-Vascular Percutaneous Cardiac Intervention | 8,719 | 46 | 0.5 |
| 270 | Unstable Angina W/O CC | 19,432 | 43 | 0.5 |
| 269 | Unstable Angina W CC | 12,074 | 37 | 0.4 |
| 274 | Circ Dsr W/O AMI W Invas Card Inves Proc W/O Comp Dx & W/O Maj C | 21,252 | 37 | 0.4 |
| 273 | Circ Dsr W/O AMI W Invas Card Inves Proc W Comp Dx or W Maj CC | 9,867 | 36 | 0.4 |
| **Private acute** | | | | |
| 291 | Coronary Bypass W/O Invasive Cardiac Inves Proc W/O Major CC | 3,576 | 29 | 1.1 |
| 252 | Heart Failure & Shock | 6,594 | 21 | 0.7 |
| 274 | Circ Dsr W/O AMI W Invas Card Inves Proc W/O Comp Dx & W/O Maj C | 15,925 | 19 | 0.7 |
| 297 | Trans-Vascular Percutaneous Cardiac Intervention | 5,135 | 19 | 0.7 |
| 239 | Vein Ligation & Stripping | 9,941 | 16 | 0.6 |
| 288 | Coronary Bypass W Invasive Card Inves Proc Age>64 or W N-Maj CC | 1,217 | 13 | 0.5 |
| 037 | Cerebrovascular Disorders Except TIA W CC | 2,374 | 11 | 0.4 |
| 236 | Cardiac Pacemaker Implantation | 1,113 | 11 | 0.4 |
| 224 | Cardiac Valve Proc W Pump W/O Invasive Card Inves Proc W/O Maj CC | 846 | 10 | 0.4 |
| 230 | Major Reconstruct Vascular Proc W/O Pump W/O CC | 1,483 | 9 | 0.3 |

*Notes:* AMI—Acute myocardial infarction

Card—Cardiac

CC—Complications and Comorbidities

Circ—Circulatory

Comp—Complicated

Dsr—Disorder

Dx—Diagnosis

Invas—Invasive

Inves—Investigation

N—No

Proc—Procedure

TIA—Transient Ischaemic Attack

W—With

W/O—Without

*Source:* Australian Institute of Health and Welfare 1997a.

# Medical labour force related to cardiovascular conditions

## Introduction

The Australian Institute of Health and Welfare conducts a survey on the medical labour force in Australia. The scope of the survey is to gather information on all medical practitioners registered with the Medical Board in each State and Territory who are eligible to practise.

Each State and Territory Medical Board conducts an annual renewal of practitioner registration and, except for Western Australia, the survey questionnaire is sent to all medical practitioners as part of the registration process. In Western Australia, the first survey conducted by the Medical Board was in conjunction with the renewal of registration in 1996. Estimates based on the 1996 survey have been included to provide national aggregates (Australian Institute of Health and Welfare 1997b).

## Uses of medical labour force data for monitoring medical care of cardiovascular conditions

The Medical Labour Force Survey can be used to estimate the numbers of practitioners registered and working in the specialties of cardiology, cardiothoracic surgery and vascular surgery. However, it should be noted that not all procedures carried out by cardiothoracic, vascular and neurosurgeons would be for cardiovascular diseases or related conditions.

Data on Medicare practitioners from the Department of Health and Family Services provides some information on the number of Medicare registered practitioners, and the number of services carried out in and out of hospital. It must again be noted that not all procedures carried out by the specialists listed would have been for cardiovascular conditions. Estimates of practitioner numbers from the Medical Labour Force Survey may differ from estimates from Medicare data, as Medicare statistics for specialists include non-specialists whose main income from Medicare is in a specialist field.

## Number of medical practitioners and Medicare services in cardiovascular and related specialties

In 1995 there were an estimated 471 cardiologists, 84 cardiothoracic surgeons, 106 neurosurgeons and 122 vascular surgeons registered and practising in these fields as their main specialty. In addition there were an estimated 71 general practitioners mainly practising in cardiology (Australian Institute of Health and Welfare 1997b).

Medicare data, which does not cover services to public patients in public hospitals or outpatient services by public hospitals, indicate that 473 cardiologists provided 1,700,000 services in 1994–95, representing an average of 949 in hospital services and 2,646 out of

hospital services per cardiologist. An estimated 90 cardiothoracic surgeons provided 63,000 services, representing an average of 408 in hospital and 289 out of hospital services per practitioner. An estimated 119 practitioners performed 198,000 vascular procedures, representing 404 in hospital and 1,258 out of hospital procedures per practitioner (Table 59) (Australian Institute of Health and Welfare 1996c).

**Table 59: Cardiovascular condition related Medicare providers and services, 1994–95**

| Specialty | Number of practitioners | Services ('000s) | Average number of services per practitioner | |
|---|---|---|---|---|
| | | | In hospital | Out of hospital |
| Cardiology | 473 | 1,700 | 949 | 2,646 |
| Cardiothoracic surgery | 90 | 63 | 408 | 289 |
| Neurosurgery | 94 | 93 | 305 | 684 |
| Vascular surgery | 119 | 198 | 404 | 1,258 |

*Source:* Department of Health and Family Services, unpublished data.

# Appendix A

## Definitions of data items in the Australian Bureau of Statistics' National Health Survey 1995

- *Cardiovascular conditions* – a generic term describing the following conditions of the circulatory system (Australian Bureau of Statistics 1997b): hypertension (high blood pressure), heart disease (including ischaemic heart disease, diseases of pulmonary circulation and heart failure), atherosclerosis (plaque lining the arteries); cerebrovascular disease (including stroke and its after effects), other circulatory diseases (including thrombosis, aneurysms and diseases of the capillaries), and ill-defined heart conditions such as irregular heart beat and palpitations. Varicose veins and haemorrhoids are excluded.
- *Recent cardiovascular condition* — estimated from the reported cardiovascular conditions experienced by the respondent in the two weeks prior to interview.
- *Action* — estimated from the reported actions taken for a recent cardiovascular condition. Actions taken included consultations with doctors and other health professionals, use of medications, admission to hospital as an inpatient (including same day patients), use of casualty (emergency) or outpatient services at a hospital, and visits to day clinics.
- *Admitted to hospital* – estimated from the reported admission as an inpatient for a period of one night or more, or for less than one night on a doctor's referral (such as day patients admitted for minor surgery, tests or other procedures) in the two weeks prior to interview, for a recent cardiovascular condition.
- *Visited casualty/emergency or outpatients* – estimated from the reported use of emergency, casualty and outpatient services at a hospital in the two weeks prior to interview for a recent cardiovascular condition.
- *Visited day clinics* – estimated from the reported visits to day clinics (as identified by the respondent) for minor surgery or diagnostic tests (excluding X-rays) for a recent cardiovascular condition.
- *Doctor consultations* – estimated from the reported consultation with a doctor in the two weeks prior to interview for a recent cardiovascular condition.
- *Consultation with other health professional* – estimated from the reported consultations with a health professional (excluding a doctor) in the two weeks prior to interview for a recent cardiovascular condition.
- *All medication* — estimated from the reported consumption or other use of any medications, pills or ointments during the two weeks prior to interview for a recent cardiovascular condition.
- *Heart medication* – estimated from the reported consumption or other use of medication for fluid, heart or blood pressure in the two weeks prior to interview for a recent cardiovascular condition.
- *Days away from work or school* – estimated from the reported normal work or school days (other than days in hospital) on which the respondent did not attend for all or most of the day. School days include days away from college, university, etc.

- *Days of reduced activity*—estimated from the reported days (other than days away from work or school) on which the respondent cut down on his/her usual activities.

# Appendix B

## Cardiovascular conditions included in estimates from the Australian Bureau of Statistics' National Health Survey 1995

| Condition | ICD-9-CM code | ABS code |
|---|---|---|
| **Hypertension** | | 072 |
| Essential hypertension | 401 | |
| Hypertensive heart disease | 402 | |
| Hypertensive renal disease | 403 | |
| Hypertensive heart and renal disease | 404 | |
| Secondary hypertension | 405 | |
| **Heart disease** | | 082 |
| Rheumatic fever with heart involvement | 391 | |
| Diseases of mitral valve | 394 | |
| Other rheumatic heart disease | 398 | |
| Ischaemic heart disease | 410–414 | |
| Diseases of pulmonary circulation | 415–417 | |
| Acute pericarditis | 420 | |
| Acute and subacute endocarditis | 421 | |
| Acute myocarditis | 422 | |
| Other diseases of pericardium | 423 | |
| Other diseases of endocardium | 424 | |
| Cardiomyopathy | 425 | |
| Conduction disorders | 426 | |
| Cardiac dysrhythmias | 427 | |
| Heart failure | 428 | |
| Ill-defined descriptions and complications of heart disease | 429 | |
| **Atherosclerosis** | 440 | 015 |
| **Cerebrovascular disease** | | 219 |
| Subarachnoid haemorrhage | 430 | |
| Intracerebral haemorrhage | 431 | |
| Other and unspecified intracranial haemorrhage | 432 | |
| Occlusion and stenosis of precerebral arteries | 433 | |
| Occlusion of cerebral arteries | 434 | |
| Transient cerebral ischaemia | 435 | |
| Acute, but ill-defined, cerebrovascular disease | 436 | |
| Other and ill-defined cerebrovascular disease | 437 | |

*(continued)*

| Condition | ICD-9-CM code | ABS code |
|---|---|---|
| **Stroke after effects** | | 119 |
| Late effects of cerebrovascular disease | 438 | |
| **Other diseases of the circulatory system** | | 019 |
| Rheumatic fever without mention of heart involvement | 390 | |
| Aortic aneurysm | 441 | |
| Other aneurysm | 442 | |
| Other peripheral vascular disease | 443 | |
| Arterial embolism and thrombosis | 444 | |
| Polyarteritis nodosa and allied conditions | 446 | |
| Other disorders of arteries and arterioles | 447 | |
| Disease of capillaries | 448 | |
| Phlebitis and thrombophlebitis | 451 | |
| Portal vein thrombosis | 452 | |
| Other venous embolism and thrombosis | 453 | |
| Noninfectious disorders of lymphatic channels | 457 | |
| Hypotension | 458 | |
| Other disorders of circulatory system | 459 | |
| Bulbus cordis anomalies and anomalies of cardiac septal closure | 745 | |
| Anomalies of pulmonary valve | 746 | |
| Other congenital anomalies of circulatory system | 747 | |
| Ill-defined signs and symptoms of heart conditions | 427, 429 | 182 |

# Appendix C

## Index of antithrombotic, lipid lowering and cardiovascular drugs by generic drug name

This index lists antithrombotic, lipid lowering and cardiovascular drugs by generic drug name. The Anatomical Therapeutic Chemical (ATC) code at the main group or therapeutic subgroup level is indicated in brackets.

### Anticoagulants (B01AA, B01AB)

#### Vitamin K antagonists (B01AA)

Phenindione

Warfarin

#### Heparin group (B01AB)

Dalteparin

Enoxaparin

Heparin

Heparin calcium

Heparin sodium

Heparin sodium LMW

Heparinised saline

Tinzparin

### Antiplatelet drugs (B01AC)

Aspirin

Dipyridamole

Ticlopidine hydrochloride

### Thrombolytic drugs (B01AD)

Streptokinase

### Serum lipid lowering drugs (B04)

#### Statins (HMG COA reductase inhibitors) (B04AB)

Pravastatin

Simvastatin

#### Fibrates (B04AC)

Clofibrate

Gemfibrozil

#### Resin binders (bile sequestrants) (B04AD)

Cholestyramine

Colestipol hydrochloride

#### Other lipid lowering drugs (B04AE, B04AX)

**Nicotinic acid and derivatives (B04AE)**

Nicotinic acid

**Other cholesterol and triglyceride reducers (B04AX)**

Probucol

## Inotropic drugs (C01A, C01C)

### Cardiac glycosides (C01A)

Digoxin

Proscillaridin

### Cardiac stimulants excluding cardiac glycosides (C01C)

Dobutamine hydrochloride

Dopamine hydrochloride

Metaraminol

## Antiarrhythmics (C01B)

Amiodarone hydrochloride

Bretylium tosylate

Disopyramide

Flecainide acetate

Lignocaine hydrochloride

Mexiletine hydrochloride

Procainamide hydrochloride

Quinidine

## Nitrates (antianginal vasodilators) (C01D)

Glyceryl trinitrate

Isosorbide dinitrate

Isosorbide mononitrate

Pentaerythritol tetranitrate

## Diuretics (C03)

### Thiazides (C03A)

Bendrofluazide

Chlorothiazide

Cyclopenthiazide

Hydrochlorothiazide

Methyclothiazide

### Low ceiling diuretics excluding thiazides (C03B)

Chlorthalidone

Clopamide

Indapamide

Mefruside

Metolazone

Quinethazone

### High ceiling diuretics excluding thiazides (C03C)

Bumetanide

Ethacrynic acid

Frusemide

### Potassium sparing agents (C03D)

Amiloride hydrochloride

Spironolactone

Triamterene

### Low ceiling diuretics and potassium sparing agents in combination (C03E)

Hydrochlorothiazide with amiloride hydrochloride

Hydrochlorothiazide with triamterene

## Beta blockers (C07)

Alprenolol hydrochloride

Atenolol

Atenolol with chlothalidone

Labetalol hydrochloride

Metoprolol tartrate

Oxprenolol hydrochloride

Penbutolol

Pindolol

Pindolol with clopamide

Propranolol hydrochloride

Sotalol hydrochloride

Timolol maleate

## Calcium channel blockers (C08)

Amlodipine besylate

Diltiazem hydrochloride

Felodipine

Nifedipine

Perhexiline maleate

Verapamil hydrocholride

## ACE inhibitors (C09)

Captopril

Enalapril maleate

Fosinopril

Fosinopril sodium

Lisinopril

Perindopril

Quinapril

Ramipril

Trandolapril

## Other antihypertensives (C02A, C02C, C02D)

### Centrally acting antiadrenergic agents (C02A)

Clonidine

Methyldopa

Rauwolfia serpentina

### Peripherally acting antiadrenergic agents (C02C)

Debrisoquine

Labetol hydrochloride

Prazosin hydrochloride

Terazosin

### Agents acting on arteriolar smooth muscle (C02D)

Diazoxide

Hydralazine hydrochloride

Minoxidil

Sodium nitroprusside

## Peripheral vasodilators (C04)

Betahistine

Isoxuprine

Nicotinic acid

Oxpentifylline

Phenoxybenzamine hydrochloride

Phentolamine mesylate

# Appendix D

## The classification of cardiovascular disease under the International Classification of Primary Care

The International Classification of Primary Care (ICPC) is a widely tested, comprehensive classification system designed for use by primary care providers (Lamberts & Wood 1987). The ICPC allows for the classification of a patient's reason for encounter, the provider's assessment/diagnosis, and the process of care/intervention undertaken by the provider. The structure of the ICPC includes 17 chapters, nearly all of which are based on body systems, each with seven identical components.

The 17 chapters are:

A General and unspecified
B Blood and blood-forming organs and lymphatics (spleen, bone marrow)
D Digestive
F Eye
H Ear
K Circulatory (referred to in this report as Cardiovascular)
L Musculoskeletal
N Neurological
P Psychological
R Respiratory
S Skin
T Endocrine, metabolic and nutritional
U Urological
W Pregnancy, child bearing, family planning
X Female genital (including breast)
Y Male genital
Z Social problems.

The seven components within each chapter are:

1. Symptoms and complaints;
2. Diagnostic and preventive procedures;
3. Medication, treatment, and therapeutic procedures;
4. Results;
5. Administrative;
6. Referral and other reasons for encounter; and
7. Diagnoses.

The first and seventh components of the ICPC can be converted to the Ninth Revision of the International Classification of Disease (ICD-9-CM), however conversion on a one-to-one basis is not always possible. Lamberts and Wood (1987) include a conversion of ICPC to ICD-9-CM.

The ICPC codes for cardiovascular conditions are:

## K—Circulatory

**Component 1—Symptoms and complaints**

| ICPC code | ICPC Description |
|---|---|
| K01 | Pain attributed to heart |
| K02 | Pressure, tightness, heaviness attributed to heart (excl. R02—shortness of breath, dyspnoea) |
| K03 | Other pain attributed to circulatory system |
| K04 | Palpitations/awareness of heartbeats |
| K05 | Other abnormal/irregular heartbeat/pulse |
| K06 | Prominent veins |
| K07 | Swollen ankles/oedema |
| K24 | Fear of heart attack |
| K25 | Fear of hypertension (excl. known hypertension) |
| K27 | Fear of other disease of the circulatory system |
| K28 | Disability/impairment |
| K29 | Other symptoms/complications of the heart/circulatory system (excl. R93—fluid in chest) |

## Component 7 – Diagnosis/diseases

| ICPC code | ICPC Description |
|---|---|
| K70 | Infectious disease of the circulatory system |
| K71 | Acute rheumatic fever/ chronic rheumatic heart disease |
| K72 | Neoplasm of the circulatory system |
| K73 | Congenital anomalies of the heart/circulatory system |
| K74 | Angina pectoris |
| K75 | Acute myocardial infarction |
| K76 | Other and chronic coronary heart disease |
| K77 | Heart failure |
| K78 | Atrial fibrillation/flutter |
| K79 | Paroxysmal tachycardia |
| K80 | Ectopic beats, all types |
| K81 | Heart murmur, not otherwise specified |
| K82 | Pulmonary heart disease |
| K83 | Heart valve disease not otherwise specified, non-rheumatic |
| K84 | Other disease of the heart |
| K85 | Elevated blood pressure without hypertension |
| K86 | Uncomplicated hypertension |
| K87 | Hypertension with involvement of target organs |
| K88 | Postural hypotension (low blood pressure) |
| K89 | Transient cerebral ischaemia |
| K90 | Stroke/cerebrovascular accident |
| K91 | Atherosclerosis (excl. heart/brain) |
| K92 | Other arterial obstruction/peripheral vascular disease |
| K93 | Pulmonary embolism |
| K94 | Phlebitis and thrombophlebitis |
| K95 | Varicose veins of legs (excl. S97—ulcer) |
| K96 | Haemorrhoids |
| K99 | Other disease of the circulatory system |

# Appendix E

## Survey of Morbidity and Treatment in General Practice in Australia 1990–91—list of treatments other than prescriptions

### Therapeutic procedures

#### Repair/immobilise

Close laceration
- Remove sutures

Treat fracture/dislocation

Cast removal
- Alter/aerate/cut hole in plaster

Immobilise soft tissue (splint)
- Cast
- Sling
- Cervical collar
- Bandage/strap

Repair/immobilise not elsewhere classified
- Treatment to stop expansion (e.g. ice)

#### Excise, incise, aspirate

Excise lesion (removal of moles, growths etc.)

Circumcision

Aspirate joint

Aspirate cyst

Incise/drain (including remove earwick; puncture ganglion)

Enema

Excise/remove not elsewhere classified
- Remove foreign body (e.g. splinter)

#### Destroy, cauterise

Chemical cautery

Cryotherapy (use of nitrogen oxide—warts)

Electrocautery (diathermy)
Destroy vein
Destroy, cauterise not elsewhere classified

### Injection not otherwise specified

Medication not otherwise specified (e.g. gargles)
IV fluids/infusion
Local anaesthetic

### Press, compress, dilate

Bandage/dressing (e.g. clean wounds)
Compression
Compress/support
Press/compress/dilate not elsewhere classified (e.g. heel pillow)
  Incontinence pads

### Physical therapies

Exercise
Thermal hydrotherapy
  Steam inhalation
Manipulation
Massage
Acupuncture
  Laser
Ultrasound
  Microwave/shortwave
Electrical stimulation
Physical aid (e.g. walking frame, stick)
Physical therapy not elsewhere classified

### Urogenital procedure

Endometrial biopsy
  D&C
Tubal ligation
Vasectomy
Insert diaphragm
Insert IUD
  Remove IUD
  Remove and insert IUD

Urogenital procedure not elsewhere classified
Urinary catheter

### Obstetric procedure

Normal delivery
Low forceps delivery
Abnormal vaginal delivery
Complicated vaginal delivery
Caesarean section
Induce labour
Perineal repair
Post partum procedure
Delivery not otherwise specified
Obstetric procedure not otherwise specified

### Miscellaneous procedure

Order rest
Time off work (e.g. work certificate)
Observe/wait
Remove ear wax
Pierce ears
Anaesthetic given (assisting at operation)
Transfusion
Other procedure (e.g. oxygen)
Procedure not elsewhere classified

## Clinical treatments

### Counselling—psychological

Counselling—individual
Psychological testing
Counsel—life stage
Bereavement counselling
Marriage counselling
Hypnosis
Relaxation therapy
Psychotherapy
Counsel, other

## Counselling—health

Counsel—nutrition/weight
Counsel—smoking
Counsel—alcohol
Counsel—drug abuse (including legal drugs)
Counsel—occupational risk
Counsel—exercise
Counsel—relaxation
Counsel—environment
Counsel—health not elsewhere classified (including multiples of above)
- Life style
- Prevention

## Counsel—sex, pregnancy

Family planning
Sexual counselling
Pre-pregnancy
Counselling—pregnancy
Counselling—genetic
Counselling—sex, pregnancy not elsewhere classified

## Advice/education (not elsewhere classified)

Advice not otherwise specified
Treatment advice (go to bed, take panadol when needed, clear fluids)
Advice about body
Advice—care of sick third person (e.g. elderly person/prevention)
Advice—care of well person/mother care
Change drug dosage
- Increase dosage
- Decrease dosage
- Stop medication
- Recommend medication (not new script)
- Advise how to take drugs etc.
- Review dosage

Legal advice (e.g. workers' compensation, child welfare)
Recommend/advise naturopathic medication

## Reassurance, support

# Appendix F

## Survey of Morbidity and Treatment in General Practice in Australia 1990–91—list of generic cardiovascular drugs and diuretics

### Antihypertensive agents

Clonidine
Guanethidine
Hydralazine
Prazosin hydrochloride
Methyldopa
Debrisoquine
Reserpine
Rauwolfia
Captopril
Minoxidil
Felodipine
Enalapril maleate
Verapamil
Raudinex
Natrilix

### Antiarrhythmic agents

Quinidine bisulphate
Procainamide
Rythmodan
Mexiletine
Flecainide acetate
Amioderone hydrochloride
Lignocaine injection
Sotalol

### Antiangina agents

Glyceryl trinitrate
Sorbide nitrate
Peritrate
Glyceryl trinitrate ointment
Nifedipine
Diltiazem

### Cardiac glycosides

Digoxin
Lanatoside-C

### Beta blockers

Oxprenolol
Pindolol
Propranolol
Atenolol
Metoprolol
Vimolol
Labetalol
Alprenolol

### Adrenergenic stimulants

Hydergine
Adrenaline injection

## Peripheral vasodilators

Betahistine
Nicotinic acid
Phenoxybenzamine
Nicotinyl alcohol

## Antimigraine drugs

Pizotifen
Dixarit
Ergalan
Ergot caffeine cyclizine
Ergotam tartrate
Ergotamine + caffeine
Methysergide
Ergodryl
Nicotinic alcohol

## Other cardiovascular drugs

Dipyridamole
Paroven
Probucol
Colestipol hydrochloride
Simvastatin
Oxpentifylline
Lopid
Streptokinase

## Diuretics

Amiloride
Chlorothiazide
Cyclopenthiazide
Frusemide
Hydrochlorothiazide
Thiazide + amiloride
Methyclothiazide
Bendrofluazide
Chlorthalidone
Clopamide
Triamterene
Quinethazone
Spironolactone
Mefruside
Ethacrynic acid
Bumetanide
Metolazone
Desmopressin

# Appendix G

## Medicare Benefits Schedule—cardiovascular medical services

The following provides detailed information from the Medicare Benefits Schedule (effective 1 November 1995) for the groups of cardiovascular medical services included in this report.

