



Australian Government

Australian Institute of
Health and Welfare

BULLETIN 110 + NOVEMBER 2012

People with dementia in hospitals in New South Wales 2006–07

Summary

The Hospital Dementia Services Project is an innovative study that uses linked data to explore how hospital-based aged care and dementia services in New South Wales in 2006–07 influenced outcomes for people with dementia.

This bulletin examines the hospital experiences of the 252,700 people aged 50 and over who stayed for at least one night in a New South Wales public hospital in 2006–07. All hospital stays that ended in 2006–07 are included to allow a complete analysis of patients' hospital care, comprising 408,500 multi-day stays and 252,400 same-day stays. Data for this analysis are person-based hospital stay data that allow both patient-level and stay-level analyses of hospital use by people with and without dementia.

Slightly more than 8% of patients (20,800 people) were identified as having dementia. Like the general population, the prevalence of dementia among patients in the study increased with age, with the rate rising from less than 1% of those aged 50–59 to 28% among the very old (90+). Consequently, patients with dementia tended to be older than those without the condition (median age of 83.7 versus 70.7), and were more likely to be female (60% versus 51%). To allow for these demographic differences, comparisons between patients with and without dementia use age-sex standardised estimates where applicable.

Greater use of hospitals

People with dementia had much higher hospitalisation rates than those without dementia: in New South Wales, 26% of people with dementia aged 50 and over had at least one overnight stay in a public hospital ending in 2006–07, compared with 12% of people without dementia. Also, patients with dementia:

- were more likely to have more than one multi-day stay in a year (62% versus 43%)
- had longer multi-day stays (mean of 18.3 days versus 9.1 days), and these stays were more likely to involve either a change in care type or a transfer between hospitals (18% versus 13%).

Different reasons for hospitalisation

Compared with people without dementia, people with dementia were more likely to be admitted because of:

- non-dementia mental and behavioural disorders or conditions of the nervous system (14% versus 5%)
- injury or poisoning (14% versus 11%), particularly head and limb injuries.

Their admission was less likely to be caused by neoplasms (4% versus 10%) or circulatory diseases (13% versus 19%).

Different destinations

People with dementia were less likely than others to return to living in the community on discharge (59% versus 88%), and more likely either to return to living in residential care, to enter residential care on discharge from hospital, or to die in hospital.

Contents

Summary	1
1 Background	3
2 Data	5
3 People in hospital	8
4 Features of hospital stays	12
Appendix tables	27
Acknowledgments	38
Abbreviations	39
Symbols	39
References	40
List of tables	42
List of figures	43
List of boxes	44
Other Hospital Dementia Services publications	44
Glossary	45

1 Background

There is substantial evidence that the hospitalisation of older people can be associated with a range of poor outcomes, including deconditioning and exacerbation of a range of physical conditions (Creditor 1993; Covinsky et al. 2003). Older patients are also more likely than younger patients to experience preventable adverse events (Thomas & Brennan 2000). A number of studies have found an association between cognitive impairment and functional decline during hospitalisation (Sager et al. 1996; McCusker et al. 2002). Also, patients with dementia are more likely to experience hospital-related (nosocomial) infections and treatment complications (Torian et al. 1992; Foreman & Gardner 2005), with patient-related adverse events in hospital also being associated with cognitive impairment and delirium (Watkin et al. 2012). Hospitalisation can entail multiple bed moves, which may cause distress and exacerbate confusion, agitation, and behavioural problems (Cunningham 2006). Large and unfamiliar hospital environments are associated with patient disorientation and anxiety (Cunningham 2006; Fleming et al. 2003), while the organisational focus on efficient, cure-oriented treatment often means the particular needs of people with dementia are not well met (Cunningham 2006; DADHC & NSW Health 2002).

The mean length of stay (LOS) for all Australian hospital episodes has previously been estimated at 8.6 days, compared with 19.6 days for episodes with any diagnosis of dementia and 30.1 days with a principal diagnosis of dementia (AIHW 2007:186). The relatively high casemix complexity of patients with dementia contributes to longer hospital stays and this has an impact on patient physical and mental state (King et al. 2006; Nichol et al. 2000; ACEMA 2002).

The Hospital Dementia Services (HDS) Project is an innovative study that explores how hospital-based aged care and dementia services influenced outcomes for people with dementia who used a public hospital in New South Wales in 2006–07. It is a mixed methods study involving:

- linking existing administrative data sets to create a data set containing information on the paths patients take in hospitals and into residential aged care
- a survey of all New South Wales public hospitals about hospital-based aged care and dementia-specific services
- follow-up site visits in selected locations to obtain qualitative data on operational aspects of different hospital-based service models for patients with dementia (Box 1.1; also see AIHW 2010; AIHW 2011 for more details).

Box 1.1: HDS Project

The HDS Project is a mixed methods study that explores how hospital-based aged care and dementia services influence outcomes for people with dementia who were admitted to a public hospital in New South Wales. It is a 3-year project funded through the National Health and Medical Research Council, and involves a team of researchers from the Australian Institute of Health and Welfare (AIHW), University of Canberra, and University of New South Wales.

Objectives

The overarching objective is to inform health practitioners, health and aged care policy makers and planners, and consumers about the influence of system-level factors on care outcomes for hospital patients with dementia. Outcomes of interest include hospital admission rates, length of stay in hospital, and care outcomes such as falls, complications, and discharge rates to residential aged care.

Project design

The project consists of four streams.

Stream 1 describes hospital stay and patient accommodation outcomes for patients with dementia, and compares them with those of other older public hospital patients. This is based on analysis of linked data from existing administrative data sets (New South Wales hospital, residential aged care, and Aged Care Assessment Program data); analyses focus on older patients (50+) discharged from New South Wales public hospitals in 2006–07. Data are linked according to procedures approved by relevant ethics committees and follows the protocol developed and used extensively at the AIHW (AIHW 2006).

Stream 2 describes aged care and dementia-specific services in New South Wales in 2006–07 through a survey of all public hospitals and follow-up site visits in selected locations (see AIHW 2010 for forms). This stream also involves the collection of information to describe aged care programs at the regional level.

In **Stream 3**, the materials collected in Streams 1 and 2 are integrated to explore system-level outcomes for people with dementia who are admitted to hospital and the factors that influence the outcomes.

Throughout the project the research team is disseminating and discussing study progress and results with policy advisers, health practitioners and service planners through seminars and conference presentations, as well as publications (**Stream 4**).

Expert panel and partners

The research is guided and informed by an expert panel comprising of representatives of dementia service consumers, aged care providers, health service planning staff, and key researchers. Project partners and collaborators are New South Wales Health, Alzheimer's Australia, Alzheimer's New South Wales, the Aged and Community Services Association of New South Wales and the Australian Capital Territory, the Benevolent Society, the University of Queensland, and La Trobe University.

Source: AIHW 2010; see also AIHW 2011.

This bulletin examines completed hospital stay data for people with and without dementia. Hospital data extracted for this project means patients' stay histories within and across hospitals can be examined. This enables the hospital experiences of people with and without dementia to be compared. Analyses use both patient-level and stay-level data. Aspects examined include hospitalisation rates, age profiles, length of stay, cause of admission, principal procedure in hospital, destination on discharge from hospital, and re-admission. Because the age and sex profiles of those hospitalised with and without dementia differ, where appropriate, age-sex standardisation has been used to enable comparisons.

2 Data

Hospital use data for the HDS Project were extracted from the New South Wales Admitted Patient Data Collection (APDC) and included all hospital episodes ending between 1 July 2005 and 30 June 2007. The data extract contained a unique patient identifier derived by the New South Wales Centre for Health Record Linkage (CHeReL 2009). Using this identifier, data from the full 2 years were used to identify complete hospital stays ending in 2006–07 and whether the patient had dementia.

2.1 Scope of hospital data

People

The analysis population is people aged 50 and over by 1 July 2006 who had a completed hospital stay in 2006–07 that included at least one night in a New South Wales public hospital. Just over 252,700 people—termed HDS patients—on the APDC data set met these conditions.

Hospital stays

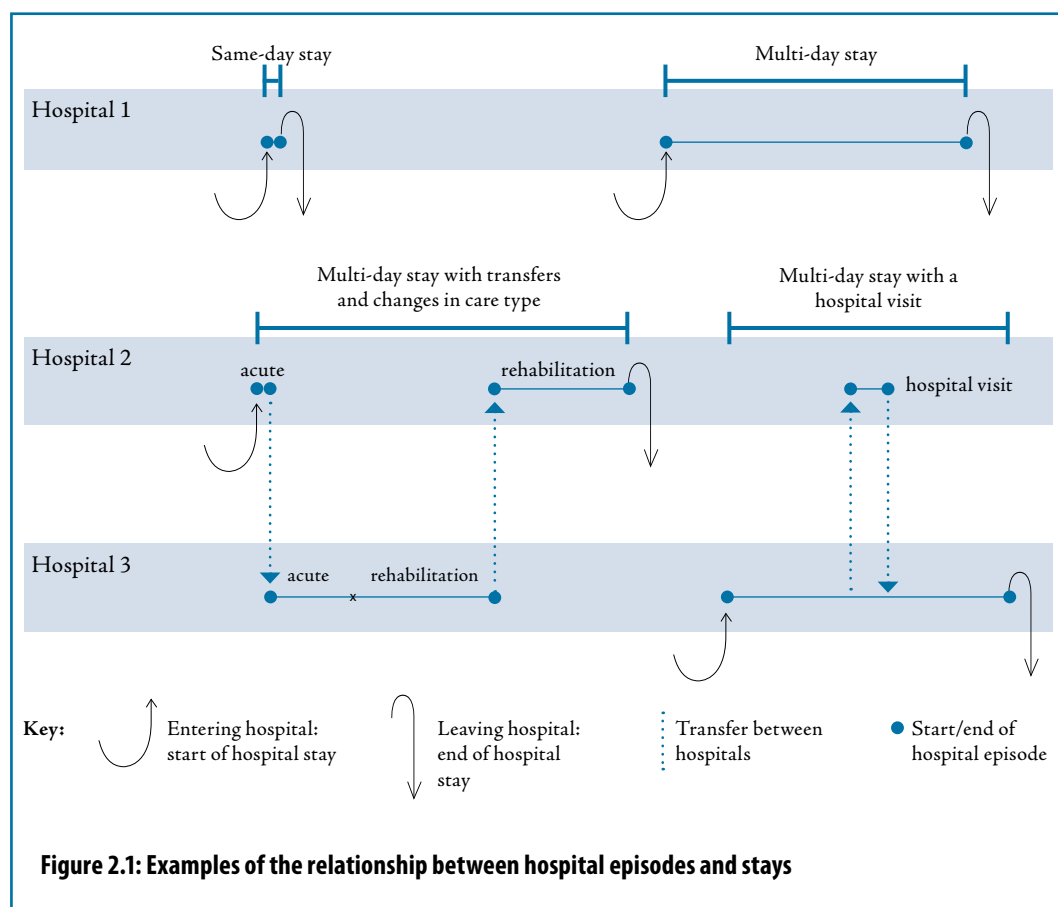
The analysis of hospital stays included all stays for HDS patients that ended in 2006–07. Stays in both public and private hospitals in New South Wales were included to allow a complete analysis of the hospital experience of HDS patients, and these stays may or may not have included a night in hospital.

