

# DEMENTIA ACROSS AUSTRALIA: 2011-2050

**9 SEPTEMBER 2011**

**A REPORT PREPARED BY  
DELOITTE ACCESS ECONOMICS**

# CONTENTS

Glossary	5
Foreword	7
Executive Summary	9
<b>1 Dementia prevalence rates</b>	<b>11</b>
1.1 Previous estimates	11
1.2 Current estimates	14
<b>2 Dementia prevalence estimates</b>	<b>15</b>
2.1 National estimates	15
2.2 By jurisdiction	16
2.3 By Federal Electoral Divisions	19
Conclusions	24
References	25
Limitation of our work	26

Liability limited by a scheme approved under Professional Standards Legislation.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see [www.deloitte.com/au/about](http://www.deloitte.com/au/about) for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

© 2011 Deloitte Access Economics Pty Ltd

**Deloitte Access Economics** is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. The Directors and staff of Access Economics joined Deloitte in early 2011.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see [www.deloitte.com/au/about](http://www.deloitte.com/au/about) for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

## About Deloitte

Deloitte provides audit, tax, consulting, and financial advisory services to public and private clients spanning multiple industries. With a globally connected network of member firms in more than 150 countries, Deloitte brings world-class capabilities and deep local expertise to help clients succeed wherever they operate. Deloitte's approximately 170,000 professionals are committed to becoming the standard of excellence.

## About Deloitte Australia

In Australia, the member firm is the Australian partnership of Deloitte Touche Tohmatsu. As one of Australia's leading professional services firms, Deloitte Touche Tohmatsu and its affiliates provide audit, tax, consulting, and financial advisory services through approximately 5,400 people across the country. Focused on the creation of value and growth, and known as an employer of choice for innovative human resources programs, we are dedicated to helping our clients and our people excel. For more information, please visit our web site at [www.deloitte.com.au](http://www.deloitte.com.au).

Liability limited by a scheme approved under Professional Standards Legislation.

Member of Deloitte Touche Tohmatsu Limited

© 2011 Deloitte Access Economics Pty Ltd

# CHARTS

Chart 1.1 : Estimated dementia prevalence rates in Australia 2009	14
---	----

# TABLES

Table 1.1 : Dementia prevalence from Australian studies and European meta-analyses	12
Table 1.2 : Alternative dementia prevalence rate estimates for the Australian population	13
Table 1.3 : Estimated dementia prevalence rates for those aged 80 years and over	13
Table 2.1 : Total Australian dementia prevalence projections, by age	15
Table 2.2 : Total Australian dementia prevalence projections, by jurisdiction	16
Table 2.3 : Total New South Wales dementia prevalence projections, by age	16
Table 2.4 : Total Victorian dementia prevalence projections, by age	17
Table 2.5 : Total Queensland dementia prevalence projections, by age	17
Table 2.6 : Total South Australian dementia prevalence projections, by age	17
Table 2.7 : Total West Australian dementia prevalence projections, by age	17
Table 2.8 : Total Tasmanian dementia prevalence projections, by age	18
Table 2.9 : Total North Australian dementia prevalence projections, by age	18
Table 2.10 : Total Australian Capital Territory dementia prevalence projections, by age	18
Table 2.11 : Total New South Wales dementia prevalence projections, by Federal Electoral Division	19
Table 2.12 : Total Victorian dementia prevalence projections, by Federal Electoral Division	20
Table 2.13 : Total Queensland dementia prevalence projections, by Federal Electoral Division	21
Table 2.14 : Total South Australian dementia prevalence projections, by Federal Electoral Division	21
Table 2.15 : Total West Australian dementia prevalence projections, by Federal Electoral Division	22
Table 2.16 : Total Tasmanian dementia prevalence projections, by Federal Electoral Division	22
Table 2.17 : Total Northern Territory dementia prevalence projections, by Federal Electoral Division	22
Table 2.18 : Total Australian Capital Territory dementia prevalence projections, by Federal Electoral Division	22
Table 2.19 : Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for NSW and VIC	23
Table 2.20 : Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for QLD and SA	23
Table 2.21 : Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for NT and ACT	23
Table 2.22 : Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for WA and TAS	23

# GLOSSARY

<b>ABS</b>	<b>Australian Bureau of Statistics</b>
<b>ACT</b>	<b>Australian Capital Territory</b>
<b>AE-Dem</b>	<b>Access Economics' Demographic Model</b>
<b>ABS</b>	<b>Australian Bureau of Statistics</b>
<b>ACT</b>	<b>Australian Capital Territory</b>
<b>AD</b>	<b>Alzheimer's disease</b>
<b>DOHA</b>	<b>Department of Health and Ageing (Australian Government)</b>
<b>DYNOPTA</b>	<b>Dynamic Analyses to Optimise Ageing</b>
<b>FED</b>	<b>Federal Electoral Division</b>
<b>NSW</b>	<b>New South Wales</b>
<b>NSMHW</b>	<b>National Survey of Mental Health and Wellbeing</b>
<b>NT</b>	<b>Northern Territory</b>
<b>MMSE</b>	<b>Mini-Mental State Examination</b>
<b>QLD</b>	<b>Queensland</b>
<b>SA</b>	<b>South Australia</b>
<b>TAS</b>	<b>Tasmania</b>
<b>WA</b>	<b>Western Australia</b>
<b>WHO</b>	<b>World Health Organization</b>

# FOREWORD

Dementia is without question the single biggest health issue facing Australia in the 21st century.

