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Dispensing patterns for anti-dementia medications 2016–17

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Dispensing patterns for anti-dementia medications 2016–17

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Australian Institute of Health and Welfare

Board Chair

Mrs Louise Markus

Chief Executive Officer

Mr Barry Sandison

Any enquiries relating to copyright or comments on this publication should be directed to:

Australian Institute of Health and Welfare

GPO Box 570

Canberra ACT 2601

Tel: (02) 6244 1000

Email: info@aihw.gov.au

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Summary

Although it is not known exactly how many Australians have dementia, it is estimated to affect up to 436,000 people. In 2017, dementia caused more than 13,700 deaths and was the second-leading cause of death in Australia, behind coronary heart disease (18,600 deaths). Dementia is the leading cause of death for females.

Dementia is not 1 specific disease, but a term used to describe a group of conditions characterised by the gradual impairment of brain function. There are many different forms of dementia—Alzheimer's disease is the most common. Although dementia can affect younger people, it occurs mainly among those aged over 65, and is a major cause of disability and dependency among older people.

This report focuses on dispensing patterns for 4 types of anti-dementia medications, the associated costs to people and the Government, and other medications being taken.

Donepezil was the most commonly dispensed medication

In 2016–17 in Australia, anti-dementia medications were dispensed to about 58,500 people aged 30 and over. For about one-quarter (27%, 15,800) of these people, anti-dementia medications were dispensed for the first time.

Donepezil accounted for 65% of all anti-dementia medications dispensed, followed by Galantamine (15%), Rivastigmine (12%) and Memantine (8%). Donepezil was also the most commonly dispensed medication for people taking anti-dementia medications for the first time (73%), followed by Rivastigmine (12%), Galantamine (9%) and Memantine (6%).

\$20 million was spent on anti-dementia medications in 2016–17

The total expenditure for anti-dementia medications, including Australian Government expenditure and patient contributions, was \$20 million in 2016–17. Government expenditure comprised 80% of the total, with an average government subsidy of \$29.11 per prescription and an average cost to people with dementia of \$7.35 per prescription.

4 in 5 anti-dementia medications were prescribed by GPs

The majority (80%) of people to whom anti-dementia medications were dispensed were prescribed these medications at least once by general practitioners (GPs), followed by other medical specialists (42%) (people could be prescribed by more than 1 prescriber). Of the people who were prescribed anti-dementia medications by other medical specialists, over half were prescribed the medication by geriatric medicine specialists (55%), followed by psychiatry and neurology specialists (14% each) and internal medicine specialists (11%).

Medications for the cardiovascular system were dispensed to 3 in 4 people to whom anti-dementia medications were dispensed

Of the people to whom anti-dementia medications were dispensed, 77% were also supplied with medications for the cardiovascular system (Anatomical Therapeutic Chemical (ATC)¹) at least once during 2016–17, and 64% were supplied with medications for the alimentary tract and metabolism. The most common therapeutic subgroups (ATC²) of medications dispensed in addition to the anti-dementia medications were anti-bacterials for systemic use, dispensed at least once to 62% of those to whom anti-dementia medications were dispensed. This was followed by agents acting on the renin-angiotensin system (47%), which are often used to manage hypertension, and analgesics (painkillers such as codeine) (43%) (AIHW 2017a).

What is dementia?

Dementia is a term used to describe a group of similar conditions characterised by the gradual impairment of brain function. It is commonly associated with memory loss, but can affect speech, cognition (thought), behaviour and mobility. An individual's personality may also change, and health and functional ability decline as the condition progresses.

While there are many forms of dementia, the most common is Alzheimer's disease—a degenerative brain disease caused by nerve cell death resulting in shrinkage of the brain (Australian Alzheimer's Research Foundation 2018). Other major forms include:

- vascular dementia—mainly caused by haemodynamic (blood flow to the brain) disorders (for example, strokes); thromboembolism (small blood clots that block small blood vessels in the brain); small blood vessel disease in the brain; and bleeding into or around the brain
- dementia with Lewy bodies—caused by the degeneration and death of nerve cells in the brain due to the presence of abnormal spherical structures, called Lewy bodies, which develop inside nerve cells
- fronto-temporal dementia—caused by progressive damage to the frontal and/or temporal lobes of the brain (DA 2018a; Draper 2013).

The boundaries between different forms of dementia are indistinct and it is possible for a person to have multiple (mixed) types of dementia at the same time (WHO 2017).

Although dementia can affect younger people, it is increasingly common with advancing age and occurs mainly among those aged over 65. It is important to note that dementia is not an inevitable part of ageing. Dementia is a major cause of disability and dependency among older people. It not only affects individuals with the condition but also has a substantial impact on their families and carers, as people with dementia eventually become dependent on their care providers in most, if not all, areas of daily living.

How common is it?

The exact number of people with dementia in Australia is not known. The most recent estimates of dementia prevalence for 2018 range from 376,000 (AIHW 2018) to 436,000 (DA 2018b) with Alzheimer's disease accounting for up to 70% of cases (DA 2018c). In 2017, the reference year for this report, dementia prevalence estimates ranged between 365,000 (AIHW 2017b) and 413,000 (DA 2016a). The estimates vary because national data for the prevalence of dementia are not readily available. As a result, current estimates are based on rates derived from published international and local studies that have been applied to the Australian population, and the method in which they have been applied to the Australian context differs between reports.

The number of people with dementia is expected to increase to between 550,000 (AIHW 2018) and 590,000 by 2030 (DA 2018b).

What is the burden?

Burden of disease is a measure of the health impact of different diseases or injuries on a population. It measures how many years of healthy life are lost due to people living with or dying prematurely from disease or injury and is expressed as disability-adjusted life years (DALY).

In 2015, dementia was the fourth-leading cause of disease and injury burden in Australia, after coronary heart disease, back pain and problems, and chronic obstructive pulmonary disease. Dementia accounted for 179,804 DALY, equivalent to 4% of the total burden of disease and injury. The burden from dementia was greater for females than males, accounting for 5% of total DALY (3% for males). Dementia burden was also higher among people aged 65 and over, for whom it was the second-leading cause of total burden of disease and injury (8% of total DALY) (AIHW 2019).

How many deaths?