For this analysis, a hospital stay is defined as the period from admission into the hospital system to discharge from the system, or death in hospital. It can:

- start and end on the same day (a same-day stay), or include at least one night in hospital (a multi-day stay)
- include one or more transfers between hospitals (that is, a multi-episode stay)
- include changes in care type within a hospital (that is, a multi-episode stay)
- include a visit to one hospital while admitted to another.

This approach is different from previous analyses of hospital care that have generally been episode based (AIHW: Karmel et al. 2007; AIHW 2008).

Examples of various types of stays and visits are illustrated in Figure 2.1. The derivation of completed hospital stay data from the New South Wales APDC episode-based extract is described in AIHW 2012b. Overall, HDS patients had 660,962 completed stays ending in 2006–07, comprising 408,539 multi-day stays and 252,423 same-day stays. Just 1.2% (4,991) of multi-day stays included a visit to another hospital, with an average of 1.4 visits per stay with a visit (a total of 6,887 hospital visits).



Because HDS patients must have at least one multi-day stay, the pattern of same-day and multi-day stays for the study cohort is different from that for all New South Wales patients. Across all New South Wales hospital patients aged 50 and over in 2006–07, same-day episodes accounted for half of the hospital episodes, compared with 38% for HDS patients. Therefore, most of the analysis of hospital stays focuses on multi-day stays for HDS patients.

People with dementia

The New South Wales APDC can record up to 55 diagnoses as contributing to the care provided during an episode in hospital. For the HDS Project, patients were identified as having dementia if it was recorded for any hospital episode (private or public) ending between 1 July 2005 and 30 June 2007. Diagnoses in the APDC data are coded using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD–10–AM) (NCCH 2000). The codes used to identify people with dementia are in Table A1.

It is likely that dementia is underestimated in the hospital patient population due to a combination of poor recognition by medical staff, deficiencies in medical records, and because the condition, like other pre-existing conditions, may not be recorded on the hospital admission data if it does not affect the care provided or resource use during the hospital stay. On the other hand, for the HDS Project, patients were identified as having dementia if a dementia condition was reported for any of their New South Wales hospital episodes ending between 1 July 2005 and 30 June 2007. Consequently, it is possible that, in this study, people with dementia who had more or longer stays were more likely to have been identified as having the condition. These two factors have opposing effects. It is also possible that some cases of delirium were misdiagnosed as dementia. Nevertheless, because of the large scale of the study, it is expected that patterns seen in hospital use for HDS patients with and without dementia are robust.

2.2 Statistical significance and standardisation of results

Age-sex standardisation has been used where appropriate to enable comparisons between people with and without dementia. In general, 5-year age groups have been used for standardisation, except for the youngest (50–59) and oldest groups (90+). Where the classification of interest may have small numbers in some categories, broader age groups have been used; this is indicated in the table notes. Percentages and means have been directly standardised using the age-sex distribution of all patients or stays (as relevant) contributing to a table.

The significance of differences between results for people with and without dementia across age groups has been examined using standardised figures. Because of the large number of comparisons being made, only differences with high statistical significance are discussed (> 99.9%).

3 People in hospital

The median age of HDS patients was 72.1, and just over half were women (Table A2). Female patients tended to be older than male patients.

Patients with dementia tended to be older than those without the condition (median age of 83.7 versus 70.7). The distribution pattern across age groups for all male and female patients was noticeably different, and also for those with and without dementia. These differences in age-sex profiles emphasise the importance of standardisation when comparing the hospital experience of people with and without dementia. Consequently, the discussion focuses on standardised figures, where relevant; both standardised and unstandardised numbers are presented in tables as the latter show the situation in hospitals.

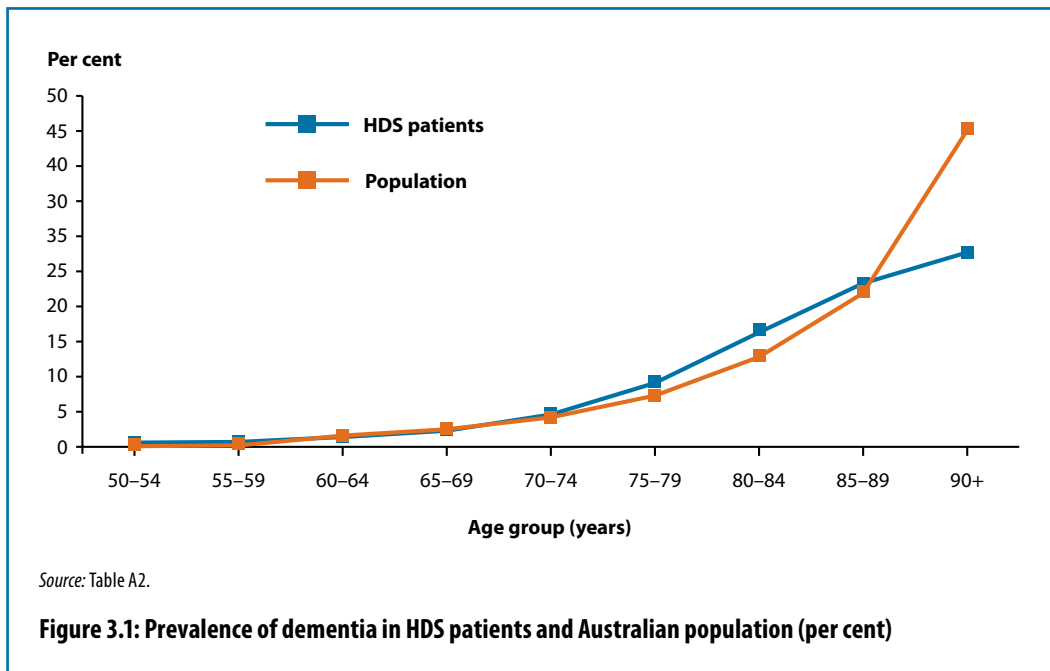
3.1 Dementia prevalence

Just over 8% of HDS patients (20,800 people) were identified as having dementia (Table A2). Like the general population, the prevalence of dementia among HDS patients increased with age, from less than 1% for patients aged 50–59 to 28% among the very old (90+). As would be expected for a group of people using health services, the estimated prevalence of dementia among patients for both sexes was generally higher than that for the general population, except for patients aged 90 and over (Figure 3.1).

For the oldest age group (90+) the estimated prevalence in the hospital population was well below population prevalence estimates. There are three possible causes for this difference: failure to identify dementia, reporting practices of diagnoses, and aversion to admit very old people with dementia.

Dementia may be less likely to be identified when present in very old patients due to high levels of frailty. Second, even when identified, it may be considered less important than other health conditions in determining hospital treatment among this group, especially among those with less severe dementia. Consequently, dementia may be less likely to be reported as a condition affecting hospital care. That other health conditions were likely to be determining hospital treatment in this age group is supported by the length of stay analysis in Section 4.6.

Finally, very old people with dementia may be less likely to be admitted into hospital. One reason could be that for some old frail people with severe dementia, there may have been a decision not to seek active treatment that could potentially be traumatic for the person for little perceived gain. Alternatively, medical practitioners may exclude very old people with dementia from some procedures that may be provided to others without dementia.



3.2 Use of hospitals

By comparing the HDS patient age-sex profile with estimates for the population of New South Wales, we can estimate the proportion of the population that used a public hospital in 2006–07. Overall, it is estimated that 12% of people aged 50 and over living in New South Wales in 2006 had a multi-day stay in a New South Wales public hospital that ended in 2006–07 (Table 3.1). As expected from general hospital use statistics (AIHW 2008), older people were much more likely than younger people to have been in hospital (6% of 50–54 year olds versus 34% of people 90+).

People with dementia were more likely to have spent time in a New South Wales public hospital than other people—26% of those aged 50 and over with dementia had a multi-day stay, compared with 12% of people without dementia. However, this pattern varied with age. Young people with dementia (aged 50–59) were much more likely to be hospitalised than their counterparts without dementia; on the other hand, hospitalisation rates for people with dementia were slightly lower than those for people without dementia for people aged 65 to 69, mainly due to lower hospitalisation rates for women with dementia. (Figure 3.2, Table 3.1). For people aged 70 to 89, those with dementia were again more likely to have a period in hospital; however, among the very old (90+), the HDS estimates suggest that people with dementia had lower hospitalisation rates than people without dementia. This last result reflects the relatively low rate of identification of dementia among very old hospital patients noted in the previous section, and so may underestimate the use of hospitals by very old people with dementia; estimates for people aged 85–90 may be similarly affected. Note that the overall estimate of hospital use by people with dementia presented here is different from the HDS-based estimate published in Draper et al. 2011, due to both a difference in scope and the use of updated estimates of population prevalence.