The figures in this report show that in the absence of new medications to treat dementia, almost 950,000 people will be living with dementia by 2050 – the equivalent of a city three times the size of Canberra.

As this report shows, the numbers of people with dementia are rising in every single electorate, in every state and territory across Australia. As the population ages, we must all be prepared for a radical shift in health priorities.

The series of reports that Alzheimer's Australia has commissioned from Deloitte Access Economics over the past decade have documented the economic and social impact of dementia now and into the future.

These projections present a clear warning: The Federal Government must invest in decisive action to address dementia now, or face far greater costs and much more dramatic consequences in the very near future.

There will be 75,000 baby boomers with dementia by 2020 and dementia will be the third largest source of health and residential care costs by 2030. The time for action is now.

The numbers do not tell us everything about dementia in Australia. They do not show the life-changing impact that a diagnosis of dementia can have on a family. They cannot convey the agony of coming to terms with the effect of dementia on a loved one. They cannot capture the struggle of finding appropriate care services, or the slow process of building trust with service providers.

The economic impact of dementia on the health care system will be considerable. At the same time it will continue to impact on the quality of life of millions of Australians, both people with dementia and their family carers.

Alzheimer's Australia believes that a diagnosis of dementia should not rob any Australian of a decent quality of life.

We urge the Government to act now by making dementia a national health priority and to develop a targeted strategy for dealing with Australia's rapidly increasing dementia epidemic.



Ita Buttrose AO, OBE  
National President

# EXECUTIVE SUMMARY

Deloitte Access Economics was commissioned by Alzheimer’s Australia to provide updated dementia prevalence estimates and projections for Australia. Specifically, this report estimates the number of people with dementia in Australia in 2011, and predicts the number of people who will be living with dementia in Australia in the future, from 2012 until 2050. The report is set out as follows:

- **Chapter 1** reviews academic research and other relevant reports on dementia prevalence to determine a basis for estimating current dementia prevalence rates in Australia. These estimates draw upon studies of dementia prevalence from America and Europe, as well as several large Australian studies that have collected information on possible or probable dementia.

- **Chapter 2** presents dementia prevalence projections from 2011 to 2050, nationally, across states and territories, and across each of the 150 electoral divisions of the federal government.

Table i shows dementia prevalence estimates and projections nationally and for each state and territory. The results are broadly representative of the population shares among jurisdictions, with NSW projected to have the greatest number of people with dementia now and in the future, followed by Victoria and Queensland. Age is also strongly related to dementia prevalence, with the greatest number of people with dementia in the 85-89 years aged bracket throughout the projection period, increasing from 65,471 in 2011 to 225,898 in 2050.

**Table i: Dementia prevalence estimates and projections by state and territory and nationally, 2011-2050**

	2011	2012	2015	2020	2030	2040	2050
NSW	91,038	95,028	107,037	128,238	182,331	248,139	303,673
VIC	68,397	71,544	81,117	98,123	141,161	195,459	245,813
QLD	48,674	51,005	58,509	73,470	114,800	166,032	215,272
SA	23,710	24,627	27,353	32,062	44,236	59,053	69,620
WA	23,931	25,177	29,041	36,500	46,332	57,781	68,708
TAS	6,732	7,003	7,818	9,362	13,544	18,043	20,653
NT*	838	878	1,049	1,473	2,700	3,992	4,916
ACT	3,254	3,445	4,040	5,167	8,181	11,632	13,970
<b>AUST</b>	<b>266,574</b>	<b>278,707</b>	<b>315,963</b>	<b>384,396</b>	<b>553,285</b>	<b>760,131</b>	<b>942,624</b>

Source: Deloitte Access Economics calculations

\* Note that NT figures are likely to significantly underestimate the true prevalence of dementia

# 1 DEMENTIA PREVALENCE RATES

This chapter outlines previous estimates of dementia prevalence rates and dementia prevalence rates used within this study. In summary, there have not been any significant studies since Access Economics (2010) that warrant a change in dementia prevalence rates.

Table ii shows the Federal Electoral Divisions (FED) that are estimated to have the largest number of people with dementia in 2011 and 2050.

**Table ii: Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 across Australia**

2011			2050		
FED	Jurisdiction	Number	FED	Jurisdiction	Number
1 Hindmarsh	SA	2,940	Hinkler	QLD	12,023
2 Sturt	SA	2,584	Fairfax	QLD	11,912
3 Boothby	SA	2,534	Fisher	QLD	11,633
4 Flinders	VIC	2,517	Moncrieff	QLD	10,783
5 Lyne	NSW	2,502	Flinders	VIC	9,876
6 Moncrieff	QLD	2,478	Corangamite	VIC	9,509
7 Goldstein	VIC	2,451	Paterson	NSW	9,466
8 Cowper	NSW	2,448	Lalor	VIC	9,128
9 Richmond	NSW	2,442	Lyne	NSW	9,004
10 Robertson	NSW	2,441	Cowper	NSW	8,930

Source: Deloitte Access Economics calculations

Across Australia, three South Australian electorates have the largest numbers at present. These are Hindmarsh (with 2,940); Sturt (with 2,584); and Boothby (with 2,534 people with dementia). By 2050 however, demographic changes mean that the FED with the largest numbers of people with dementia will be located in Queensland; the top four each projected to be home to more than 10,000 people with dementia. By comparison, no state other than Queensland is expected to have an electoral division with more than 10,000 people with dementia over the next 39 years.