### Diagnostic procedures and investigations

| Type of service | Medicare item number |
|---|---|
| **Cardiovascular diagnostic procedures and investigations** | |
| Twelve-lead electrocardiography | 11700–11702 |
| Phonocardiography | 11706 |
| Continuous ECG recording | 11708–11709 |
| Ambulatory ECG monitoring | 11710–11711 |
| Multi channel ECG monitoring and recording | 11712 |
| Signal averaged ECG recording | 11713 |
| Blood dye—dilution indicator test | 11715 |
| Implanted pacemaker testing | 11718, 11721 |
| **Therapeutic procedures—vascular** | |
| Artery of neck, bypass | 32700 |
| Internal carotid artery, transection and reanastomosis of, or resection of small length and reanastomosis of | 32703 |
| Internal carotid artery, reoperation for recurrent stenosis | 32706 |
| Aorto-iliac or aorto-femoral grafting | 32709 |
| Ilio-femoral bypass grafting | 32712 |
| Renal arteries (both), bypass grafting to | 32724 |
| Mesenteric vessel (single), bypass grafting to | 32730 |
| Mesenteric vessel (multiple), bypass grafting to | 32733 |
| Inferior mesenteric artery, operation on | 32736 |
| Femoral artery bypass grafting | 32739–32754 |
| Femoral artery sequential bypass grafting | 32757 |
| Harvesting of vein from leg or arm | 32760 |
| Arterial bypass grafting | 32763 |
| Arterial or venous anastomosis | 32766, 32769 |
| Aneurysm of common or internal carotid artery, or both, replacement by graft | 33100 |
| Thoracic aneurysm, replacement by graft | 33103 |
| Artery or vein bypass graft | 33106 |
| Thoraco-abdominal aneurysm, replacement by graft | 33109 |
| Suprarenal abdominal aortic aneurysm, replacement by graft | 33112 |

*(continued)*

| Type of service | Medicare item number |
|---|---|
| Infrarenal abdominal aortic aneurysm, replacement by graft | 33115, 33118, 33121 |
| Aneurysm of iliac artery, replacement by graft | 33124 |
| Aneurysm of iliac arteries, replacement by graft | 33127 |
| Aneurysm of visceral artery, excision and repair | 33130 |
| False aneurysm, repair of | 33136, 33139, 33142 |
| Ruptured thoracic aortic aneurysm, replacement by graft | 33145 |
| Ruptured thoraco-abdominal aortic aneurysm, replacement by graft | 33148 |
| Ruptured suprarenal abdominal aortic aneurysm, replacement by graft | 33151 |
| Ruptured infrarenal abdominal aortic aneurysm, replacement by graft | 33154, 33157, 33160 |
| Ruptured iliac artery aneurysm, replacement by graft | 33163 |
| Ruptured aneurysm of visceral artery, replacement by anastomosis or graft | 33166 |
| Ruptured aneurysm of visceral artery, simple ligation of | 33169 |
| Aneurysm of major artery, replacement by graft | 33172 |
| Artery or arteries of neck, endarterectomy of | 33500 |
| Internal carotid artery, reoperation | 33503 |
| Innominate or subclavian artery, endarterectomy of | 33506 |
| Aortic endarterectomy | 33512 |
| Aorto—femoral endarterectomy | 33515 |
| Iliac endarterectomy | 33518 |
| Ilio-femoral endarterectomy | 33521 |
| Renal artery, endarterectomy of | 33524 |
| Renal arteries, endarterectomy of | 33527 |
| Coeliac or superior mesenteric artery, endarterectomy of | 33530 |
| Inferior mesenteric artery, endarterectomy of | 33536 |
| Artery of extremities, endarterectomy of | 33539 |
| Extended deep femoral endarterectomy | 33542 |
| Artery or vein, patch grafting to | 33545, 33548 |
| Vein harvesting of | 33551 |
| Endarterectomy in conjunction with an arterial bypass operation | 33554 |
| Embolus, removal of, from artery of neck | 33800 |
| Embolectomy or thrombectomy | 33803, 33806 |
| Inferior vena cave or iliac vein, thrombectomy of | 33809 |
| Thrombus, removal of | 33812 |
| Major artery or vein of extremity, repair of wound of | 33815, 33818, 33821 |
| Major artery or vein of neck, repair of wound of | 33824, 33827, 33830 |
| Major artery or vein of abdomen, repair of wound of | 33833, 33836, 33839 |
| Artery of neck, re-operation for bleeding or thrombosis after carotid or vertebral artery surgery | 33842 |
| Laparotomy, for control of post operative bleeding or thrombosis after vascular procedure | 33845 |
| Extremity, reoperation on | 33848 |
| Transluminal balloon angioplasty of 1 peripheral artery or vein of 1 limb | 35300 |
| Transluminal balloon angioplasty of aortic arch branches, aortic visceral branches, or more than 1 peripheral artery or vein of 1 limb | 35303 |

*(continued)*

| Type of service | Medicare item number |
|---|---|
| Transluminal balloon angioplasty of 1 coronary artery | 35304 |
| Transluminal balloon angioplasty of more than 1 coronary artery | 35305 |
| Transluminal stent insertion including associated balloon dilation for 1 peripheral artery or vein of 1 limb | 35306 |
| Transluminal stent insertion including associated balloon dilation for visceral arteries or veins, or more than 1 peripheral artery or vein of 1 limb | 35309 |
| Transluminal stent insertion including associated balloon dilation for coronary artery | 35310 |
| **Therapeutic procedures—cardiothoracic** | |
| Right heart catheterisation | 38200 |
| Left heart catheterisation | 38203 |
| Right heart catheterisation with left heart catheterisation | 38206 |
| Cardiac electrophysiological study | 38209, 38212 |
| Selective coronary arteriography—placement of catheters and injection of opaque material | 38215 |
| Selective coronary arteriography—placement of catheters and injection of opaque material with right or left catheterisation, or both | 38218 |
| Single chamber permanent transvenous electrode, insertion of | 38250 |
| Permanent pacemaker, insertion or replacement of | 38253 |
| Temporary transvenous pacemaker electrode, insertion of | 38256 |
| Permanent dual chamber transvenous electrodes, insertion of | 38259 |
| Permanent myocardial electrode, insertion of | 38470 |
| Permanent pacemaker electrode | 38473 |
| Valve repair, 1 leaflet | 38380 |
| Valve repair, 2 or more leaflets | 38381 |
| Aortic valve leaflet or leaflets, decalcification of | 38483 |
| Mitral valve, open valvotomy of | 38487 |
| Valve replacement with bioprosthesis or mechanical prosthesis | 38488 |
| Valve replacement with allograft, or unstented xenograft | 38489 |
| Coronary artery bypass using saphenous vein graft or grafts only | 38497 |
| Coronary artery bypass using single arterial graft, with or without vein graft or grafts | 38500 |
| Coronary artery bypass using 2 or more arterial grafts, with or without vein graft or grafts | 38503 |
| **Congenital cardiac surgery** | |
| Patent ductus arteriosis, shunt, colateral or other single large vessel, division or ligation of | 38700, 38703 |
| Aorta, anastomosis or repair of | 38706, 38709 |
| Aortic interruption, repair of | 38712 |
| Main pulmonary artery, banding, debanding or repair of | 38715, 38718 |
| Vena cava, anastomosis or repair of | 38721, 38724 |
| Intrathoracic vessels, anastomosis or repair of | 38727, 38730 |
| Systemic pulmonary or cavo-pulmonary shunt, creation of | 38733, 38736 |
| Atrial septectomy | 38739 |
| Atrial septal defect | 38742 |
| Intra-atrial baffle, insertion of | 38745 |
| Ventricular septectomy | 38748 |
| Ventricular septal defect, closure | 38751 |

*(continued)*

| Type of service | Medicare item number |
|---|---|
| Intraventricular baffle or conduit, insertion of | 38754 |
| Extracardiac conduit, insertion of | 38757 |
| Extracardiac conduit, replacement of | 38760 |
| Ventricular myectomy | 38763 |
| Ventricular augmentation | 38766 |
| **Therapeutic procedures—neurosurgical—cerebrovascular disease** | |
| Aneurysm, clipping of reinforcement of sac | 39800 |
| Intracranial arteriovenous malformation, excision of | 39803 |
| Aneurysm, or arteriovenous malformation, intracranial proximal artery clipping of | 39806 |
| Intracranial aneurysm or arteriovenous fistula, ligation of cervical vessel or vessels | 39812 |
| Carotid-cavernous fistula, obliteration of | 39815 |
| Extracranial to intracranial bypass using superficial temporal artery | 39818 |
| Extracranial to intracranial bypass using saphenous vein graft | 39821 |
| **Diagnostic imaging** | |
| M-mode and 2-dimensional real time echocardiographic examination of the heart | 55102, 55105, 55112 |
| Heart, 2-dimensional real time transoesophageal examination of | 55118 |
| Intra-operative 2-dimensional real time transoesophageal echocardiography | 55130 |
| Duplex scanning of carotid or peripheral vessels | 55201–55237 |
| Serial angiocardiography | 59900, 59903, 59906 |
| Selective coronary arteriography | 59912 |
| Cerebral angiography | 59915 |
| Arteriography, peripheral | 59918 |
| Aortography | 59921 |
| Selective arteriography | 59924 |
| Digital subtraction angiography, examination of head and neck | 60000–60009 |
| Digital subtraction angiography, examination of thorax | 60012–60021 |
| Digital subtraction angiography, examination of abdomen | 60024–60033 |
| Digital subtraction angiography, examination of upper limb or limbs | 60036–60045 |
| Digital subtraction angiography, examination of lower limb or limbs | 60048–60057 |
| Digital subtraction angiography, examination of aorta and lower limb or limbs | 60060–60069 |
| Selective arteriography or selective venography | 60072, 60075, 60078 |
| Myocardial perfusion study using thallium | 61300, 61301, 61304, 61305 |
| Myocardial infarct—avid imaging study | 61308, 61309 |
| Gated cardiac blood pool study | 61312, 61315 |
| Cardiac first pass blood flow study, cardiac shunt study, or cardiac output study | 61322, 61323 |

*Source:* Commonwealth Department of Human Services and Health 1995.

# Appendix H

## Summary of the Disease Costs and Impact Study methodologies

A summary of the methodologies used in the Disease Costs and Impact Study is provided below. This information has come directly from the report *Health System Costs of Cardiovascular Diseases and Diabetes in Australia 1993–94* by Mathers et al. (in preparation), in which detailed information about the methodologies used to estimate health care costs in 1993–94 can be found.

The basic approach for direct costs of health services has been to take known aggregate expenditures on health care and apportion those to disease categories using Australian data (hospital morbidity data, casemix data, the national survey of morbidity and treatment in general practice, and the National Health Survey). The attribution of the direct costs of health services to disease is discussed in more detail below.

It must be emphasised that the cost estimates for 1993–94 are based on attribution of total health expenditures to diseases based on available information on the mix of diseases treated and the costs of treatment. For medical and allied health services, and to some extent for drugs, utilisation data relate to 1989–90 or 1990–91 and so costs reported for these sectors will not reflect changes in clinical practice or disease patterns between then and 1993–94. Also, costs of specialist medical services are estimated using 1990–91 data on referral patterns by GPs and costed at the average cost within specialist type. For example, this means that all pathology tests are assumed to have the same average cost.

Although the cost estimates reported here provide a broad picture of the health system resources used by age, sex and disease, they should be interpreted with caution for specific diseases. Detailed bottom-up costing of the treatment costs of a specific disease may give more accurate estimates than the top-down approach of the DCIS but the latter ensures consistency of estimates, complete coverage of all diseases, and ensures that cost estimates for individual diseases and age-sex groups add to the known total health expenditures.

Recurrent expenditure on health care which has not yet been attributed includes ambulance services, community health services, health promotion and illness prevention, and aids and appliances. Other types of direct cost, not yet attributed to disease categories, are capital expenditure ($1.5 billion in 1989–90), together with costs not counted within the National Accounts context. These include costs incurred by families and friends in caring for patients, travel costs of patients and welfare service costs. The current estimates of direct costs are therefore conservative.

### Hospital admitted patient services

This sector includes admitted patient costs for recognised public hospitals (including public psychiatric hospitals), Repatriation (Veterans') hospitals and private hospitals. The proportions of total public acute hospital expenditure which relate to admitted patients are given by the admitted patient fractions estimated for each State and Territory by the National Health Ministers Benchmarking Working Group (1996).

Disease costs for admitted patient services are estimated by apportioning the total admitted patient expenditure for each State or Territory to individual episodes of hospitalisation with an adjustment for resource intensity of treatment for the specific episode (using Diagnostic Related Groups or DRGs). Medical costs for private, compensable and other non-public patients in public, Repatriation and private hospitals are estimated using DRG-derived medical cost weights and age–sex specific information from the Health Insurance Commission on in hospital private medical charges for various categories of service.

## Outpatient and casualty services

The 1989–90 ABS National Health Survey is used to allocate total expenditure on non-admitted patient services for 1993–94. Total visits to outpatient clinics (including casualty or accident and emergency departments) for each age–sex–disease group are estimated from the National Health Survey data on numbers of outpatient visits in the two weeks prior to interview. Expenditure is allocated assuming that all visits have the same cost.

## Nursing homes

The distribution of main disabling health condition of nursing home residents in the 1993 Australian Survey of Disability, Ageing and Carers is used to allocate total nursing home expenditure for 1993–94 to age–sex–disease categories at ICD–9 chapter level. This expenditure is apportioned to specific disease groups at the sub-Chapter level according to the distribution of diagnosis for patients in that age–sex group who transfer from acute hospitals (around 60% of nursing home admissions).

## Medical services

This sector includes expenditure on all private medical services apart from those to hospital admitted patients. It includes consultations with general practitioners and specialists as well as pathology tests and screening and diagnostic imaging services. The Survey of Morbidity and Treatment in General Practice in Australia 1990–91 is used to allocate age–sex specific out of hospital expenditure on medical services to disease diagnoses. This allocation is done separately for general practitioners (based on encounters surveyed in the Bridges-Webb survey) and for 17 categories of specialists (based on the pattern of referrals to each category of specialist in the Bridges-Webb survey).

Age–sex specific out of hospital expenditure on medical services is derived from Medicare and Department of Veterans' Affairs (DVA) data. This expenditure covers all charges for which a Medicare or DVA claim has been made. It is adjusted to include expenditure for which claims have not been made using an inflation factor derived from the Australian Institute of Health & Welfare health expenditure data on total expenditure on medical services.

This methodology assumes that the pattern of GP services by diagnosis in 1993–94 is the same as that collected in 1990–91, that the pattern of diseases managed by each type of specialist in 1993–94 reflects the pattern of referrals to that specialist type from GPs in 1990–91 and that each referral to a specialist of a given type generates services with equal cost.

All other screening and diagnostic tests were costed based on the 1990–91 pattern of referrals by GPs using the overall average charge per pathology test in 1993–94.

## Allied health services

The 1990–91 Survey of Morbidity and Treatment in General Practice in Australia and the 1989–90 ABS National Health Survey are used to allocate total Australian expenditure on allied health practitioners to age–sex–disease groups. Total visits to allied health practitioners in 1993–94 for each age–sex–disease group are estimated from the National Health Survey data on visits to 14 types of allied health practitioners in the two weeks prior to interview. Annual visits to other types of allied health practitioner are estimated from referrals by GPs in the Bridges-Webb survey. Expenditure is allocated assuming that all visits have the same cost. The methodology covers all allied health professionals except pharmacists (see below).

## Pharmaceuticals

Total pharmaceutical expenditure is decomposed into two components: expenditures on prescription drugs and non-prescription (over the counter) pharmaceuticals. The 1990–91 Survey of Morbidity and Treatment in General Practice in Australia 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 over the counter pharmaceuticals is attributed to disease–age–sex groups using information from the 1989–90 ABS National Health Survey. The methodology addresses all pharmaceutical costs apart from the cost of pharmaceuticals dispensed in hospitals, which are included in estimates of hospital costs.

For each of 40 therapeutic drug groups, the relative distribution of prescriptions by disease, age and sex for all community prescriptions in 1993–94 is assumed to be 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. Detailed estimates of 1993–94 utilisation and expenditure for the 40 drug categories are used as a starting point for attribution to disease–age–sex 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.

## Public health programs

Community and public health programs in general are not yet included in the estimates of disease costs due to the difficulties in obtaining comprehensive casemix data for these health sectors.

## Research

Estimated total Australian expenditure on health and medical research for major disease and population groups in 1991 was used to estimate total research spending for males and females by chapter of ICD-9. Chapter level expenditure was allocated to disease–age–sex groups at sub-Chapter level in proportion to total health expenditure for other health sectors.

## Other institutional, non-institutional and administration

Other institutional health expenditure (the Red Cross Blood Transfusion Service), other non-institutional health expenditure and administration expenditure (Commonwealth, State and

Territory health authority administration expenses and management expenses of Medicare and registered private health insurance funds) are allocated to disease-sex-age groups in proportion to total health expenditure for other health sectors.

It may be possible to refine this attribution process through analysis of the types of expenditure comprising these categories. For example, almost half of 'Administration' expenditure is for administration of health insurance funds, and it may be possible to allocate this according to the distribution across sectors of health insurance funds expenditure. At this stage, a simple overall pro rata allocation process has been used for the three sectors combined.

# Supplementary tables

## Survey of Morbidity and Treatment in General Practice in Australia 1990–91

**Table S1: Distribution of all problems managed and all patient encounters[a] by sex and age, 1990–91**

| Sex/ age group (years) | Number of problems managed | Number of patient encounters | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|
| | | | Rate | Standard error of rate |
| **Males** | | | | |
| < 1 | 1,434 | 1,159 | 123.8 | 1.30 |
| 1–4 | 3,422 | 2,808 | 121.9 | 0.81 |
| 5–14 | 4,837 | 3,991 | 121.2 | 0.67 |
| 15–24 | 5,114 | 4,134 | 123.7 | 0.72 |
| 25–44 | 12,362 | 9,367 | 132.0 | 0.56 |
| 45–64 | 14,293 | 9,339 | 153.0 | 0.73 |
| 65–74 | 9,904 | 5,822 | 170.1 | 1.05 |
| 75+ | 6,415 | 3,725 | 172.2 | 1.31 |
| Unknown | 514 | 357 | 143.9 | 3.28 |
| *Total[b]* | *58,295* | *40,702* | *143.2* | *0.32* |
| **Females** | | | | |
| < 1 | 1,235 | 993 | 124.4 | 1.43 |
| 1–4 | 2,990 | 2,464 | 121.4 | 0.82 |
| 5–14 | 4,586 | 3,794 | 120.9 | 0.68 |
| 15–24 | 8,449 | 6,445 | 131.1 | 0.65 |
| 25–44 | 21,657 | 15,559 | 139.2 | 0.48 |
| 45–64 | 19,993 | 12,312 | 162.4 | 0.68 |
| 65–74 | 12,677 | 7,241 | 175.1 | 0.95 |
| 75+ | 12,444 | 6,986 | 178.1 | 0.99 |
| Unknown | 729 | 492 | 148.4 | 3.03 |
| *Total[b]* | *84,760* | *56,286* | *150.6* | *0.29* |
| **Persons[c]** | | | | |
| < 1 | 2,805 | 2,262 | 124.0 | 0.94 |
| 1–4 | 6,629 | 5,458 | 121.5 | 0.57 |
| 5–14 | 9,602 | 7,933 | 121.0 | 0.47 |
| 15–24 | 13,724 | 10,713 | 128.1 | 0.49 |
| 25–44 | 34,482 | 25,266 | 136.5 | 0.37 |
| 45–64 | 34,700 | 21,920 | 158.3 | 0.49 |
| 65–74 | 22,897 | 13,248 | 172.8 | 0.70 |
| 75+ | 19,187 | 10,907 | 175.9 | 0.78 |
| Unknown | 1,619 | 1,084 | 149.4 | 2.05 |
| **Total[b]** | **145,645** | **98,789** | **147.4** | **0.21** |

(a) Number of encounters where at least one problem was managed.

(b) Components may not add to totals due to rounding.

(c) Includes 2,590 problems managed and 1,804 encounters for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

**Table S2: Distribution of problems managed and patient encounters[a] for all cardiovascular conditions by sex and age, 1990–91**

| Sex/ age group (years) | Number of problems managed | Number of patient encounters | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|---|
| | | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | | |
| < 1 | 5 | 5 | 0.3 | 0.14 | 0.4 | 0.17 |
| 1–4 | 12 | 12 | 0.3 | 0.09 | 0.4 | 0.11 |
| 5–14 | 22 | 22 | 0.5 | 0.09 | 0.6 | 0.11 |
| 15–24 | 77 | 73 | 1.5 | 0.16 | 1.9 | 0.20 |
| 25–44 | 752 | 730 | 6.1 | 0.20 | 8.0 | 0.27 |
| 45–64 | 2,579 | 2,387 | 18.0 | 0.30 | 27.6 | 0.48 |
| 65–74 | 2,457 | 2,138 | 24.8 | 0.41 | 42.2 | 0.75 |
| 75+ | 1,657 | 1,444 | 25.8 | 0.52 | 44.5 | 0.95 |
| Unknown | 71 | 62 | 13.8 | 1.39 | 19.8 | 2.19 |
| *Total[b]* | *7,632* | *6,873* | *13.1* | *0.08* | *18.7* | *0.20* |
| **Females** | | | | | | |
| < 1 | 4 | 4 | 0.3 | 0.15 | 0.4 | 0.18 |
| 1–4 | 13 | 12 | 0.4 | 0.11 | 0.5 | 0.14 |
| 5–14 | 21 | 21 | 0.4 | 0.09 | 0.5 | 0.11 |
| 15–24 | 94 | 92 | 1.1 | 0.10 | 1.5 | 0.14 |
| 25–44 | 809 | 791 | 3.7 | 0.12 | 5.2 | 0.17 |
| 45–64 | 2,852 | 2,700 | 14.3 | 0.23 | 23.2 | 0.38 |
| 65–74 | 2,972 | 2,702 | 23.4 | 0.36 | 41.1 | 0.63 |
| 75+ | 3,406 | 2,935 | 27.4 | 0.38 | 48.8 | 0.72 |
| Unknown | 83 | 77 | 11.4 | 1.09 | 16.9 | 1.70 |
| *Total[b]* | *10,254* | *9,334* | *12.1* | *0.10* | *18.2* | *0.17* |
| **Persons[c]** | | | | | | |
| < 1 | 12 | 12 | 0.4 | 0.11 | 0.5 | 0.14 |
| 1–4 | 24 | 23 | 0.4 | 0.07 | 0.4 | 0.09 |
| 5–14 | 44 | 44 | 0.5 | 0.06 | 0.5 | 0.08 |
| 15–24 | 178 | 171 | 1.3 | 0.09 | 1.7 | 0.12 |
| 25–44 | 1,589 | 1,549 | 4.6 | 0.10 | 6.3 | 0.15 |
| 45–64 | 5,495 | 5,146 | 15.8 | 0.18 | 25.1 | 0.30 |
| 65–74 | 5,505 | 4,905 | 24.0 | 0.27 | 41.6 | 0.48 |
| 75+ | 5,147 | 4,455 | 26.8 | 0.31 | 47.2 | 0.57 |
| Unknown | 201 | 183 | 12.4 | 0.75 | 18.5 | 1.20 |
| **Total[b]** | **18,195** | **16,488** | **12.5** | **0.08** | **18.4** | **0.13** |

(a) Number of encounters where at least one problem was managed.

(b) Components may not add to totals due to rounding.

(c) Estimates include 309 problems managed and 280 encounters for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S3: Distribution of problems managed for hypertension by sex and age, 1990–91

| Sex/ age group (years) | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 21 | 0.4 | 0.08 | 0.5 | 0.10 |
| 25–44 | 405 | 3.3 | 0.15 | 4.3 | 0.19 |
| 45–64 | 1,474 | 10.3 | 0.24 | 15.8 | 0.35 |
| 65–74 | 1,144 | 11.5 | 0.31 | 19.6 | 0.50 |
| 75+ | 545 | 8.5 | 0.33 | 14.6 | 0.55 |
| Unknown | 26 | 5.1 | 0.89 | 7.3 | 1.26 |
| *Total*[(a)] | *3,615* | *6.2* | *0.09* | *8.9* | *0.13* |
| **Females** | | | | | |
| < 1 | 1 | 0.1 | 0.07 | 0.1 | 0.09 |
| 1–4 | 1 | < 0.1 | 0.03 | < 0.1 | 0.04 |
| 5–14 | 5 | 0.1 | 0.04 | 0.1 | 0.05 |
| 15–24 | 32 | 0.4 | 0.06 | 0.5 | 0.08 |
| 25–44 | 371 | 1.7 | 0.08 | 2.4 | 0.11 |
| 45–64 | 1,899 | 9.5 | 0.20 | 15.4 | 0.31 |
| 65–74 | 1,764 | 13.9 | 0.29 | 24.4 | 0.48 |
| 75+ | 1,482 | 11.9 | 0.28 | 21.2 | 0.47 |
| Unknown | 41 | 5.6 | 0.79 | 8.4 | 1.16 |
| *Total*[(a)] | *5,596* | *6.6* | *0.08* | *9.9* | *0.12* |
| **Persons**[(b)] | | | | | |
| < 1 | 1 | < 0.1 | 0.03 | < 0.1 | 0.04 |
| 1–4 | 1 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 5–14 | 5 | 0.1 | 0.02 | 0.1 | 0.03 |
| 15–24 | 56 | 0.4 | 0.05 | 0.5 | 0.06 |
| 25–44 | 790 | 2.3 | 0.07 | 3.1 | 0.10 |
| 45–64 | 3,407 | 9.8 | 0.15 | 15.5 | 0.23 |
| 65–74 | 2,944 | 12.9 | 0.21 | 22.2 | 0.34 |
| 75+ | 2,056 | 10.7 | 0.21 | 18.6 | 0.36 |
| Unknown | 92 | 5.7 | 0.53 | 8.4 | 0.78 |
| **Total**[(a)] | **9,352** | **6.4** | **0.06** | **9.5** | **0.09** |

(a) Components may not add to totals due to rounding.

(b) Estimates include 140 problems managed for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S4: Distribution of problems managed for heart failure by sex and age, 1990–91

| Sex/ age group (years) | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 1 | < 0.1 | 0.02 | < 0.1 | 0.02 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 4 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 45–64 | 73 | 0.5 | 0.06 | 0.8 | 0.09 |
| 65–74 | 215 | 2.2 | 0.14 | 3.7 | 0.24 |
| 75+ | 323 | 5.0 | 0.26 | 8.7 | 0.44 |
| Unknown | 12 | 2.3 | 0.62 | 3.4 | 0.88 |
| *Total*[(a)] | *628* | *1.1* | *0.04* | *1.5* | *0.06* |
| **Females** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 1 | < 0.1 | 0.02 | < 0.1 | 0.02 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 5 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| 45–64 | 64 | 0.3 | 0.04 | 0.5 | 0.06 |
| 65–74 | 207 | 1.6 | 0.11 | 2.9 | 0.19 |
| 75+ | 672 | 5.4 | 0.19 | 9.6 | 0.34 |
| Unknown | 9 | 1.2 | 0.38 | 1.8 | 0.56 |
| *Total*[(a)] | *958* | *1.1* | *0.03* | *1.7* | *0.05* |
| **Persons**[(b)] | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 2 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 8 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| 45–64 | 143 | 0.4 | 0.03 | 0.7 | 0.05 |
| 65–74 | 427 | 1.9 | 0.09 | 3.2 | 0.15 |
| 75+ | 1,014 | 5.3 | 0.15 | 9.3 | 0.27 |
| Unknown | 26 | 1.6 | 0.29 | 2.4 | 0.43 |
| **Total**[(a)] | **1,620** | **1.1** | **0.03** | **1.6** | **0.04** |

(a) Components may not add to totals due to rounding.