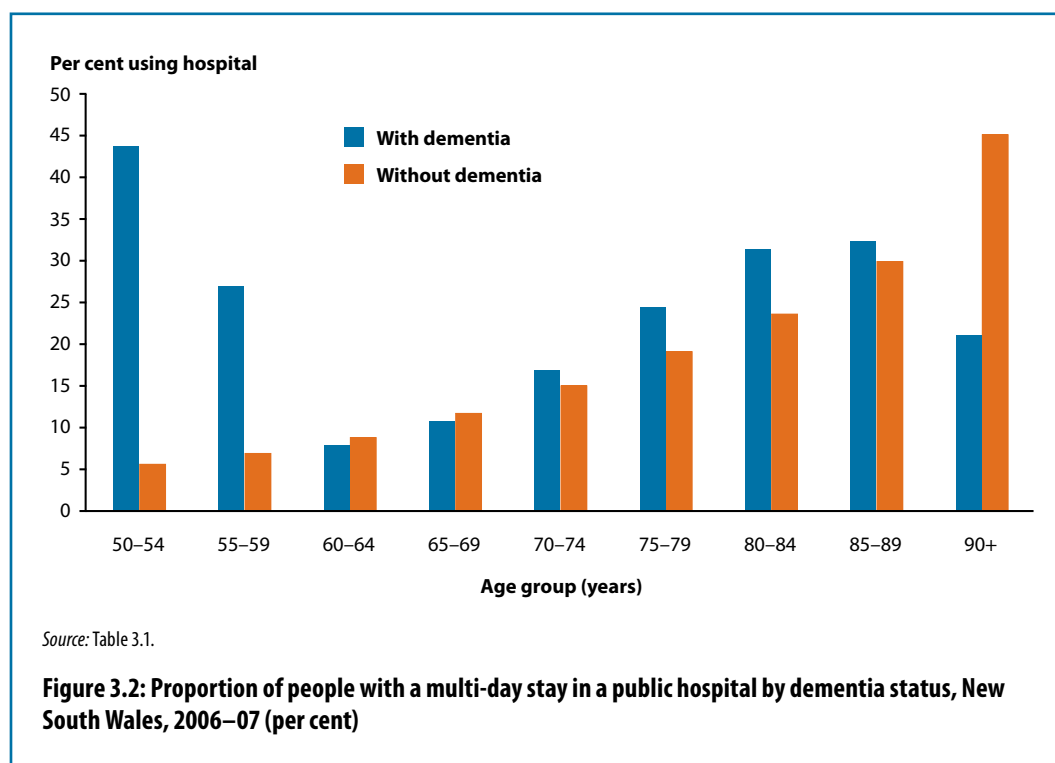


Table 3.1: Patients: people aged 50+ with at least one night in a public hospital in New South Wales in 2006–07, by age and dementia (per cent)

Age group	With dementia			Without dementia			All		
	Male	Female	All	Male	Female	All	Male	Female	All
50–54	40.6	51.9	43.7	6.0	5.3	5.6	6.0	5.4	5.7
55–59	22.6	36.3	26.9	7.4	6.4	6.9	7.5	6.4	6.9
60–64	9.9	5.9	7.9	9.6	8.0	8.8	9.6	7.9	8.8
65–69	12.7	9.0	10.7	12.8	10.6	11.7	12.8	10.6	11.6
70–74	19.5	14.5	16.8	16.4	13.7	15.0	16.6	13.7	15.1
75–79	27.6	22.0	24.4	20.7	17.8	19.1	21.2	18.1	19.5
80–84	35.0	29.4	31.4	24.8	22.7	23.6	26.0	23.6	24.6
85–89	36.5	30.5	32.3	30.8	29.4	29.9	31.9	29.6	30.4
90+	25.5	19.8	21.1	45.1	45.1	45.1	37.8	33.0	34.3
Total	26.4	22.6	24.0	11.8	11.2	11.5	12.3	11.8	12.0
Standardised (per cent)	24.4	26.9	25.7	12.2	11.9	12.1	..	..	..
HDS patients (number)	8,304	12,489	20,793	114,769	117,157	231,926	123,073	129,646	252,719
NSW population (number)	31,429	55,147	86,575	969,962	1,047,143	2,017,106	1,001,391	1,102,290	2,103,681

Note: Population numbers are estimated resident population at 30 June 2006 for New South Wales from ABS Australian demographic statistics series (for example, ABS 2008). Population with and without dementia was estimated using age-sex dementia prevalence rates reported in AIHW 2012a. Hospitalisation rate uses number of HDS patients (with/out dementia) divided by the estimated population for New South Wales. HDS patients are assumed to be residents of New South Wales.

3.3 Types of dementia

The type of dementia could be determined from the hospital data for less than half (42%) of patients with dementia (Table 3.2). Younger people were more likely to have their dementia type specified, with 75% of those aged 50–64 having a specifically identified form. Among people with a specified dementia type, Alzheimer disease was the most common type reported at 39%, compared with 17% for Vascular dementia—the second most common type. However, people aged 50–64 were less likely than older people to have a diagnosis of either Alzheimer disease or Vascular dementia, and much more likely to have Other degenerative dementia or Other dementia.

Table 3.2: Patients with dementia: type of dementia by age, HDS patients, 2006–07 (per cent)

Type ^(a)	50–64	65–74	75–84	85+	Total	Total
All patients identified with dementia (type specified and unspecified)						
			Per cent			
Alzheimer disease	11.1	16.2	18.4	14.4	16.2	3,375
Vascular dementia	7.9	9.8	8.0	5.5	7.1	1,483
Parkinson and/or Lewy bodies	4.6	8.5	6.8	3.4	5.4	1,132
Dementia with delirium	1.7	2.1	3.5	4.3	3.6	752
Other degenerative dementia	40.7	10.6	4.6	3.1	5.9	1,232
Other dementia	5.0	1.2	0.7	0.3	0.7	147
Mixed diagnoses	3.8	4.8	3.3	1.8	2.8	588
Unspecified	25.2	46.9	54.7	67.3	58.1	12,084
Total	100.0	100.0	100.0	100.0	100.0	20,793
Total (number)	759	2,201	9,062	8,771	20,793	..
Patients with type of dementia specified at least once						
Alzheimer disease	14.8	30.5	40.7	44.1	38.8	3,375
Vascular dementia	10.6	18.4	17.6	17.0	17.0	1,483
Parkinson and/or Lewy bodies	6.2	15.9	15.0	10.3	13.0	1,132
Dementia with delirium	2.3	3.9	7.8	13.1	8.6	752
Other degenerative dementia	54.4	19.9	10.2	9.4	14.1	1,232
Other dementia	6.7	2.3	1.4	0.8	1.7	147
Mixed diagnoses	5.1	9.0	7.3	5.4	6.8	588
Total	100.0	100.0	100.0	100.0	100.0	8,709
Total (number specified)	568	1,169	4,107	2,865	8,709	..

(a) Type of dementia was derived from all diagnoses reported for a patient in any hospital episode (private or public) ending between 1 July 2005 and 30 June 2007. See Table A1 for dementia type definitions.

Note: Percentages may not sum to 100% due to rounding.

3.4 Number of stays per person

Two-thirds of all HDS patients (66%) had just one multi-day hospital stay ending in 2006–07; that is, their stay with a night in a public hospital leading to inclusion in the study (Table A3); just 6% had four or more. In addition, one-quarter had at least one same-day stay in a hospital during the year, with the majority (69%) having just the one stay. However, the high average number of same-day stays among those with such a stay (4.1) indicates that some HDS patients had many same-day stays.

Considering the 12 months before the end of a patient's final multi-day stay in 2006–07, people with dementia were more likely than others to have had more than one multi-day stay ending in the 12 months (62% versus 43%) (Table A4). The disparity between people with and without dementia was much more marked among younger people. This variation is reflected in the average number of stays per person: the standardised mean number of multi-day stays over 12 months was 2.5 for people with dementia, compared with 1.9 for people without dementia.

HDS patients with dementia were less likely to have a same-day stay in 2006–07 than those without the condition (21% versus 25%) (Table A3). However, among those with a same-day stay, there was no statistically significant difference between patients with and without dementia for either the proportion of people with only one stay or the average number of same-day stays. This suggests that among people who had same-day stays, the use patterns for such stays were similar for the two groups.

4 Features of hospital stays

Overall, HDS patients completed 408,500 multi-day stays and 252,400 same-day stays in 2006–07. As anticipated from the preceding analysis, a relatively high proportion of stays for people with dementia was for multi-day stays (71% versus 61% for people without dementia) (Table A5).

Table 4.1: Multi-day hospital stays, by number of episodes and transfers and dementia status, for HDS patients, 2006–07 (per cent)

Number	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
Episodes^(b) in the stay					
1	80.1	87.0	86.4	*81.7	86.7
2	14.5	10.2	10.6	*13.3	10.4
3+	5.3	2.8	3.0	*5.0	2.9
Total	100.0	100.0	100.0	100.0	100.0
Existence of hospital transfer					
Without transfer	86.7	89.3	89.1	*87.1	89.2
With transfer	13.3	10.7	10.9	*12.9	10.8
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,184	370,355	408,539	..	..
Hospital-to-hospital transfers in the stay, for stays with more than one episode					
0	33.2	17.4	19.6	*29.8	18.3
1	52.3	67.1	65.1	*53.9	66.3
2	10.8	12.3	12.1	12.3	12.2
3+	3.7	3.3	3.3	4.0	3.3
Total	100.0	100.0	100.0	100.0	100.0
Total number	7,581	47,973	55,554	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

(b) A hospital episode is a period in hospital of a particular care type in a particular hospital. A hospital stay is the period from admission into the hospital system to discharge from the system, or death in hospital.

Note: Percentages may not sum to 100% due to rounding.

Fourteen per cent of multi-day stays included a change in care type and/or a transfer between hospitals; four-fifths of these (11% of multi-day stays) included a transfer between hospitals (Table 4.1). People with dementia were more likely than others to have stays with such changes: 18% of stays for patients with dementia included a change in care type or hospital transfer compared with 13% for other patients. The majority of these changes were due to within-hospital changes in care type. However, dementia patients were a little more likely than others to be transferred between hospitals (13% versus 11%). These findings are important given that multiple bed moves may cause distress and exacerbate cognition-based problems for people with dementia (Cunningham 2006).

4.1 Hospital sector

The bulk of the multi-day stays for the HDS cohort (90%) were entirely within the public sector, which is not surprising given the scope of the study (Table A6). Just less than 4% of multi-day stays included time in both public and private hospitals. People with dementia were more likely than others to be treated solely in a public hospital (94% versus 90% of multi-day stays were within public hospitals).

4.2 Region

In 2006, health service provision in New South Wales was grouped regionally into eight Area Health Services (Figure 4.1). There was great variation in the number of HDS multi-day hospital stays provided across these regions, ranging from 23,000 in 2006–07 in Greater Western to 79,000 in South Eastern Sydney/Illawarra (Table 4.2).

The prevalence of patients with dementia in hospital stays varied across the regions, ranging from 8% to 10% (standardised to allow for different age/sex profiles of patients), compared with 9% across all multi-day stays.