It is important to note that the estimates and projections in this report differ slightly from a previous report that presented dementia prevalence estimates and projections in Australia (Access Economics 2010). This earlier report estimated that there would be 268,600 people with dementia in 2011 and 981,000 people with dementia by 2050. In contrast, the figures in this report estimate 266,574 people with dementia in 2011, and 942,624 by 2050. As both the dementia prevalence rates and the modelling methodology have remained unchanged between the two reports, this slight change in estimates is due to a reduction in the projected future population as a result of recent revisions to the rates of births, deaths and migration from the Australian Bureau of Statistics.

**Deloitte Access Economics**

## 1.1 Previous estimates

In 2005, Access Economics was commissioned by Alzheimer's Australia to develop estimates and projections of dementia incidence and prevalence for the year 2000 up to 2050 (Access Economics 2005). In 2009 and then later in 2010, Access Economics updated age-gender dementia prevalence projections for the year up to 2050 (Access Economics, 2009; 2010).

To date, there has been no national study of dementia prevalence in Australia using clinical diagnoses. Although the Disability, Ageing and Carers Surveys undertaken in Australia (ABS 2004; 2010) provide an estimate of dementia prevalence within Australia, it relies on self-reported identification, leading to severe under reporting due to an individual's limited capacity to recognise mild and moderate dementia if not formally diagnosed.

Due to the lack of epidemiological data, a number of studies have explicitly estimated dementia prevalence in Australia (Access Economics 2003, 2006; Jorm et al 2005; AIHW 2007). In addition, Begg et al (2007) implicitly estimated the incidence and prevalence of Alzheimer's disease and Vascular dementia in their burden of disease and injury report for Australia.

These studies have used meta-analyses performed on a set of epidemiological studies undertaken in Europe to estimate prevalence rates by age and gender in Australia. This is not ideal as the data used in these studies are relatively old (from the mid 1980s to the mid 1990s) and imply that Australia has the same dementia incidence and prevalence rates as Europe. This is despite known differences in dementia risk factors.

Modelling on probable dementia prevalence in Australia was undertaken at the Australian National University through the Dynamic Analyses to Optimise Ageing (DYNOPTA) study (Anstey et al, 2009). This study aimed to evaluate rates of probable dementia based on large Australian datasets containing the Mini-Mental State Examination (MMSE). It was noted that the MMSE was the most widely used screening measure for dementia and only cognitive measure used in the National Survey of Mental Health and Wellbeing (NSMHW) (ABS 1999). The prevalence of dementia was assessed using the MMSE cut-off of 23/34 from available Australian datasets, to compare with past estimates from Jorm et al (2005) and Access Economics (2005).

Although based on Australian data, dementia incidence and prevalence rates from the DYNOPTA study also suffer from some limitations. Of primary concern is possible bias introduced through the survey technique used to administer the MMSE

(e.g., there was considerable non-response within the NSMHW (ABS, 1999)), with the need to impute missing values in order to derive total MMSE scores.

According to Anstey et al (2009), probable dementia rates were compared to clinical diagnosis from Sydney and Canberra. Although the model was able to identify around 93% of people with dementia, it was only able to identify 70% of people without dementia. This means around 30% were identified as having dementia when they did not according to the clinical diagnosis. While some of this may reflect under-diagnosis, 'probable' dementia rates may be an over estimation of true dementia prevalence rates. Anstey et al (2009) recognise this problem and suggest their estimates for very old adults are not reliable.

However, Anstey et al (2010) found that prevalence of probable dementia derived from DYNOPTA was comparable to estimates from past European meta-analyses. DYNOPTA and European meta-analyses had a similar pattern of increase with age however, ABS NSMH surveys showed less consistency with European data. Anstey et al (2010) noted that greater congruence of DYNOPTA with European data may have resulted because DYNOPTA MMSE data were obtained from investigator-led epidemiological studies leading to higher-quality training of assessors and more reliable data collection and coding.

Anstey et al (2010) suggested these data appeared more reliable than government health surveys. However, it is noted that a high false positive rate with MMSE may suggest DYNOPTA, while a reasonable guide to cognitive impairment in Australia, may slightly overestimate actual dementia prevalence in Australia.

Estimates of probable dementia prevalence from Anstey et al (2010) compared to past European studies are presented in Table 1.1. A summary of assumed prevalence rates by age and gender from other published studies previously mentioned are shown in Table 1.2 (including Anstey et al (2010)).

Recently, the World Alzheimer Report 2010 conducted a systematic review of the global prevalence of dementia, identifying 147 studies in 21 Global Burden of Disease world regions. Applying prevalence proportions to the United Nations estimates of the total older population, the results showed that estimates for those aged 60 years and over did not vary much between world regions. In Australasia, dementia prevalence in 2010 was estimated to be 6.4% (Wimo et al, 2010).