Dementia was the second-leading underlying cause of death in Australia in 2017, accounting for about 13,700 deaths. Of these, 31% were due to Alzheimer's disease. When examined by sex, dementia was the leading cause of death for females (8,900 deaths), and the third-leading cause for males (4,900 deaths) (ABS 2018).

The number of deaths from dementia as an underlying cause has increased 68% over the past decade, and the death rate has increased from 33 deaths per 100,000 people in 2008 to 42 in 2017 (ABS 2018). This may reflect not only an increase in the number of older people with dementia, but also changes in how dementia deaths are recorded.

Purpose of this report

While no cure exists for dementia, there are a number of management strategies, including the use of medications. Medications are used to reduce the severity and progression of cognitive and behavioural symptoms in order to improve quality of life for people living with dementia.

This report examines dispensing patterns for 4 anti-dementia medications and the associated costs to people and the Government. It also presents information on people to whom anti-dementia medications were dispensed by population characteristics such as sex, age, state and territory of residence, and other medications being taken. It should be noted that since dementia (including Alzheimer's disease) is rare among younger people, the analyses presented in this report have been restricted to those aged 30 and over.

The data source used for this report is the Pharmaceutical Benefits Scheme (PBS), an Australian Government scheme that subsidises the cost of a wide range of prescription medicines (see Box 1). Although the 4 anti-dementia medications examined in this report can be prescribed for different types of dementia, they are listed on the PBS for people with Alzheimer's disease only. As a result, this report focuses on people with Alzheimer's disease to whom anti-dementia medications subsidised through the PBS were dispensed. Cholinesterase inhibitors (see Box 2) are subsidised for mild to moderate Alzheimer's disease and Memantine is reimbursed for people with moderately severe Alzheimer's disease. The diagnosis of Alzheimer's disease must be confirmed by or made in consultation with a medical specialist or consultant physician. Continuation of treatment beyond 6 months is dependent on the person with Alzheimer's disease demonstrating a clinically meaningful response.

Box 1: Pharmaceutical Benefits Scheme

The Australian Government subsidises the cost of a wide range of prescription medicines, including for dementia, through 2 separate schemes—the PBS, and the Repatriation Pharmaceutical Benefits Scheme (RPBS) for eligible war veterans, their widows/widowers and their dependants.

Most prescriptions for General Schedule medicines (Section 85) are dispensed through community pharmacies, but the PBS is also available through eligible public hospitals to patients on discharge and day patients. Several drugs are also distributed under alternative arrangements where these are considered more appropriate (Section 100). Examples are the highly specialised drugs program, and General Schedule medicines that are supplied directly to Indigenous patients via Aboriginal Health Services in remote areas of Australia.

Patients fall into 2 broad classes: general and concessional. Concessional beneficiaries include pensioners, Health Care Card holders, Commonwealth Seniors Health Card holders and Veterans' Health Card holders.

Under the PBS, the cost of prescription medicines is subsidised by the government. The patient is required to contribute a co-payment, which is indexed annually—from 1 January 2017, it was up to \$38.80 for general patients and \$6.30 for those with a concession card. If a medicine is not listed under the PBS schedule, the consumer pays the full price as a private prescription (which may be claimable through private health insurance).

The PBS safety net protects patients against high cumulative costs. When a general patient or family reaches the Safety Net threshold, they are entitled to discounted co-payments at the concessional rate for the rest of the calendar year. If concessional beneficiaries reach the safety net threshold, medications listed on the PBS become free for the rest of the year.

See Appendix A for more information.

Sources: Department of Health 2016, 2017.

Box 2: Types of anti-dementia medications examined in this report

The Australian Government subsidises through the PBS and RPBS 4 medications that are used to treat the symptoms of Alzheimer's disease. These 4 medications fall into 2 groups: cholinesterase inhibitors and N-methyl-D-aspartate (NMDA) receptor antagonists.

Cholinesterase inhibitor

A class of anti-dementia medication that prevents the breakdown of acetylcholine, an important component in cognitive pathways in the brain. Levels of acetylcholine decrease in people with Alzheimer's disease and some other dementias. By increasing the availability of acetylcholine in the brain these medications are thought to improve or stabilise cognitive function in people with dementia. People with Alzheimer's disease may find they are able to think more clearly, have improved memory and daily functioning, and better behavioural and psychological symptoms.

Donepezil, Galantamine and Rivastigmine are cholinesterase inhibitors approved for use in the treatment and management of Alzheimer's disease in Australia, and can be taken as capsules or a patch. A review is conducted within a month of commencement of consuming the inhibitor, and again within 6 months, to assess cognitive function, behavioural symptoms and quality of life. The effects vary between people—some report immediate benefits and others report benefits over longer periods—with the benefits sustained for up to 5 years. Potential side effects include nausea, diarrhoea, vomiting, loss of appetite, insomnia, fatigue, muscle cramps and lowered blood pressure, falls and dizziness. However, if the dose is increased gradually, the likelihood of these side effects is reduced. These inhibitors are eligible for PBS subsidy for people with mild to moderate Alzheimer's disease when used as the sole PBS subsidised medication for the person for Alzheimer's disease.

N-methyl-D-aspartate (NMDA) receptor antagonist

A type of anti-dementia medication that blocks the functioning of NMDA receptors and reduces the levels of glutamate in the brain, thereby preventing the movement of excess calcium in the brain. Increased levels of glutamate in the brain may contribute to the symptoms and progression of Alzheimer's disease and other dementias. NMDA receptor antagonists are thought to improve or stabilise cognitive function in people with Alzheimer's disease, with improvements seen in the function of daily activities, thinking and behaviour.

Memantine is an NMDA receptor antagonist approved for use in the treatment and management of moderately severe Alzheimer's disease in Australia. It can be used as a stand-alone therapy, or in conjunction with a cholinesterase inhibitor, and is available in tablets. A small proportion of people taking Memantine experience side effects such as hallucinations, dizziness, confusion, headache, and tiredness, and Memantine is not recommended for people with severe kidney problems. It also requires caution for people with a history of liver disease, epilepsy, high blood pressure or heart problems. These inhibitors are eligible for PBS subsidy for people with moderately severe Alzheimer's disease when used as the sole PBS subsidised medication for the person for Alzheimer's disease.