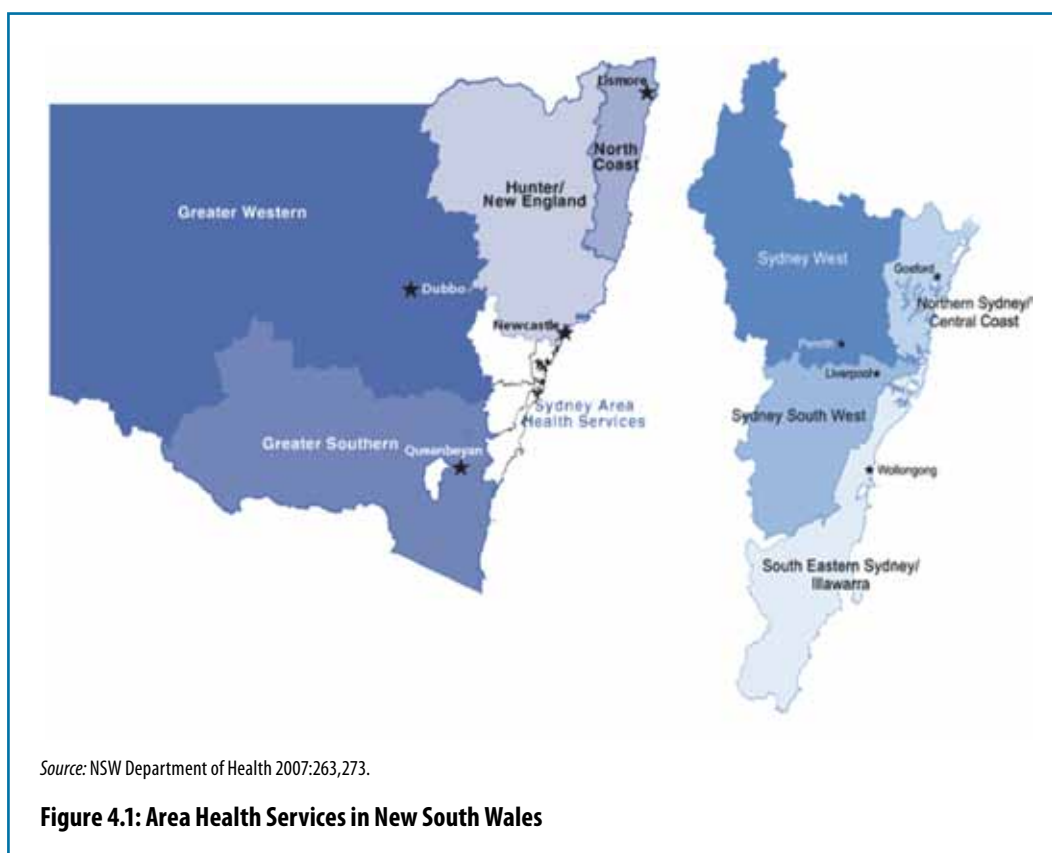


Table 4.2: Multi-day hospital stays, by Area Health Service of admission and dementia status, for HDS patients 2006–07 (per cent)

Area Health Service of admitting hospital	Dementia status			Number	Dementia prevalence	
	With dementia	Without dementia	Total		Observed	Standardised ^(a)
Greater Southern	7.0	7.7	7.6	31,145	8.6	*8.3
Greater Western	4.5	5.8	5.6	23,032	7.4	*7.9
Hunter/New England	13.7	13.4	13.4	54,807	9.5	*9.8
North Coast	8.6	9.7	9.6	39,052	8.4	*8.3
Northern Sydney/Central Coast	17.3	14.2	14.5	59,302	11.1	9.4
South Eastern Sydney/Illawarra	19.4	19.3	19.3	78,742	9.4	9.1
Sydney South West	18.1	17.7	17.7	72,412	9.5	*10.3
Sydney West	11.4	12.3	12.2	49,833	8.7	*9.9
Total	100.0	100.0	100.0	..	9.3	..
Total number	38,097	370,228	408,325	408,325	..	..

* Significantly different at .001 level when comparing with the state average of 9.3%.

(a) Age-sex standardised to enable comparisons across regions. The standard distribution was derived from all HDS stays.

Note: 214 admissions had invalid data for derivation of Area Health Service. Percentages may not sum to 100% due to rounding.

4.3 Care type

Few multi-day stays (3% overall) started with sub-acute care such as rehabilitation or palliative care; however, patients with dementia were more likely to be admitted for this type of care than others. By the end of their stay, 8% of patients were receiving sub-acute care because of changes in care type over the course of the hospital stay, and again people with dementia were more likely to be the recipients (13%) (Table 4.3). This reflects the relatively high proportion of stays for dementia patients that had more than one episode of care.

Table 4.3: Multi-day hospital stays, by care type on admission and on discharge, by dementia status, for HDS patients 2006–07

Care type	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
On admission					
Acute care	96.0	97.4	97.3	95.4	*97.3
Sub-acute ^(b)	4.0	2.6	2.7	4.6	2.7
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,095	370,210	408,305	..	..
On discharge					
Acute care	85.5	92.8	92.1	86.6	*92.5
Sub-acute	14.5	7.2	7.9	13.4	7.5
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,076	370,171	408,247	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

(b) Sub-acute care includes rehabilitation, palliative care, geriatric evaluation and management, psychogeriatric care, and maintenance care.

Note: Table excludes cases with missing care type (234 on admission, 292 on discharge).

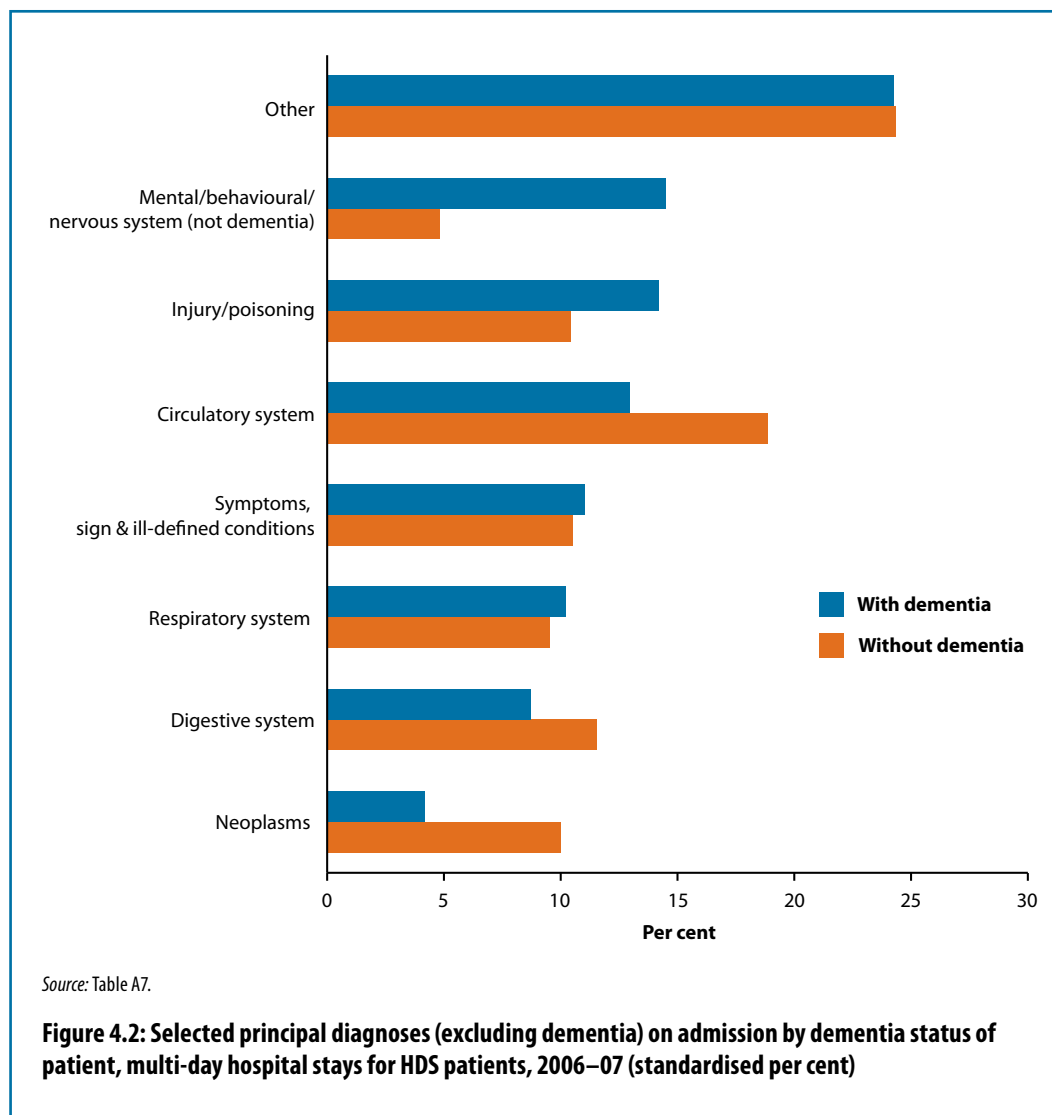
4.4 Principal diagnosis

The principal diagnosis for a hospital episode is the one chiefly responsible for the hospitalisation. Up to 54 other diagnoses could also potentially be recorded per episode of care on the APDC—a maximum of 48 was observed. Dementia was rarely reported as principal diagnosis, being recorded for less than 1% of multi-day stays for HDS patients (Table A7). Even for patients with dementia, dementia was the principal diagnosis for only 6% of multi-day stays.

People with and without dementia had different reasons for being admitted to hospital (Figure 4.2, Table A7). Diseases of the circulatory system were the most common principal diagnoses for people without dementia (19%), with a number of other health conditions accounting for about 10% of admissions each (neoplasms, diseases of the respiratory and digestive systems, injuries and poisonings, and ill-defined/unidentified conditions). In contrast, for people with dementia, injuries and poisonings were the most common reason for admission to hospital (14%, excluding stays with dementia as the principal diagnosis) with circulatory system diseases the second most common (13%). Also, together non-dementia mental and nervous system disorders accounted for almost 14% of admissions for people with dementia compared with less than 5% for people without dementia. As was the case for people without dementia, respiratory system diseases and ill-defined/unidentified conditions were the cause of about 10% of admissions each, but neoplasms were less likely (4% of admissions for people with dementia).

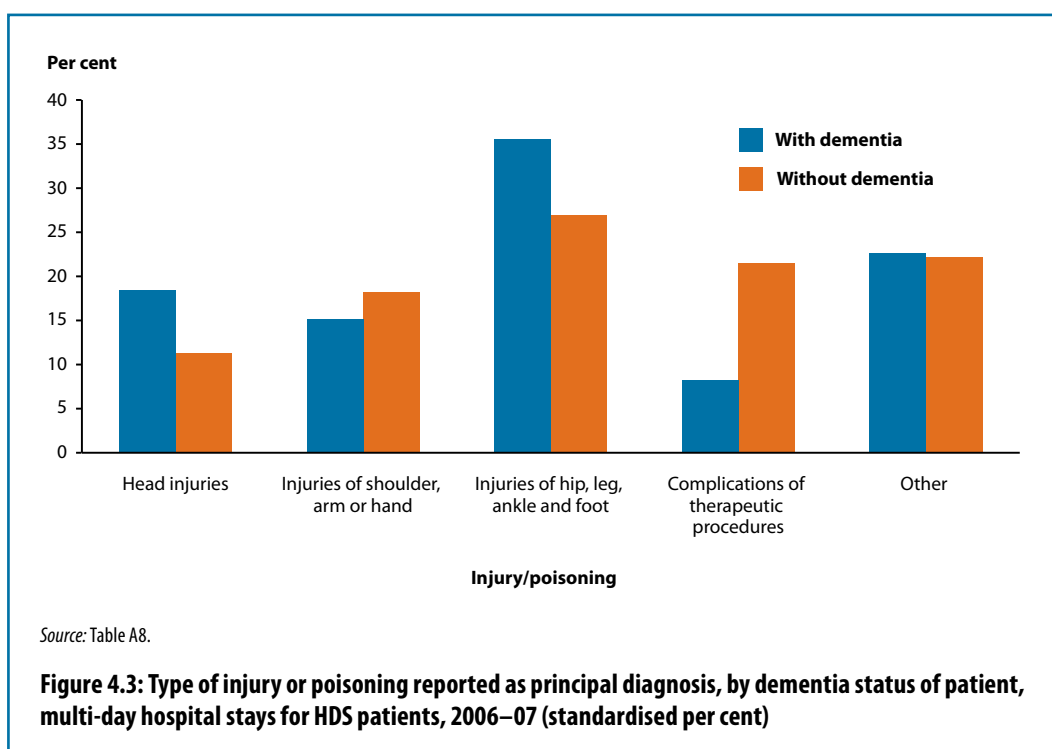
Among the less common principal diagnoses (included in the 'Other' group in Figure 4.2), people with dementia were more likely than others to have a principal diagnosis of infection, an endocrine condition, or a factor influencing health status. On the other hand, people without dementia were more likely to have a principal diagnosis relating to blood disorders, eye or ear conditions, or to the musculoskeletal system.