(b) Estimates include 35 problems managed for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S5: Distribution of problems managed for other coronary heart disease[a] by sex and age, 1990–91

| Sex/ age group (years) | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 22 | 0.2 | 0.03 | 0.2 | 0.05 |
| 45–64 | 245 | 1.7 | 0.10 | 2.6 | 0.16 |
| 65–74 | 281 | 2.8 | 0.16 | 4.8 | 0.27 |
| 75+ | 187 | 2.9 | 0.20 | 5.0 | 0.34 |
| Unknown | 9 | 1.7 | 0.52 | 2.4 | 0.74 |
| *Total*[b] | *744* | *1.3* | *0.04* | *1.8* | *0.06* |
| **Females** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 1 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 7 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 45–64 | 94 | 0.5 | 0.05 | 0.8 | 0.07 |
| 65–74 | 199 | 1.6 | 0.11 | 2.7 | 0.18 |
| 75+ | 276 | 2.2 | 0.13 | 4.0 | 0.22 |
| Unknown | 5 | 0.7 | 0.28 | 1.0 | 0.42 |
| *Total*[b] | *581* | *0.7* | 0.03 | *1.0* | 0.04 |
| **Persons**[c] | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 1 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 29 | 0.1 | 0.01 | 0.1 | 0.02 |
| 45–64 | 343 | 1.0 | 0.05 | 1.6 | 0.08 |
| 65–74 | 484 | 2.1 | 0.09 | 3.6 | 0.16 |
| 75+ | 472 | 2.5 | 0.11 | 4.3 | 0.19 |
| Unknown | 19 | 1.2 | 0.24 | 1.7 | 0.36 |
| **Total**[b] | **1,347** | **0.9** | **0.02** | **1.4** | **0.03** |

(a) Excludes angina and acute myocardial infarction.

(b) Components may not add to totals due to rounding.

(c) Estimates include 23 problems managed for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S6: Distribution of problems managed for angina by sex and age, 1990–91

| Sex/ age group (years) | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 11 | 0.1 | 0.02 | 0.1 | 0.03 |
| 45–64 | 108 | 0.8 | 0.07 | 1.2 | 0.10 |
| 65–74 | 124 | 1.2 | 0.11 | 2.1 | 0.18 |
| 75+ | 95 | 1.5 | 0.14 | 2.5 | 0.25 |
| Unknown | 5 | 0.9 | 0.39 | 1.3 | 0.56 |
| *Total*[(a)] | *343* | *0.6* | *0.03* | *0.8* | *0.04* |
| **Females** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 9 | < 0.1 | 0.01 | 0.1 | 0.02 |
| 45–64 | 75 | 0.4 | 0.04 | 0.6 | 0.07 |
| 65–74 | 119 | 0.9 | 0.08 | 1.6 | 0.14 |
| 75+ | 169 | 1.4 | 0.10 | 2.4 | 0.18 |
| Unknown | 1 | 0.1 | 0.12 | 0.2 | 0.18 |
| *Total*[(a)] | *373* | *0.4* | *0.02* | *0.7* | *0.03* |
| **Persons**[(b)] | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 25–44 | 21 | 0.1 | 0.01 | 0.1 | 0.02 |
| 45–64 | 185 | 0.5 | 0.04 | 0.8 | 0.06 |
| 65–74 | 246 | 1.1 | 0.06 | 1.9 | 0.11 |
| 75+ | 272 | 1.4 | 0.08 | 2.5 | 0.14 |
| Unknown | 7 | 0.4 | 0.15 | 0.6 | 0.22 |
| **Total**[(a)] | **731** | **0.5** | **0.02** | **0.7** | **0.03** |

(a) Components may not add to totals due to rounding.

(b) Estimates include 16 problems managed for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S7: Distribution of problems managed for cerebrovascular disease by sex and age, 1990–91

| Sex/ age group (years) | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Males** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 1 | < 0.1 | 0.03 | < 0.1 | 0.03 |
| 5–14 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 15–24 | 1 | < 0.1 | 0.02 | < 0.1 | 0.02 |
| 25–44 | 4 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 45–64 | 53 | 0.4 | 0.05 | 0.6 | 0.07 |
| 65–74 | 99 | 1.0 | 0.10 | 1.7 | 0.16 |
| 75+ | 109 | 1.7 | 0.15 | 2.9 | 0.26 |
| Unknown | 2 | 0.4 | 0.25 | 0.5 | 0.36 |
| *Total*[(a)] | *269* | *0.5* | 0.03 | *0.7* | *0.04* |
| **Females** | | | | | |
| < 1 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 1–4 | 0 | 0.0 | 0.00 | 0.0 | 0.00 |
| 5–14 | 1 | < 0.1 | 0.02 | < 0.1 | 0.02 |
| 15–24 | 5 | 0.1 | 0.02 | 0.1 | 0.03 |
| 25–44 | 9 | < 0.1 | 0.01 | 0.1 | 0.02 |
| 45–64 | 52 | 0.3 | 0.03 | 0.4 | 0.05 |
| 65–74 | 90 | 0.7 | 0.07 | 1.2 | 0.12 |
| 75+ | 180 | 1.4 | 0.10 | 2.6 | 0.18 |
| Unknown | 2 | 0.3 | 0.18 | 0.4 | 0.27 |
| *Total*[(a)] | *339* | *0.4* | *0.02* | *0.6* | *0.03* |
| **Persons**[(b)] | | | | | |
| < 1 | 1 | < 0.1 | 0.03 | < 0.1 | 0.04 |
| 1–4 | 1 | < 0.1 | 0.01 | < 0.1 | 0.02 |
| 5–14 | 1 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| 15–24 | 6 | < 0.1 | 0.02 | 0.1 | 0.02 |
| 25–44 | 13 | < 0.1 | 0.01 | 0.1 | 0.01 |
| 45–64 | 104 | 0.3 | 0.03 | 0.5 | 0.04 |
| 65–74 | 190 | 0.8 | 0.06 | 1.4 | 0.10 |
| 75+ | 294 | 1.5 | 0.08 | 2.7 | 0.15 |
| Unknown | 5 | 0.3 | 0.13 | 0.5 | 0.19 |
| **Total**[(a)] | **615** | **0.4** | **0.02** | **0.6** | **0.02** |

(a) Components may not add to totals due to rounding.

(b) Estimates include 7 problems managed.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S8: Distribution of problems managed for other cardiovascular conditions by sex, 1990–91

| Condition / sex | Number of problems managed | Proportion of all problems managed for sex and age group | | Problems managed per 100 encounters for sex and age group | |
|---|---|---|---|---|---|
| | | Per cent | Standard error per cent | Rate | Standard error of rate |
| **Peripheral vascular disease** | | | | | |
| Males | 231 | 0.4 | 0.02 | 0.6 | 0.03 |
| Females | 193 | 0.2 | 0.02 | 0.3 | 0.02 |
| Persons[a] | 427 | 0.3 | 0.01 | 0.4 | 0.02 |
| **Acute myocardial infarction** | | | | | |
| Males | 41 | 0.1 | 0.01 | 0.1 | 0.01 |
| Females | 29 | < 0.1 | 0.01 | 0.1 | 0.01 |
| Persons[b] | 71 | < 0.1 | 0.01 | 0.1 | 0.01 |
| **Atherosclerosis** | | | | | |
| Males | 20 | < 0.1 | 0.01 | 0.1 | 0.01 |
| Females | 24 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| Persons | 44 | < 0.1 | < 0.01 | < 0.1 | 0.01 |
| **Rheumatic heart disease** | | | | | |
| Males | 20 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| Females | 29 | < 0.1 | 0.01 | < 0.1 | 0.01 |
| Persons | 49 | < 0.1 | < 0.01 | < 0.1 | 0.01 |

(a) Estimates include 3 problems managed.

(b) Estimates include 1 problem managed.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S9: Ten most frequently prescribed drugs for all cardiovascular disease, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| Frusemide | 1,107 | 7.4 | 6.1 |
| Atenolol | 1,040 | 7.0 | 5.7 |
| Digoxin | 834 | 5.6 | 4.6 |
| Verapamil | 823 | 5.5 | 4.5 |
| Metoprolol | 788 | 5.3 | 4.3 |
| Enalapril maleate | 747 | 5.0 | 4.1 |
| Captopril | 729 | 4.9 | 4.0 |
| Nifedipine | 632 | 4.2 | 3.5 |
| Prazosin hydrochloride | 614 | 4.1 | 3.4 |
| Potassium chloride | 610 | 4.1 | 3.4 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S10: Ten most frequently prescribed drugs for angina, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| Glyceryl trinitrate | 273 | 34.1 | 37.3 |
| Sorbide nitrate | 140 | 17.6 | 19.2 |
| Nifedipine | 74 | 9.3 | 10.1 |
| Diltiazem | 66 | 8.2 | 9.0 |
| Glyceryl trinitrate ointment | 43 | 5.3 | 5.8 |
| Aspirin | 33 | 4.1 | 4.5 |
| Atenolol | 29 | 3.6 | 3.9 |
| Verapamil | 28 | 3.5 | 3.8 |
| Metoprolol | 27 | 3.4 | 3.7 |
| Digoxin | 12 | 1.5 | 1.7 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

### Table S11: Ten most frequently prescribed drugs for other and chronic coronary heart disease, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| Glyceryl trinitrate | 258 | 18.1 | 19.2 |
| Sorbide nitrate | 224 | 15.7 | 16.6 |
| Nifedipine | 98 | 6.9 | 7.3 |
| Diltiazem | 95 | 6.7 | 7.1 |
| Frusemide | 95 | 6.6 | 7.0 |
| Digoxin | 94 | 6.6 | 7.0 |
| Aspirin | 70 | 4.9 | 5.2 |
| Metoprolol | 62 | 4.4 | 4.6 |
| Verapamil | 61 | 4.3 | 4.5 |
| Atenolol | 53 | 3.7 | 3.9 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

### Table S12: Ten most frequently prescribed drugs for heart failure, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| Frusemide | 642 | 32.6 | 39.6 |
| Digoxin | 374 | 19.0 | 23.1 |
| Potassium chloride | 272 | 13.8 | 16.8 |
| Captopril | 143 | 7.3 | 8.8 |
| Amiloride | 51 | 2.6 | 3.2 |
| Thiazide + amilor | 43 | 2.2 | 2.7 |
| Enalapril maleate | 40 | 2.0 | 2.5 |
| Spironolactone | 34 | 1.7 | 2.1 |
| Triamterene | 29 | 1.5 | 1.8 |
| Bumetanide | 27 | 1.4 | 1.7 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S13: Ten most frequently prescribed drugs for hypertension, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed for condition |
|---|---|---|---|
| Atenolol | 910 | 11.0 | 9.7 |
| Enalapril maleate | 667 | 8.0 | 7.1 |
| Metoprolol | 649 | 7.8 | 6.9 |
| Verapamil | 619 | 7.5 | 6.6 |
| Prazosin hydrochloride | 588 | 7.1 | 6.3 |
| Captopril | 525 | 6.3 | 5.6 |
| Felodipine | 476 | 5.7 | 5.1 |
| Nifedipine | 405 | 4.9 | 4.3 |
| Methyldopa | 405 | 4.9 | 4.3 |
| Thiazide + amilor | 380 | 4.6 | 4.1 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S14: Ten most frequently prescribed drugs for cerebrovascular disease, 1990–91

| Generic drug name | Number of prescriptions written | Percentage of all prescriptions written for condition | Number of prescriptions written per 100 problems managed |
|---|---|---|---|
| Aspirin | 136 | 45.3 | 22.1 |
| Prochlorperazine | 43 | 14.2 | 6.9 |
| Warfarin | 32 | 10.6 | 5.2 |
| Nicotinic acid | 6 | 2.0 | 1.0 |
| Glyceryl trinitrate | 5 | 1.6 | 0.8 |
| Dipyridamole | 5 | 1.6 | 0.8 |
| Metoprolol | 5 | 1.6 | 0.8 |
| Nifedipine | 5 | 1.6 | 0.8 |
| Paracetamol | 5 | 1.6 | 0.8 |
| Sorbide nitrate | 3 | 1.0 | 0.5 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

## Table S15: Distribution of all prescriptions and cardiovascular prescriptions written by sex and age, 1990–91

| Sex/ age group (years) | Number of prescriptions written | Number of cardiovascular prescriptions written | Percentage of all prescriptions written | Number of cardiovascular prescriptions written per 100 problems managed |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 1,029 | 0 | 0.0 | 0.0 |
| 1–4 | 2,513 | 0 | 0.0 | 0.0 |
| 5–14 | 2,407 | 6 | 0.2 | 0.1 |
| 15–24 | 3,298 | 23 | 0.7 | 0.4 |
| 25–44 | 7,775 | 399 | 5.1 | 3.2 |
| 45–64 | 9,494 | 2,006 | 21.1 | 14.0 |
| 65–74 | 7,253 | 1,853 | 25.5 | 18.7 |
| 75+ | 4,544 | 1,212 | 26.7 | 18.9 |
| Unknown | 346 | 54 | 15.6 | 10.5 |
| *Total*[(a)] | *39,658* | *5,553* | *14.0* | *9.5* |
| **Females** | | | | |
| < 1 | 903 | 1 | 0.1 | 0.1 |
| 1–4 | 2,256 | 2 | 0.1 | 0.1 |
| 5–14 | 3,264 | 16 | 0.5 | 0.3 |
| 15–24 | 5,222 | 55 | 1.1 | 0.7 |
| 25–44 | 12,449 | 479 | 3.8 | 2.2 |
| 45–64 | 13,794 | 2,414 | 17.5 | 12.1 |
| 65–74 | 9,385 | 2,546 | 27.1 | 20.1 |
| 75+ | 9,286 | 2,656 | 28.6 | 21.3 |
| Unknown | 505 | 73 | 14.5 | 10.0 |
| *Total*[(a)] | *57,063* | *8,240* | *14.4* | *9.7* |
| **Persons**[(b)] | | | | |
| < 1 | 2,025 | 2 | 0.1 | 0.1 |
| 1–4 | 4,942 | 2 | 0.0 | 0.0 |
| 5–14 | 6,806 | 22 | 0.3 | 0.2 |
| 15–24 | 8,615 | 80 | 0.9 | 0.6 |
| 25–44 | 20.494 | 891 | 4.3 | 2.6 |
| 45–64 | 23,571 | 4,475 | 19.0 | 12.9 |
| 65–74 | 16,881 | 4,456 | 26.4 | 19.5 |
| 75+ | 14,100 | 3,954 | 28.0 | 20.6 |
| Unknown | 1,121 | 166 | 14.8 | 10.3 |
| **Total**[(a)] | **98,556** | **14,047** | **14.3** | **9.6** |

(a) Components may not add to totals due to rounding.

(b) Estimates include 1,835 prescriptions for all drugs and 254 cardiovascular prescriptions for which sex unknown.

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

**Table S16: Ten most frequently prescribed cardiovascular drugs, 1990–91**

| Generic drug name | Number of prescriptions written | Percentage of all cardiovascular prescriptions written | Percentage of all prescriptions written | Prescriptions written per 100 problems managed |
|---|---|---|---|---|
| Frusemide | 1,196 | 8.5 | 1.2 | 0.8 |
| Atenolol | 1,052 | 7.5 | 1.1 | 0.7 |
| Digoxin | 857 | 6.1 | 0.9 | 0.6 |
| Verapamil | 845 | 6.0 | 0.9 | 0.6 |
| Metoprolol | 809 | 5.8 | 0.8 | 0.6 |
| Enalapril maleate | 760 | 5.4 | 0.8 | 0.5 |
| Captopril | 744 | 5.3 | 0.8 | 0.5 |
| Nifedipine | 645 | 4.6 | 0.7 | 0.4 |
| Prazosin hydrochloride | 642 | 4.6 | 0.7 | 0.4 |
| Glyceryl trinitrate | 623 | 4.4 | 0.6 | 0.4 |

*Source:* AIHW derived from the Survey of Morbidity and Treatment in General Practice in Australia 1990–91.

# National Hospital Morbidity Database

**Table S17: Separations and patient days for all cardiovascular disease by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 293 | 227.2 | 1,596 | 1,293 | 1,002.8 | 22,452 |
| 1–4 | 259 | 48.9 | 1,100 | 739 | 139.5 | 4,821 |
| 5–14 | 616 | 46.2 | 2,491 | 1,326 | 99.5 | 6,662 |
| 15–24 | 2,223 | 161.2 | 7,653 | 4,260 | 309.0 | 22,618 |
| 25–34 | 5,984 | 417.9 | 19,276 | 11,044 | 771.3 | 47,685 |
| 35–44 | 15,157 | 1,088.6 | 55,727 | 28,227 | 2,027.3 | 120,083 |
| 45–54 | 32,993 | 2,805.4 | 134,959 | 62,474 | 5,312.2 | 299,688 |
| 55–64 | 47,619 | 6,149.0 | 239,587 | 99,193 | 12,808.7 | 555,660 |
| 65–74 | 69,913 | 11,402.7 | 468,331 | 163,879 | 26,728.4 | 1,174,762 |
| 75+ | 56,226 | 16,199.1 | 504,916 | 151,836 | 43,744.9 | 1,521,403 |
| Unknown | 0 | n.a. | 0 | 4 | n.a. | 50 |
| *All ages* | *231,283* | *2,540.3* | *1,435,636* | *524,275* | *5,758.3* | *3,775,884* |
| **Females** | | | | | | |
| < 1 | 195 | 159.4 | 1,221 | 1,018 | 832.1 | 17,715 |
| 1–4 | 216 | 43.0 | 1,024 | 642 | 127.8 | 4,616 |
| 5–14 | 460 | 36.3 | 2,014 | 1,045 | 82.5 | 6,597 |
| 15–24 | 1,881 | 143.0 | 6,524 | 4,750 | 361.0 | 21,945 |
| 25–34 | 6,346 | 443.7 | 20,534 | 14,185 | 991.8 | 59,341 |
| 35–44 | 11,951 | 853.8 | 37,623 | 25,518 | 1,823.1 | 112,624 |
| 45–54 | 18,518 | 1,622.3 | 71,480 | 47,254 | 4,139.7 | 218,531 |
| 55–64 | 25,442 | 3,344.0 | 131,868 | 71,139 | 9,350.2 | 403,712 |
| 65–74 | 46,699 | 6,860.7 | 308,645 | 131,947 | 19,384.7 | 1,021,512 |
| 75+ | 69,792 | 12,362.0 | 705,834 | 206,143 | 36,513.3 | 2,424,453 |
| Unknown | 2 | n.a. | 12 | 18 | n.a. | 135 |
| *All ages* | *181,502* | *1,976.2* | *1,286,779* | *503,659* | *5,483.8* | *4,291,181* |
| **Persons** | | | | | | |
| < 1 | 488 | 194.2 | 2,817 | 2,311 | 919.7 | 40,167 |
| 1–4 | 475 | 46.0 | 2,124 | 1,381 | 133.8 | 9,437 |
| 5–14 | 1,076 | 41.4 | 4,505 | 2,371 | 91.2 | 13,259 |
| 15–24 | 4,104 | 152.3 | 14,177 | 9,010 | 334.4 | 44,563 |
| 25–34 | 12,330 | 430.8 | 39,810 | 25,229 | 881.5 | 107,026 |
| 35–44 | 27,108 | 970.9 | 93,350 | 53,745 | 1,924.9 | 232,707 |
| 45–54 | 51,511 | 2,222.7 | 206,439 | 109,728 | 4,734.7 | 518,219 |
| 55–64 | 73,061 | 4,758.9 | 371,455 | 170,332 | 11,094.7 | 959,372 |
| 65–74 | 116,612 | 9,013.1 | 776,976 | 295,826 | 22,864.8 | 2,196,274 |
| 75+ | 126,018 | 13,822.9 | 1,210,750 | 357,979 | 39,266.6 | 3,945,856 |
| Unknown | 2 | n.a. | 12 | 22 | n.a. | 185 |
| **All ages** | **412,785** | **2,257.0** | **2,722,415** | **1,027,934** | **5,620.5** | **8,067,065** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

## Table S18: Separations and average length of stay for rheumatic heart disease by sex and age, public acute and private hospitals, 1995–96

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 8 | 6.2 | 67 |
| 1–4 | 4 | 0.8 | 12 | 22 | 4.2 | 92 |
| 5–14 | 75 | 5.6 | 446 | 94 | 7.1 | 511 |
| 15–24 | 55 | 4.0 | 457 | 112 | 8.1 | 970 |
| 25–34 | 61 | 4.3 | 492 | 147 | 10.3 | 1,174 |
| 35–44 | 70 | 5.0 | 367 | 182 | 13.1 | 981 |
| 45–54 | 84 | 7.1 | 507 | 299 | 25.4 | 2,206 |
| 55–64 | 129 | 16.7 | 960 | 609 | 78.6 | 4,944 |
| 65–74 | 144 | 23.5 | 1,314 | 939 | 153.2 | 8,179 |
| 75+ | 105 | 30.3 | 935 | 1,110 | 319.8 | 11,369 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *727* | *8.0* | *5,490* | *3,522* | *38.7* | *30,493* |
| **Females** | | | | | | |
| < 1 | 3 | 2.5 | 11 | 8 | 6.5 | 90 |
| 1–4 | 3 | 0.6 | 68 | 12 | 2.4 | 104 |
| 5–14 | 64 | 5.1 | 546 | 97 | 7.7 | 798 |
| 15–24 | 46 | 3.5 | 189 | 165 | 12.5 | 835 |
| 25–34 | 99 | 6.9 | 696 | 355 | 24.8 | 2,101 |
| 35–44 | 110 | 7.9 | 593 | 424 | 30.3 | 2,348 |
| 45–54 | 171 | 15.0 | 886 | 664 | 58.2 | 4,247 |
| 55–64 | 243 | 31.9 | 2,023 | 968 | 127.2 | 7,044 |
| 65–74 | 275 | 40.4 | 2,183 | 1,555 | 228.5 | 13,513 |
| 75+ | 178 | 31.5 | 1,685 | 2,316 | 410.2 | 25,267 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *1,192* | *13.0* | *8,880* | *6,564* | *71.5* | *56,347* |
| **Persons** | | | | | | |
| < 1 | 3 | 1.2 | 11 | 16 | 6.4 | 157 |
| 1–4 | 7 | 0.7 | 80 | 34 | 3.3 | 196 |
| 5–14 | 139 | 5.4 | 992 | 191 | 7.4 | 1,309 |
| 15–24 | 101 | 3.8 | 646 | 277 | 10.3 | 1,805 |
| 25–34 | 160 | 5.6 | 1,188 | 502 | 17.5 | 3,275 |
| 35–44 | 180 | 6.5 | 960 | 606 | 21.7 | 3,329 |
| 45–54 | 255 | 11.0 | 1,393 | 963 | 41.6 | 6,453 |
| 55–64 | 372 | 24.2 | 2,983 | 1,577 | 102.7 | 11,988 |
| 65–74 | 419 | 32.4 | 3,497 | 2,494 | 192.8 | 21,692 |
| 75+ | 283 | 31.0 | 2,620 | 3,426 | 375.8 | 36,636 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| **All ages** | **1,919** | **10.5** | **14,370** | **10,086** | **55.2** | **86,840** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S19: Separations and patient days for hypertensive disease by sex and age, public acute and private hospitals, Australia, 1995–96**