Sources: DA 2016b, 2016c, 2016d, 2018d.

Dispensing patterns for anti-dementia medications

Older people were dispensed anti-dementia medications at a higher rate

Each prescription for an anti-dementia medication is usually for a month's supply of the medication. In 2016–17, about 546,000 prescriptions for anti-dementia medications were dispensed to about 58,500 people aged 30 and over. The majority of these prescriptions were dispensed to women (59%), but overall anti-dementia medications were dispensed to men and women at the same rate (9 prescriptions dispensed per person for both). The rate of dispensed anti-dementia medications increased with age—from 8 prescriptions dispensed per person aged 30–64 to 10 prescriptions per person among those aged 85 and over (Figure 1).

Figure 1a: Number of dispensed anti-dementia medications, by sex and age, 2016–17

Number of prescriptions

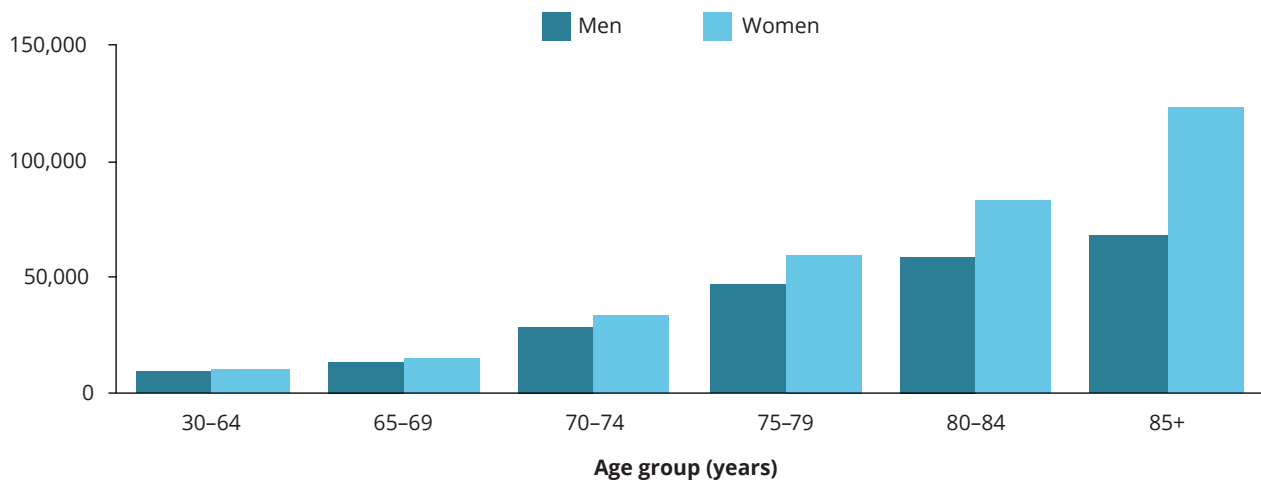
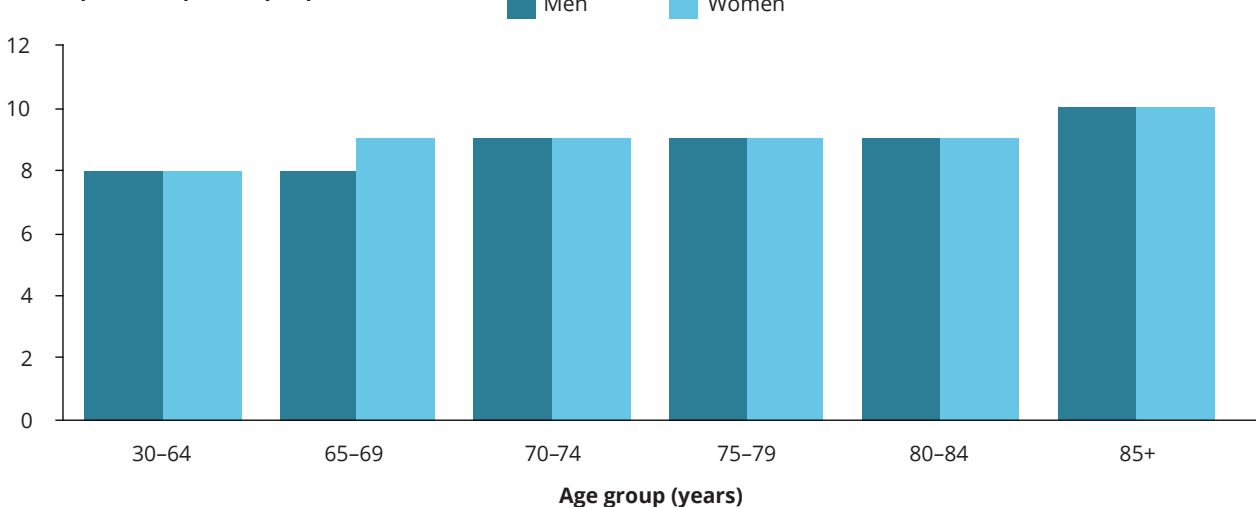


Figure 1b: Age-specific rates of dispensed anti-dementia medications, by sex, 2016–17