Although relatively uncommon as a principal diagnosis, delirium (not reported as superimposed on dementia) was much more likely to be reported as the principal diagnosis for people with dementia (1%) than for people without dementia (0.2%). Moreover, two-fifths of patients reported with a principal diagnosis of delirium not reported as superimposed on dementia had dementia. This relationship between dementia and delirium has been noted in other analyses of HDS data, with many people identified as having delirium also having dementia, especially among very old patients (Draper et al. 2011).



Hospitalisations due to injury may be avoidable through injury prevention practices, and this analysis suggests that this could be particularly important for people with dementia. Looking more closely at injuries, people with dementia had a different injury profile leading to hospitalisation than people without dementia (Table A8, Figure 4.3). Overall, people with dementia were more likely than others to be hospitalised due to head or limb injuries and less likely because of medical complications.

Among people hospitalised because of fractures, hip and leg injuries dominated, but were more likely for people with dementia. For other injuries, head injuries were the most common among those with dementia, while medical complications were pre-eminent among people without dementia.



4.5 Principal procedure

When coding the procedures provided to a patient in an episode of care, a priority system is used by APDC coders to establish the order in which procedures are recorded in the data set. This priority is based on relevancy to principal diagnosis and therapeutic nature, as follows:

Priority 1—Procedure performed for treatment of principal diagnosis.

Priority 2—Procedure performed for treatment of additional diagnosis.

Priority 3—Diagnostic or exploratory procedure related to principal diagnosis.

Priority 4—Diagnostic or exploratory procedure related to additional diagnosis.

In addition, surgical procedures are coded higher than non-surgical procedures. All significant procedures are coded where they are either surgical in nature, carry a procedural risk, carry an anaesthetic risk, or require special facilities or equipment, or specialised training. The principal procedure is the procedure recorded as the first one on the APDC for an episode of care (NCCH 2010: standard 0016).

An episode of care may not always include a procedure as defined above; for example, in an admission for observation after a health episode (such as a fall or chest pain), or where multiple disorders complicate diagnosis and treatment. For both people with and without dementia, about one-quarter of multi-day hospital stays for HDS patients did not have any procedures reported against the admitting episode (Table 4.4).

In multi-day stays with a reported principal procedure, people with dementia were much more likely than others to receive either allied health or imaging services as their principal procedure (about two-thirds of stays combined, compared with two-fifths). Further, two-thirds of the imaging services for people with dementia were computerised tomography (CT scan) of the brain, while less than half of those for people without dementia were CT brain scans.

Other principal procedures reported for a reasonable proportion of patient stays included those relating to the cardiovascular system (8%), digestive system (12%), and musculoskeletal system (10%). These procedures were less likely to have been performed for patients with dementia because of the dominance of allied health and imaging services. Nevertheless, while overall procedures of the musculoskeletal system were more common among people without dementia, procedures of the pelvis or hip were more common in stays for people with dementia.

Physiotherapy was the most common allied health service provided (51% of stays with a principal procedure in allied health) (Figure 4.4, Table A9). Among stays that included use of allied health, while often provided, physiotherapy was less common among patients with dementia. In contrast, social work and speech pathology were more commonly provided as the principal allied health procedure for patients with dementia compared with those without the condition. Procedures provided to similar proportions of patients with and without dementia included dietetics (9% of stays with an allied health principal procedure) and occupational therapy (10%).

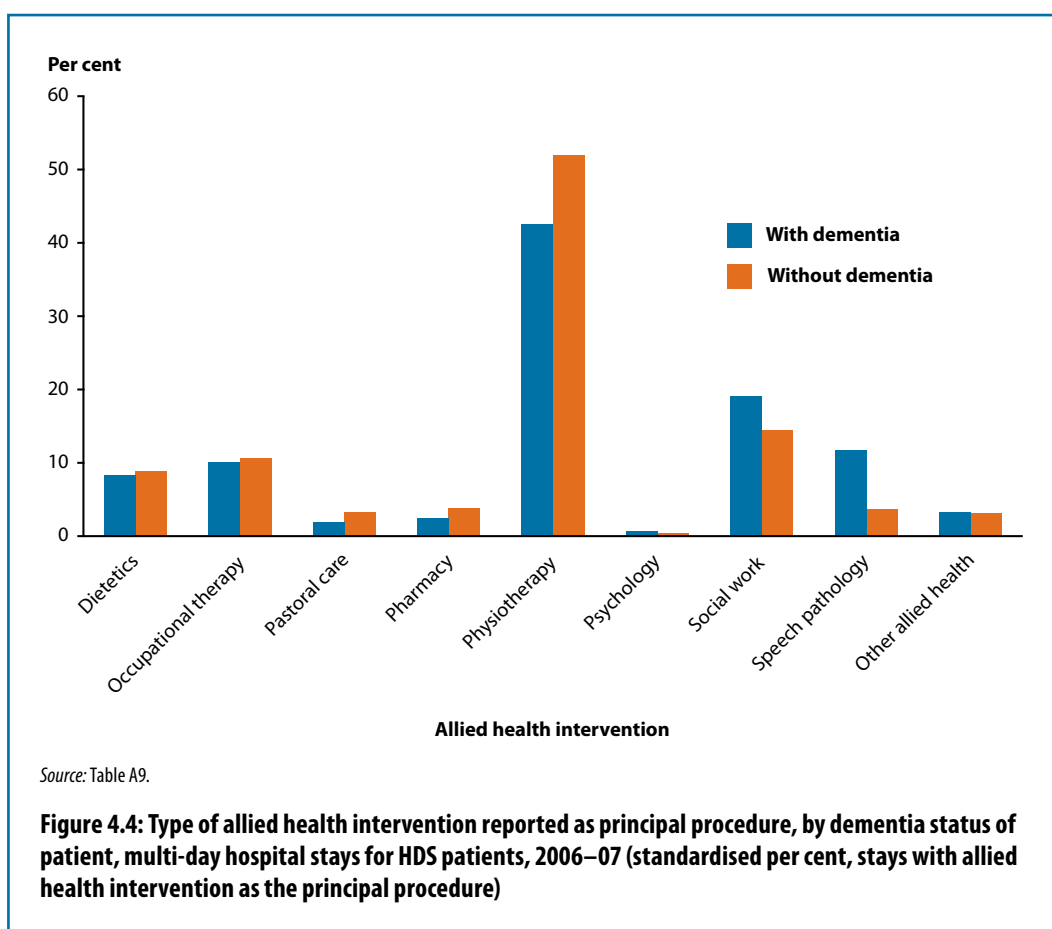


Table 4.4: Multi-day hospital stays, principal procedure after admission by dementia status, for HDS patients, 2006–07

Principal procedure (ICD-10-AM blocks)	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
With a procedure reported					
Procedures on nervous system (1–86)	0.8	1.7	1.6	1.5	1.7
Procedures on endocrine system (110–129)	—	0.5	0.4	0.1	*0.5
Procedures on eye and adnexa (160–256)	0.4	1.2	1.1	0.3	*1.2
Procedures on ear and mastoid process (300–333)	—	0.2	0.1	—	*0.2
Procedures on nose, mouth and pharynx (370–422)	0.2	0.7	0.7	0.3	*0.7
Dental services (450–490)	0.1	0.1	0.1	0.1	0.1
Procedures on respiratory system (520–569)	1.2	2.5	2.4	1.8	2.5
Procedures on cardiovascular system (600–767)	2.2	9.0	8.3	2.7	*8.7
Procedures on blood and blood-forming organs (800–817)	0.2	0.6	0.6	0.2	*0.6
Procedures on digestive system (850–1011)	5.4	13.1	12.3	6.6	*12.8
Procedures on urinary system (1040–1129)	2.2	3.6	3.4	2.7	*3.5
Procedures on male genital organs (1160–1203)	0.4	1.6	1.5	0.5	*1.6
Gynaecological procedures (1240–1299)	0.2	1.6	1.4	0.3	*1.5
Procedures on musculoskeletal system (1360–1579)	8.2	9.6	9.5	6.7	*9.5
Procedures on pelvis/hip (1476–1493)	5.6	2.5	2.8	3.7	*2.6
Dermatological and plastic procedures (1600–1718)	2.2	2.6	2.6	1.8	*2.7
Procedures on breast (1740–1759)	0.1	0.8	0.7	0.2	*0.8
Chemotherapeutic and radiation oncology procedures (1786–1799)	—	0.3	0.2	—	*0.3
Non-invasive, cognitive and other interventions, nec (1820–1922, not 1916)	8.4	8.2	8.2	8.4	8.2
Allied health (1916)	35.0	20.7	22.1	33.1	*21.5
Imaging services (1940–2016)	32.8	21.5	22.6	32.8	*21.8
Computerised tomography of brain (1952–1957)	23.1	8.3	9.8	23.2	*8.6
Total	100.0	100.0	100.0	100.0	100.0
Total number	29,281	266,776	296,057	..	..
All					
With procedure	76.8	72.3	72.7	75.8	72.5
None given	23.2	27.7	27.3	24.2	27.5
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,121	368,842	406,963	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age–sex standardised. The standard distribution was derived from all HDS stays. Standardisation used 10-year age groups (except for the 50–64 and 85+ groups).

Notes

1. Table is based on first episode in a stay and excludes cases with missing principal procedure (1,576).
2. Percentages may not sum to 100% due to rounding.

nec not elsewhere classified.

4.6 Elapsed length of stay

The elapsed length of a hospital stay is the number of days between the dates of admission into, and discharge from, the hospital system. This is different from the ‘bed days’ measure used in analyses based on hospital episodes (AIHW 2008) as all changes in care type and transfers between hospitals are combined and no adjustment is made for absences on hospital leave or hospital visits.