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 23 | 17.8 | 78 | 86 | 66.7 | 1,175 |
| 1–4 | 17 | 3.2 | 79 | 80 | 15.1 | 771 |
| 5–14 | 53 | 4.0 | 224 | 246 | 18.5 | 1,730 |
| 15–24 | 75 | 5.4 | 262 | 771 | 55.9 | 4,298 |
| 25–34 | 148 | 10.3 | 726 | 2,633 | 183.9 | 11,451 |
| 35–44 | 302 | 21.7 | 1,049 | 9,069 | 651.4 | 39,050 |
| 45–54 | 572 | 48.6 | 1,953 | 25,170 | 2,140.2 | 110,905 |
| 55–64 | 661 | 85.4 | 2,861 | 43,988 | 5,680.1 | 236,128 |
| 65–74 | 710 | 115.8 | 4,966 | 73,012 | 11,908.1 | 459,426 |
| 75+ | 560 | 161.3 | 7,188 | 55,560 | 16,007.2 | 456,653 |
| Unknown | 0 | n.a. | 0 | 1 | n.a. | 14 |
| *All ages* | *3,121* | *34.3* | *19,386* | *210,616* | *2,313.3* | *1,321,601* |
| **Females** | | | | | | |
| < 1 | 5 | 4.1 | 8 | 58 | 47.4 | 1,103 |
| 1–4 | 4 | 0.8 | 32 | 70 | 13.9 | 1,119 |
| 5–14 | 44 | 3.5 | 114 | 168 | 13.3 | 1,088 |
| 15–24 | 71 | 5.4 | 264 | 835 | 63.5 | 3,831 |
| 25–34 | 165 | 11.5 | 636 | 2,693 | 188.3 | 11,677 |
| 35–44 | 349 | 24.9 | 1,479 | 8,480 | 605.8 | 35,543 |
| 45–54 | 719 | 63.0 | 2,740 | 23,501 | 2,058.8 | 102,668 |
| 55–64 | 870 | 114.4 | 10,571 | 41,189 | 5,413.7 | 218,652 |
| 65–74 | 1,329 | 195.3 | 6,660 | 75,893 | 11,149.6 | 518,219 |
| 75+ | 1,768 | 313.2 | 21,742 | 101,378 | 17,956.7 | 996,250 |
| Unknown | 0 | n.a. | 0 | 9 | n.a. | 72 |
| *All ages* | *5,324* | *58.0* | *44,246* | *254,274* | *2,768.5* | *1,890,222* |
| **Persons** | | | | | | |
| < 1 | 28 | 11.1 | 86 | 144 | 57.3 | 2,278 |
| 1–4 | 21 | 2.0 | 111 | 150 | 14.5 | 1,890 |
| 5–14 | 97 | 3.7 | 338 | 414 | 15.9 | 2,818 |
| 15–24 | 146 | 5.4 | 526 | 1,606 | 59.6 | 8,129 |
| 25–34 | 313 | 10.9 | 1,362 | 5,326 | 186.1 | 23,128 |
| 35–44 | 651 | 23.3 | 2,528 | 17,549 | 628.5 | 74,593 |
| 45–54 | 1,291 | 55.7 | 4,693 | 48,671 | 2,100.1 | 213,573 |
| 55–64 | 1,531 | 99.7 | 13,432 | 85,177 | 5,548.1 | 454,780 |
| 65–74 | 2,039 | 157.6 | 11,626 | 148,905 | 11,509.1 | 977,645 |
| 75+ | 2,328 | 255.4 | 28,930 | 156,938 | 17,214.5 | 1,452,903 |
| Unknown | 0 | n.a. | 0 | 10 | n.a. | 86 |
| **All ages** | **8,445** | **46.2** | **63,632** | **464,890** | **2,541.9** | **3,211,823** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S20: Separations and patient days for acute myocardial infarction by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 0 | 0.0 | 0 |
| 1–4 | 2 | 0.4 | 8 | 2 | 0.4 | 8 |
| 5–14 | 0 | 0.0 | 0 | 2 | 0.2 | 37 |
| 15–24 | 20 | 1.5 | 65 | 22 | 1.6 | 110 |
| 25–34 | 212 | 14.8 | 1,026 | 345 | 24.1 | 1,311 |
| 35–44 | 1,403 | 100.8 | 7,732 | 2,018 | 144.9 | 9,533 |
| 45–54 | 3,919 | 333.2 | 23,085 | 5,375 | 457.0 | 35,605 |
| 55–64 | 5,017 | 647.8 | 31,739 | 7,050 | 910.4 | 44,184 |
| 65–74 | 6,159 | 1,004.5 | 43,987 | 8,793 | 1,434.1 | 67,792 |
| 75+ | 5,086 | 1,465.3 | 39,364 | 7,710 | 2,221.3 | 70,973 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *21,818* | *239.6* | *147,006* | *31,317* | *344.0* | *229,553* |
| **Females** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 4 | 3.3 | 44 |
| 1–4 | 0 | 0.0 | 0 | 0 | 0.0 | 0 |
| 5–14 | 1 | 0.1 | 11 | 3 | 0.2 | 62 |
| 15–24 | 3 | 0.2 | 35 | 7 | 0.5 | 46 |
| 25–34 | 43 | 3.0 | 232 | 60 | 4.2 | 342 |
| 35–44 | 258 | 18.4 | 1,579 | 387 | 27.7 | 2,062 |
| 45–54 | 750 | 65.7 | 4,808 | 1,019 | 89.3 | 6,345 |
| 55–64 | 1,545 | 203.1 | 10,958 | 2,151 | 282.7 | 15,750 |
| 65–74 | 3,298 | 484.5 | 24,920 | 4,851 | 712.7 | 42,644 |
| 75+ | 5,285 | 936.1 | 46,448 | 8,074 | 1,430.1 | 94,749 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *11,183* | *121.8* | *88,991* | *16,556* | *180.3* | *162,044* |
| **Persons** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 4 | 1.6 | 44 |
| 1–4 | 2 | 0.2 | 8 | 2 | 0.2 | 8 |
| 5–14 | 1 | 0.0 | 11 | 5 | 0.2 | 99 |
| 15–24 | 23 | 0.9 | 100 | 29 | 1.1 | 156 |
| 25–34 | 255 | 8.9 | 1,258 | 405 | 14.2 | 1,653 |
| 35–44 | 1,661 | 59.5 | 9,311 | 2,405 | 86.1 | 11,595 |
| 45–54 | 4,669 | 201.5 | 27,893 | 6,394 | 275.9 | 41,950 |
| 55–64 | 6,562 | 427.4 | 42,697 | 9,201 | 599.3 | 59,934 |
| 65–74 | 9,457 | 730.9 | 68,907 | 13,644 | 1,054.6 | 110,436 |
| 75+ | 10,371 | 1,137.6 | 85,812 | 15,784 | 1,731.3 | 165,722 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| **All ages** | **33,001** | **180.4** | **235,997** | **47,873** | **261.8** | **391,597** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S21: Separations and patient days for coronary heart disease by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 3 | 2.3 | 44 |
| 1–4 | 6 | 1.1 | 12 | 12 | 2.3 | 32 |
| 5–14 | 5 | 0.4 | 23 | 11 | 0.8 | 79 |
| 15–24 | 43 | 3.1 | 109 | 71 | 5.2 | 421 |
| 25–34 | 602 | 42.0 | 2,177 | 916 | 64.0 | 3,093 |
| 35–44 | 5,347 | 384.0 | 20,706 | 7,132 | 512.2 | 27,684 |
| 45–54 | 17,410 | 1,480.4 | 71,777 | 24,356 | 2,071.0 | 110,959 |
| 55–64 | 25,735 | 3,323.2 | 118,193 | 43,472 | 5,613.5 | 221,059 |
| 65–74 | 32,271 | 5,263.3 | 169,901 | 72,873 | 11,885.5 | 455,815 |
| 75+ | 18,138 | 5,225.7 | 119,580 | 63,444 | 18,278.6 | 543,226 |
| Unknown | 0 | n.a. | 0 | 1 | n.a. | 7 |
| *All ages* | *99,557* | *1,093.5* | *502,478* | *212,291* | *2,331.7* | *1,362,419* |
| **Females** | | | | | | |
| < 1 | 1 | 0.8 | 8 | 7 | 5.7 | 113 |
| 1–4 | 1 | 0.2 | 4 | 8 | 1.6 | 71 |
| 5–14 | 2 | 0.2 | 13 | 5 | 0.4 | 66 |
| 15–24 | 17 | 1.3 | 62 | 54 | 4.1 | 251 |
| 25–34 | 160 | 11.2 | 1,306 | 301 | 21.1 | 2,112 |
| 35–44 | 1,279 | 91.4 | 4,887 | 2,036 | 145.5 | 18,179 |
| 45–54 | 4,611 | 404.0 | 20,601 | 7,622 | 667.7 | 43,901 |
| 55–64 | 9,507 | 1,249.6 | 43,265 | 17,874 | 2,349.3 | 97,858 |
| 65–74 | 17,825 | 2,618.7 | 95,655 | 43,537 | 6,396.1 | 295,435 |
| 75+ | 19,775 | 3,502.7 | 135,677 | 73,213 | 12,968.0 | 752,972 |
| Unknown | 1 | n.a. | 2 | 4 | n.a. | 18 |
| *All ages* | *53,179* | *579.0* | *301,480* | *144,661* | *1,575.1* | *1,210,976* |
| **Persons** | | | | | | |
| < 1 | 1 | 0.4 | 8 | 10 | 4.0 | 157 |
| 1–4 | 7 | 0.7 | 16 | 20 | 1.9 | 103 |
| 5–14 | 7 | 0.3 | 36 | 16 | 0.6 | 145 |
| 15–24 | 60 | 2.2 | 171 | 125 | 4.6 | 672 |
| 25–34 | 762 | 26.6 | 3,483 | 1,217 | 42.5 | 5,205 |
| 35–44 | 6,626 | 237.3 | 25,593 | 9,168 | 328.4 | 45,863 |
| 45–54 | 22,021 | 950.2 | 92,378 | 31,978 | 1,379.8 | 154,860 |
| 55–64 | 35,242 | 2,295.5 | 161,458 | 61,346 | 3,995.8 | 318,917 |
| 65–74 | 50,096 | 3,872.0 | 265,556 | 116,410 | 8,997.5 | 751,250 |
| 75+ | 37,913 | 4,158.7 | 255,257 | 136,657 | 14,989.9 | 1,296,198 |
| Unknown | 1 | n.a. | 2 | 5 | n.a. | 25 |
| **All ages** | **152,736** | **835.1** | **803,958** | **356,952** | **1,951.7** | **2,573,395** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

## Table S22: Separations and patient days for heart failure by sex and age, public acute and private hospitals, 1995–96

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 41 | 31.8 | 234 | 184 | 142.7 | 2,226 |
| 1–4 | 18 | 3.4 | 105 | 65 | 12.3 | 422 |
| 5–14 | 28 | 2.1 | 211 | 56 | 4.2 | 492 |
| 15–24 | 45 | 3.3 | 260 | 109 | 7.9 | 887 |
| 25–34 | 107 | 7.5 | 552 | 325 | 22.7 | 2,446 |
| 35–44 | 216 | 15.5 | 1,140 | 735 | 52.8 | 5,391 |
| 45–54 | 800 | 68.0 | 4,915 | 2,584 | 219.7 | 20,056 |
| 55–64 | 2,290 | 295.7 | 17,604 | 7,281 | 940.2 | 63,883 |
| 65–74 | 6,279 | 1,024.1 | 49,104 | 22,017 | 3,590.9 | 210,348 |
| 75+ | 10,363 | 2,985.7 | 104,701 | 39,106 | 11,266.7 | 451,374 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *20,187* | *221.7* | *178,826* | *72,462* | *795.9* | *757,525* |
| **Females** | | | | | | |
| < 1 | 29 | 23.7 | 218 | 168 | 137.3 | 2,353 |
| 1–4 | 27 | 5.4 | 147 | 114 | 22.7 | 696 |
| 5–14 | 25 | 2.0 | 154 | 77 | 6.1 | 690 |
| 15–24 | 19 | 1.4 | 234 | 77 | 5.9 | 775 |
| 25–34 | 73 | 5.1 | 466 | 255 | 17.8 | 2,501 |
| 35–44 | 146 | 10.4 | 953 | 509 | 36.4 | 4,076 |
| 45–54 | 410 | 35.9 | 2,513 | 1,566 | 137.2 | 22,469 |
| 55–64 | 1,280 | 168.2 | 9,032 | 4,898 | 643.8 | 48,298 |
| 65–74 | 4,335 | 636.9 | 38,477 | 16,771 | 2,463.9 | 187,465 |
| 75+ | 14,179 | 2,511.5 | 160,922 | 56,580 | 10,021.8 | 784,844 |
| Unknown | 0 | n.a. | 0 | 5 | n.a. | 35 |
| *All ages* | *20,523* | *223.5* | *213,116* | *81,020* | *882.1* | *1,054,202* |
| **Persons** | | | | | | |
| < 1 | 70 | 27.9 | 452 | 352 | 140.1 | 4,579 |
| 1–4 | 45 | 4.4 | 252 | 179 | 17.3 | 1,118 |
| 5–14 | 53 | 2.0 | 365 | 133 | 5.1 | 1,182 |
| 15–24 | 64 | 2.4 | 494 | 186 | 6.9 | 1,662 |
| 25–34 | 180 | 6.3 | 1,018 | 580 | 20.3 | 4,947 |
| 35–44 | 362 | 13.0 | 2,093 | 1,244 | 44.6 | 9,467 |
| 45–54 | 1,210 | 52.2 | 7,428 | 4,150 | 179.1 | 42,525 |
| 55–64 | 3,570 | 232.5 | 26,636 | 12,179 | 793.3 | 112,181 |
| 65–74 | 10,614 | 820.4 | 87,581 | 38,788 | 2,998.0 | 397,813 |
| 75+ | 24,542 | 2,692.0 | 265,623 | 95,686 | 10,495.8 | 1,236,218 |
| Unknown | 0 | n.a. | 0 | 5 | n.a. | 35 |
| **All ages** | **40,710** | **222.6** | **391,942** | **153,482** | **839.2** | **1,811,727** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

## Table S23: Separations and patient days for cerebrovascular disease by sex and age, public acute and private hospitals, 1995–96

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 34 | 26.4 | 171 | 72 | 55.8 | 614 |
| 1–4 | 30 | 5.7 | 143 | 87 | 16.4 | 420 |
| 5–14 | 48 | 3.6 | 600 | 152 | 11.4 | 1,146 |
| 15–24 | 140 | 10.2 | 1,069 | 313 | 22.7 | 2,592 |
| 25–34 | 266 | 18.6 | 2,456 | 526 | 36.7 | 6,266 |
| 35–44 | 681 | 48.9 | 7,508 | 1,216 | 87.3 | 15,733 |
| 45–54 | 1,832 | 155.8 | 15,493 | 3,544 | 301.4 | 47,513 |
| 55–64 | 3,971 | 512.8 | 33,041 | 8,394 | 1,083.9 | 99,640 |
| 65–74 | 8,862 | 1,445.4 | 106,592 | 20,428 | 3,331.8 | 273,722 |
| 75+ | 10,518 | 3,030.3 | 138,915 | 25,443 | 7,330.3 | 397,453 |
| Unknown | 0 | n.a. | 0 | 1 | n.a. | 14 |
| *All ages* | *26,382* | *289.8* | *305,988* | *60,176* | *660.9* | *845,113* |
| **Females** | | | | | | |
| < 1 | 16 | 13.1 | 136 | 46 | 37.6 | 728 |
| 1–4 | 19 | 3.8 | 109 | 64 | 12.7 | 340 |
| 5–14 | 33 | 2.6 | 191 | 123 | 9.7 | 1,000 |
| 15–24 | 103 | 7.8 | 1,030 | 247 | 18.8 | 2,310 |
| 25–34 | 314 | 22.0 | 2,885 | 685 | 47.9 | 6,229 |
| 35–44 | 608 | 43.4 | 5,791 | 1,116 | 79.7 | 13,428 |
| 45–54 | 1,275 | 111.7 | 10,222 | 2,457 | 215.3 | 22,880 |
| 55–64 | 2,327 | 305.9 | 22,933 | 4,833 | 635.2 | 64,795 |
| 65–74 | 6,072 | 892.1 | 73,165 | 13,439 | 1,974.4 | 215,767 |
| 75+ | 14,138 | 2,504.2 | 218,656 | 31,688 | 5,612.8 | 591,744 |
| Unknown | 1 | n.a. | 10 | 2 | n.a. | 11 |
| *All ages* | *24,906* | *271.2* | *335,128* | *54,700* | *595.6* | *919,232* |
| **Persons** | | | | | | |
| < 1 | 50 | 19.9 | 307 | 118 | 47.0 | 1,342 |
| 1–4 | 49 | 4.8 | 252 | 151 | 14.6 | 760 |
| 5–14 | 81 | 3.1 | 791 | 275 | 10.6 | 2,146 |
| 15–24 | 243 | 9.0 | 2,099 | 560 | 20.8 | 4,902 |
| 25–34 | 580 | 20.3 | 5,341 | 1,211 | 42.3 | 12,495 |
| 35–44 | 1,289 | 46.2 | 13,299 | 2,332 | 83.5 | 29,161 |
| 45–54 | 3,107 | 134.1 | 25,715 | 6,001 | 258.9 | 70,393 |
| 55–64 | 6,298 | 410.2 | 55,974 | 13,227 | 861.6 | 164,435 |
| 65–74 | 14,934 | 1,154.3 | 179,757 | 33,867 | 2,617.6 | 489,489 |
| 75+ | 24,656 | 2,704.5 | 357,571 | 57,131 | 6,266.7 | 989,197 |
| Unknown | 1 | n.a. | 10 | 3 | n.a. | 25 |
| **All ages** | **51,288** | **280.4** | **641,116** | **114,876** | **628.1** | **1,764,345** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

## Table S24: Separations and patient days for peripheral vascular disease by sex and age, public acute and private hospitals, 1995–96

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 1 | 0.8 | 6 | 15 | 11.6 | 479 |
| 1–4 | 1 | 0.2 | 35 | 12 | 2.3 | 72 |
| 5–14 | 9 | 0.7 | 29 | 24 | 1.8 | 100 |
| 15–24 | 31 | 2.3 | 120 | 75 | 5.4 | 725 |
| 25–34 | 99 | 6.9 | 534 | 185 | 12.9 | 1,111 |
| 35–44 | 166 | 11.9 | 1,163 | 483 | 34.7 | 4,262 |
| 45–54 | 455 | 38.7 | 3,036 | 1,563 | 132.9 | 12,479 |
| 55–64 | 1,589 | 205.2 | 12,108 | 5,054 | 652.6 | 43,620 |
| 65–74 | 3,897 | 635.6 | 35,583 | 12,879 | 2,100.5 | 130,767 |
| 75+ | 3,240 | 933.5 | 33,899 | 13,174 | 3,795.5 | 160,529 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *9,488* | *104.2* | *86,513* | *33,464* | *367.6* | *354,144* |
| **Females** | | | | | | |
| < 1 | 3 | 2.5 | 4 | 12 | 9.8 | 133 |
| 1–4 | 1 | 0.2 | 2 | 7 | 1.4 | 125 |
| 5–14 | 5 | 0.4 | 40 | 29 | 2.3 | 287 |
| 15–24 | 42 | 3.2 | 157 | 111 | 8.4 | 647 |
| 25–34 | 69 | 4.8 | 480 | 280 | 19.6 | 1,820 |
| 35–44 | 133 | 9.5 | 748 | 531 | 37.9 | 2,941 |
| 45–54 | 274 | 24.0 | 1,930 | 1,038 | 90.9 | 7,638 |
| 55–64 | 452 | 59.4 | 3,477 | 2,043 | 268.5 | 18,458 |
| 65–74 | 1,525 | 224.0 | 13,048 | 5,869 | 862.2 | 57,692 |
| 75+ | 2,340 | 414.5 | 23,743 | 10,416 | 1,845.0 | 145,512 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *4,844* | *52.7* | *43,629* | *20,336* | *221.4* | *235,253* |
| **Persons** | | | | | | |
| < 1 | 4 | 1.6 | 10 | 27 | 10.8 | 612 |
| 1–4 | 2 | 0.2 | 37 | 19 | 1.8 | 197 |
| 5–14 | 14 | 0.5 | 69 | 53 | 2.0 | 387 |
| 15–24 | 73 | 2.7 | 277 | 186 | 6.9 | 1,372 |
| 25–34 | 168 | 5.9 | 1,014 | 465 | 16.3 | 2,931 |
| 35–44 | 299 | 10.7 | 1,911 | 1,014 | 36.3 | 7,203 |
| 45–54 | 729 | 31.5 | 4,966 | 2,601 | 112.2 | 20,117 |
| 55–64 | 2,041 | 132.9 | 15,585 | 7,097 | 462.3 | 62,078 |
| 65–74 | 5,422 | 419.1 | 48,631 | 18,748 | 1,449.1 | 188,459 |
| 75+ | 5,580 | 612.1 | 57,642 | 23,590 | 2,587.6 | 306,041 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| **All ages** | **14,332** | **78.4** | **130,142** | **53,800** | **294.2** | **589,397** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

## Table S25: Separations and patient days for chest pain with heart disease by sex and age, public acute and private hospitals, 1995–96

| Sex/age group (years) | Principal diagnosis only | | | Principal or additional diagnosis[a] | | |
|---|---|---|---|---|---|---|
| | Number of separations | Age-specific separation rate[b] | Patient days | Number of separations | Age-specific separation rate[b] | Patient days |
| **Males** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 0 | 0.0 | 0 |
| 1–4 | 1 | 0.2 | 12 | 2 | 0.4 | 14 |
| 5–14 | 3 | 0.2 | 4 | 8 | 0.6 | 14 |
| 15–24 | 26 | 1.9 | 42 | 33 | 2.4 | 62 |
| 25–34 | 100 | 7.0 | 196 | 133 | 9.3 | 335 |
| 35–44 | 435 | 31.2 | 895 | 547 | 39.3 | 1,321 |
| 45–54 | 1,096 | 93.2 | 2,456 | 1,347 | 114.5 | 3,827 |
| 55–64 | 1,396 | 180.3 | 3,490 | 1,826 | 235.8 | 5,919 |
| 65–74 | 1,694 | 276.3 | 4,682 | 2,312 | 377.1 | 9,540 |
| 75+ | 1,069 | 308.0 | 3,884 | 1,659 | 478.0 | 10,146 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *5,820* | *63.9* | *15,661* | *7,867* | *86.4* | *31,178* |
| **Females** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 1 | 0.8 | 70 |
| 1–4 | 0 | 0.0 | 0 | 0 | 0.0 | 0 |
| 5–14 | 0 | 0.0 | 0 | 0 | 0.0 | 0 |
| 15–24 | 12 | 0.9 | 30 | 32 | 2.4 | 160 |
| 25–34 | 43 | 3.0 | 96 | 65 | 4.5 | 191 |
| 35–44 | 182 | 13.0 | 408 | 250 | 17.9 | 849 |
| 45–54 | 487 | 42.7 | 1,144 | 651 | 57.0 | 1,844 |
| 55–64 | 799 | 105.0 | 2,193 | 1,093 | 143.7 | 4,109 |
| 65–74 | 1,412 | 207.4 | 4,420 | 1,924 | 282.7 | 8,745 |
| 75+ | 1,455 | 257.7 | 5,444 | 2,304 | 408.1 | 15,016 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| *All ages* | *4,390* | *47.8* | *13,735* | *6,320* | *68.8* | *30,984* |
| **Persons** | | | | | | |
| < 1 | 0 | 0.0 | 0 | 1 | 0.4 | 70 |
| 1–4 | 1 | 0.1 | 12 | 2 | 0.2 | 14 |
| 5–14 | 3 | 0.1 | 4 | 8 | 0.3 | 14 |
| 15–24 | 38 | 1.4 | 72 | 65 | 2.4 | 222 |
| 25–34 | 143 | 5.0 | 292 | 198 | 6.9 | 526 |
| 35–44 | 617 | 22.1 | 1,303 | 797 | 28.6 | 2,170 |
| 45–54 | 1,583 | 68.3 | 3,600 | 1,998 | 86.2 | 5,671 |
| 55–64 | 2,195 | 143.0 | 5,683 | 2,919 | 190.1 | 10,028 |
| 65–74 | 3,106 | 240.1 | 9,102 | 4,236 | 327.4 | 18,285 |
| 75+ | 2,524 | 276.9 | 9,328 | 3,963 | 434.7 | 25,162 |
| Unknown | 0 | n.a. | 0 | 0 | n.a. | 0 |
| **All ages** | **10,210** | **55.8** | **29,396** | **14,187** | **77.6** | **62,162** |

n.a. not applicable.