Prescriptions dispensed per person

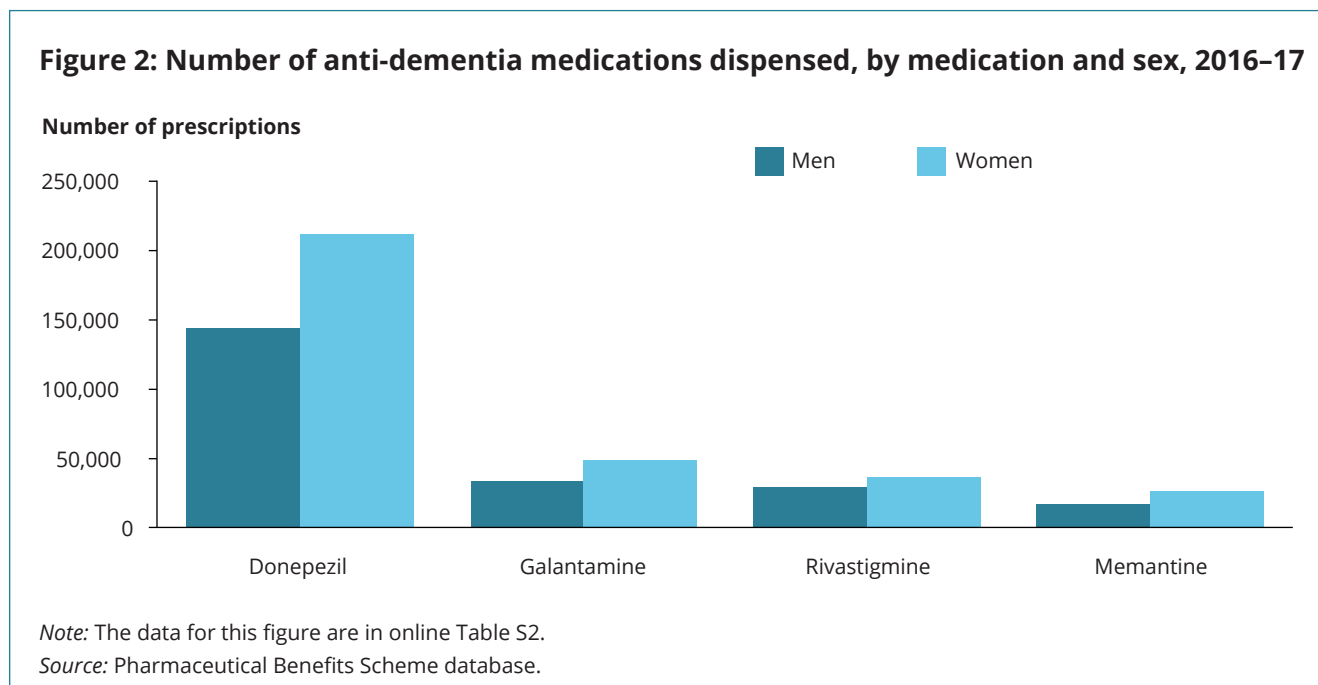


Note: The data for this figure are in online Table S1.

Source: Pharmaceutical Benefits Scheme database.

Donepezil was the most commonly dispensed anti-dementia medication

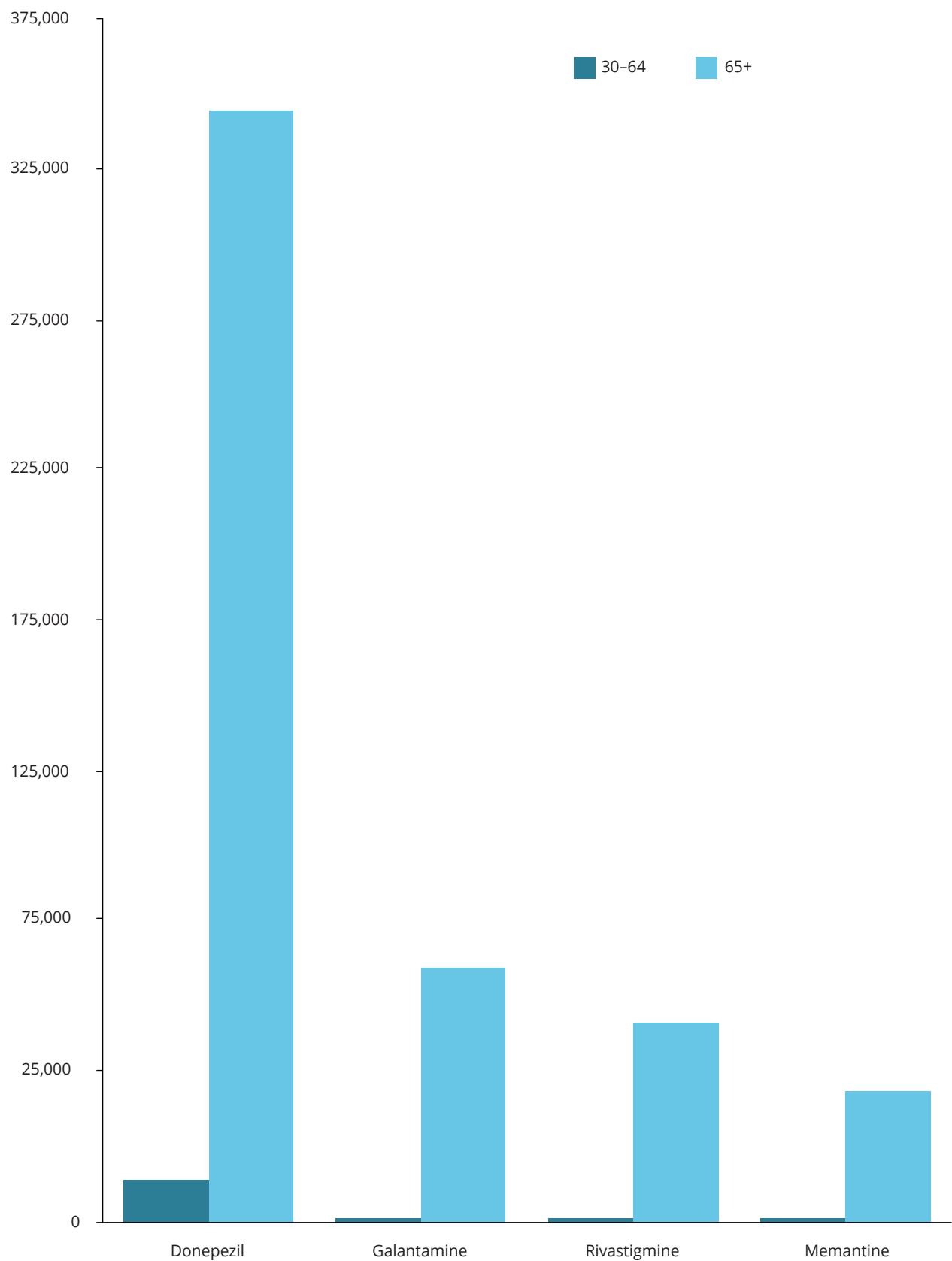
In 2016–17, the medication dispensed most often was Donepezil (65%), followed by Galantamine (15%), Rivastigmine (12%) and Memantine (8%). The supply of all 4 types of anti-dementia medications was higher among women than men (Figure 2).