On average, people with dementia had longer stays than people without dementia. The mean elapsed time in hospital—or elapsed length of stay (ELOS)—for stays for people with dementia was twice that for people without dementia: 18.3 compared with 9.1 days. More than half of all multi-day stays for people with dementia lasted at least 1 week, compared with just over one-third for people without dementia (Table 4.5). The mean and median ELOS presented here for people with dementia are shorter than earlier estimates of bed days based on hospital episodes (AIHW 2007:186). This is despite amalgamation of transfers. The reason is that all stays for people with dementia are included in the calculations, and not just those which included a diagnosis of dementia (see AIHW 2012b for examination of this issue).

Table 4.5: Multi-day hospital stays, by elapsed time in hospital and dementia status, for HDS patients, 2006–07 (per cent)

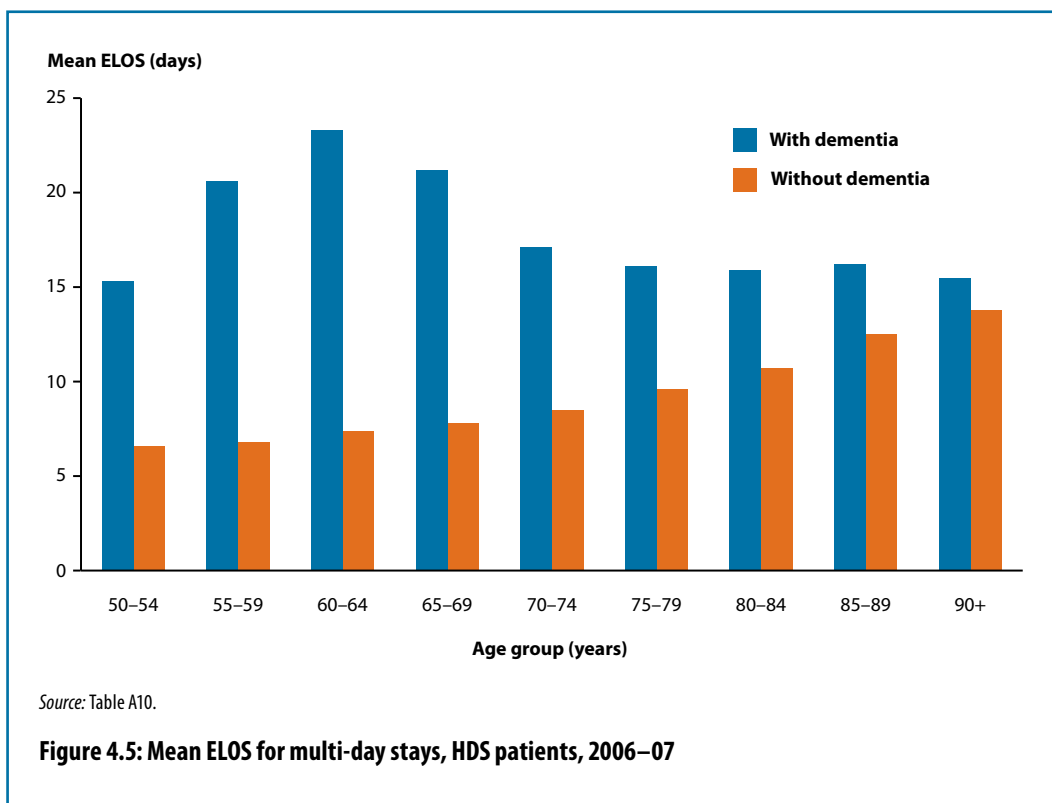
ELOS	Observed			Standardised ^(a)	
	With dementia	Without dementia	Total	With dementia	Without dementia
1 to 2 days	20.8	34.9	33.6	*22.5	34.3
3 to 6 days	24.7	29.7	29.2	*24.6	29.6
1 to < 5 weeks	43.7	31.1	32.2	*40.8	31.6
5 to < 13 weeks	9.0	3.8	4.3	*9.4	4.0
>=13 weeks	1.8	0.5	0.7	*2.6	0.5
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,184	370,355	408,539	..	..
Mean (days)	16.5	8.9	9.6	*18.3	9.1
Median (days)	7	4	4	‡7	4
90th percentile (days)	36	20	21	‡39	20

* Significantly different at .001 level when comparing patients with and without dementia.

‡ Not specifically tested, but distribution significantly different within each age group (see Table A10).

(a) Age-sex standardised. The standard distribution was derived from multi-day HDS stays.

People with dementia had longer mean ELOSs within all age groups (Figure 4.5). In general, mean ELOS increased with age for people without dementia; however, for people with dementia, ELOS peaked in the 60–64 age group, levelling off after 75 years of age. Closer examination of ELOS median and 90th percentile patterns showed that the high mean ELOS for younger people was driven by a small proportion with very long stays (Table A10). There are likely to be a number of factors contributing to this finding. A higher proportion of younger people with dementia are admitted due to behavioural problems, and at site visits associated with the project it was noted that both community and residential services to support such patients were difficult to access. Also, the greater differentiation in dementia type seen for younger patients suggests that more time may be spent on assessment and diagnosis for younger patients with dementia. In addition, it is possible that some of the younger patients had complex medical comorbidity affecting ELOS, and that for older patients with dementia, other health conditions were determining hospital treatment.

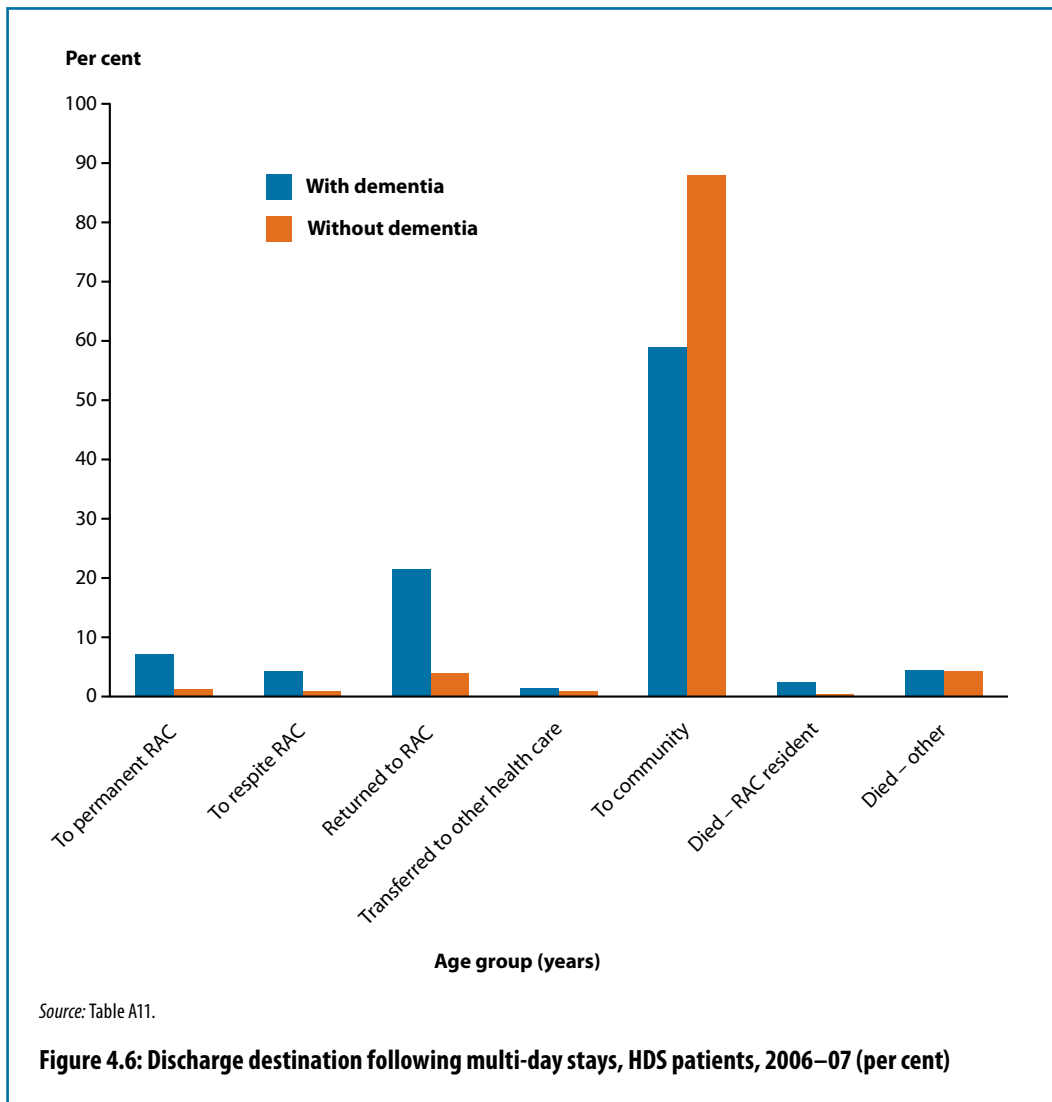


4.7 Destination on discharge

APDC records contain data on destination on discharge. However, there are limitations with these data as people returning to their usual residence are recorded as going to their own accommodation, irrespective of whether that accommodation is in the community or an institution. Also, in practice, hospital coding does not always differentiate between people going back to residential care and those moving into such care from hospital; that is, a person's 'usual residence' upon which the coding is based is not consistently that before or after the hospital stay (AIHW: Karmel & Rosman 2007). To overcome these shortcomings, data linkage between hospital stay and residential aged care (RAC) service use data has been used to identify post-hospital destination more reliably and in more detail (see AIHW 2012b).

The differences in the destination mix for patients with and without dementia are stark (Figure 4.6) (Table A11). Patients with dementia were much more likely to transfer to residential care on leaving hospital (11% versus 2%); nearly two-thirds of these admissions were to permanent RAC, compared with just over one-half of those for people without dementia. In addition, patients with dementia were more than 5 times more likely than others to be returning to their home in permanent care (22% versus 4%). Even after allowing for different age-sex profiles, stays for patients with dementia were more likely to end in death than others (7% versus 5%). Patients with dementia who died in hospital were more likely to have been aged care residents than patients without dementia who died in hospital.

Despite the relatively large proportions of dementia patients going to residential care, about half (48% observed, 59% standardised) of patients with dementia returned to live in the community when they left hospital.



4.8 Re-admission

Re-admissions into hospital were examined by looking at stays that ended in the first 6 months of 2006–07 and identifying re-admissions within 3 months. This was done to allow for re-admission into long hospital stays, noting that relatively few hospital stays (1%) were longer than 3 months (Table 4.5). However, people with dementia were more likely to have long stays than others, so under-identification of re-admissions is likely to be slightly higher for people with dementia.