Trends in assumed dementia prevalence rates for Australia have been generally comparable. All show that rates increase

with age and that females have higher rates. However, the magnitudes of rates across studies show some differences, which have meant differences in total prevalence and incidence estimates. However, there are no data on the trends in dementia prevalence rates in Australia over time, so it is therefore problematic to determine whether dementia prevalence rates in the future are likely to change.

There is little data related to incidence of dementia. In general, there are problems with diagnosing dementia, as the date of onset is generally undetermined due to the progressive onset of the condition. This suggests there may be significant positive diagnoses missed. Furthermore, screening instruments are not specific and therefore it can be difficult to separate mild dementia with other cognitive conditions, suggesting an over-estimation problem in determining incidence rates (AIHW, 2007). A recent study in the US has found

**Table 1.1: Dementia prevalence from Australian studies and European meta-analyses**

Age	Australian MMSE studies (Anstey et al, 2010)			European studies: clinical diagnoses					
	DYNOPTA	NSMH 1997	NSMH 2007	Jorm	Lobo - Female	Lobo - Male	Ritchie	Hofman - Female	Hofman - Male
	%	%	%	%	%	%	%	%	%
60-64	-	-	-	0.7	-	-	-	-	-
65-69	3.78	6.22	4.00	1.4	1.0	1.6	1.5	-	-
70-74	5.16	9.09	5.02	2.8	3.1	2.9	3.5	3.9	4.6
75-79	10.63	-	7.53	5.6	6.0	5.6	6.8	6.7	5.0
80-84	16.32	-	5.26	10.5	12.6	11.0	13.6	13.5	12.1
85-89	22.36	-	-	20.8	20.2	12.8	22.3	22.8	18.5
90-94	32.43	-	-	38.6	30.8	22.1	31.5	32.2	32.1
90+	41.41	-	-	-	-	-	-	-	-
95+	67.42	-	-	-	-	-	44.5	36.0	31.6

Source: Anstey et al (2010), Jorm et al (2005), Hofman et al (1991), Lobo et al (2000) and Ritchie and Kildea (1995).

that around 22% of adults aged 71 years or older had cognitive impairment where the level of impairment did not reach the dementia threshold (Plassman et al, 2008). The study suggests the number of individuals with chronic impairment without dementia is about 70% higher than the number of individuals with dementia.

Most recently there has been focus on the incidence and prevalence of dementia among older groups (80 years and over). Two epidemiological studies have shown that dementia rates do not flatten or go down after the age of 90 years, as previously thought, instead dementia rates are shown to continue to rise (Lucca et al 2009; Corrada et al 2008). One study focuses on a large Italian population while the other uses a population from the United States. Although both come to the same general conclusion, absolute levels of prevalence differ substantially between the two studies, most likely due to different methods used to diagnose individuals. Prevalence rates of dementia for those 80 years and older from the two studies are shown in Table 1.3.

**Table 1.2: Alternative dementia prevalence rate estimates for the Australian population**

Age	Access Economics (2003) (a)		Jorm et al (2005) (b)		Access Economics (2005, 2006) (c)		Begg et al (2007), AIHW (2007) (d)		Anstey et al (2009)		Anstey et al (2010)	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
<60	0.2	0.1	na	na	0.1	0.1	0.1	0	na	na	na	na
60-64	0.2	0.1	1.2	0.6	1.2	0.6	0.1	0	na	na	na	na
65-69	1.9	1.1	1.7	1.3	1.7	1.3	1.6	1.0	2.2	2.5	3.0	4.5
70-74	1.9	1.1	3.5	3.3	3.5	3.3	2.9	3.1	4.9	5.6	6.2	4.3
75-79	5.7	6.8	5.8	6.3	5.8	6.3	5.6	6.0	8.2	9.2	10.7	10.6
80-84	5.7	6.8	11.8	12.6	11.8	12.6	11.0	12.6	12.3	17.0	16.9	16.0
85-89	22.8	33.6	18.6	21.5	18.6	21.5	12.8	20.2	18.8	22.8	25.1	21.0
90-94	22.8	33.6	31.1	33.3	31.1	33.3	22.1	30.8	41.2	32.7	41.3	29.9
95+	22.8	33.6	38.1	40.3	38.1	40.3	22.1	30.8	53.9	73.8	52.8	69.4

Note: (a) Prevalence for those under 25 years was considered zero (b) Uses an average of four meta analyses including Jorm et al (1987), Hofman et al (1991), Ritchie and Kildea (1995) and Lobo et al (2000) (c) Estimates were derived from Jorm et al (2005) (d) Based of Harvey et al (2003) for those <65 years old and Lobo et al (2000) for all other age groups. Source: Access Economics (2003, 2005, 2006), Jorm et al (2005), Begg et al (2007), AIHW (2007), Anstey et al (2009), Anstey et al (2010).