When examined by broad age groups, the medication most commonly dispensed to those aged 30–64 was Donepezil, followed by Rivastigmine, Galantamine and Memantine. The pattern differed slightly for those aged 65 and over: Donepezil was still the leading medication type, followed by Galantamine and then Rivastigmine and Memantine (Figure 3).

Figure 3: Number of anti-dementia medications dispensed, by medication and broad age group, 2016–17

Number of prescriptions



Note: The data for this figure are in online Table S2.

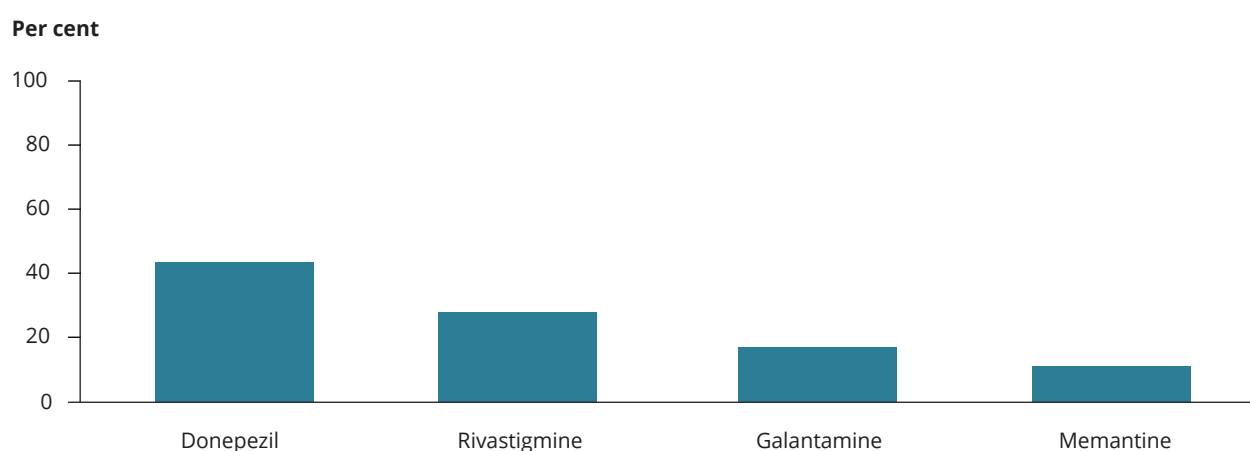
Source: Pharmaceutical Benefits Scheme database.

Over \$20 million was spent on anti-dementia medications

The total expenditure for anti-dementia medications, including Australian Government expenditure and patient contributions, was \$20 million in 2016–17. Government expenditure comprised 80% of the total. The average dispensed price per prescription for an anti-dementia medicine was \$36.47, and the average government subsidised amount per prescription was \$29.11. Therefore, the average cost per prescription for patients was \$7.35 (that is, \$7.35 per month, as each prescription is for a month's supply of the medication).

Of the total expenditure for anti-dementia medications, 44% was for Donepezil, followed by Rivastigmine (28%), Galantamine (17%) and Memantine (11%) (Figure 4).

Figure 4: Percentage of total expenditure on anti-dementia medications, by medication, 2016–17



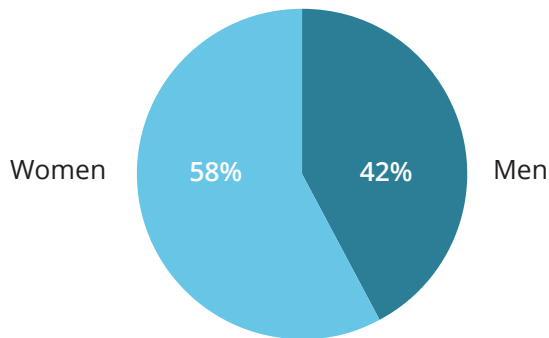
Note: The data for this figure are in online Table S3.

Source: Pharmaceutical Benefits Scheme database.

Characteristics of people taking anti-dementia medications

In 2016–17, about 58,500 people aged 30 and over were dispensed anti-dementia medications in Australia. A person can be prescribed or use more than one anti-dementia medication. However, reimbursement is available for only 1 anti-dementia medication through the PBS, and so data on multiple anti-dementia medication use cannot be reported using the PBS. Those who were subsidised for more than 1 type of anti-dementia medication (5%) might have changed medications within the financial year analysed.

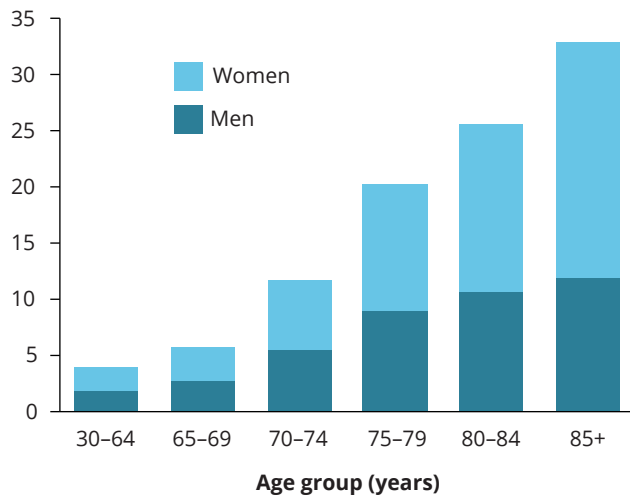
Of people on anti-dementia medications:



58% were women, 42% were men (refer to online Table S4).

When differences in age and population size were accounted for, men and women were dispensed anti-dementia medications at a similar rate (3 and 4 per 1,000 people for men and women, respectively).