As expected from their higher average numbers of stays per person (Table A3), patients with dementia were more likely to have a re-admission within 3 months than others. This was true both for any re-admission and for re-admission to another multi-day stay (Table A12 and Table 4.6).

Overall, 45% of people with dementia had a re-admission into another multi-day stay within 3 months of a multi-day stay, compared with 32% of people without dementia (Table 4.6). Among those who were re-admitted, 11% were readmitted within a day of discharge and, overall, 60% were re-admitted within 4 weeks; patients with and without dementia had similar re-admission patterns in terms of time between discharge and re-admission.

Table 4.6: Re-admission to a multi-day stay after a multi-day hospital stay, by time to re-admission and dementia status, hospital stays ending in 1 July 2006 – 31 December 2006 for HDS patients (per cent)

Days to next admission	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
With a re-admission within 3 months					
Same day	8.5	7.2	7.4	8.0	7.3
Next day	3.9	3.5	3.6	4.0	3.5
2 to 7 days	15.4	16.2	16.1	15.5	16.1
8 to 28 days	30.7	32.4	32.2	31.8	32.4
29 to 91 days	41.4	40.7	40.8	40.7	40.7
Total	100.0	100.0	100.0	100.0	100.0
Total number	8,038	60,197	68,235	..	..
All					
With a re-admission within 3 months	39.9	31.8	32.6	*45.1	32.0
Next admission later, or never	60.1	68.2	67.4	54.9	68.0
Total	100.0	100.0	100.0	100.0	100.0
Total number	20,170	189,349	209,519	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

4.9 Conclusion

In New South Wales in 2006–07, people with dementia were more likely than others to have spent at least one night in public hospital. Hospital stays for people with dementia were characterised by more transfers between hospitals and more changes in care type—possibly involving moves between wards. Such moves are potentially problematic for a group with heightened sensitivity and reaction to changes in environment.

People with and without dementia also had different reasons for being admitted into hospital: people with dementia were more likely to be admitted because of non-dementia mental, behavioural or nervous system disorders, or due to injury or poisoning, and less likely because of neoplasms or circulatory diseases. People with dementia were 50% more likely to have allied health or imaging services as their principal procedure. Outcomes as measured by length of stay, mortality, transfer to residential aged care, and re-admission to hospital within 3 months were all poorer for people with dementia.

Appendix tables

Table A1: ICD–10–AM codes identifying dementia

Code	ICD–10–AM description	Dementia type for HDS analysis
F00	Dementia in Alzheimer's disease (G30.-+)	Alzheimer disease
F00.0	Dementia in Alzheimer's disease with early onset (G30.0+)	Alzheimer disease
F00.1	Dementia in Alzheimer's disease with late onset (G30.1+)	Alzheimer disease
F00.2	Dementia in Alzheimer's disease, atypical or mixed type (G30.8+)	Alzheimer disease
F00.9	Dementia in Alzheimer's disease, unspecified (G30.9+)	Alzheimer disease
G30	Alzheimer's disease	Alzheimer disease
G30.0	Alzheimer's disease with early onset	Alzheimer disease
G30.1	Alzheimer's disease with late onset	Alzheimer disease
G30.8	Other Alzheimer's disease	Alzheimer disease
G30.9	Alzheimer's disease, unspecified	Alzheimer disease
F01	Vascular dementia	Vascular dementia
F01.0	Vascular dementia of acute onset	Vascular dementia
F01.1	Multi-infarct dementia	Vascular dementia
F01.2	Subcortical vascular dementia	Vascular dementia
F01.3	Mixed cortical and subcortical vascular dementia	Vascular dementia
F01.8	Other vascular dementia	Vascular dementia
F01.9	Vascular dementia, unspecified	Vascular dementia
F02.3	Dementia in Parkinson's disease (G20+)	Parkinson and/or Lewy bodies
G31.3	Lewy body disease	Parkinson and/or Lewy bodies
F05.1	Delirium superimposed on dementia	Dementia with delirium
G31	Other degenerative diseases of nervous system, not elsewhere classified	Other degenerative dementia
G31.0	Circumscribed brain atrophy	Other degenerative dementia
G31.1	Senile degeneration of brain, not elsewhere classified	Other degenerative dementia
G31.8	Other specified degenerative diseases of nervous system	Other degenerative dementia
G31.9	Degenerative disease of nervous system, unspecified	Other degenerative dementia
F02	Dementia in other diseases classified elsewhere	Other dementia
F02.0	Dementia in Pick's disease (G31.0+)	Other dementia
F02.1	Dementia in Creutzfeldt-Jakob disease (A81.0+)	Other dementia
F02.2	Dementia in Huntington's disease (G10+)	Other dementia
F02.4	Dementia in human immunodeficiency virus (HIV) disease (B22.0+)	Other dementia
F02.8	Dementia in other specified diseases classified elsewhere	Other dementia
G31.2	Degeneration of nervous system due to alcohol	Other degenerative dementia
F03	Unspecified dementia	Unspecified dementia

- Symbol denotes any digit.

+ Symbol denotes a code describing the aetiology or underlying cause of a disease.

Note: Where codes F02 or F02.8 were reported, where possible secondary diagnoses were examined to determine the type of dementia more precisely.

Table A2: Patients: sex and age by dementia status, HDS patients 2006–07 (per cent)

Sex	Age at 1 July 2006	Patient dementia status			Prevalence of dementia	
		With dementia	Without dementia	Total	Within patient group	Population ^(a)
		Per cent			Per cent	
Male		39.9	49.5	48.7	6.7	3.1
Female		60.1	50.5	51.3	9.6	5.0
Total %		100.0	100.0	100.0	8.2	4.1
Total number		20,793	231,926	252,719	..	..
Male	50–54	1.2	11.4	10.7	0.8	0.1
	55–59	1.4	13.3	12.5	0.8	0.3
	60–64	3.0	13.5	12.8	1.6	1.5
	65–69	4.7	14.0	13.4	2.4	2.4
	70–74	9.5	14.2	13.9	4.6	3.9
	75–79	19.5	14.5	14.9	8.9	6.8
	80–84	27.8	11.0	12.1	15.5	11.5
	85–89	21.8	5.7	6.7	21.8	19.1
	90+	11.1	2.4	3.0	25.1	37.2
<i>Total %</i>		<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	6.7	3.1
<i>Total number</i>		<i>8,304</i>	<i>114,769</i>	<i>123,073</i>	..	..
<i>Median age (years)</i>		<i>81.9</i>	<i>69.2</i>	<i>70.2</i>	..	..
Female	50–54	0.4	10.2	9.2	0.4	0.0
	55–59	0.7	11.2	10.2	0.7	0.1
	60–64	1.2	11.0	10.0	1.2	1.6
	65–69	2.5	11.7	10.8	2.2	2.6
	70–74	5.7	12.6	11.9	4.6	4.4
	75–79	14.2	14.6	14.6	9.4	7.7
	80–84	26.9	14.0	15.3	17.0	13.7
	85–89	27.7	9.3	11.1	24.1	23.4
	90+	20.7	5.4	6.9	28.8	47.9
<i>Total %</i>		<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	9.6	5.0
<i>Total number</i>		<i>12,489</i>	<i>117,157</i>	<i>129,646</i>	..	..
<i>Median age (years)</i>		<i>84.8</i>	<i>72.4</i>	<i>74.1</i>	..	..
All	50–54	0.7	10.8	9.9	0.6	0.1
	55–59	1.0	12.2	11.3	0.7	0.2
	60–64	1.9	12.2	11.4	1.4	1.6
	65–69	3.4	12.8	12.1	2.3	2.5
	70–74	7.2	13.4	12.9	4.6	4.2
	75–79	16.3	14.6	14.7	9.1	7.3
	80–84	27.3	12.5	13.7	16.3	12.8
	85–89	25.4	7.5	9.0	23.3	21.9
	90+	16.8	3.9	5.0	27.7	45.1
Total %		100.0	100.0	100.0	8.2	4.1
Total number		20,793	231,926	252,719	..	..
Median age (years)		83.7	70.7	72.1	..	..

(a) Population prevalence by age and sex from AIHW 2012a. Prevalence estimates across age and/or sex use estimated resident population at 30 June 2006 for New South Wales from ABS Australian demographic statistics series (for example, ABS 2008).

Note: Percentages may not sum to 100% due to rounding.

Table A3: Patients: hospital stays per HDS patient, by age and dementia status, 2006–07

	50–64	65–74	75–84	85+	All ^(a)
With dementia					
Multi-day stays					
With one multi-day stay only (%)	*50.9	*51.1	*54.3	*57.5	55.2 (*52.5)
Mean number	*2.3	*2.0	*1.9	1.7	1.8 (*2.0)
Same-day stays					
With a same-day stay (%)	24.1	*21.2	*18.2	*14.9	17.3 (*20.9)
With one stay (for those with a stay) (%)	65.6	70.4	*74.5	*78.4	75.0 (70.8)
Mean number (for those with a stay)	4.6	6.5	3.1	*1.6	3.1 (4.5)
Number	759	2,201	9,062	8,771	20,793
Without dementia					
Multi-day stays					
With one multi-day stay only (%)	71.7	66.8	61.7	60.6	66.4 (66.1)
Mean number	1.5	1.6	1.7	1.7	1.6 (1.6)
Same-day stays					
With a same-day stay (%)	24.8	27.6	26.6	18.2	25.3 (25.1)
With one stay (for those with a stay) (%)	70.5	67.1	66.0	72.0	68.4 (68.4)
Mean number (for those with a stay)	4.0	4.7	4.1	2.5	4.1 (4.1)
Number	81,738	60,840	62,855	26,493	231,926
All					
Multi-day stays					
With one multi-day stay only (%)	71.5	66.2	60.7	59.8	65.5
Mean number	1.5	1.6	1.7	1.7	1.6
Same-day stays					
With a same-day stay (%)	24.8	27.4	25.5	17.4	24.6
With one stay (for those with a stay) (%)	70.5	67.2	66.8	73.3	68.8
Mean number (for those with a stay)	4.0	4.7	4.0	2.3	4.1
Number	82,497	63,041	71,917	35,264	252,719

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Brackets contain age-sex standardised value. The standard distribution was derived from all HDS stays.

Note: Due to the scope of the study, all HDS patients had at least one multi-day stay.