**Table 1.3: Estimated dementia prevalence rates for those aged 80 years and over**

Age	Lucca et al (2009) (a)	Corrada et al (2008) (b)		Corrada et al (2008) (c)	
years	All (%)	Male (%)	Female (%)	Male (%)	Female (%)
80-84	13.5	na	na	na	na
85-89	30.8	na	na	na	na
90-94	39.5	17.3	31.1	40.4	42.6
95+	52.8	20.6	50.0	37.2	58.7

Note: (a) Participants were diagnosed based on DSM-IV criteria (b) Includes participants diagnosed from a neurological examination or a Mini-Mental State Examination administered in person (c) Includes participants diagnosed from a Cognitive Assessment Screening Instrument-Short Version, a Dementia Questionnaire, or the Informant Questionnaire that combines information from the Dementia Severity Rating Scale, Functional Activities, and Activities of Daily Living.

## 1.2 Current estimates

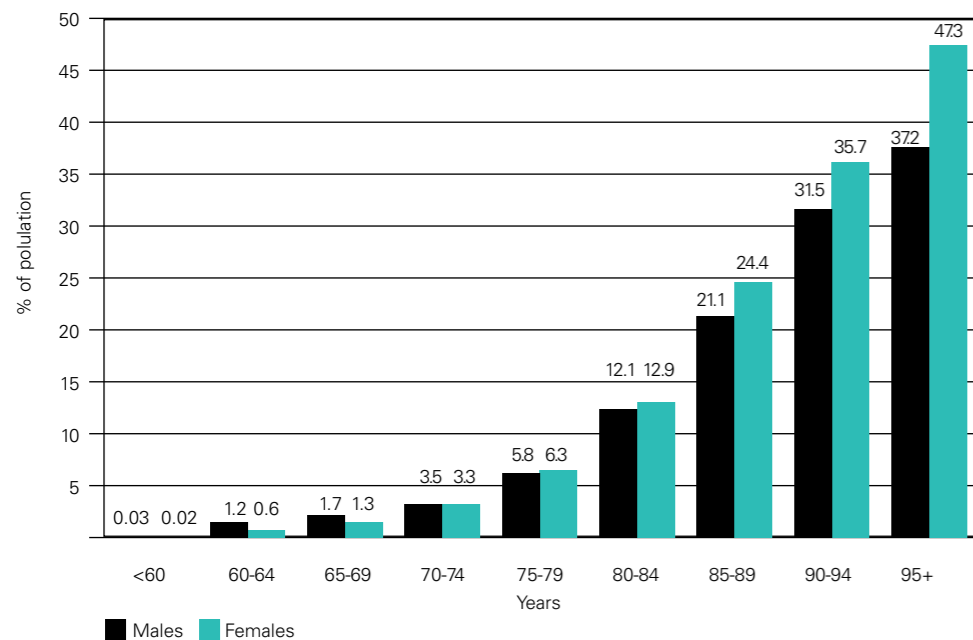
There have not been any significant studies since Access Economics (2009) that warrant a change in dementia prevalence rates. Consequently, age-gender prevalence rates for dementia were taken from Access Economics (2009) and applied to revised population projections.

In Access Economics (2009) prevalence rates were estimated using a combination of published epidemiological studies and meta-analyses. These are listed below.

- **Age brackets 0 to 59 years:** A weighted average for the entire population was calculated using five year age bracket prevalence rates derived from Harvey et al (2003) and Australian population estimates.
- **Age brackets between 60 and 79 years:** Previous prevalence rates used in Access Economics (2005, 2006) were used.
- **Age brackets between 80 and 89 years:** A weighted average of prevalence rates found in Access Economics (2005, 2006) and Lucca et al (2009) were used, with the former receiving three times as much weight as the latter.
- **Age brackets 90 years and above:** A weighted average of prevalence rates was calculated using rates found in Access Economics (2005, 2006), Lucca et al (2009), and Corrada et al (2008). An average prevalence rate was calculated using the latter two studies and this average was given an equal weighting with the prevalence rates from Access Economics (2005, 2006).

Chart 1.1 shows dementia prevalence rates follow an exponential growth rate with age. Dementia prevalence rates are relatively low until the age of 70 years and over, where prevalence rates start to increase rapidly, indicating the increased risk of developing dementia due to age. For example, prevalence rates for males and females aged 70-74 years are around 3.5% and 3.3% respectively, which increases to 21.1% and 24.4% for those aged 85-89, and then to 37.2% and 47.3% for those aged 95 years and above.

Chart 1.1: Estimated dementia prevalence rates in Australia 2009



Source: Access Economics (2009).

The underlying population data used to calculate the number of people with dementia in Australia in 2011 to 2050 was estimated using the AE-DEM model, which is an in-house demographic model based on the 2006 national census undertaken by the Australian Bureau of Statistics. Building up from the demographic 'first principles' of births, deaths, migration and household formation, the model projects population by age and gender for each State and Territory. Federal Electoral Divisions for 2010 were derived from the Australian Bureau of Statistics.

This methodology is the same as used in previous reports (Access Economics 2009; 2010). Full details are available in Access Economics 2009.

# 2 DEMENTIA PREVALENCE ESTIMATES

**This chapter presents dementia prevalence estimates for 2011 and projections up to 2050. They have been calculated by applying dementia prevalence rates outlined in Chapter 1 to population projections undertaken using Access Economics' in-house demographic model. It was assumed that dementia prevalence rates remain constant throughout the projection period.**

## 2.1 National estimates

It is estimated there are 266,574 people with dementia in Australia in 2011. This is projected to increase to 553,285 people by 2030, and 942,624 people by 2050 (Table 2.1).