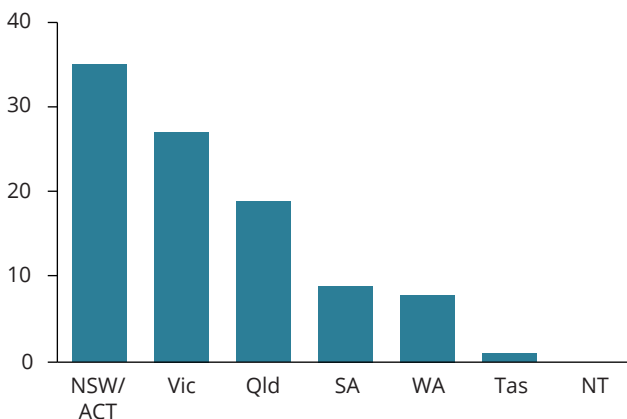
Per cent



4% were aged between 30 and 64 (47% men, 53% women), 63% were aged 65-84 (44% men, 56% women), and 33% aged 85 or over (36% men, 64% women) (refer to online Table S4).

Women who were dispensed anti-dementia medications were on average older (81) than men (79) who were dispensed anti-dementia medications.

Per cent



35% lived in New South Wales/Australian Capital Territory, followed by 27% in Victoria, 19% in Queensland, 9% in South Australia, 8% in Western Australia, 1% in Tasmania and less than 1% in the Northern Territory (refer to online Table S5).

When differences in age and population size were accounted for, the rate of people dispensed anti-dementia medications was highest in South Australia and Victoria (4 per 1,000 people for both) and lowest in Tasmania (2 per 1,000).

88% of those dispensed anti-dementia medications were over 70

Initiation

Of people taking anti-dementia medications in 2016–17, for about one-quarter (27%, 15,800) anti-dementia medications were dispensed for the first time (refer to Appendix A for information on how medication initiation, re-initiation and discontinuation was determined). Among this population:

- the majority were aged 80 and over (52%), followed by those aged 70–79 (36%)
- men accounted for 44% and women for 56%
- the most commonly dispensed anti-dementia medication was Donepezil (73%), followed by Rivastigmine (12%), Galantamine (9%) and Memantine (6%).

Overall, 75% of people initiating anti-dementia medications in 2016–17 continued with the therapy beyond 6 months.

Re-initiation

In 2016–17, of people to whom anti-dementia medications were dispensed, 2% were re-initiating their use of these medications after a break of at least 6 months since a dispensing in 2015–16.

Discontinuation

Of the 58,500 people to whom anti-dementia medications were dispensed in 2016–17, 24% (14,000) discontinued taking anti-dementia medications in 2017–18.

GPs prescribed 80% of anti-dementia medications

In 2016–17, for the majority of people (80%) anti-dementia medications were prescribed at least once by general practitioners, followed by other medical specialists (42%) and allied health professionals (for example, nurse practitioners) (less than 1%). Anti-dementia medications could be prescribed by more than 1 prescriber and 22% of people received prescriptions from both general practitioners and other medical specialists. When anti-dementia medications were prescribed at least once by a specialist other than a general practitioner, 55% of people received prescriptions from a doctor with a specialisation in geriatric medicine, followed by psychiatry and neurology (14% each) and internal medicine (11%).

There were differences in prescribing specialties by people's sex and age characteristics:

- 60% of people for whom general practitioners prescribed anti-dementia medications were women and 40% were men.
- 55% of people for whom other medical specialists prescribed anti-dementia medications were women and 45% were men.
- Of the people prescribed anti-dementia medications by a geriatric medicine specialist, 56% were women and 44% men, while of people prescribed anti-dementia medication by a neurology specialist, 45% were women and 55% men.
- Of the people with younger onset dementia (aged under 65), 53% were prescribed anti-dementia medications by specialists. This compares with 41% of those aged 65 and over.

Medications for the cardiovascular system were dispensed to 77% of people to whom anti-dementia medications were dispensed

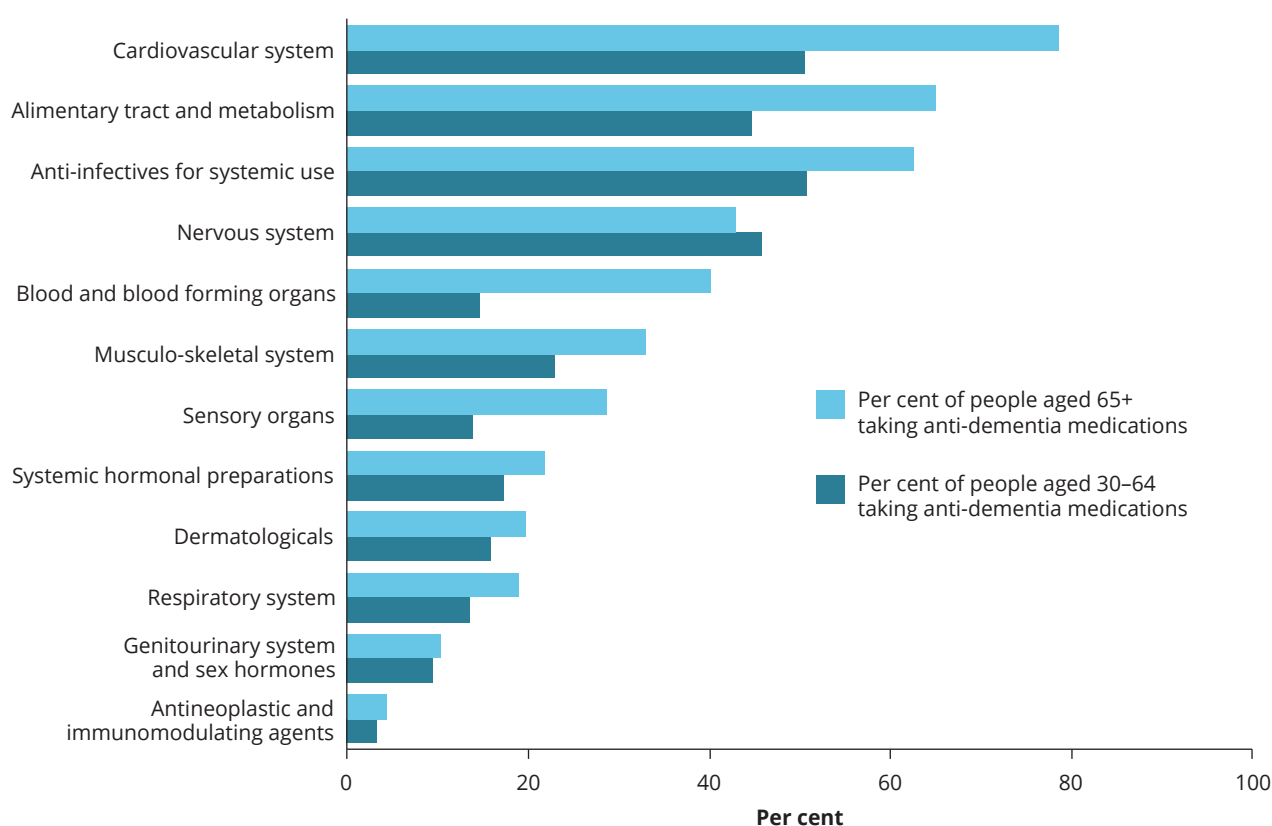
In 2016–17, people to whom anti-dementia medications were dispensed were also supplied with a range of other medications (Anatomical Therapeutic Chemical (ATC)¹) (see Appendix A for definitions). The most common group of other medications dispensed was medications for the cardiovascular system (dispensed at least once to 77% of people to whom anti-dementia medications were dispensed). This was followed by medications for the alimentary tract and metabolism (64%), and anti-infectives for systemic use (62%).