(a) Only one diagnosis per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S26: Separations and patient days for open heart valve replacement surgery by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 2 | 1.6 | 60 | 30.0 |
| 1–4 | 5 | 0.9 | 68 | 13.6 |
| 5–14 | 16 | 1.2 | 127 | 7.9 |
| 15–24 | 44 | 3.2 | 626 | 14.2 |
| 25–34 | 65 | 4.5 | 950 | 14.6 |
| 35–44 | 113 | 8.1 | 1,354 | 12.0 |
| 45–54 | 222 | 18.9 | 2,782 | 12.5 |
| 55–64 | 432 | 55.8 | 5,699 | 13.2 |
| 65–74 | 733 | 119.6 | 9,949 | 13.6 |
| 75+ | 411 | 118.4 | 6,336 | 15.4 |
| *All ages* | *2,043* | *22.4* | *27,951* | *13.7* |
| **Females** | | | | |
| < 1 | 8 | 6.5 | 148 | 18.5 |
| 1–4 | 15 | 3.0 | 285 | 19.0 |
| 5–14 | 15 | 1.2 | 152 | 10.1 |
| 15–24 | 17 | 1.3 | 153 | 9.0 |
| 25–34 | 39 | 2.7 | 416 | 10.7 |
| 35–44 | 76 | 5.4 | 908 | 12.0 |
| 45–54 | 132 | 11.6 | 1,594 | 12.1 |
| 55–64 | 251 | 33.0 | 3,608 | 14.4 |
| 65–74 | 465 | 68.3 | 6,362 | 13.7 |
| 75+ | 346 | 61.3 | 5,414 | 15.7 |
| *All ages* | *1,364* | *14.9* | *19,040* | *14.0* |
| **Persons** | | | | |
| < 1 | 10 | 4.0 | 208 | 20.8 |
| 1–4 | 20 | 1.9 | 353 | 17.7 |
| 5–14 | 31 | 1.2 | 279 | 9.0 |
| 15–24 | 61 | 2.3 | 779 | 12.8 |
| 25–34 | 104 | 3.6 | 1,366 | 13.1 |
| 35–44 | 189 | 6.8 | 2,262 | 12.0 |
| 45–54 | 354 | 15.3 | 4,376 | 12.4 |
| 55–64 | 683 | 44.5 | 9,307 | 13.6 |
| 65–74 | 1,198 | 92.6 | 16,311 | 13.6 |
| 75+ | 757 | 83.0 | 11,750 | 15.5 |
| **All ages** | **3,407** | **18.6** | **46,991** | **13.8** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S27: Separations and patient days for open heart coronary bypass surgery by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 0 | 0.0 | 0 | 0.0 |
| 15–24 | 0 | 0.0 | 0 | 0.0 |
| 25–34 | 35 | 2.4 | 289 | 8.3 |
| 35–44 | 456 | 32.8 | 4,175 | 9.2 |
| 45–54 | 2,126 | 180.8 | 20,653 | 9.7 |
| 55–64 | 3,979 | 513.8 | 42,381 | 10.7 |
| 65–74 | 5,323 | 868.2 | 63,477 | 11.9 |
| 75+ | 1,573 | 453.2 | 21,974 | 14.0 |
| *All ages* | *13,492* | *148.2* | *152,949* | *11.3* |
| **Females** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 1 | 0.1 | 14 | 14.0 |
| 15–24 | 3 | 0.2 | 20 | 6.7 |
| 25–34 | 6 | 0.4 | 81 | 13.5 |
| 35–44 | 66 | 4.7 | 689 | 10.4 |
| 45–54 | 316 | 27.7 | 3,424 | 10.8 |
| 55–64 | 944 | 124.1 | 10,890 | 11.5 |
| 65–74 | 2,009 | 295.2 | 26,325 | 13.1 |
| 75+ | 839 | 148.6 | 12,650 | 15.1 |
| *All ages* | *4,184* | *45.6* | *54,093* | *12.9* |
| **Persons** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 1 | 0.0 | 14 | 14.0 |
| 15–24 | 3 | 0.1 | 20 | 6.7 |
| 25–34 | 41 | 1.4 | 370 | 9.0 |
| 35–44 | 522 | 18.7 | 4,864 | 9.3 |
| 45–54 | 2,442 | 105.4 | 24,077 | 9.9 |
| 55–64 | 4,923 | 320.7 | 53,271 | 10.8 |
| 65–74 | 7,332 | 566.7 | 89,802 | 12.3 |
| 75+ | 2,412 | 264.6 | 34,624 | 14.4 |
| **All ages** | **17,676** | **96.7** | **207,042** | **11.7** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S28: Separations and patient days for other cardiothoracic surgery with cardiopulmonary bypass by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 184 | 142.7 | 2,858 | 15.5 |
| 1–4 | 159 | 30.0 | 1,829 | 11.5 |
| 5–14 | 61 | 4.6 | 513 | 8.4 |
| 15–24 | 29 | 2.1 | 537 | 18.5 |
| 25–34 | 39 | 2.7 | 350 | 9.0 |
| 35–44 | 51 | 3.7 | 527 | 10.3 |
| 45–54 | 163 | 13.9 | 1,856 | 11.4 |
| 55–64 | 280 | 36.2 | 4,143 | 14.8 |
| 65–74 | 414 | 67.5 | 6,085 | 14.7 |
| 75+ | 140 | 40.3 | 2,234 | 16.0 |
| *All ages* | *1,520* | *16.7* | *20,932* | *13.8* |
| **Females** | | | | |
| < 1 | 179 | 146.3 | 2,807 | 15.7 |
| 1–4 | 139 | 27.7 | 1,376 | 9.9 |
| 5–14 | 74 | 5.8 | 592 | 8.0 |
| 15–24 | 38 | 2.9 | 348 | 9.2 |
| 25–34 | 44 | 3.1 | 438 | 10.0 |
| 35–44 | 53 | 3.8 | 549 | 10.4 |
| 45–54 | 66 | 5.8 | 875 | 13.3 |
| 55–64 | 124 | 16.3 | 1,913 | 15.4 |
| 65–74 | 202 | 29.7 | 3,165 | 15.7 |
| 75+ | 108 | 19.1 | 1,665 | 15.4 |
| *All ages* | *1,027* | *11.2* | *13,728* | *13.4* |
| **Persons** | | | | |
| < 1 | 363 | 144.5 | 5,665 | 15.6 |
| 1–4 | 298 | 28.9 | 3,205 | 10.8 |
| 5–14 | 135 | 5.2 | 1,105 | 8.2 |
| 15–24 | 67 | 2.5 | 885 | 13.2 |
| 25–34 | 83 | 2.9 | 788 | 9.5 |
| 35–44 | 104 | 3.7 | 1,076 | 10.4 |
| 45–54 | 229 | 9.9 | 2,731 | 11.9 |
| 55–64 | 404 | 26.3 | 6,056 | 15.0 |
| 65–74 | 616 | 47.6 | 9,250 | 15.0 |
| 75+ | 248 | 27.2 | 3,899 | 15.7 |
| **All ages** | **2,547** | **13.9** | **34,660** | **13.6** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S29: Separations and patient days for other cardiothoracic surgery without cardiopulmonary bypass by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 167 | 129.5 | 4,637 | 27.8 |
| 1–4 | 58 | 11.0 | 296 | 5.1 |
| 5–14 | 43 | 3.2 | 203 | 4.7 |
| 15–24 | 45 | 3.3 | 504 | 11.2 |
| 25–34 | 46 | 3.2 | 490 | 10.7 |
| 35–44 | 79 | 5.7 | 629 | 8.0 |
| 45–54 | 105 | 8.9 | 918 | 8.7 |
| 55–64 | 161 | 20.8 | 1,645 | 10.2 |
| 65–74 | 232 | 37.8 | 3,210 | 13.8 |
| 75+ | 115 | 33.1 | 1,576 | 13.7 |
| *All ages* | *1,051* | *11.5* | *14,108* | *13.4* |
| **Females** | | | | |
| < 1 | 121 | 98.9 | 3,868 | 32.0 |
| 1–4 | 67 | 13.3 | 372 | 5.6 |
| 5–14 | 39 | 3.1 | 139 | 3.6 |
| 15–24 | 39 | 3.0 | 242 | 6.2 |
| 25–34 | 66 | 4.6 | 548 | 8.3 |
| 35–44 | 71 | 5.1 | 445 | 6.3 |
| 45–54 | 98 | 8.6 | 635 | 6.5 |
| 55–64 | 94 | 12.4 | 961 | 10.2 |
| 65–74 | 153 | 22.5 | 1,628 | 10.6 |
| 75+ | 99 | 17.5 | 1,103 | 11.1 |
| *All ages* | *847* | *9.2* | *9,941* | *11.7* |
| **Persons** | | | | |
| < 1 | 288 | 114.6 | 8,505 | 29.5 |
| 1–4 | 125 | 12.1 | 668 | 5.3 |
| 5–14 | 82 | 3.2 | 342 | 4.2 |
| 15–24 | 84 | 3.1 | 746 | 8.9 |
| 25–34 | 112 | 3.9 | 1,038 | 9.3 |
| 35–44 | 150 | 5.4 | 1,074 | 7.2 |
| 45–54 | 203 | 8.8 | 1,553 | 7.7 |
| 55–64 | 255 | 16.6 | 2,606 | 10.2 |
| 65–74 | 385 | 29.8 | 4,838 | 12.6 |
| 75+ | 214 | 23.5 | 2,679 | 12.5 |
| **All ages** | **1,898** | **10.4** | **24,049** | **12.7** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S30: Separations and patient days for percutaneous transluminal coronary angioplasty by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 3 | 2.3 | 23 | 7.7 |
| 1–4 | 3 | 0.6 | 6 | 2.0 |
| 5–14 | 1 | 0.1 | 2 | 2.0 |
| 15–24 | 0 | 0.0 | 0 | 0.0 |
| 25–34 | 57 | 4.0 | 244 | 4.3 |
| 35–44 | 736 | 52.9 | 2,848 | 3.9 |
| 45–54 | 2,245 | 190.9 | 8,429 | 3.8 |
| 55–64 | 2,803 | 362.0 | 11,210 | 4.0 |
| 65–74 | 2,548 | 415.6 | 11,262 | 4.4 |
| 75+ | 690 | 198.8 | 3,862 | 5.6 |
| *All ages* | *9,086* | *99.8* | *37,886* | *4.2* |
| **Females** | | | | |
| < 1 | 1 | 0.8 | 1 | 1.0 |
| 1–4 | 5 | 1.0 | 5 | 1.0 |
| 5–14 | 4 | 0.3 | 12 | 3.0 |
| 15–24 | 1 | 0.1 | 2 | 2.0 |
| 25–34 | 15 | 1.1 | 67 | 4.5 |
| 35–44 | 122 | 8.7 | 677 | 5.6 |
| 45–54 | 408 | 35.7 | 1,860 | 4.6 |
| 55–64 | 872 | 114.6 | 4,214 | 4.8 |
| 65–74 | 1,264 | 185.7 | 6,610 | 5.2 |
| 75+ | 476 | 84.3 | 2,964 | 6.2 |
| *All ages* | *3,168* | *34.5* | *16,412* | *5.2* |
| **Persons** | | | | |
| < 1 | 4 | 1.6 | 24 | 6.0 |
| 1–4 | 8 | 0.8 | 11 | 1.4 |
| 5–14 | 5 | 0.2 | 14 | 2.8 |
| 15–24 | 1 | 0.0 | 2 | 2.0 |
| 25–34 | 72 | 2.5 | 311 | 4.3 |
| 35–44 | 858 | 30.7 | 3,525 | 4.1 |
| 45–54 | 2,653 | 114.5 | 10,289 | 3.9 |
| 55–64 | 3,675 | 239.4 | 15,424 | 4.2 |
| 65–74 | 3,812 | 294.6 | 17,872 | 4.7 |
| 75+ | 1,166 | 127.9 | 6,826 | 5.9 |
| **All ages** | **12,254** | **67.0** | **54,298** | **4.4** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S31: Separations and patient days for percutaneous intracoronary stent implant by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 0 | 0.0 | 0 | 0.0 |
| 15–24 | 0 | 0.0 | 0 | 0.0 |
| 25–34 | 14 | 1.0 | 82 | 5.9 |
| 35–44 | 235 | 16.9 | 1,127 | 4.8 |
| 45–54 | 725 | 61.7 | 3,158 | 4.4 |
| 55–64 | 814 | 105.1 | 3,638 | 4.5 |
| 65–74 | 772 | 125.9 | 4,009 | 5.2 |
| 75+ | 202 | 58.2 | 1,252 | 6.2 |
| *All ages* | *2,762* | *30.3* | *13,266* | *4.8* |
| **Females** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 0 | 0.0 | 0 | 0.0 |
| 15–24 | 0 | 0.0 | 0 | 0.0 |
| 25–34 | 5 | 0.4 | 31 | 6.2 |
| 35–44 | 36 | 2.6 | 169 | 4.7 |
| 45–54 | 116 | 10.2 | 561 | 4.8 |
| 55–64 | 237 | 31.2 | 1,354 | 5.7 |
| 65–74 | 355 | 52.2 | 2,245 | 6.3 |
| 75+ | 125 | 22.1 | 901 | 7.2 |
| *All ages* | *874* | *9.5* | *5,261* | *6.0* |
| **Persons** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 0 | 0.0 | 0 | 0.0 |
| 5–14 | 0 | 0.0 | 0 | 0.0 |
| 15–24 | 0 | 0.0 | 0 | 0.0 |
| 25–34 | 19 | 0.7 | 113 | 6.0 |
| 35–44 | 271 | 9.7 | 1,296 | 4.8 |
| 45–54 | 841 | 36.3 | 3,719 | 4.4 |
| 55–64 | 1,051 | 68.5 | 4,992 | 4.8 |
| 65–74 | 1,127 | 87.1 | 6,254 | 5.6 |
| 75+ | 327 | 35.9 | 2,153 | 6.6 |
| **All ages** | **3,636** | **19.9** | **18,527** | **5.1** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S32: Separations and patient days for catheter ablation of lesion of heart by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 4 | 0.8 | 4 | 1.0 |
| 5–14 | 38 | 2.9 | 78 | 2.1 |
| 15–24 | 80 | 5.8 | 129 | 1.6 |
| 25–34 | 74 | 5.2 | 116 | 1.6 |
| 35–44 | 86 | 6.2 | 173 | 2.0 |
| 45–54 | 133 | 11.3 | 281 | 2.1 |
| 55–64 | 116 | 15.0 | 425 | 3.7 |
| 65–74 | 111 | 18.1 | 598 | 5.4 |
| 75+ | 46 | 13.3 | 216 | 4.7 |
| *All ages* | *688* | *7.6* | *2,020* | *2.9* |
| **Females** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 6 | 1.2 | 14 | 2.3 |
| 5–14 | 25 | 2.0 | 38 | 1.5 |
| 15–24 | 100 | 7.6 | 149 | 1.5 |
| 25–34 | 125 | 8.7 | 230 | 1.8 |
| 35–44 | 139 | 9.9 | 219 | 1.6 |
| 45–54 | 168 | 14.7 | 359 | 2.1 |
| 55–64 | 119 | 15.6 | 290 | 2.4 |
| 65–74 | 107 | 15.7 | 317 | 3.0 |
| 75+ | 55 | 9.7 | 284 | 5.2 |
| *All ages* | *844* | *9.2* | *1,900* | *2.3* |
| **Persons** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 10 | 1.0 | 18 | 1.8 |
| 5–14 | 63 | 2.4 | 116 | 1.8 |
| 15–24 | 180 | 6.7 | 278 | 1.5 |
| 25–34 | 199 | 7.0 | 346 | 1.7 |
| 35–44 | 225 | 8.1 | 392 | 1.7 |
| 45–54 | 301 | 13.0 | 640 | 2.1 |
| 55–64 | 235 | 15.3 | 715 | 3.0 |
| 65–74 | 218 | 16.9 | 915 | 4.2 |
| 75+ | 101 | 11.1 | 500 | 5.0 |
| **All ages** | **1,532** | **8.4** | **3,920** | **2.6** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S33: Separations and patient days for cardiac catheterisation (diagnostic) by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 177 | 137.3 | 1,859 | 10.5 |
| 1–4 | 252 | 47.6 | 826 | 3.3 |
| 5–14 | 118 | 8.9 | 336 | 2.9 |
| 15–24 | 104 | 7.5 | 530 | 5.1 |
| 25–34 | 473 | 33.0 | 1,592 | 3.4 |
| 35–44 | 3,056 | 219.5 | 10,630 | 3.5 |
| 45–54 | 9,520 | 809.5 | 33,044 | 3.5 |
| 55–64 | 13,289 | 1,716.0 | 50,793 | 3.8 |
| 65–74 | 14,469 | 2,359.9 | 65,610 | 4.5 |
| 75+ | 4,203 | 1,210.9 | 24,555 | 5.8 |
| *All ages* | *45,661* | *501.5* | *189,775* | *4.2* |
| **Females** | | | | |
| < 1 | 158 | 129.2 | 1,739 | 11.0 |
| 1–4 | 169 | 33.6 | 515 | 3.1 |
| 5–14 | 142 | 11.2 | 345 | 2.4 |
| 15–24 | 76 | 5.8 | 322 | 4.2 |
| 25–34 | 195 | 13.6 | 890 | 4.6 |
| 35–44 | 951 | 67.9 | 3,240 | 3.4 |
| 45–54 | 3,251 | 284.8 | 10,765 | 3.3 |
| 55–64 | 5,699 | 749.1 | 21,029 | 3.7 |
| 65–74 | 8,017 | 1,177.8 | 38,707 | 4.8 |
| 75+ | 2,972 | 526.4 | 20,128 | 6.8 |
| *All ages* | *21,630* | *235.5* | *97,680* | *4.5* |
| **Persons** | | | | |
| < 1 | 335 | 133.3 | 3,598 | 10.7 |
| 1–4 | 421 | 40.8 | 1,341 | 3.2 |
| 5–14 | 260 | 10.0 | 681 | 2.6 |
| 15–24 | 180 | 6.7 | 852 | 4.7 |
| 25–34 | 668 | 23.3 | 2,482 | 3.7 |
| 35–44 | 4,007 | 143.5 | 13,870 | 3.5 |
| 45–54 | 12,771 | 551.1 | 43,809 | 3.4 |
| 55–64 | 18,988 | 1,236.8 | 71,822 | 3.8 |
| 65–74 | 22,486 | 1,738.0 | 104,317 | 4.6 |
| 75+ | 7,175 | 787.0 | 44,683 | 6.2 |
| **All ages** | **67,291** | **367.9** | **287,455** | **4.3** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S34: Separations and patient days for electrophysiology studies by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 7 | 1.3 | 9 | 1.3 |
| 5–14 | 44 | 3.3 | 83 | 1.9 |
| 15–24 | 126 | 9.1 | 192 | 1.5 |
| 25–34 | 130 | 9.1 | 244 | 1.9 |
| 35–44 | 185 | 13.3 | 530 | 2.9 |
| 45–54 | 321 | 27.3 | 1,360 | 4.2 |
| 55–64 | 343 | 44.3 | 1,979 | 5.8 |
| 65–74 | 392 | 63.9 | 2,778 | 7.1 |
| 75+ | 153 | 44.1 | 929 | 6.1 |
| *All ages* | *1,701* | *18.7* | *8,104* | *4.8* |
| **Females** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 7 | 1.4 | 24 | 3.4 |
| 5–14 | 45 | 3.6 | 67 | 1.5 |
| 15–24 | 153 | 11.6 | 261 | 1.7 |
| 25–34 | 189 | 13.2 | 345 | 1.8 |
| 35–44 | 229 | 16.4 | 510 | 2.2 |
| 45–54 | 279 | 24.4 | 808 | 2.9 |
| 55–64 | 236 | 31.0 | 795 | 3.4 |
| 65–74 | 208 | 30.6 | 1,064 | 5.1 |
| 75+ | 123 | 21.8 | 702 | 5.7 |
| *All ages* | *1,469* | *16.0* | *4,576* | *3.1* |
| **Persons** | | | | |
| < 1 | 0 | 0.0 | 0 | 0.0 |
| 1–4 | 14 | 1.4 | 33 | 2.4 |
| 5–14 | 89 | 3.4 | 150 | 1.7 |
| 15–24 | 279 | 10.4 | 453 | 1.6 |
| 25–34 | 319 | 11.2 | 589 | 1.9 |
| 35–44 | 414 | 14.8 | 1,040 | 2.5 |
| 45–54 | 600 | 25.9 | 2,168 | 3.6 |
| 55–64 | 579 | 37.7 | 2,774 | 4.8 |
| 65–74 | 600 | 46.4 | 3,842 | 6.4 |
| 75+ | 276 | 30.3 | 1,631 | 5.9 |
| **All ages** | **3,170** | **17.3** | **12,680** | **4.0** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

**Table S35: Separations and patient days for cardiac pacemaker device insertion (permanent) by sex and age, public acute and private hospitals, 1995–96**

| Sex/age group (years) | Number of separations[a] | Age-specific separation rate[b] | Patient days | Average length of stay (days) |
|---|---|---|---|---|
| **Males** | | | | |
| < 1 | 5 | 3.9 | 103 | 20.6 |
| 1–4 | 5 | 0.9 | 42 | 8.4 |
| 5–14 | 16 | 1.2 | 89 | 5.6 |
| 15–24 | 19 | 1.4 | 96 | 5.1 |
| 25–34 | 26 | 1.8 | 75 | 2.9 |
| 35–44 | 62 | 4.5 | 225 | 3.6 |
| 45–54 | 157 | 13.4 | 656 | 4.2 |
| 55–64 | 394 | 50.9 | 2,213 | 5.6 |
| 65–74 | 1,089 | 177.6 | 6,044 | 5.6 |
| 75+ | 1,682 | 484.6 | 9,545 | 5.7 |
| *All ages* | *3,455* | *38.0* | *19,088* | *5.5* |
| **Females** | | | | |
| < 1 | 5 | 4.1 | 302 | 60.4 |
| 1–4 | 11 | 2.2 | 157 | 14.3 |
| 5–14 | 15 | 1.2 | 62 | 4.1 |
| 15–24 | 19 | 1.4 | 83 | 4.4 |
| 25–34 | 28 | 2.0 | 90 | 3.2 |
| 35–44 | 55 | 3.9 | 166 | 3.0 |
| 45–54 | 95 | 8.3 | 423 | 4.5 |
| 55–64 | 214 | 28.1 | 1,177 | 5.5 |
| 65–74 | 711 | 104.5 | 4,014 | 5.7 |
| 75+ | 1,428 | 252.9 | 8,356 | 5.9 |
| *All ages* | *2,581* | *28.1* | *14,830* | *5.8* |
| **Persons** | | | | |
| < 1 | 10 | 4.0 | 405 | 40.5 |
| 1–4 | 16 | 1.6 | 199 | 12.4 |
| 5–14 | 31 | 1.2 | 151 | 4.9 |
| 15–24 | 38 | 1.4 | 179 | 4.7 |
| 25–34 | 54 | 1.9 | 165 | 3.1 |
| 35–44 | 117 | 4.2 | 391 | 3.3 |
| 45–54 | 252 | 10.9 | 1,079 | 4.3 |
| 55–64 | 608 | 39.6 | 3,390 | 5.6 |
| 65–74 | 1,800 | 139.1 | 10,058 | 5.6 |
| 75+ | 3,110 | 341.1 | 17,901 | 5.8 |
| **All ages** | **6,036** | **33.0** | **33,918** | **5.6** |

(a) Principal or additional procedure; only one procedure per separation counted.

(b) Separations per 100,000 mid-1996 Australian population for sex and age group.

# Medicare and Department of Veterans' Affairs medical benefits data

**Table S36: Standard errors for age-standardised incidence rates[(a)] for cardiovascular Medicare and DVA services by type of service and State and Territory, 1994–95**

| | State/Territory | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Type of service** | **NSW** | **Vic** | **Qld** | **WA** | **SA** | **Tas** | **ACT** | **NT** | **Australia** |
| **Diagnostic procedures and investigations** | | | | | | | | | |
| Cardiovascular | 10.9 | 11.5 | 13.3 | 17.7 | 17.8 | 31.2 | 58.2 | 58.2 | **5.9** |
| Pacemaker testing | 0.9 | 1.8 | 1.1 | 1.5 | 2.1 | 1.2 | 2.5 | (b) | **0.6** |
| **Vascular operations** | | | | | | | | | |
| Arterial surgery | 1.0 | 1.3 | 1.9 | 1.7 | 1.9 | 3.5 | 7.3 | 7.3 | **0.6** |
| Transluminal balloon angioplasty | 0.8 | 1.1 | 0.8 | 1.9 | 1.6 | 2.2 | 2.4 | 2.4 | **0.5** |
| Transluminal stent insertion | 0.4 | 0.4 | 0.4 | 0.6 | 0.6 | 0.8 | 0.0 | 0.0 | **0.2** |
| **Cardiothoracic operations** | | | | | | | | | |
| Selective coronary arteriography | 1.8 | 2.2 | 2.3 | 4.1 | 3.4 | 6.0 | 7.1 | 7.1 | **1.1** |
| Permanent pacemaker insertion or replacement | 0.6 | 0.8 | 0.8 | 1.3 | 1.1 | 1.8 | 1.1 | (b) | **0.4** |
| Heart catheterisation and electrophysiological studies | 0.6 | 0.5 | 0.6 | 0.9 | 1.0 | 1.4 | 1.7 | 1.7 | **0.3** |
| Valvular procedures | 0.4 | 0.5 | 0.6 | 0.8 | 0.9 | 1.2 | 1.9 | 1.9 | **0.2** |
| Coronary artery bypass | 0.9 | 0.9 | 1.3 | 1.6 | 1.9 | 2.6 | 3.9 | 3.9 | **0.5** |
| Congenital cardiac surgery | 0.3 | 0.4 | 0.2 | 0.6 | 0.6 | 1.1 | 1.4 | 1.4 | **0.2** |
| **Neurosurgical operations** | | | | | | | | | |
| Cerebrovascular disease | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.9 | (b) | (b) | **0.1** |
| **Diagnostic imaging** | | | | | | | | | |
| Cardiac ultrasound | 4.8 | 4.5 | 5.3 | 7.2 | 7.0 | 11.8 | 24.5 | 24.5 | **2.4** |
| Vascular ultrasound | 4.5 | 4.7 | 5.6 | 6.6 | 6.7 | 12.0 | 24.2 | 24.2 | **2.4** |
| Serial angiocardiography | 1.8 | 1.9 | 2.0 | 3.2 | 3.0 | 0.9 | 6.4 | 6.4 | **1.0** |
| Selective coronary arteriography | 1.5 | 2.1 | 2.1 | 3.6 | 3.1 | 5.1 | 7.1 | 7.1 | **0.9** |
| Other angiography and report | 1.8 | 1.9 | 2.0 | 3.1 | 2.8 | 4.3 | 7.8 | 7.8 | **1.0** |
| Cardiac nuclear imaging | 1.5 | 1.3 | 0.8 | 1.1 | 1.4 | 3.8 | 7.5 | 7.5 | **0.7** |
| **Total** | **11.8** | **12.9** | **14.8** | **20.1** | **20.3** | **35.3** | **68.0** | **68.0** | **6.5** |

(a) Rate per 100,000 population, age-standardised to the mid-1991 total Australian population.

(b) Rate suppressed for confidentiality reasons, therefore standard error not shown.

*Sources:* AIHW derived from data provided by the Medicare Estimates and Statistics Section of the Department of Health and Family Services, and the Statistics Section of the Department of Veterans' Affairs.