Dementia prevalence is greatest in the age bracket 85-89 years throughout the projected period, increasing from 65,471 in 2011 to 225,898 in 2050. As prevalence rates are not the highest in this age bracket, the large dementia prevalence is due to the relatively large number of people. That is, although dementia prevalence rates are higher for people 90 years and older, mortality rates are also higher and the net effect is a lower dementia prevalence.

Due to the relatively large growth in the older population in Australia, people with younger onset dementia (those aged less than 65 years with dementia) will make up a smaller proportion of total dementia prevalence in the future. It is projected to decline from around 6.1% in 2011 to 2.9% in 2050.

Table 2.1: Total Australian dementia prevalence projections, by age

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2030	2040	2050
0-59	4,992	5,058	5,122	5,189	5,256	5,322	5,388	5,455	5,520	5,585	6,209	6,850	7,459
60-64	11,337	11,317	11,487	11,698	11,899	12,175	12,448	12,688	12,994	13,304	14,491	15,737	20,100
65-69	14,541	15,873	16,994	17,744	18,480	19,103	19,101	19,401	19,761	20,104	24,175	26,244	30,554
70-74	25,157	26,212	27,215	28,679	30,269	32,023	34,922	37,352	38,991	40,606	48,981	53,321	57,908
75-79	34,043	35,235	36,526	38,126	39,820	41,323	43,123	44,839	47,338	50,045	72,574	88,187	96,753
80-84	56,440	56,860	57,168	57,526	57,958	59,264	61,540	63,969	66,929	70,033	117,440	144,635	160,416
85-89	65,471	68,035	70,640	72,878	75,054	76,782	77,653	78,405	79,219	80,217	122,727	181,647	225,898
90-94	39,240	43,277	47,280	51,148	54,334	57,349	59,917	62,512	64,785	67,087	89,521	152,771	195,992
95+	15,353	16,841	18,247	19,974	22,893	25,902	28,872	31,666	34,440	37,415	57,168	90,739	147,544
Total	266,574	278,707	290,679	302,962	315,963	329,243	342,965	356,288	369,977	384,396	553,285	760,131	942,624

Source: Deloitte Access Economics calculations









**Table 2.15: Total West Australian dementia prevalence projections, by Federal Electoral Division**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2030	2040	2050
Brand	1,557	1,666	1,768	1,882	2,004	2,130	2,263	2,391	2,522	2,665	3,526	4,497	5,468
Canning	1,792	1,937	2,074	2,221	2,373	2,529	2,696	2,852	3,013	3,192	4,214	5,411	6,571
Cowan	1,201	1,302	1,404	1,509	1,621	1,740	1,872	2,002	2,136	2,277	3,143	4,110	5,016
Curtin	2,091	2,153	2,212	2,266	2,323	2,386	2,460	2,532	2,600	2,672	3,192	3,862	4,499
Durack	1,045	1,100	1,163	1,218	1,279	1,340	1,404	1,464	1,529	1,593	2,028	2,487	2,888
Forrest	1,566	1,669	1,769	1,874	1,985	2,094	2,210	2,323	2,442	2,565	3,363	4,267	5,057
Fremantle	1,559	1,636	1,710	1,787	1,873	1,957	2,043	2,133	2,228	2,324	2,881	3,536	4,170
Hasluck	1,438	1,530	1,622	1,716	1,819	1,928	2,048	2,162	2,282	2,403	3,143	4,021	4,912
Moore	1,204	1,285	1,361	1,438	1,522	1,612	1,710	1,802	1,896	1,993	2,586	3,255	3,862
O'Connor	1,544	1,608	1,677	1,742	1,810	1,883	1,965	2,049	2,119	2,201	2,695	3,244	3,730
Pearce	1,271	1,354	1,438	1,524	1,619	1,722	1,829	1,941	2,053	2,172	2,903	3,696	4,451
Perth	1,788	1,840	1,894	1,950	2,013	2,073	2,141	2,210	2,287	2,369	2,895	3,516	4,107
Stirling	1,975	2,061	2,144	2,227	2,323	2,413	2,510	2,604	2,699	2,802	3,368	4,101	4,823
Swan	2,015	2,065	2,123	2,179	2,247	2,317	2,386	2,458	2,530	2,613	3,185	3,882	4,565
Tangney	1,885	1,971	2,060	2,142	2,230	2,317	2,404	2,487	2,574	2,659	3,209	3,898	4,588
<b>Total</b>	<b>23,931</b>	<b>25,177</b>	<b>26,419</b>	<b>27,673</b>	<b>29,041</b>	<b>30,441</b>	<b>31,940</b>	<b>33,409</b>	<b>34,910</b>	<b>36,500</b>	<b>46,332</b>	<b>57,781</b>	<b>68,708</b>