The most common subgroups (ATC²) of these medication groups were anti-bacterials for systemic use (dispensed at least once to 62% of people to whom anti-dementia medications were dispensed), followed by agents acting on the renin-angiotensin system (47%) which are often used to address hypertension (NHFA and CSANZ 2011) and analgesics (painkillers such as codeine) (43%) (AIHW 2017a).

When examined by broad age group, the leading group of medications dispensed to people aged 65 and over was medications for the cardiovascular system (79%), followed by medications for the alimentary tract and metabolism (65%), and anti-infectives for systemic use (63%) (Figure 5).

The pattern differed for those with younger onset dementia where the leading groups were anti-infectives for systemic use and medications for the cardiovascular system (51% each) followed by medications for the nervous system (46%).

Figure 5: Other medications dispensed among people to whom anti-dementia medications were dispensed, by anatomical therapeutic chemical group and broad age group, 2016–17



Notes

1. Systemic hormonal preparations excludes sex hormones and insulins.
2. Additional groups 'Anti-parasitic products, insecticides and repellents' and 'Various' were excluded from this figure as 1% of the population were dispensed additional medications for these systems.
3. The data for this figure are in online Table S6.

Source: Pharmaceutical Benefits Scheme database.

Use of anti-dementia and anti-psychotic medications

Anti-psychotic medications may be prescribed alongside anti-dementia medications for the management of behavioural symptoms characterised by psychotic symptoms and aggression when people with dementia have not responded to non-pharmacological treatment approaches. Commonly used anti-psychotic medications include Haloperidol and Risperidone. Other anti-psychotic medications include Olanzapine and Quetiapine. These medications may have side effects such as dizziness, unsteadiness, sedation and symptoms similar to Parkinson's disease (shakiness, shuffling gait and stiffness). Clinical guidelines in Australia recommend that anti-psychotic medications are prescribed after non-pharmacological approaches have been attempted, as the use of anti-dementia and anti-psychotic medication at the same time increases the risk of effects such as adverse cerebrovascular events and death (Guideline Adaptation Committee 2016).

In 2016–17, of the 58,500 people to whom anti-dementia medications were dispensed, anti-psychotic medications were also dispensed to almost a quarter (24%).

Of the people to whom both anti-dementia and anti-psychotic medications were dispensed:

- 43% were men and 57% were women
- the majority were aged 80 and over (58%), followed by those aged 70–79 (32%)
- the most commonly dispensed anti-dementia medication was Donepezil (59%), followed by Rivastigmine (15%), Galantamine (14%) and Memantine (12%).
- 62% were supplied with the anti-psychotic medication Risperidone at least once, followed by Quetiapine (27%), Olanzapine (15%) and Haloperidol (11%).

The mean age of those to whom both anti-dementia and anti-psychotic medications were dispensed was 79 for men and 81 for women, similar to the overall population of people supplied with anti-dementia medications only.

Appendix A: Definitions, methods and statistical table

People to whom anti-dementia medications were dispensed were defined as those aged 30 and over who were dispensed at least 1 anti-dementia medication under the PBS between 30 June 2016 and 1 July 2017, as recorded in the Pharmaceutical Benefits Scheme database.

Information on expenditure for anti-dementia medications dispensed includes records with missing patient identification, age and sex data. All other analyses exclude these records. Refer to *Dispensing patterns for anti-dementia medications 2016–17—Supplementary Tables* for summary statistics.

Given that a person can age throughout the year of analysis, the age at which the person entered the year of analysis (2016–17) was taken as their age throughout the year.

Information on prescriptions refers to data on medications prescribed by medical practitioners and allied health professionals, and subsequently dispensed. Consequently, the data are a count of prescriptions dispensed, not a count of prescriptions written by medical practitioners or a count of medications actually used by people with Alzheimer’s disease.

The population examined in this report comprises a number of sub-populations: those initiating, re-initiating and discontinuing anti-dementia medications.

- Initiating: People to whom at least 1 anti-dementia medication was dispensed in 2016–17 who had not been dispensed an anti-dementia medication since 2004–05.
- Re-initiating: People to whom at least 1 anti-dementia medication was dispensed in 2016–17 who have had a break of at least 6 months since their previous dispensing in 2015–16.
- Discontinuing: People to whom at least 1 anti-dementia medication was dispensed in 2016–17 who did not have a dispensing for an anti-dementia medication in 2017–18.

The methodology used to determine these sub-populations was based on a Drug Utilisation Sub-Committee report on medicines for Alzheimer’s disease (DUSC 2016).

Anatomical Therapeutic Chemical classification

Anatomical Therapeutic Chemical (ATC) codes are used in this report to classify medicines. The ATC classification of medicines is recommended by the World Health Organization, as the international standard for presenting and comparing drug usage data, and is used by the PBS to publish the Schedule of Pharmaceutical Benefits. The ATC classification groups medicines according to the body organ or system on which they act, and their therapeutic and chemical characteristics. More information on the ATC classification system can be found at https://www.whocc.no/atc/structure_and_principles/.