# National Heart Foundation cardiac surgery and coronary angioplasty registers

**Table S37: Rates of open and closed heart operations and percentage mortality, 1953–1993**

| | Closed heart operations | | Open heart operations | |
|---|---|---|---|---|
| Year | Mortality (%)[a] | Rate[b] | Mortality (%)[a] | Rate[b] |
| 1953 | 5 | 32.3 | — | 0.0 |
| 1954 | 4 | 35.3 | — | 0.0 |
| 1955 | 5 | 38.8 | — | 0.0 |
| 1956 | 6 | 37.4 | — | 0.0 |
| 1957 | 6 | 38.8 | 28 | 1.9 |
| 1958 | 6 | 60.7 | 30 | 4.5 |
| 1959 | 6 | 66.5 | 28 | 7.2 |
| 1960 | 7 | 67.5 | 23 | 21.4 |
| 1961 | 6 | 64.3 | 18 | 34.0 |
| 1962 | 7 | 52.5 | 13 | 34.0 |
| 1963 | 6.7 | 54.2 | 15 | 42.8 |
| 1964 | 6.5 | 49.4 | 19 | 60.5 |
| 1965 | 5.8 | 52.6 | 18 | 71.1 |
| 1966 | 5.7 | 54.8 | 14 | 60.3 |
| 1967 | 7.4 | 54.8 | 12.7 | 69.3 |
| 1968 | 8.2 | 53.1 | 15.5 | 79.1 |
| 1969 | 9.2 | 49.4 | 12.1 | 87.7 |
| 1970 | 11.5 | 49.3 | 13.6 | 95.9 |
| 1971 | 6.6 | 40.5 | 12 | 111.3 |
| 1972 | 8.8 | 36.0 | 10 | 130.4 |
| 1973 | 4.4 | 37.7 | 8.6 | 146.9 |
| 1974 | 5.1 | 36.4 | 8.2 | 164.7 |
| 1975 | 5.4 | 49.1 | 6.8 | 205.8 |
| 1976 | 3.6 | 37.7 | 5 | 227.1 |
| 1977 | 4.4 | 43.1 | 5.3 | 271.1 |
| 1978 | 5.1 | 42.2 | 3.8 | 312.8 |
| 1979 | 3.5 | 40.0 | 3.3 | 361.7 |
| 1980 | 6.6 | 38.8 | 3.4 | 439.9 |
| 1981 | 4.9 | 41.3 | 2.9 | 504.8 |
| 1982 | 3.9 | 44.1 | 2.9 | 549.3 |
| 1983 | 5.9 | 40.6 | 2.5 | 610.5 |
| 1984 | 4.8 | 41.1 | 2.5 | 614.2 |
| 1985 | 5.9 | 36.3 | 3.1 | 651.2 |
| 1986 | 3.3 | 36.4 | 3.3 | 660.0 |
| 1987 | 4.5 | 40.3 | 2.8 | 744.4 |
| 1988 | 4.4 | 34.0 | 3.2 | 761.3 |
| 1989 | 3.2 | 39.3 | 2.6 | 813.6 |
| 1990 | 2.8 | 31.4 | 2.7 | 854.0 |
| 1991 | 3.4 | 33.6 | 2.6 | 929.1 |
| 1992 | 4.9 | 31.3 | 2.8 | 944.2 |
| 1993 | 2.6 | 30.5 | 2.5 | 1042.0 |

—nil

(a) Percentage of those receiving surgery.

(b) Surgery rates are calculated as the number per million mid-year total Australian population.

*Source:* National Heart Foundation of Australia 1996a.

## Table S38: Coronary artery bypass graft operations, 1970–1993

| Year | Number without concomitant procedures | Number with concomitant procedures | Total |
|---|---|---|---|
| 1970 | 50 | 0 | **50** |
| 1971 | 158 | 0 | **158** |
| 1972 | 268 | 15 | **283** |
| 1973 | 386 | 0 | **386** |
| 1974 | 621 | 0 | **621** |
| 1975 | 942 | 128 | **1,070** |
| 1976 | 1,333 | 173 | **1,506** |
| 1977 | 1,744 | 233 | **1,977** |
| 1978 | 2,279 | 300 | **2,579** |
| 1979 | 2,861 | 372 | **3,233** |
| 1980 | 3,816 | 419 | **4,235** |
| 1981 | 4,987 | 530 | **5,517** |
| 1982 | 5,720 | 524 | **6,244** |
| 1983 | 6,565 | 611 | **7,176** |
| 1984 | 6,641 | 605 | **7,246** |
| 1985 | 7,240 | 582 | **7,822** |
| 1986 | 7,351 | 697 | **8,048** |
| 1987 | 8,445 | 791 | **9,236** |
| 1988 | 8,786 | 780 | **9,566** |
| 1989 | 9,705 | 826 | **10,531** |
| 1990 | 10,433 | 948 | **11,381** |
| 1991 | 11,586 | 1,063 | **12,649** |
| 1992 | 11,708 | 1,227 | **12,935** |
| 1993 | 13,245 | 1,393 | **14,638** |

*Source:* National Heart Foundation of Australia 1996a.

## Table S39: Coronary angioplasty procedures, 1980–1994

| Year | Number single vessel procedures | Number multi-vessel procedures | Total |
|---|---|---|---|
| 1980 | 10 | 1 | **11** |
| 1981 | 45 | 0 | **45** |
| 1982 | 148 | 3 | **151** |
| 1983 | 336 | 12 | **348** |
| 1984 | 678 | 59 | **737** |
| 1985 | 1,127 | 117 | **1,244** |
| 1986 | 1,651 | 189 | **1,840** |
| 1987 | 2,163 | 220 | **2,383** |
| 1988 | 2,865 | 288 | **3,153** |
| 1989 | 3,753 | 466 | **4,219** |
| 1990 | 4,420 | 484 | **4,904** |
| 1991 | 5,243 | 483 | **5,726** |
| 1992 | 6,162 | 586 | **6,748** |
| 1993 | 7,577 | 757 | **8,334** |
| 1994 | 8,961 | 771 | **9,732** |

*Source:* National Heart Foundation of Australia 1996b.

# Drug Utilization Sub-Committee Database

**Table S40: Community use of drugs used in the management of hypertension, number of prescriptions, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Beta blockers (C07)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 5,014,674 | 3,588,276 | 3,835,327 | 3,807,468 | 3,546,055 | 3,656,982 |
| Estimated non-subsidised prescriptions ('Survey') | 1,547,273 | 2,030,139 | 1,836,969 | 1,553,943 | 1,488,231 | 1,405,802 |
| *Total beta blockers* | *6,561,947* | *5,618,415* | *5,672,296* | *5,361,411* | *5,034,286* | *5,062,784* |
| **Calcium channel blockers (C08)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 4,063,600 | 4,337,511 | 5,229,016 | 5,916,258 | 6,304,039 | 7,209,099 |
| Estimated non-subsidised prescriptions ('Survey') | 85,683 | 102,035 | 164,097 | 115,643 | 110,106 | 144,126 |
| *Total calcium channel blockers* | *4,149,283* | *4,439,546* | *5,393,113* | *6,031,901* | *6,414,145* | *7,353,225* |
| **ACE inhibitors (C02E)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 2,831,496 | 3,175,583 | 4,406,250 | 6,005,694 | 6,828,548 | 8,086,667 |
| Estimated non-subsidised prescriptions ('Survey') | 57,590 | 22,510 | 12,740 | 8,942 | 8,555 | 11,972 |
| *Total ACE inhibitors* | *2,889,086* | *3,198,093* | *4,418,990* | *6,014,636* | *6,837,103* | *8,098,639* |
| **Diuretics** | | | | | | |
| **Low ceiling diuretics, thiazides (C03A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 606,568 | 422,174 | 420,787 | 394,478 | 348,991 | 324,298 |
| Estimated non-subsidised prescriptions ('Survey') | 290,466 | 202,590 | 175,399 | 137,087 | 134,204 | 114,711 |
| *Total low ceiling diuretics, thiazides* | *897,034* | *624,764* | *596,186* | *531,565* | *483,195* | *439,009* |
| **Low ceiling diuretics excl. thiazides (C03B)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 474,367 | 358,917 | 420,533 | 468,862 | 515,957 | 582,706 |
| Estimated non-subsidised prescriptions ('Survey') | 72,669 | 178,531 | 175,862 | 166,544 | 141,353 | 34,393 |
| *Total low ceiling diuretics excl. thiazides* | *547,036* | *537,448* | *596,395* | *635,406* | *657,310* | *617,099* |
| **High ceiling diuretics (C03C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,519,692 | 1,244,081 | 1,330,397 | 1,356,587 | 1,334,133 | 1,362,745 |
| Estimated non-subsidised prescriptions ('Survey') | 318,595 | 228,950 | 188,246 | 166,143 | 169,743 | 159,752 |
| *Total high ceiling diuretics* | *1,838,287* | *1,473,031* | *1,518,643* | *1,522,730* | *1,503,876* | *1,522,497* |
| **Potassium sparing agents (C03D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 467,085 | 364,985 | 362,555 | 328,523 | 284,736 | 269,126 |
| Estimated non-subsidised prescriptions ('Survey') | 177,763 | 134,592 | 112,616 | 65,221 | 52,798 | 47,968 |
| *Total potassium sparing agents* | *644,848* | *499,577* | *475,171* | *393,744* | *337,534* | *317,094* |

*(continued)*

**Table S40 (continued): Community use of drugs used in the management of hypertension, number of prescriptions, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Diuretics and potassium sparing agents in combination (C03E)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,230,594 | 674,392 | 669,533 | 610,635 | 539,042 | 509,137 |
| Estimated non-subsidised prescriptions ('Survey') | 135,434 | 310,538 | 267,159 | 216,522 | 194,030 | 177,767 |
| *Total diuretics and potassium sparing agents in combination* | *1,366,028* | *984,930* | *936,692* | *827,157* | *733,072* | *686,904* |
| **Total diuretics (C03)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 4,298,306 | 3,064,549 | 3,203,805 | 3,159,085 | 3,022,859 | 3,048,012 |
| Estimated non-subsidised prescriptions ('Survey') | 994,927 | 1,055,201 | 919,282 | 751,517 | 692,128 | 534,591 |
| *Total diuretics* | *5,293,233* | *4,119,750* | *4,123,087* | *3,910,602* | *3,714,987* | *3,582,603* |
| **Other antihypertensive drugs** | | | | | | |
| **Centrally acting antiadrenergic agents (C02A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,046,617 | 676,695 | 636,570 | 542,123 | 456,144 | 423,630 |
| Estimated non-subsidised prescriptions ('Survey') | 46,965 | 129,325 | 96,723 | 73,915 | 64,809 | 55,312 |
| *Total centrally acting antiadrenergic agents* | *1,093,582* | *806,020* | *733,293* | *616,038* | *520,953* | *478,942* |
| **Peripherally acting antiadrenergic agents (C02C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,230,007 | 796,573 | 802,111 | 739,096 | 663,917 | 652,090 |
| Estimated non-subsidised prescriptions ('Survey') | 47,507 | 234,584 | 192,340 | 155,241 | 93,190 | 76,697 |
| *Total peripherally acting antiadrenergic agents* | *1,277,514* | *1,031,157* | *994,451* | *894,337* | *757,107* | *728,787* |
| **Agents acting on arteriolar smooth muscle (C02D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 91,050 | 61,034 | 58,115 | 52,825 | 44,664 | 43,226 |
| Estimated non-subsidised prescriptions ('Survey') | 28,550 | 24,561 | 18,721 | 12,588 | 17,643 | 8,092 |
| *Total agents acting on arteriolar smooth muscle* | *119,600* | *85,595* | *76,836* | *65,413* | *62,307* | *51,318* |
| **Total other antihypertensives (C02A, C02C, C02D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 2,367,674 | 1,534,302 | 1,496,796 | 1,334,044 | 1,164,725 | 1,118,946 |
| Estimated non-subsidised prescriptions ('Survey') | 123,022 | 388,470 | 307,784 | 241,744 | 175,642 | 140,101 |
| *Total other antihypertensives* | *2,490,696* | *1,922,772* | *1,804,580* | *1,575,788* | *1,340,367* | *1,259,047* |

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

## Table S41: Community use of other cardiovascular drugs, number of prescriptions, 1990–1995

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Antiarrhythmics (C01B)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 373,417 | 331,761 | 336,773 | 331,866 | 320,788 | 347,528 |
| Estimated non-subsidised prescriptions ('Survey') | 9,785 | 4,084 | 1,866 | 2,234 | 3,155 | 1,416 |
| *Total antiarrhythmics* | *383,202* | *335,845* | *338,639* | *334,100* | *323,943* | *348,944* |
| **Inotropic drugs** | | | | | | |
| **Cardiac glycosides (C01A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,070,319 | 829,276 | 812,165 | 772,289 | 720,384 | 713,335 |
| Estimated non-subsidised prescriptions ('Survey') | 216,364 | 147,926 | 124,475 | 104,182 | 98,528 | 91,962 |
| *Total cardiac glycosides* | *1,286,683* | *977,202* | *936,640* | *876,471* | *818,912* | *805,297* |
| **Cardiac stimulants excluding glycosides (C01C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Estimated non-subsidised prescriptions ('Survey') | 194 | 382 | 223 | 739 | 561 | 771 |
| *Total cardiac stimulants excluding glycosides* | *194* | *382* | *223* | *739* | *561* | *771* |
| **Total inotropic drugs (C01A, C01C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,070,319 | 829,276 | 812,165 | 772,289 | 720,384 | 713,335 |
| Estimated non-subsidised prescriptions ('Survey') | 216,558 | 148,308 | 124,698 | 104,921 | 99,089 | 92,733 |
| *Total inotropic drugs* | *1,286,877* | *977,584* | *936,863* | *877,210* | *819,473* | *806,068* |
| **Nitrates (C01D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 2,109,686 | 1,872,858 | 2,061,562 | 2,308,566 | 2,369,709 | 2,533,435 |
| Estimated non-subsidised prescriptions ('Survey') | 171,256 | 109,675 | 80,063 | 49,924 | 40,599 | 32,364 |
| *Total nitrates* | *2,280,942* | *1,982,533* | *2,141,625* | *2,358,490* | *2,410,308* | *2,565,799* |
| **Peripheral vasodilators (C04)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 104,779 | 46,023 | 40,984 | 38,531 | 8,756 | 3,392 |
| Estimated non-subsidised prescriptions ('Survey') | 40,550 | 31,241 | 23,853 | 16,785 | 13,167 | 8,373 |
| *Total peripheral vasodilators* | *145,329* | *77,264* | *64,837* | *55,316* | *21,923* | *11,765* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

## Table S42: Community use of antithrombotic drugs, number of prescriptions, 1990–1995

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Anticoagulants (B01AA, B01AB)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 438,826 | 438,916 | 557,225 | 689,193 | 789,685 | 939,157 |
| Estimated non-subsidised prescriptions ('Survey') | 172,557 | 176,724 | 185,943 | 191,128 | 229,283 | 261,179 |
| *Total anticoagulants* | *611,383* | *615,640* | *743,168* | *880,321* | *1,018,968* | *1,200,336* |
| **Antiplatelet drugs (B01AC)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | 753 | 3,760 | 8,456 |
| Estimated non-subsidised prescriptions ('Survey') | 86,485 | 91,760 | 79,266 | 74,667 | 84,826 | 86,466 |
| *Total antiplatelet drugs* | *86,485* | *91,760* | *79,266* | *75,420* | *88,586* | *94,922* |
| **Thrombolytic drugs (B01AD)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 329 | 420 | 420 | 469 | 539 | 678 |
| Estimated non-subsidised prescriptions ('Survey') | 34 | n.a. | 104 | 48 | 43 | 18 |
| *Total thrombolytic drugs* | *363* | *420* | *524* | *517* | *582* | *696* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

## Table S43: Community use of serum lipid lowering drugs, number of prescriptions, 1990–1995

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Simvastatin** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 38,592 | 1,275,936 | 1,795,568 | 1,956,340 | 2,065,849 | 2,756,016 |
| Estimated non-subsidised prescriptions ('Survey') | 3,712 | 6,353 | 1,697 | 1,062 | 1,586 | 1,185 |
| *Total simvastatin* | *42,304* | *1,282,289* | *1,797,265* | *1,957,402* | *2,067,435* | *2,757,201* |
| **Pravastatin** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | 38,171 | 187,178 | 366,648 |
| Estimated non-subsidised prescriptions ('Survey') | n.a. | n.a. | n.a. | 106 | 129 | 311 |
| *Total pravastatin* | *0* | *0* | *0* | *38,277* | *187,307* | *366,959* |
| **Clofibrate** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 525,897 | 159,086 | 85,499 | 47,881 | 31,268 | 19,150 |
| Estimated non-subsidised prescriptions ('Survey') | 25,981 | 68,387 | 25,524 | 11,284 | 6,151 | 4,212 |
| *Total clofibrate* | *551,878* | *227,473* | *111,023* | *59,165* | *37,419* | *23,362* |
| **Gemfibrozil** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | 140,411 | 270,866 | 309,755 | 346,917 | 462,239 |
| Estimated non-subsidised prescriptions ('Survey') | n.a. | 273 | 379 | 295 | 373 | 230 |
| *Total gemfibrozil* | *0* | *140,684* | *271,245* | *310,050* | *347,290* | *462,469* |
| **Cholestyramine** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 412,460 | 223,085 | 138,466 | 102,380 | 83,662 | 75,740 |
| Estimated non-subsidised prescriptions ('Survey') | 5,267 | 1,153 | 200 | 91 | 85 | 207 |
| *Total cholestyramine* | *417,727* | *224,238* | *138,666* | *102,471* | *83,747* | *75,947* |
| **Colestipol hydrochloride** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 49,048 | 24,505 | 13,831 | 9,732 | 7,354 | 6,686 |
| Estimated non-subsidised prescriptions ('Survey') | 753 | 213 | 53 | 55 | n.a. | 22 |
| *Total colestipol hydrochloride* | *49,801* | *24,718* | *13,884* | *9,787* | *7,354* | *6,708* |
| **Nicotinic acid** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 29,691 | 15,855 | 13,860 | 12,803 | 26,550 | 29,637 |
| Estimated non-subsidised prescriptions ('Survey') | 35,479 | 15,930 | 12,720 | 8,785 | 6,472 | 1,614 |
| *Total nicotinic acid* | *65,170* | *31,785* | *26,580* | *21,588* | *33,022* | *31,251* |
| **Probucol** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 116,505 | 45,454 | 22,676 | 15,740 | 11,835 | 9,892 |
| Estimated non-subsidised prescriptions ('Survey') | 2,946 | 608 | 108 | 71 | 225 | 229 |
| *Total probucol* | *119,451* | *46,062* | *22,784* | *15,811* | *12,060* | *10,121* |
| **Total lipid lowering drugs** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1,172,193 | 1,884,332 | 2,340,766 | 2,492,802 | 2,760,613 | 3,726,008 |
| Estimated non-subsidised prescriptions ('Survey') | 74,138 | 92,917 | 40,681 | 21,749 | 15,021 | 8,010 |
| *Total lipid lowering drugs* | *1,246,331* | *1,977,249* | *2,381,447* | *2,514,551* | *2,775,634* | *3,734,018* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Table S44: Community use of drugs used in the management of hypertension, defined daily dose per 1,000 population per day, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Beta blockers (C07)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 23.031 | 15.770 | 16.723 | 16.750 | 15.470 | 16.057 |
| Estimated non-subsidised prescriptions ('Survey') | 5.917 | 8.435 | 7.522 | 6.395 | 6.015 | 5.680 |
| *Total beta blockers* | *28.948* | *24.205* | *24.245* | *23.145* | *21.485* | *21.737* |
| **Calcium channel blockers (C08)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 23.839 | 25.715 | 29.720 | 32.782 | 35.043 | 40.259 |
| Estimated non-subsidised prescriptions ('Survey') | 0.439 | 0.363 | 0.707 | 0.497 | 0.430 | 0.507 |
| *Total calcium channel blockers* | *24.278* | *26.078* | *30.427* | *33.279* | *35.473* | *40.766* |
| **ACE inhibitors (C02E)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 22.045 | 24.161 | 31.537 | 40.651 | 44.506 | 52.425 |
| Estimated non-subsidised prescriptions ('Survey') | 0.401 | 0.149 | 0.056 | 0.033 | 0.018 | 0.028 |
| *Total ACE inhibitors* | *22.446* | *24.310* | *31.593* | *40.684* | *44.524* | *52.453* |
| **Diuretics** | | | | | | |
| **Low ceiling diuretics, thiazides (C03A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 10.785 | 7.684 | 7.686 | 7.213 | 6.368 | 6.015 |
| Estimated non-subsidised prescriptions ('Survey') | 5.154 | 3.752 | 3.280 | 2.543 | 2.457 | 2.110 |
| *Total low ceiling diuretics, thiazides* | *15.939* | *11.436* | *10.966* | *9.756* | *8.825* | *8.125* |
| **Low ceiling diuretics excl. thiazides (C03B)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 4.947 | 3.677 | 4.217 | 4.615 | 5.533 | 7.700 |
| Estimated non-subsidised prescriptions ('Survey') | 0.882 | 1.809 | 1.740 | 1.623 | 1.434 | 0.463 |
| *Total low ceiling diuretics excl. thiazides* | *5.829* | *5.486* | *5.957* | *6.238* | *6.967* | *8.163* |
| **High ceiling diuretics (C03C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 23.751 | 20.077 | 21.576 | 22.003 | 21.370 | 21.706 |
| Estimated non-subsidised prescriptions ('Survey') | 4.725 | 3.385 | 2.787 | 2.455 | 2.474 | 2.326 |
| *Total high ceiling diuretics* | *28.476* | *23.462* | *24.363* | *24.458* | *23.844* | *24.032* |
| **Potassium sparing agents (C03D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 3.098 | 2.397 | 2.415 | 2.613 | 2.429 | 2.380 |
| Estimated non-subsidised prescriptions ('Survey') | 1.195 | 0.906 | 0.754 | 0.411 | 0.319 | 0.287 |
| *Total potassium sparing agents* | *4.293* | *3.303* | *3.169* | *3.024* | *2.748* | *2.667* |
| **Diuretics and potassium sparing agents in combination (C03E)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 31.337 | 17.134 | 17.120 | 15.612 | 13.703 | 12.899 |
| Estimated non-subsidised prescriptions ('Survey') | 3.443 | 7.883 | 6.842 | 5.535 | 4.924 | 4.520 |
| *Total diuretics and potassium sparing agents in combination* | *34.780* | *25.017* | *23.962* | *21.147* | *18.627* | *17.419* |
| **Total diuretics (C03)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 73.918 | 50.969 | 53.014 | 52.056 | 49.403 | 50.700 |
| Estimated non-subsidised prescriptions ('Survey') | 15.399 | 17.735 | 15.403 | 12.567 | 11.608 | 9.706 |
| *Total diuretics* | *89.317* | *68.704* | *68.417* | *64.623* | *61.011* | *60.406* |

*(continued)*

**Table S44 (continued): Community use of drugs used in the management of hypertension, defined daily dose per 1,000 population per day, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Other antihypertensive drugs** | | | | | | |
| **Centrally acting antiadrenergic agents (C02A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 4.178 | 2.674 | 2.491 | 2.134 | 1.775 | 1.645 |
| Estimated non-subsidised prescriptions ('Survey') | 0.165 | 0.492 | 0.362 | 0.281 | 0.245 | 0.211 |
| *Total centrally acting antiadrenergic agents* | *4.343* | *3.166* | *2.853* | *2.415* | *2.020* | *1.856* |
| **Peripherally acting antiadrenergic agents (C02C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 9.374 | 6.692 | 6.712 | 6.258 | 5.554 | 5.476 |
| Estimated non-subsidised prescriptions ('Survey') | 0.268 | 1.257 | 0.926 | 0.757 | 0.389 | 0.299 |
| *Total peripherally acting antiadrenergic agents* | *9.642* | *7.949* | *7.638* | *7.015* | *5.943* | *5.775* |
| **Agents acting on arteriolar smooth muscle (C02D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.700 | 0.477 | 0.456 | 0.417 | 0.356 | 0.351 |
| Estimated non-subsidised prescriptions ('Survey') | 0.187 | 0.169 | 0.131 | 0.089 | 0.075 | 0.065 |
| *Total agents acting on arteriolar smooth muscle* | *0.887* | *0.646* | *0.587* | *0.506* | *0.431* | *0.416* |
| **Total other antihypertensives (C02A, C02C, C02D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 14.252 | 9.843 | 9.659 | 8.809 | 7.685 | 7.472 |
| Estimated non-subsidised prescriptions ('Survey') | 0.620 | 1.918 | 1.419 | 1.127 | 0.709 | 0.575 |
| *Total other antihypertensives* | *14.872* | *11.761* | *11.078* | *9.936* | *8.394* | *8.047* |

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Table S45: Community use of other cardiovascular drugs, defined daily dose per 1,000 population per day, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Antiarrhythmics (C01B)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1.446 | 1.285 | 1.309 | 1.309 | 1.280 | 1.395 |
| Estimated non-subsidised prescriptions ('Survey') | 0.031 | 0.007 | 0.000 | 0.000 | 0.001 | 0.000 |
| *Total antiarrhythmics* | *1.477* | *1.292* | *1.309* | *1.309* | *1.281* | *1.395* |
| **Inotropic drugs** | | | | | | |
| **Cardiac glycosides (C01A)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 9.729 | 8.024 | 8.289 | 8.135 | 7.641 | 7.633 |
| Estimated non-subsidised prescriptions ('Survey') | 2.161 | 1.642 | 1.500 | 1.257 | 1.195 | 1.138 |
| *Total cardiac glycosides* | *11.890* | *9.666* | *9.789* | *9.392* | *8.836* | *8.771* |
| **Cardiac stimulants excluding glycosides (C01C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. |
| Estimated non-subsidised prescriptions ('Survey') | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Total cardiac stimulants excluding glycosides* | *0.000* | *0.000* | *0.000* | *0.000* | *0.000* | *0.000* |
| **Total inotropic drugs (C01A, C01C)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 9.729 | 8.024 | 8.289 | 8.135 | 7.641 | 7.633 |
| Estimated non-subsidised prescriptions ('Survey') | 2.161 | 1.642 | 1.500 | 1.257 | 1.195 | 1.138 |
| *Total inotropic drugs* | *11.890* | *9.666* | *9.789* | *9.392* | *8.836* | *8.771* |
| **Nitrates (C01D)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 11.852 | 10.735 | 12.184 | 14.289 | 15.020 | 16.535 |
| Estimated non-subsidised prescriptions ('Survey') | 0.812 | 0.562 | 0.405 | 0.282 | 0.236 | 0.221 |
| *Total nitrates* | *12.664* | *11.297* | *12.589* | *14.571* | *15.256* | *16.756* |
| **Peripheral vasodilators (C04)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.551 | 0.361 | 0.316 | 0.294 | 0.060 | 0.021 |
| Estimated non-subsidised prescriptions ('Survey') | 0.187 | 0.148 | 0.121 | 0.089 | 0.070 | 0.039 |
| *Total peripheral vasodilators* | *0.738* | *0.509* | *0.437* | *0.383* | *0.130* | *0.060* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