Source: Deloitte Access Economics calculations

**Table 2.16: Total Tasmanian dementia prevalence projections, by Federal Electoral Division**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2030	2040	2050
Bass	1,377	1,426	1,467	1,517	1,565	1,617	1,665	1,719	1,774	1,827	2,546	3,318	3,754
Braddon	1,413	1,456	1,514	1,565	1,620	1,676	1,737	1,791	1,855	1,919	2,692	3,542	4,004
Denison	1,454	1,502	1,537	1,576	1,615	1,655	1,702	1,745	1,788	1,839	2,493	3,238	3,668
Franklin	1,273	1,340	1,392	1,446	1,511	1,586	1,656	1,726	1,790	1,862	2,823	3,851	4,482
Lyons	1,216	1,278	1,355	1,431	1,507	1,585	1,669	1,743	1,829	1,915	2,991	4,094	4,745
<b>Total</b>	<b>6,732</b>	<b>7,003</b>	<b>7,265</b>	<b>7,534</b>	<b>7,818</b>	<b>8,119</b>	<b>8,429</b>	<b>8,724</b>	<b>9,036</b>	<b>9,362</b>	<b>13,544</b>	<b>18,043</b>	<b>20,653</b>

Source: Deloitte Access Economics calculations

**Table 2.17: Total Northern Territory dementia prevalence projections, by Federal Electoral Division**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2030	2040	2050
Lingiari	398	408	425	449	472	505	536	567	601	637	1,128	1,684	2,091
Solomon	439	470	505	539	577	625	671	722	777	836	1,571	2,307	2,825
<b>Total</b>	<b>838</b>	<b>878</b>	<b>930</b>	<b>988</b>	<b>1,049</b>	<b>1,130</b>	<b>1,206</b>	<b>1,289</b>	<b>1,378</b>	<b>1,473</b>	<b>2,700</b>	<b>3,992</b>	<b>4,916</b>

Source: Deloitte Access Economics calculations

\* Note that NT figures are likely to significantly underestimate the true prevalence of dementia

**Table 2.18: Total Australian Capital Territory dementia prevalence projections, by Federal Electoral Division**

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2030	2040	2050
Canberra	1,790	1,889	1,996	2,096	2,208	2,317	2,431	2,550	2,677	2,808	4,389	6,326	7,800
Fraser	1,464	1,556	1,646	1,740	1,832	1,931	2,043	2,147	2,251	2,359	3,792	5,306	6,170
<b>Total</b>	<b>3,254</b>	<b>3,445</b>	<b>3,642</b>	<b>3,837</b>	<b>4,040</b>	<b>4,248</b>	<b>4,474</b>	<b>4,697</b>	<b>4,927</b>	<b>5,167</b>	<b>8,181</b>	<b>11,632</b>	<b>13,970</b>

Source: Deloitte Access Economics calculations

**Table 2.19: Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for NSW and VIC**

NSW			VIC		
FED	2011	2050	FED	2011	2050
1 Lyne	2,502	9,004	Flinders	2,517	9,876
2 Cowper	2,448	8,930	Goldstein	2,451	6,035
3 Richmond	2,442	8,808	Corangamite	2,292	9,509
4 Robertson	2,441	6,770	Mallee	2,247	7,097
5 Bradfield	2,370	6,395	Wills	2,243	4,373
6 Page	2,362	7,742	Chisholm	2,235	5,996
7 Gilmore	2,357	8,218	Bendigo	2,209	8,223
8 Dobell	2,294	7,540	Dunkley	2,111	7,485
9 Paterson	2,253	9,466	Murray	2,102	7,549
10 Cunningham	2,227	6,338	Batman	2,077	5,462

Source: Deloitte Access Economics calculations

**Table 2.20: Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for QLD and SA**

QLD			SA		
FED	2011	2050	FED	2011	2050
1 Moncrieff	2,478	10,783	Hindmarsh	2,940	6,146
2 Hinkler	2,317	12,023	Sturt	2,584	6,827
3 Fisher	2,107	11,633	Boothby	2,534	6,506
4 Lilley	2,066	5,202	Adelaide	2,411	6,167
5 Fairfax	2,051	11,912	Barker	2,186	6,629
6 McPherson	2,040	8,187	Port Adelaide	2,171	5,751
7 Wide Bay	2,004	8,571	Grey	2,072	5,778
8 Groom	1,876	7,751	Mayo	1,966	8,021
9 Maranoa	1,868	6,202	Wakefield	1,691	6,064
10 Petrie	1,828	8,850	Kingston	1,675	6,350

Source: Deloitte Access Economics calculations

**Table 2.21: Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for NT and ACT**

NT			ACT		
FED	2011	2050	FED	2011	2050
1 Solomon	439	2,825	Canberra	1,790	7,800
2 Lingiari	398	2,091	Fraser	1,464	6,170

Source: Deloitte Access Economics calculations

\* Note that NT figures are likely to significantly underestimate the true prevalence of dementia

**Table 2.22: Federal Electoral Divisions with greatest dementia prevalence in 2011 and 2050 for WA and TAS**

WA			TAS		
FED	2011	2050	FED	2011	2050
1 Curtin	2,091	4,499	Denison	1,454	3,668
2 Swan	2,015	4,565	Braddon	1,413	4,004
3 Stirling	1,975	4,823	Bass	1,377	3,754
4 Tangney	1,885	4,588	Franklin	1,273	4,482
5 Canning	1,792	6,571	Lyons	1,216	4,745
6 Perth	1,788	4,107			
7 Forrest	1,566	5,057			
8 Fremantle	1,559	4,170			
9 Brand	1,557	5,468			
10 O'Connor	1,544	3,730			

Source: Deloitte Access Economics calculations

# CONCLUSIONS

The prevalence of dementia from 2011 to 2050 has been revised down in this report to incorporate the latest revised ABS population parameters and population projections. It is estimated there are 266,574 people with dementia in Australia in 2011, projected to increase to 553,285 people by 2030, and 942,624 people by 2050.