ATC codes used to define anti-dementia medications are listed in Table A1.

Table A1: Anti-dementia medications, 2016–17

ATC code	Medication class	Medication name
N06DA02	Cholinesterase inhibitor	Donepezil
N06DA03		Rivastigmine
N06DA04		Galantamine
N06DX01	N-methyl-D-aspartate (NMDA) receptor antagonist	Memantine

The ATC therapeutic groups and subgroups used in this report are listed in Table A2.

Table A2: Medications (excluding anti-dementia medications) used in this report, 2016–17

ATC code	Description
A	Alimentary tract and metabolism
A01	Stomatological preparations
A02	Drugs for acid related disorders
A03	Drugs for functional gastrointestinal disorders
A04	Antiemetics and antinauseants
A05	Bile and liver therapy
A06	Drugs for constipation
A07	Antidiarrheals, intestinal anti-inflammatory/anti-infective agents
A08	Antiobesity preparations, excluding diet products
A09	Digestives, including enzymes
A10	Drugs used in diabetes
A11	Vitamins
A12	Mineral supplements
A13	Tonics
A14	Anabolic agents for systemic use
A15	Appetite stimulants
A16	Other alimentary tract and metabolism products
B	Blood and blood forming organs
B01	Antithrombotic agents
C	Cardiovascular system
C01	Cardiac therapy
C02	Antihypertensives
C03	Diuretics
C04	Peripheral vasodilators
C05	Vasoprotectives
C07	Beta-blocking agents
C08	Calcium channel blockers
C09	Agents acting on the renin-angiotensin system
C10	Lipid-modifying agents
D	Dermatologicals
G	Genito-urinary system and sex hormones
H	Systemic hormonal preparations, excluding sex hormones and insulins
J	Antiinfectives for systemic use
J01	Antibacterials for systemic use
J02	Antimycotics for systemic use
J04	Antimycobacterials
J05	Antivirals for systemic use
J06	Immune sera and immunoglobulins
J07	Vaccines

continued

Table A2 (continued): Medications (excluding anti-dementia medications) used in this report, 2016–17

ATC code	Description
L	Antineoplastic and immunomodulating agents
M	Musculo-skeletal system
N	Nervous system
N01	Anaesthetics
N02	Analgesics
N03	Antiepileptics
N04	Antiparkinson drugs
N05	Psycholeptics
N05A	Antipsychotics
N06	Psychoanaleptics
N07	Other nervous system drugs
P	Antiparasitic products, insecticides and repellents
R	Respiratory system
S	Sensory organs
V	Various

Data source

Pharmaceutical Benefits Scheme database

The Pharmaceutical Benefits Scheme (PBS) and Repatriation Pharmaceutical Benefits Scheme (RPBS) are national government-funded schemes designed to subsidise the cost of pharmaceutical medicines for all Australian residents. Subsequent references to the PBS include the RPBS, unless otherwise specified.

For all dispensed medications covered by the PBS, the scheme pays the cost that is in excess of a defined co-payment amount (the maximum co-payment amount paid by the consumer). This amount is set by government policy and differs between general patients and those who hold certain government concession cards (such as a Pensioner Concession Card, Commonwealth Seniors Health Card, or Health Care Card). As at 1 January 2017, for general patients the co-payment amount is \$38.80, while for concession-card holders it is \$6.30. Once a threshold value of co-payments (the Safety Net threshold) has been accrued by a patient and/or family in a calendar year, the co-payment amount decreases for the remainder of the calendar year.

Information about the medicines available under the PBS and conditions of supply is published monthly in the Schedule of Pharmaceutical Benefits.

The PBS database contains detailed information about prescriptions supplied by pharmacies. The data includes details of the type, cost and volume of medicine dispensed, and limited details on the patient, pharmacy and prescriber.

Data include all prescriptions dispensed under the PBS or RPBS (including prescriptions that are under the co-payment amount, known as 'Under co-payment data'). Data exclude some programs subject to alternative arrangements, known as Section 100, where patient level details are not available, for example, direct supply of medications to remote Aboriginal Health Services, or the Opiate Dependence Treatment Program.

The PBS does not cover medicines supplied to public hospital in-patients, over-the-counter medicines or private prescriptions.

The year of data used for this report was the financial year 2016–17. The data were extracted in May 2019 and small changes might have occurred since this time.

Limitations of PBS data

While the PBS data provide useful information on medications, there are inherent limitations to their utility for understanding dementia management:

- The PBS data do not generally include the reason a medicine has been prescribed and dispensed unless the medicine requires an authority approval from the Department of Human Services (PBS) or the Department of Veterans' Affairs (RPBS).
- 'Restricted Benefit' PBS items are also limited to a stated condition, but do not require authority approval. As such, it is generally not possible to determine the disease or condition for which the medicine was supplied.
- The data capture only those medications dispensed, and not prescriptions written by a health professional that are not filled. Further, they do not capture whether the dispensed medication was actually used, or whether it was used correctly.

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Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
ATC	Anatomical Therapeutic Chemical
DALY	Disability-Adjusted Life Years
GPs	General Practitioners
NMDA	N-methyl-D-aspartate
NSW	New South Wales
NT	Northern Territory
PBS	Pharmaceutical Benefits Scheme
Qld	Queensland
RPBS	Repatriation Pharmaceutical Benefits Scheme
SA	South Australia
Tas	Tasmania
Vic	Victoria
WA	Western Australia

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Related publications

AIHW (Australian Institute of Health and Welfare) 2012. Dementia in Australia. Cat. no. AGE 70. Canberra: AIHW.

AIHW 2018a. Australia’s health 2018. Australia’s health series no. 16. AUS 221. Canberra: AIHW.

AIHW 2019. Hospital care for people with dementia 2016–17. Cat. no. AGE 94. Canberra: AIHW.



Dementia is a leading cause of illness and death among Australians. This report shows that in 2016–17:

- about 546,000 prescriptions for anti-dementia medications were dispensed to about 58,500 people aged 30 and over
- of the 4 anti-dementia medications examined, Donepezil was the most commonly dispensed medication
- older people were dispensed anti-dementia medications at a higher rate
- expenditure on anti-dementia medications totalled \$20 million.

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