**Table S46: Community use of antithrombotic drugs, defined daily dose per 1,000 population per day, 1990–1995**

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Anticoagulants (B01AA, B01AB)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1.118 | 1.087 | 1.399 | 1.706 | 1.899 | 2.224 |
| Estimated non-subsidised prescriptions ('Survey') | 0.416 | 0.423 | 0.450 | 0.472 | 0.555 | 0.638 |
| *Total anticoagulants* | *1.534* | *1.510* | *1.849* | *2.178* | *2.454* | *2.862* |
| **Antiplatelet drugs (B01AC)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | 0.002 | 0.018 | 0.039 |
| Estimated non-subsidised prescriptions ('Survey') | 0.491 | 0.550 | 0.461 | 0.416 | 0.488 | 0.534 |
| *Total antiplatelet drugs* | *0.491* | *0.550* | *0.461* | *0.418* | *0.506* | *0.573* |
| **Thrombolytic drugs (B01AD)** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Estimated non-subsidised prescriptions ('Survey') | 0.000 | n.a. | 0.000 | 0.000 | 0.000 | 0.000 |
| *Total thrombolytic drugs* | *0.000* | *0.000* | *0.000* | *0.000* | *0.000* | *0.000* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

## Table S47: Community use of serum lipid lowering drugs, defined daily dose per 1,000 population per day, 1990–1995

| Type of drug (ATC code) / source | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|
| **Simvastatin** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.153 | 5.148 | 7.503 | 8.413 | 8.909 | 12.380 |
| Estimated non-subsidised prescriptions ('Survey') | 0.014 | 0.023 | 0.005 | 0.002 | 0.004 | 0.001 |
| *Total simvastatin* | *0.167* | *5.171* | *7.508* | *8.415* | *8.913* | *12.381* |
| **Pravastatin** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | n.a. | n.a. | 0.116 | 0.582 | 1.260 |
| Estimated non-subsidised prescriptions ('Survey') | n.a. | n.a. | n.a. | 0.000 | 0.000 | 0.000 |
| *Total pravastatin* | *0.000* | *0.000* | *0.000* | *0.116* | *0.582* | *1.260* |
| **Clofibrate** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 2.128 | 0.638 | 0.338 | 0.190 | 0.126 | 0.076 |
| Estimated non-subsidised prescriptions ('Survey') | 0.105 | 0.275 | 0.099 | 0.046 | 0.024 | 0.016 |
| *Total clofibrate* | *2.233* | *0.913* | *0.437* | *0.236* | *0.150* | *0.092* |
| **Gemfibrozil** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | n.a. | 0.667 | 1.281 | 1.484 | 1.655 | 2.237 |
| Estimated non-subsidised prescriptions ('Survey') | n.a. | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Total gemfibrozil* | *0.000* | *0.667* | *1.281* | *1.484* | *1.655* | *2.237* |
| **Cholestyramine** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 1.858 | 0.996 | 0.614 | 0.457 | 0.371 | 0.337 |
| Estimated non-subsidised prescriptions ('Survey') | 0.022 | 0.004 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Total cholestyramine* | *1.880* | *1.000* | *0.614* | *0.457* | *0.371* | *0.337* |
| **Colestipol hydrochloride** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.240 | 0.117 | 0.064 | 0.049 | 0.035 | 0.033 |
| Estimated non-subsidised prescriptions ('Survey') | 0.002 | 0.000 | 0.000 | 0.000 | n.a. | 0.000 |
| *Total colestipol hydrochloride* | *0.242* | *0.117* | *0.064* | *0.049* | *0.035* | *0.033* |
| **Nicotinic acid** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.104 | 0.056 | 0.049 | 0.047 | 0.087 | 0.100 |
| Estimated non-subsidised prescriptions ('Survey') | 0.085 | 0.035 | 0.031 | 0.024 | 0.019 | 0.004 |
| *Total nicotinic acid* | *0.189* | *0.091* | *0.080* | *0.071* | *0.106* | *0.104* |
| **Probucol** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 0.559 | 0.218 | 0.106 | 0.074 | 0.055 | 0.047 |
| Estimated non-subsidised prescriptions ('Survey') | 0.013 | 0.002 | 0.000 | 0.000 | 0.000 | 0.000 |
| *Total probucol* | *0.572* | *0.220* | *0.106* | *0.074* | *0.055* | *0.047* |
| **Total lipid lowering drugs** | | | | | | |
| Subsidised prescriptions (PBS/RPBS) | 5.042 | 7.840 | 9.955 | 10.830 | 11.820 | 16.470 |
| Estimated non-subsidised prescriptions ('Survey') | 0.241 | 0.339 | 0.135 | 0.072 | 0.047 | 0.021 |
| *Total lipid lowering drugs* | *5.283* | *8.179* | *10.090* | *10.902* | *11.867* | *16.491* |

n.a. not applicable.

*Source:* Drug Utilization Sub-Committee of the Pharmaceutical Benefits Advisory Committee.

# Disease costs and impact study

### Table S48: Health care costs of all cardiovascular disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 1,507 | 2,441 | — | 641 | — | 73 | 296 | **4,958** |
| 5–14 | 1,871 | 2,118 | — | 198 | — | 201 | 262 | **4,650** |
| 15–24 | 6,339 | 4,392 | — | 4,549 | 321 | 1,465 | 1,079 | **18,145** |
| 25–34 | 13,833 | 4,659 | — | 9,574 | 759 | 5,241 | 2,193 | **36,250** |
| 35–44 | 39,950 | 7,749 | — | 15,913 | 3,636 | 20,446 | 5,690 | **93,383** |
| 45–54 | 104,296 | 10,016 | 2,453 | 33,211 | 1,182 | 43,730 | 12,290 | **207,177** |
| 55–64 | 185,615 | 11,030 | 10,284 | 56,108 | 3,145 | 73,488 | 21,253 | **360,924** |
| 65–74 | 293,454 | 26,196 | 44,550 | 76,680 | 3,957 | 100,410 | 33,872 | **579,118** |
| 75+ | 229,581 | 4,659 | 159,890 | 47,085 | 7,987 | 58,011 | 30,587 | **537,800** |
| n.s. | 11 | — | — | — | — | — | 1 | **12** |
| *Total* | *876,458* | *73,258* | *217,177* | *243,960* | *20,987* | *303,065* | *107,514* | **1,842,419** |
| **Females** | | | | | | | | |
| 0–4 | 1,224 | 292 | — | 307 | — | 92 | 123 | **2,037** |
| 5–14 | 1,207 | 482 | — | 664 | — | 375 | 170 | **2,898** |
| 15–24 | 4,571 | 985 | — | 2,890 | — | 1,583 | 625 | **10,653** |
| 25–34 | 13,949 | 7,645 | — | 9,069 | 812 | 6,195 | 2,369 | **40,039** |
| 35–44 | 27,793 | 4,301 | 1,126 | 18,916 | 975 | 18,419 | 4,547 | **76,077** |
| 45–54 | 48,057 | 19,560 | 1,267 | 31,132 | 2,592 | 46,082 | 9,753 | **158,444** |
| 55–64 | 85,427 | 9,414 | 7,375 | 48,959 | 1,244 | 82,995 | 15,345 | **250,760** |
| 65–74 | 175,911 | 9,790 | 30,524 | 70,191 | 5,780 | 131,131 | 27,068 | **450,395** |
| 75+ | 278,544 | 17,466 | 329,381 | 77,332 | 7,327 | 124,791 | 50,449 | **885,290** |
| n.s. | 380 | — | — | — | — | — | 22 | **403** |
| *Total* | *637,064* | *69,933* | *369,673* | *259,461* | *18,730* | *411,662* | *110,472* | **1,876,995** |
| **Persons** | | | | | | | | |
| 0–4 | 2,730 | 2,732 | — | 948 | — | 165 | 419 | **6,995** |
| 5–14 | 3,078 | 2,599 | — | 862 | — | 576 | 432 | **7,548** |
| 15–24 | 10,910 | 5,376 | — | 7,439 | 321 | 3,047 | 1,704 | **28,798** |
| 25–34 | 27,782 | 12,304 | — | 18,643 | 1,571 | 11,436 | 4,562 | **76,289** |
| 35–44 | 67,743 | 12,050 | 1,126 | 34,830 | 4,611 | 38,863 | 10,237 | **169,461** |
| 45–54 | 152,353 | 29,575 | 3,720 | 64,343 | 3,774 | 89,811 | 22,043 | **365,621** |
| 55–64 | 271,043 | 20,443 | 17,659 | 105,068 | 4,389 | 156,484 | 36,598 | **611,684** |
| 65–74 | 469,365 | 35,986 | 75,074 | 146,871 | 9,737 | 231,540 | 60,940 | **1,029,513** |
| 75+ | 508,126 | 22,125 | 489,271 | 124,417 | 15,313 | 182,802 | 81,036 | **1,423,090** |
| n.s. | 392 | — | — | — | — | — | 23 | **415** |
| **Total** | **1,513,522** | **143,191** | **586,850** | **503,421** | **39,717** | **714,726** | **217,987** | **3,719,414** |

Components may not add to totals due to rounding.

—nil; n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S49: Health care costs of rheumatic heart disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital out-patient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 36 | — | — | 28 | — | 45 | 6 | **114** |
| 5–14 | 239 | — | — | – | — | — | 13 | **251** |
| 15–24 | 301 | 208 | — | 24 | — | 55 | 31 | **619** |
| 25–34 | 334 | 14 | — | 16 | — | 1 | 19 | **384** |
| 35–44 | 503 | 42 | — | 13 | — | 5 | 29 | **592** |
| 45–54 | 888 | 178 | — | 119 | — | 93 | 68 | **1,346** |
| 55–64 | 1,588 | 202 | 61 | 528 | — | 37 | 145 | **2,898** |
| 65–74 | 1,786 | 53 | 150 | 65 | — | 79 | 112 | **2,245** |
| 75+ | 827 | 1 | — | 29 | — | 13 | 45 | **915** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *6,502* | *698* | *211* | *821* | — | *665* | *467* | **9,365** |
| **Females** | | | | | | | | |
| 0–4 | 21 | — | — | — | — | — | 1 | **22** |
| 5–14 | 269 | — | — | — | — | — | 14 | **283** |
| 15–24 | 295 | — | — | 39 | — | 23 | 19 | **375** |
| 25–34 | 596 | 102 | — | 87 | — | 49 | 44 | **878** |
| 35–44 | 1,062 | 34 | — | 71 | 129 | 89 | 72 | **1,458** |
| 45–54 | 1,751 | 64 | — | 53 | — | 58 | 101 | **2,028** |
| 55–64 | 2,692 | 41 | — | 281 | — | 159 | 167 | **3,340** |
| 65–74 | 3,079 | 155 | 54 | 311 | 74 | 277 | 207 | **4,157** |
| 75+ | 1,393 | 11 | 259 | 160 | — | 152 | 104 | **2,081** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *11,158* | *408* | *314* | *1,002* | *203* | *808* | *730* | **14,622** |
| **Persons** | | | | | | | | |
| 0–4 | 57 | — | — | 28 | — | 45 | 7 | **137** |
| 5–14 | 508 | — | — | — | — | — | 27 | **535** |
| 15–24 | 595 | 208 | — | 63 | — | 77 | 50 | **994** |
| 25–34 | 929 | 116 | — | 103 | — | 51 | 63 | **1,261** |
| 35–44 | 1,565 | 76 | — | 83 | 129 | 94 | 103 | **2,050** |
| 45–54 | 2,639 | 242 | — | 173 | — | 152 | 169 | **3,375** |
| 55–64 | 4,281 | 243 | 61 | 809 | — | 533 | 311 | **6,238** |
| 65–74 | 4,865 | 208 | 204 | 376 | 74 | 356 | 319 | **6,402** |
| 75+ | 2,220 | 12 | 259 | 190 | — | 165 | 149 | **2,996** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **17,660** | **1,106** | **525** | **1,824** | **203** | **1,473** | **1,198** | **23,987** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S50: Health care costs of hypertensive disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 14 | — | — | — | — | — | 1 | **15** |
| 5–14 | 32 | — | — | — | — | — | 2 | **35** |
| 15–24 | 239 | — | — | 1,674 | — | 413 | 170 | **2,497** |
| 25–34 | 579 | 2,498 | — | 4,600 | — | 4,059 | 859 | **12,595** |
| 35–44 | 919 | — | — | 9,401 | 2,947 | 16,061 | 2,149 | **31,476** |
| 45–54 | 1,288 | 3,281 | 50 | 16,263 | 624 | 34,007 | 4,065 | **59,577** |
| 55–64 | 1,834 | — | 61 | 22,503 | 1,779 | 50,132 | 5,588 | **81,897** |
| 65–74 | 2,321 | 3,426 | 376 | 26,250 | 1,500 | 60,354 | 6,900 | **101,127** |
| 75+ | 1,684 | — | 563 | 12,526 | 2,134 | 25,578 | 3,1111 | **45,596** |
| n.s. | — | — | — | — | — | — | — | **—** |
| *Total* | *8,911* | *9,204* | *1,049* | *93,216* | *8,984* | *190,604* | *22,845* | **334,814** |
| **Females** | | | | | | | | |
| 0–4 | 28 | — | — | 83 | — | 59 | 13 | **183** |
| 5–14 | 70 | — | — | 154 | — | 246 | 34 | **505** |
| 15–24 | 140 | — | — | 927 | — | 752 | 133 | **1,953** |
| 25–34 | 393 | 3,309 | — | 3,162 | — | 3,444 | 755 | **11,064** |
| 35–44 | 898 | 1,634 | — | 7,980 | 685 | 13,447 | 1,827 | **26,771** |
| 45–54 | 1,474 | 11,585 | 60 | 17,966 | 2,479 | 37,174 | 5,180 | **75,918** |
| 55–64 | 2,191 | 4,799 | 88 | 28,489 | 1,003 | 67,634 | 7,631 | **111,835** |
| 65–74 | 3,890 | 1,242 | 380 | 36,160 | 3,398 | 93,377 | 10,138 | **148,586** |
| 75+ | 5,019 | — | 5,103 | 28,482 | 3,590 | 69,025 | 8,144 | **119,363** |
| n.s. | — | — | — | — | — | — | — | **—** |
| *Total* | *14,103* | *22,570* | *5,631* | *123,403* | *11,154* | *285,458* | *33,854* | **496,176** |
| **Persons** | | | | | | | | |
| 0–4 | 43 | — | — | 83 | — | 59 | 13 | **198** |
| 5–14 | 103 | — | — | 154 | — | 246 | 37 | **540** |
| 15–24 | 379 | — | — | 2,601 | — | 1,165 | 304 | **4,449** |
| 25–34 | 972 | 5,807 | — | 7,762 | — | 7,503 | 1,615 | **23,659** |
| 35–44 | 1,817 | 1,634 | — | 17,381 | 3,632 | 29,808 | 3,974 | **58,246** |
| 45–54 | 2,762 | 14,866 | 110 | 34,229 | 3,103 | 71,180 | 9,245 | **135,495** |
| 55–64 | 4,025 | 4,799 | 149 | 50,992 | 2,782 | 117,766 | 13,219 | **193,732** |
| 65–74 | 6,212 | 4,668 | 755 | 62,410 | 4,898 | 153,732 | 17,038 | **249,712** |
| 75+ | 6,703 | — | 5,666 | 41,008 | 5,724 | 94,604 | 11,256 | **164,959** |
| n.s. | — | — | — | — | — | — | — | **—** |
| **Total** | **23,014** | **31,774** | **6,680** | **216,620** | **20,138** | **476,063** | **56,699** | **830,990** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S51: Health care costs of coronary heart disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 9 | — | — | — | — | — | — | **10** |
| 5–14 | 38 | — | — | — | — | — | 2 | **41** |
| 15–24 | 80 | — | — | 8 | — | — | 5 | **94** |
| 25–34 | 1,767 | 235 | — | 283 | — | 95 | 137 | **2,518** |
| 35–44 | 16,887 | 2,623 | — | 1,252 | 689 | 1,412 | 1,320 | **24,183** |
| 45–54 | 62,189 | 1,706 | 401 | 7,917 | 254 | 5,387 | 4,496 | **82,351** |
| 55–64 | 106,001 | 4,267 | 1,704 | 15,413 | 733 | 11,591 | 8,069 | **147,779** |
| 65–74 | 131,711 | 3,005 | 7,137 | 18,300 | 643 | 20,734 | 10,485 | **192,014** |
| 75+ | 59,920 | 1,109 | 18,943 | 8,287 | 1,607 | 15,050 | 6,002 | **109,917** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *378,602* | *11,945* | *28,184* | *51,460* | *3,927* | *54,270* | *30,518* | **558,906** |
| **Females** | | | | | | | | |
| 0–4 | 7 | — | — | — | — | — | — | **7** |
| 5–14 | 3 | — | — | 13 | — | 19 | 2 | **37** |
| 15–24 | 59 | — | — | — | — | — | 4 | **62** |
| 25–34 | 394 | — | — | 581 | — | 222 | 69 | **1,265** |
| 35–44 | 3,122 | 374 | 205 | 1,750 | — | 531 | 346 | **6,328** |
| 45–54 | 13,113 | 1,838 | 60 | 2,610 | 113 | 2,280 | 1,156 | **21,170** |
| 55–64 | 33,036 | 864 | 1,580 | 6,652 | 92 | 5,853 | 2,776 | **50,855** |
| 65–74 | 66,195 | 2,015 | 4,012 | 12,146 | 678 | 18,693 | 5,992 | **109,730** |
| 75+ | 61,982 | 688 | 38,491 | 12,766 | 680 | 23,497 | 7,976 | **146,080** |
| n.s. | 1 | — | — | — | — | — | — | **2** |
| *Total* | *177,912* | *5,779* | *44,349* | *36,517* | *1,564* | *51,095* | *18,322* | **335,537** |
| **Persons** | | | | | | | | |
| 0–4 | 16 | — | — | — | — | — | 1 | **17** |
| 5–14 | 42 | — | — | 13 | — | 19 | 4 | **78** |
| 15–24 | 139 | — | — | 8 | — | — | 9 | **156** |
| 25–34 | 2,161 | 235 | — | 864 | — | 317 | 207 | **3,784** |
| 35–44 | 20,008 | 2,997 | 205 | 3,002 | 689 | 1,944 | 1,666 | **30,511** |
| 45–54 | 75,302 | 3,544 | 461 | 10,527 | 368 | 7,667 | 5,652 | **103,521** |
| 55–64 | 139,037 | 5,131 | 3,284 | 22,065 | 826 | 17,444 | 10,846 | **198,634** |
| 65–74 | 197,905 | 5,020 | 11,149 | 30,446 | 1,321 | 39,428 | 16,476 | **301,744** |
| 75+ | 121,902 | 797 | 57,434 | 21,053 | 2,287 | 38,547 | 13,978 | **255,997** |
| n.s. | 1 | — | — | — | — | — | — | **2** |
| **Total** | **556,514** | **17,724** | **72,533** | **87,978** | **5,491** | **105,365** | **48,839** | **894,443** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S52: Health care costs of acute myocardial infarction ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 6 | — | — | — | — | — | — | **6** |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 37 | — | — | — | — | — | 2 | **39** |
| 25–34 | 685 | 16 | — | 15 | — | 1 | 41 | **757** |
| 35–44 | 4,376 | — | — | — | — | — | 253 | **4,629** |
| 45–54 | 12,622 | 73 | 200 | 481 | — | 140 | 781 | **14,297** |
| 55–64 | 18,967 | 138 | 487 | 561 | 4 | 238 | 1,178 | **21,573** |
| 65–74 | 25,171 | 165 | 2,855 | 1,505 | — | 318 | 1,734 | **31,747** |
| 75+ | 20,017 | 4 | 6,752 | 192 | — | 162 | 1,568 | **28,695** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *81,881* | *470* | *10,294* | *2,754* | *4* | *858* | *5,556* | **101,742** |
| **Females** | | | | | | | | |
| 0–4 | — | — | — | — | — | — | — | — |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 12 | — | — | — | — | — | 1 | **13** |
| 25–34 | 150 | — | — | — | — | — | 9 | **159** |
| 35–44 | 719 | — | — | — | — | — | 41 | **760** |
| 45–54 | 2,437 | 20 | 60 | 17 | — | 38 | 149 | **2,721** |
| 55–64 | 6,184 | 4 | 439 | 19 | — | 6 | 384 | **7,037** |
| 65–74 | 14,067 | 16 | 1,247 | 77 | 69 | 73 | 898 | **16,448** |
| 75+ | 23,126 | 15 | 13,234 | 350 | — | 88 | 2,126 | **38,939** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *46,695* | *56* | *14,980* | *463* | *69* | *205* | *3,609* | **66,076** |
| **Persons** | | | | | | | | |
| 0–4 | 6 | — | — | — | — | — | — | **6** |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 49 | — | — | — | — | — | 3 | **52** |
| 25–34 | 834 | 16 | — | 15 | — | 1 | 50 | **916** |
| 35–44 | 5,095 | — | — | — | — | — | 295 | **5,389** |
| 45–54 | 15,058 | 930 | 261 | 498 | — | 178 | 930 | **17,017** |
| 55–64 | 25,152 | 143 | 926 | 580 | 4 | 244 | 1,562 | **28,610** |
| 65–74 | 39,238 | 181 | 4,102 | 1,583 | 69 | 391 | 2,632 | **48,195** |
| 75+ | 43,143 | 19 | 19,986 | 542 | — | 250 | 3,694 | **67,635** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **128,575** | **451** | **25,274** | **3,217** | **73** | **1,063** | **9,165** | **167,819** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S53: Health care costs of other forms of heart disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 726 | — | — | — | — | — | 51 | **777** |
| 5–14 | 714 | 1,461 | — | 54 | — | 128 | 144 | **2,501** |
| 15–24 | 2,288 | — | — | 1,441 | — | 38 | 268 | **4,035** |
| 25–34 | 3,162 | 493 | — | 890 | 112 | 134 | 324 | **5,115** |
| 35–44 | 6,011 | 2,575 | — | 1,099 | — | 962 | 726 | **11,374** |
| 45–54 | 12,931 | 3,507 | 300 | 4,671 | 136 | 2,238 | 1,519 | **25,303** |
| 55–64 | 25,771 | 4,803 | 1,947 | 7,305 | — | 6,349 | 2,870 | **49,044** |
| 65–74 | 50,647 | 3,938 | 7,513 | 15,489 | 701 | 11,371 | 5,429 | **95,088** |
| 75+ | 61,310 | 4,417 | 46,607 | 14,472 | 1,433 | 12,464 | 8,459 | **149,163** |
| n.s. | 8 | — | — | — | — | — | — | **8** |
| *Total* | *163,569* | *21,194* | *56,368* | *45,420* | *2,382* | *33,684* | *19,791* | **342,407** |
| **Females** | | | | | | | | |
| 0–4 | 615 | — | — | 224 | — | — | 54 | **892** |
| 5–14 | 565 | — | — | 14 | — | 52 | 40 | **671** |
| 15–24 | 1,327 | — | — | 642 | — | 227 | 144 | **2,340** |
| 25–34 | 2,015 | — | — | 935 | — | 603 | 242 | **3,794** |
| 35–44 | 3,161 | 1,782 | — | 2,266 | — | 2,075 | 589 | **9,873** |
| 45–54 | 6,609 | 5,530 | 121 | 3,447 | — | 3,590 | 1,192 | **20,489** |
| 55–64 | 13,687 | 2,459 | 790 | 6,415 | 43 | 5,277 | 1,759 | **30,430** |
| 65–74 | 36,072 | 2,041 | 5,259 | 10,764 | 432 | 12,288 | 4,053 | **70,909** |
| 75+ | 83,300 | 8,445 | 104,575 | 22,734 | 1,822 | 23,279 | 14,623 | **285,777** |
| n.s. | 318 | — | — | — | — | — | 18 | **337** |
| *Total* | *147,668* | *20,257* | *110,745* | *47,440* | *2,297* | *47,390* | *22,718* | **398,514** |
| **Persons** | | | | | | | | |
| 0–4 | 1,341 | — | — | 224 | — | — | 105 | **1,669** |
| 5–14 | 1,278 | 1,461 | — | 67 | — | 180 | 186 | **3,173** |
| 15–24 | 3,615 | — | — | 2,083 | — | 264 | 412 | **6,375** |
| 25–34 | 5,177 | 493 | — | 1,825 | 112 | 736 | 567 | **8,909** |
| 35–44 | 9,172 | 4,356 | — | 3,365 | — | 3,038 | 1,316 | **21,247** |
| 45–54 | 19,540 | 9,038 | 421 | 8,118 | 136 | 5,828 | 2,711 | **45,792** |
| 55–64 | 39,458 | 7,261 | 2,737 | 13,719 | 43 | 11,624 | 4,630 | **79,473** |
| 65–74 | 86,718 | 5,979 | 12,772 | 26,252 | 1,133 | 23,660 | 9,483 | **165,997** |
| 75+ | 144,610 | 12,861 | 151,182 | 37,206 | 3,255 | 35,743 | 23,082 | **407,940** |
| n.s. | 326 | — | — | — | — | — | 20 | **345** |
| **Total** | **311,237** | **41,450** | **167,112** | **92,860** | **4,679** | **81,073** | **42,509** | **740,921** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S54: Health care costs of cardiac dysrhythmias ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 248 | — | — | — | — | — | 15 | **263** |
| 5–14 | 255 | — | — | — | — | — | 16 | **271** |
| 15–24 | 1,045 | — | — | 486 | — | 6 | 96 | **1,632** |
| 25–34 | 1,143 | 417 | — | 819 | 112 | 113 | 163 | **2,767** |
| 35–44 | 1,997 | 1,459 | — | 652 | — | 615 | 296 | **5,019** |
| 45–54 | 4,229 | 2,356 | 50 | 3,030 | 136 | 1,447 | 704 | **11,953** |
| 55–64 | 8,593 | 2,431 | 548 | 3,506 | – | 3,344 | 1,153 | **19,575** |
| 65–74 | 16,164 | 1,285 | 1,803 | 5,522 | 220 | 4,157 | 1,825 | **30,976** |
| 75+ | 18,275 | 1,132 | 8,909 | 3,880 | 227 | 3,197 | 2,231 | **37,851** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *51,949* | *9,080* | *11,310* | *17,895* | *695* | *12,880* | *6,499* | **110,307** |
| **Females** | | | | | | | | |
| 0–4 | 247 | — | — | — | — | — | 15 | **263** |
| 5–14 | 250 | — | — | — | — | — | 15 | **266** |
| 15–24 | 661 | — | — | 506 | — | 213 | 86 | **1,467** |
| 25–34 | 981 | — | — | 371 | — | 358 | 107 | **1,818** |
| 35–44 | 1,507 | 1,580 | — | 1,970 | — | 1,828 | 433 | **7,318** |
| 45–54 | 2,712 | 3,697 | 60 | 2,345 | — | 2,394 | 702 | **11,909** |
| 55–64 | 5,134 | 1,418 | 263 | 4,012 | — | 3,171 | 876 | **14,874** |
| 65–74 | 11,609 | 839 | 651 | 4,213 | — | 4,820 | 1,385 | **23,516** |
| 75+ | 20,958 | 1,706 | 16,434 | 4,465 | — | 5,225 | 3,055 | **51,844** |
| n.s. | — | — | — | — | — | – | – | – |
| *Total* | *44,059* | *9,240* | *17,409* | *17,882* | – | *18,010* | *6,674* | **113,274** |
| **Persons** | | | | | | | | |
| 0–4 | 495 | — | — | — | — | — | 31 | **526** |
| 5–14 | 505 | — | — | — | — | — | 32 | **537** |
| 15–24 | 1,705 | — | — | 992 | — | 219 | 184 | **3,099** |
| 25–34 | 2,124 | 417 | — | 1,190 | 112 | 472 | 271 | **4,585** |
| 35–44 | 3,504 | 3,039 | — | 2,622 | – | 2,444 | 727 | **12,336** |
| 45–54 | 6,941 | 6,053 | 110 | 5,375 | 136 | 3,841 | 1,406 | **23,862** |
| 55–64 | 13,727 | 3,848 | 811 | 7,518 | — | 6,515 | 2,030 | **34,449** |
| 65–74 | 27,773 | 2,124 | 2,454 | 9,735 | 220 | 8,977 | 3,211 | **54,492** |
| 75+ | 39,234 | 2,839 | 25,343 | 8,346 | 227 | 8,422 | 5,285 | **89,696** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **96,008** | **18,319** | **28,718** | **35,777** | **695** | **30,890** | **13,173** | **223,581** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S55: Health care costs of heart failure ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 193 | — | — | — | — | — | 12 | **204** |
| 5–14 | 47 | 731 | — | 26 | — | 93 | 53 | **949** |
| 15–24 | 154 | — | — | 11 | — | — | 9 | **175** |
| 25–34 | 296 | 19 | — | 17 | — | 5 | 19 | **355** |
| 35–44 | 646 | 165 | — | 52 | — | 96 | 56 | **1,015** |
| 45–54 | 2,242 | 514 | 200 | 571 | — | 559 | 239 | **4,326** |
| 55–64 | 7,098 | 1,773 | 1,339 | 2,747 | — | 2,324 | 900 | **16,181** |
| 65–74 | 20,495 | 2,336 | 5,409 | 8,489 | 461 | 6,381 | 2,570 | **46,142** |
| 75+ | 35,807 | 3,085 | 36,948 | 10,038 | 1,173 | 8,806 | 5,657 | **101,514** |
| n.s. | 8 | — | — | — | — | — | — | **8** |
| *Total* | *66,985* | *8,621* | *43,896* | *21,951* | *1,634* | *18,264* | *9,505* | **170,868** |
| **Females** | | | | | | | | |
| 0–4 | 231 | — | — | — | — | — | 13 | **244** |
| 5–14 | 87 | — | — | 14 | — | 52 | 9 | **161** |
| 15–24 | 78 | — | — | 1 | — | — | 5 | **84** |
| 25–34 | 249 | — | — | 40 | — | 91 | 22 | **402** |
| 35–44 | 418 | 53 | — | 57 | — | 87 | 36 | **649** |
| 45–54 | 1,269 | 1,174 | 60 | 677 | — | 880 | 239 | **4,298** |
| 55–64 | 4,320 | 696 | 439 | 1,587 | 43 | 1,655 | 514 | **9,254** |
| 65–74 | 14,698 | 1,002 | 4,446 | 5,370 | 432 | 6,707 | 1,925 | **34,580** |
| 75+ | 54,609 | 6,471 | 86,411 | 17,538 | 1,822 | 17,502 | 10,883 | **195,236** |
| n.s. | 318 | — | — | — | — | — | 18 | **337** |
| *Total* | *76,276* | *9,395* | *91,356* | *25,284* | *2,297* | *26,974* | *13,663* | **245,245** |
| **Persons** | | | | | | | | |
| 0–4 | 423 | — | — | — | — | — | 25 | **448** |
| 5–14 | 134 | 731 | — | 40 | — | 144 | 62 | **1,110** |
| 15–24 | 233 | — | — | 12 | — | — | 14 | **259** |
| 25–34 | 544 | 19 | — | 57 | — | 96 | 41 | **757** |
| 35–44 | 1,064 | 217 | — | 109 | — | 183 | 91 | **1,664** |
| 45–54 | 3,511 | 1,168 | 261 | 1,248 | — | 1,439 | 478 | **8,624** |
| 55–64 | 11,417 | 2,469 | 1,778 | 4,334 | 43 | 3,979 | 1,414 | **25,434** |
| 65–74 | 35,193 | 3,338 | 9,855 | 13,859 | 893 | 13,090 | 4,495 | **80,722** |
| 75+ | 90,416 | 9,556 | 123,359 | 27,576 | 2,995 | 26,307 | 16,540 | **296,750** |
| n.s. | 326 | — | — | — | — | — | 20 | **45** |
| **Total** | **143,262** | **18,017** | **135,252** | **47,235** | **3,931** | **45,237** | **23,180** | **416,113** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S56: Health care costs of cerebrovascular disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 160 | — | — | 56 | — | — | 12 | **228** |
| 5–14 | 270 | — | — | — | — | — | 15 | **285** |
| 15–24 | 819 | 107 | — | 245 | 145 | 32 | 75 | **1,423** |
| 25–34 | 1,554 | — | — | 280 | 73 | 11 | 106 | **2,024** |
| 35–44 | 3,658 | — | — | 230 | — | 131 | 220 | **4,240** |
| 45–54 | 8,482 | 128 | 1,502 | 340 | 61 | 283 | 593 | **11,390** |
| 55–64 | 18,365 | — | 5,294 | 4,051 | 172 | 997 | 1,586 | **30,466** |
| 65–74 | 44,665 | 5,097 | 22,388 | 6,281 | 802 | 2,688 | 4,498 | **86,418** |
| 75+ | 56,002 | 377 | 72,302 | 5,758 | 1,884 | 1,675 | 7,555 | **145,178** |
| n.s. | 4 | — | — | — | — | — | — | **4** |
| *Total* | *133,979* | *5,332* | *101,486* | *17,242* | *3,138* | *5,820* | *14,659* | **281,655** |
| **Females** | | | | | | | | |
| 0–4 | 176 | — | — | — | — | — | 10 | **186** |
| 5–14 | 96 | — | — | 228 | — | — | 18 | **341** |
| 15–24 | 727 | — | — | 233 | — | 101 | 59 | **1,120** |
| 25–34 | 1,352 | 72 | — | 64 | — | 15 | 83 | **1,586** |
| 35–44 | 3,244 | — | 717 | 1,111 | 130 | 196 | 296 | **5,693** |
| 45–54 | 5,773 | — | 784 | 815 | – | 456 | 430 | **8,258** |
| 55–64 | 12,961 | — | 3,775 | 1,639 | 81 | 899 | 1,063 | **20,418** |
| 65–74 | 30,995 | 224 | 16,699 | 4,465 | 577 | 1,788 | 3,005 | **57,753** |
| 75+ | 80,053 | 8,024 | 141,942 | 5,617 | 826 | 3,751 | 13,188 | **253,402** |
| n.s. | 61 | — | — | — | — | — | 4 | **64** |
| *Total* | *135,438* | *8,320* | *163,917* | *14,172* | *1,614* | *7,206* | *18,154* | **348,821** |
| **Persons** | | | | | | | | |
| 0–4 | 336 | — | — | 56 | — | — | 22 | **414** |
| 5–14 | 365 | — | — | 228 | — | — | 33 | **626** |
| 15–24 | 1,546 | 107 | — | 479 | 145 | 133 | 133 | **2,542** |
| 25–34 | 2,906 | 72 | — | 344 | 73 | 26 | 188 | **3,610** |
| 35–44 | 6,902 | — | 717 | 1,342 | 130 | 326 | 517 | **9,934** |
| 45–54 | 14,255 | 128 | 2,286 | 1,156 | 61 | 740 | 1,022 | **19,649** |
| 55–64 | 31,327 | — | 9,069 | 5,690 | 253 | 1,896 | 2,649 | **50,885** |
| 65–74 | 75,660 | 5,320 | 39,087 | 10,746 | 1,379 | 4,476 | 7,503 | **144,171** |
| 75+ | 136,056 | 8,024 | 214,244 | 11,375 | 2,710 | 5,427 | 20,744 | **398,580** |
| n.s. | 64 | — | — | — | — | — | 4 | **68** |
| **Total** | **269,417** | **13,652** | **265,403** | **31,415** | **4,752** | **13,026** | **32,813** | **630,476** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