# REFERENCES

- ABS (Australian Bureau of Statistics), 2004, 'Disability, ageing and carers: summary of findings', Cat No. 4430.0, Canberra.
- 1999, 'National survey of mental health and wellbeing',
- Australian Bureau of Statistics (ABS), Cat. No. 4327.0, Canberra.
- Access Economics, 2010, 'Caring places: planning for aged care and dementia 2010-2050', Report for Alzheimer's Australia, <http://www.accesseconomics.com.au/>, accessed 14 July 2011.
- 2009, 'Keeping dementia front of mind: incidence and prevalence 2009-2050', Report for Alzheimer's Australia, <http://www.accesseconomics.com.au/>, accessed 14 July 2011.
- 2005, 'Dementia estimates and projections: Australian states and territories', Report for Alzheimer's Australia, <http://www.accesseconomics.com.au/>, accessed 14 July 2011.
- 2003, 'The dementia epidemic: economic impact and positive solutions for Australia', Report for Alzheimer's Australia, <http://www.accesseconomics.com.au/>, accessed 14 July 2011.
- Anstey K, Burns R, Birrell C, Steel D, Kiely K, Luszcz M 2010, 'Estimates of probable dementia prevalence from population-based surveys compared with dementia prevalence estimates based on meta-analyses', *BMC Neurology*, 10(62): 1-12.
- Anstey K, Birrell C, Luszcz M, Burns R, Kiely K, Ross L, Steel D 2009, 'Estimates of the prevalence of probable dementia and cognitive impairment in Australia', Centre for Mental Health Research, *Australian National University*, Canberra.
- Begg S, Vos T, Barker B, Stevenson C, Stanley L, Lopez A 2007, 'The burden of disease and injury in Australia 2003', *Australian Institute of Health and Welfare (AIHW)*, Canberra.
- Corrada M, Brookmeyer R, Berlau D 2008, 'Prevalence of dementia after age 90. Results from the 90+ study', *Neurology*, 71: 337-343.
- Hofman A, Rocca WA, Brayne C, Breteler MMB, Clarke M, Cooper B, Copeland JRM, Dartigues JF, Da Silva DA, Hagnell O, Heeren TJ, Engedal K, Jonker C, Lindesay J, Lobo A, Lobo A, Mann AH, Molsa PK, Morgan K, Connor DW, Sulkava R, Kay DWK, Amadaducci L for the Eurodem Prevalence Research Group 1991, 'Prevalence of dementia in Europe: a collaborative study of 1980-1990 findings', *International Journal of Epidemiology*, 20: 736-748.
- Jorm AF, Dear KB, Burgess NM 2005, 'Projections of future numbers of dementia cases in Australia with and without prevention', *Aust NZ Journal of Psychiatry*, 39: 959-963.
- Lobo A, Launer LJ, Fratiglioni L, Andersen K, Di Carlo A, Breteler MM, Copeland JR, Dartigues JF, Jagger C, Martinez-Lage J, Soininen H, Hofman A 2000, 'Prevalence of dementia and major sub-types in Europe', *Neurology*, 54: 54-59.
- Lucca U, Garri M, Nobili, A 2009, 'Risk of dementia continues to rise in the oldest old: The Monzino 80-plus study', *Alzheimer's & Dementia*, 5: P381.
- Plassman BL, Langa KM, Fischer, GG 2008, 'Prevalence of cognitive impairment without dementia in the United States', *Annals of Internal Medicine*, 148: 427-434.
- Ritchie K, Kildea D 1995, 'Is senile dementia "age-related" or "ageing-related"? Evidence from meta-analyses of dementia prevalence in the oldest-old', *Lancet*, 364: 931-934.
- Wimo A, Prince M 2010, 'Alzheimer's Disease International World Alzheimer Report 2010 The Global Economic Impact of Dementia', *Alzheimer's Disease International*, [http://www.alz.org/documents/national/World\\_Alzheimer\\_Report\\_2010\\_Summary\(1\).pdf](http://www.alz.org/documents/national/World_Alzheimer_Report_2010_Summary(1).pdf), accessed 14 July 2011

**Limitation of our work**  
**General use restriction**

This report is prepared solely for the use of Alzheimer's Australia. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of estimating the prevalence of dementia in Australia. You should not refer to or use our name or the advice for any other purpose.

**Contact us**  
Deloitte Access Economics  
ACN: 49 633 116

Level 1  
9 Sydney Avenue  
Barton ACT 2600  
PO Box 6334  
Kingston ACT 2604 Australia

Tel: +61 2 6175 2000  
Fax: +61 2 6175 2001

[www.deloitte.com/au/economics](http://www.deloitte.com/au/economics)