**Table S57: Health care costs of diseases of the arteries, arterioles and capillaries ($ '000) by sex and age, 1993–94**

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 261 | — | — | 75 | — | — | 21 | **357** |
| 5–14 | 104 | 156 | — | 28 | — | 14 | 20 | **322** |
| 15–24 | 404 | 1,334 | — | 278 | 176 | 388 | 171 | **2,750** |
| 25–34 | 478 | — | — | 579 | 89 | 56 | 80 | **1,281** |
| 35–44 | 1,436 | 1,865 | — | 554 | — | 203 | 326 | **4,384** |
| 45–54 | 5,373 | 441 | 50 | 1,091 | 75 | 286 | 507 | **7,823** |
| 55–64 | 18,113 | 1,387 | 669 | 1,929 | 231 | 1,350 | 1,712 | **25,392** |
| 65–74 | 45,421 | 6,361 | 4,958 | 4,760 | 146 | 1,672 | 4,549 | **67,868** |
| 75+ | 35,973 | — | 10,878 | 3,176 | 928 | 1,367 | 3,697 | **56,021** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *107,563* | *11,545* | *16,556* | *12,470* | *1,645* | *5,336* | *11,081* | **166,197** |
| **Females** | | | | | | | | |
| 0–4 | 137 | — | — | — | — | — | 9 | **146** |
| 5–14 | 82 | — | — | 88 | — | — | 11 | **181** |
| 15–24 | 265 | — | — | 119 | — | 5 | 25 | **413** |
| 25–34 | 654 | 1,171 | — | 618 | 29 | 82 | 167 | **2,722** |
| 35–44 | 1,346 | — | 102 | 1,213 | — | 181 | 185 | **3,029** |
| 45–54 | 2,428 | — | 60 | 821 | — | 409 | 261 | **3,979** |
| 55–64 | 6,340 | — | 88 | 1,074 | 24 | 705 | 578 | **8,808** |
| 65–74 | 18,930 | 2,802 | 1,898 | 2,380 | 345 | 1,599 | 2,052 | **30,004** |
| 75+ | 26,873 | — | 17,818 | 2,937 | 25 | 2,355 | 3,546 | **53,554** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *57,054* | *3,974* | *19,966* | *9,251* | *423* | *5,337* | *6,832* | **102,837** |
| **Persons** | | | | | | | | |
| 0–4 | 398 | — | — | 75 | — | — | 30 | **503** |
| 5–14 | 186 | 156 | — | 116 | — | 14 | 31 | **503** |
| 15–24 | 669 | 1,334 | — | 398 | 176 | 392 | 195 | **3,163** |
| 25–34 | 1,132 | 1,171 | — | 1,197 | 118 | 138 | 245 | **4,003** |
| 35–44 | 2,782 | 1,865 | 102 | 1,767 | — | 386 | 509 | **7,411** |
| 45–54 | 7,801 | 441 | 110 | 1,912 | 75 | 695 | 768 | **11,802** |
| 55–64 | 24,453 | 1,387 | 757 | 3,003 | 255 | 2,056 | 2,290 | **34,200** |
| 65–74 | 64,350 | 9,164 | 6,856 | 7,140 | 490 | 3,271 | 6,602 | **97,872** |
| 75+ | 62,846 | — | 28,697 | 6,113 | 953 | 3,723 | 7,244 | **109,575** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **164,617** | **15,519** | **36,522** | **21,721** | **2,067** | **10,673** | **17,913** | **269,034** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S58: Health care costs of atherosclerosis ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[a] | Hospital outpatient | Nursing home | Medical[b] | Allied health professional | Pharma-ceutical | Other[c] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 2 | — | — | — | — | — | — | **3** |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 2 | — | — | — | — | — | — | **2** |
| 25–34 | 41 | — | — | — | — | 9 | 5 | **55** |
| 35–44 | 166 | 1,865 | — | — | — | 45 | 197 | **2,274** |
| 45–54 | 927 | — | — | 102 | — | 86 | 106 | **1,220** |
| 55–64 | 3,637 | 1,387 | 183 | 82 | 139 | 299 | 798 | **6,267** |
| 65–74 | 10,367 | 1,213 | 1,202 | 381 | — | 214 | 1,262 | **14,640** |
| 75+ | 7,145 | — | 2,251 | 122 | — | 227 | 919 | **10,664** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *22,288* | *4,466* | *3,635* | *687* | *139* | *879* | *3,030* | **35,123** |
| **Females** | | | | | | | | |
| 0–4 | 3 | — | — | — | — | — | — | **3** |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 7 | — | — | — | — | — | — | **8** |
| 25–34 | 24 | — | — | — | — | — | 2 | **26** |
| 35–44 | 124 | — | — | — | — | — | 12 | **136** |
| 45–54 | 653 | — | — | — | — | 89 | 70 | **812** |
| 55–64 | 1,516 | — | — | — | — | 111 | 153 | **1,780** |
| 65–74 | 4,678 | 2,331 | 651 | 314 | — | 333 | 784 | **9,089** |
| 75+ | 6,888 | — | 3,806 | 632 | — | 234 | 1,090 | **12,641** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *13,893* | *2,331* | *4,456* | *946* | — | *757* | *2,113* | **24,496** |
| **Persons** | | | | | | | | |
| 0–4 | 5 | — | — | — | — | — | — | **5** |
| 5–14 | — | — | — | — | — | — | — | — |
| 15–24 | 9 | — | — | — | — | — | — | **10** |
| 25–34 | 64 | — | — | — | — | 9 | 7 | **81** |
| 35–44 | 291 | 1,865 | — | — | — | 45 | 207 | **2,409** |
| 45–54 | 1,580 | — | — | 102 | — | 174 | 176 | **2,032** |
| 55–64 | 5,153 | 1,387 | 183 | 82 | 139 | 409 | 694 | **8,048** |
| 65–74 | 15,045 | 3,544 | 1,853 | 694 | — | 547 | 2,047 | **23,729** |
| 75+ | 14,033 | — | 6,057 | 754 | — | 451 | 2,010 | **23,305** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **36,181** | **6,797** | **8,092** | **1,633** | **139** | **1,636** | **5,142** | **59,619** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

## Table S59: Health care costs of peripheral vascular disease ($ '000) by sex and age, 1993–94

| Sex / age (years) | Hospital admitted patient[(a)] | Hospital outpatient | Nursing home | Medical[(b)] | Allied health professional | Pharma-ceutical | Other[(c)] | Total |
|---|---|---|---|---|---|---|---|---|
| **Males** | | | | | | | | |
| 0–4 | 58 | — | — | 70 | — | — | 8 | **135** |
| 5–14 | 17 | 105 | — | 19 | — | 9 | 10 | **160** |
| 15–24 | 339 | 939 | — | 196 | 176 | 261 | 128 | **2,039** |
| 25–34 | 320 | — | — | 424 | 89 | 35 | 57 | **925** |
| 35–44 | 787 | — | — | 450 | — | 107 | 89 | **1,443** |
| 45–54 | 3,638 | 347 | — | 754 | 75 | 152 | 325 | **5,292** |
| 55–64 | 13,223 | — | 365 | 1,586 | 62 | 871 | 1,055 | **17,163** |
| 65–74 | 31,710 | 3,660 | 3,456 | 3,629 | 146 | 1,257 | 2,904 | **46,762** |
| 75+ | 27,096 | — | 7,690 | 2,520 | 928 | 933 | 2,563 | **41,729** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *77,188* | *5,051* | *11,511* | *9,648* | *1,475* | *3,636* | *7,139* | **115,647** |
| **Females** | | | | | | | | |
| 0–4 | 24 | — | — | — | — | — | 1 | **25** |
| 5–14 | 19 | — | — | 35 | — | — | 3 | **57** |
| 15–24 | 131 | — | — | 119 | — | 5 | 17 | **272** |
| 25–34 | 382 | 518 | — | 292 | 12 | 44 | 83 | **1,331** |
| 35–44 | 759 | — | 102 | 891 | — | 120 | 120 | **1,993** |
| 45–54 | 1,120 | — | 60 | 403 | — | 187 | 115 | **1,885** |
| 55–64 | 3,792 | — | 88 | 715 | 24 | 397 | 324 | **5,339** |
| 65–74 | 11,932 | 352 | 1,247 | 1,637 | 169 | 875 | 1,052 | **17,265** |
| 75+ | 17,653 | — | 12,369 | 1,679 | 25 | 1,781 | 2,144 | **35,652** |
| n.s. | — | — | — | — | — | — | — | — |
| *Total* | *35,811* | *870* | *13,867* | *5,772* | *230* | *3,408* | *3,860* | **63,818** |
| **Persons** | | | | | | | | |
| 0–4 | 81 | — | — | 70 | — | — | 10 | **160** |
| 5–14 | 36 | 105 | — | 54 | — | 9 | 14 | **218** |
| 15–24 | 470 | 939 | — | 315 | 176 | 265 | 145 | **2,310** |
| 25–34 | 702 | 518 | — | 716 | 100 | 79 | 140 | **2,256** |
| 35–44 | 1,546 | — | 102 | 1,340 | — | 238 | 209 | **3,436** |
| 45–54 | 4,759 | 347 | 60 | 1,157 | 75 | 338 | 439 | **7,176** |
| 55–64 | 17,015 | — | 453 | 2,302 | 86 | 1,267 | 1,381 | **22,502** |
| 65–74 | 43,642 | 4,012 | 4,703 | 5,266 | 315 | 2,132 | 3,955 | **64,026** |
| 75+ | 44,748 | — | 20,059 | 4,199 | 953 | 2,714 | 4,707 | **77,381** |
| n.s. | — | — | — | — | — | — | — | — |
| **Total** | **112,999** | **5,921** | **25,377** | **15,420** | **1,705** | **7,044** | **10,998** | **179,465** |

Components may not add to totals due to rounding.

—nil

n.s. not stated

(a) Includes public, private and repatriation hospitals.

(b) Medical services for private patients in hospitals are included under 'Hospital admitted patient'.

(c) Includes costs for the following areas of recurrent health expenditure—'Research', 'Other institutional (nec)', 'Administration', and 'Other non-institutional'.

*Source:* Australian Institute of Health and Welfare, Disease Costs and Impact Study.

# Glossary

## Additional diagnoses

Diagnoses or conditions other than the principal diagnosis that affect a person's care in terms of requiring:

- therapeutic treatment;
- clinical evaluation;
- diagnostic procedure;
- extended length of stay; or
- increased nursing care and/or monitoring.

Additional diagnoses include:

- co-morbid conditions, that is, co-existing conditions; and/or
- complications, that is, conditions that arose during the episode of care.

## Additional procedures

All additional procedures undertaken during an episode of care.

## Age-standardised rates

All estimates have been age-standardised (Armitage & Berry 1987) to the estimated total mid-year Australian population in 1991. This produces an estimate of the rate which would have prevailed in the standard population if it had experienced the age-specific rates for the given condition or action taken.

Direct age standardisation, using the five year age groups (0–4, 5–9,...,75–79, 80+ years), was estimated as follows:

$$ASR = \Sigma r_i P_i / \Sigma P_i$$

where ASR is the age-standardised rate, $r_i$ is the age-specific rate for age group i, and $P_i$ is the standard population in age group i.

## Australian National Diagnosis Related Groups (AN-DRGs)

DRGs are a means of classifying hospital patients to provide a common basis for comparing factors such as cost effectiveness and quality of care across hospitals. Each AN-DRG represents a class of patient with similar clinical conditions requiring similar hospital services.

## Average length of stay

Average length of stay is calculated as the total patient days for all patients separating during the reporting period divided by the number of patients separating.

## Patient days

The number of full or partial days of stay for patients who were admitted for an episode of care and who underwent separation during the reporting period. A patient who is admitted and separated on the same day is allocated one patient day.

## Principal diagnosis

The diagnosis established after study to be chiefly responsible for occasioning the patient's episode of care in hospital (National Health Data Committee 1995).

## Principal procedure

The most significant procedure that was performed for treatment of the principal diagnosis (National Health Data Committee 1995).

## Procedure

A procedure is one that (National Health Data Committee 1995):

- is surgical in nature;
- carries a procedural risk;
- carries an anaesthetic risk;
- requires specialised training; or
- requires special facilities or equipment only available in an acute care setting.

## Separation

Separation is the process by which an admitted patient completes an episode of care, for example leaving the hospital by being discharged, by dying, by being transferred to another hospital for further care, or by beginning a new episode of care which results in a significant change in status (Australian Institute of Health and Welfare 1996a). Generally, a separation is synonymous with discharge (National Health Ministers 1996). Separations are counted instead of admissions because some information that classifies the episode of care can be determined only after the episode has concluded. For acute hospitals, the number of separations will be similar to the number of admissions for the same reporting period.

# Index of data sources and their uses in this report

## Australian and New Zealand Cardiothoracic Organ Transplant Registry

Hospital care—information about all heart and heart-lung transplants performed in Australia and New Zealand

## Australian Bureau of Statistics' National Health Survey 1995

Non-hospital care—estimates of the self-reported prevalence of cardiovascular conditions and health related actions taken for these conditions.

Hospital care—estimates of the self-reported prevalence of recent hospitalisation (i.e. in the two weeks prior to interview) and hospitalisation in the 12 months prior to interview for cardiovascular conditions.

Drug use—estimates of the self-reported use of medications for cardiovascular conditions.

## Australian casemix data

Hospital care—information on hospital activity for cardiovascular disease as measured by Australian National Diagnosis Related Groups (AN-DRGs).

Health care costs—information on average costs and costs by volume for AN-DRGs.

## Disease Costs and Impact Study

Health care costs—estimates of health care costs for cardiovascular diseases 1993–94.

## Drug Utilization SubCommittee database

Drug use—estimates of the community (i.e. non-public hospital) use of prescription medicines in Australia, and the costs of prescriptions subsidised by the Pharmaceutical Benefits Scheme.

## Hunter Region Heart Disease Prevention Programme Risk Factor Prevalence Study

Non-hospital care—estimates of history of medical conditions and treatment.

Drug use—information on aspirin use.

## Medical Labour Force Survey

Medical labour force—estimates of the numbers of practitioners registered and working in the specialties of cardiology, cardiothoracic surgery and vascular surgery.

## Medicare and Department of Veterans' Affairs medical benefits data

Hospital care—information on the number of medical services provided and benefits paid for cardiovascular medical services that qualify for benefits under Medicare or the Department of Veterans' Affairs medical benefits schemes.

## National Heart Foundation angioplasty register

Hospital care—information on all angioplasty performed in Australia.

## National Heart Foundation cardiac surgery register

Hospital care—information on all cardiac surgery performed in Australia.

## National Heart Foundation Risk Factor Prevalence Study

Non-hospital care—estimates of history of medical conditions and treatment.

## National Hospital Morbidity database

Hospital care—estimates of the number of separations and the average length of stay for cardiovascular conditions and cardiovascular procedures in public and private acute care hospitals.

## Newcastle MONICA Project

Hospital care—information on acute care for suspected cases of heart attack or coronary death among residents aged 25 to 69 years in the local government areas of Newcastle, Lake Macquarie, Maitland, Cessnock and Port Stephens.

Drug use—information on drugs prescribed before onset of the coronary event, during the event for those who went to hospital, and at discharge for those who went to hospital and were discharged alive.

## Perth MONICA Project

Drug use—information is available on drugs prescribed before onset of the coronary event, during the event for those who went to hospital, and at discharge for those who went to hospital and were discharged alive.

## Survey of Morbidity and Treatment in General Practice in Australia 1990–91

Non-hospital care—estimates of cardiovascular morbidity and its treatment in general practice.

Drug use—estimates of drugs prescribed for cardiovascular conditions and the use of specific cardiovascular drugs.

## The 1995 Public Hospital Elective Surgery Waiting List Survey

Hospital care—information about elective surgery waiting lists in Australian public hospitals.

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