Table A4: Patients: hospital stays per HDS patient ending in the 12 months before the end of the last stay in 2006–07, by age and dementia status, 2006–07

	50–64	65–74	75–84	85+	All	Standardised ^(a)
With dementia						
Multi-day stays						
With one multi-day stay only (%)	36.5	36.9	40.2	41.9	40.4	*38.2
Mean number	2.84	2.47	2.25	2.14	2.25	*2.51
Same-day stays						
With a same-day stay (%)	30.0	26.7	23.7	20.3	22.8	*26.7
With one stay (for those with a stay) (%)	62.7	69.2	70.1	76.1	71.9	68.1
Mean number (for those with a stay)	4.55	5.81	2.99	1.67	2.92	4.14
Number	759	2,201	9,062	8,771	20,793	..
Without dementia						
Multi-day stays						
With one multi-day stay only (%)	64.1	57.4	51.0	48.1	57.0	56.5
Mean number	1.69	1.83	1.98	2.01	1.84	1.85
Same-day stays						
With a same-day stay (%)	30.1	34.1	33.7	24.1	31.5	31.3
With one stay (for those with a stay) (%)	67.7	63.5	62.6	68.1	65.1	65.1
Mean number (for those with a stay)	3.90	4.48	3.93	2.57	3.95	3.92
Number	81,738	60,840	62,855	26,493	231,926	..
All						
Multi-day stays						
With one multi-day stay only (%)	63.8	56.7	49.7	46.6	55.6	..
Mean number	1.70	1.85	2.01	2.04	1.87	..
Same-day stays						
With a same-day stay (%)	30.1	33.9	32.4	23.2	30.8	..
With one stay (for those with a stay) (%)	67.7	63.7	63.3	69.8	65.5	..
Mean number (for those with a stay)	3.90	4.52	3.84	2.37	3.89	..
Number	82,497	63,041	71,917	35,264	252,719	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

Note: Due to the scope of the study, all HDS patients had at least one multi-day stay.

Table A5: Hospital stays, by same-day status and dementia status, for HDS patients, 2006–07 (per cent)

	Observed			Standardised ^(a)	
	With dementia	Without dementia	Total	With dementia	Without dementia
Multi-day stay	77.3	60.6	61.8	*70.6	61.0
Same-day stay	22.7	39.4	38.2	29.4	39.0
Total	100.0	100.0	100.0	100.0	100.0
Total number	49,379	611,583	660,962	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

Table A6: Hospital stays, by same-day status, hospital sector and dementia status, for HDS patients 2006–07 (per cent)

Sector	Multi-day stays		
	With dementia	Without dementia	Total
Observed			
Mixed sector ^(a)	3.1	3.5	3.5
Private only	4.1	6.7	6.5
Public only	92.8	89.8	90.0
Total	100.0	100.0	100.0
Total number	38,184	370,355	408,539
Standardised^(b)			
Mixed sector	*2.3	3.6	..
Private only	*3.3	6.8	..
Public only	*94.4	89.6	..
Total	100.0	100.0	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Stay includes episodes in both public and private hospitals.

(b) Age-sex standardised. The standard distribution was derived from all HDS stays.

Table A7: Multi-day hospital stays, by principal diagnosis on admission by dementia status, for HDS patients, 2006–07 (per cent)

Principal diagnosis (ICD-10-AM codes)	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
Dementia	6.4	..	0.6	..	..
Total number	38,046	369,534	407,580	..	..
Excluding dementia					
Certain infectious & parasitic (A00-B99)	2.6	1.7	1.8	*2.2	1.7
Neoplasms (C00-D48)	4.3	10.1	9.6	*4.2	10.0
Blood & blood forming organs (D50-D89)	1.5	1.4	1.4	*1.1	1.5
Endocrine, nutritional, metabolic & immunity (E00-E90)	3.8	2.7	2.8	*4.5	2.7
Delirium, not F05.1 (that is, not Delirium superimposed on dementia)	1.1	0.1	0.2	*1.0	0.2
Other mental and behavioural disorders (excluding dementia) (F00-F99, but not in Table A1)	3.0	2.4	2.5	*8.1	2.3
Other nervous system (G00-G98, but not in Table A1)	3.4	2.4	2.5	*5.4	2.4
Eye/ear/congenital (H00-H59, H60-H95, Q00-Q99)	0.5	1.4	1.3	*0.4	1.4
Circulatory system (I00-I99)	14.7	18.7	18.3	*13.0	18.9
Respiratory system (J00-J99)	11.3	9.4	9.6	10.2	9.5
Digestive system (K00-K93)	7.8	11.7	11.3	*8.7	11.5
Skin & subcutaneous tissue (L00-L99)	2.6	2.1	2.1	2.6	2.1
Musculoskeletal system (M00-M99)	3.4	6.6	6.3	*3.5	6.6
Genitourinary system (N00-N99)	7.3	5.7	5.9	6.2	5.7
Symptoms, signs & ill-defined conditions (R00-R99)	10.9	10.5	10.6	11.0	10.5
<i>Injury and poisoning (S00-T98)</i>	<i>17.9</i>	<i>10.2</i>	<i>10.9</i>	<i>*14.2</i>	<i>10.5</i>
Fractures	9.9	4.2	4.7	*7.0	4.4
Other injury/poisoning	8.0	6.0	6.2	*7.2	6.1
Factors influencing health status & contact with health services (Z00-Z99)	3.7	2.7	2.8	*3.8	2.7
Total	100.0	100.0	100.0	100.0	100.0
Total number	35,612	369,534	405,146	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays. Standardisation used 10-year age groups (except for the 50–64 and 85+ groups).

Notes

1. Table is based on first episode in a stay and excludes cases with missing principal diagnosis (953) or pregnancy or peri-natal diagnoses (6).
2. Percentages may not sum to 100% due to rounding.

Table A8: Multi-day hospital stays, with injury/poisoning as principal diagnosis on admission by dementia status, for HDS patients 2006–07 (per cent)

Principal diagnosis (ICD-10-AM codes)	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
Fractures					
Head injuries	1.9	3.5	3.2	*1.9	3.3
Neck, cervical spine and neck blood vessel injuries	1.3	1.4	1.4	1.6	1.4
Injuries to thorax and thoracic spine	6.9	10.8	10.0	*7.2	10.8
Injuries of abdomen, lower back and pelvis	13.5	10.8	11.3	10.7	11.4
Injuries of shoulder, arm or hand	15.8	29.9	27.3	*20.9	28.6
Injuries of hip, leg, ankle and foot	60.5	43.6	46.7	*57.7	44.5
Other injury/poisoning	0.1	0.1	0.1	0.0	0.1
Total	100.0	100.0	100.0	100.0	100.0
Total number	3,538	15,692	19,230	..	..
Other injury/poisoning					
Head injuries	35.9	16.2	18.4	*33.7	16.9
Neck, cervical spine and neck blood vessel injuries	1.0	1.2	1.2	2.3	1.2
Injuries to thorax and thoracic spine	2.5	2.8	2.8	2.9	2.8
Injuries of abdomen, lower back and pelvis	6.2	4.3	4.5	5.6	4.4
Injuries of shoulder, arm or hand	10.4	10.6	10.6	10.5	10.5
Injuries of hip, leg, ankle and foot	19.6	13.5	14.2	15.1	14.2
Poisonings by therapeutic drugs	3.1	5.0	4.8	6.3	4.7
Complications of therapeutic procedures	15.8	38.3	35.7	*16.3	37.3
Other injury/poisoning	5.4	8.2	7.9	7.4	8.0
Total	100.0	100.0	100.0	100.0	100.0
Total number	2,858	22,346	25,204	..	..
All					
Head injuries	17.1	10.9	11.8	*18.5	11.2
Neck, cervical spine and neck blood vessel injuries	1.2	1.3	1.3	2.1	1.3
Injuries to thorax and thoracic spine	4.9	6.1	5.9	5.1	6.2
Injuries of abdomen, lower back and pelvis	10.3	7.0	7.4	8.1	7.3
Injuries of shoulder, arm or hand	13.4	18.6	17.8	*15.1	18.2
Injuries of hip, leg, ankle and foot	42.3	25.9	28.3	*35.5	27.0
Poisonings by therapeutic drugs	1.4	2.9	2.7	3.4	2.7
Complications of therapeutic procedures	7.1	22.5	20.3	*8.3	21.4
Other injury/poisoning	2.4	4.8	4.5	3.9	4.7
Total	100.0	100.0	100.0	100.0	100.0
Total number	6,396	38,038	44,434	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays. Standardisation used 10-year age groups (except for the 50–64 and 85+ groups).

Notes

1. Table is based on first episode in a stay.
2. Percentages may not sum to 100% due to rounding.

Table A9: Multi-day hospital stays, with principal procedure of allied health, by dementia status, for HDS patients, 2006–07 (per cent)

Principal procedure	Observed		Total	Standardised ^(a)	
	With dementia	Without dementia		With dementia	Without dementia
Allied health intervention, dietetics	7.6	9.2	8.9	8.3	8.9
Allied health intervention, occupational therapy	10.4	10.4	10.4	10.1	10.6
Allied health intervention, pastoral care	1.9	3.3	3.1	1.9	*3.2
Allied health intervention, pharmacy	2.4	3.8	3.6	2.4	*3.8
Allied health intervention, physiotherapy	46.2	51.4	50.6	42.5	*51.9
Allied health intervention, psychology	0.3	0.5	0.4	0.7	0.4
Allied health intervention, social work	16.3	14.6	14.8	19.1	*14.4
Allied health intervention, speech pathology	11.9	3.6	4.9	11.7	*3.7
Other allied health	3.0	3.2	3.1	3.3	3.1
Total	100.0	100.0	100.0	100.0	100.0
Total number	10,243	55,228	65,471	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays. Standardisation used 10-year age groups (except for the 50–64 and 85+ groups).

Notes

1. Table is based on first episode in a stay and excludes cases with missing principal procedure (1,576).
2. Percentages may not sum to 100% due to rounding.

Table A10: Multi-day hospital stays, elapsed length of stay in hospital by dementia status, for HDS patients, 2006–07 (days)

	With dementia	Without dementia	All
Mean			
50–54*	15.3	6.6	6.7
55–59*	20.6	6.8	6.9
60–64*	23.3	7.4	7.7
65–69*	21.2	7.8	8.2
70–74*	17.1	8.5	8.9
75–79*	16.1	9.6	10.3
80–84*	15.9	10.7	11.6
85–89*	16.2	12.5	13.4
90+*	15.5	13.8	14.3
Total	16.5	8.9	9.6
Median			
50–54	5	3	3
55–59	7	3	3
60–64	7	3	4
65–69	7	4	4
70–74	7	4	4
75–79	7	5	5
80–84	8	5	6
85–89	8	6	6
90+	7	7	7
Total	7	4	4
90th percentile			
50–54	34	14	14
55–59	50	14	14
60–64	49	15	16
65–69	38	17	17
70–74	39	19	20
75–79	36	21	23
80–84	36	25	27
85–89	35	29	31
90+	34	31	32
Total	36	20	21

* Significantly different at .001 level when comparing patients with and without dementia using Kolmogorov-Smirnov test to compare distribution of length of stay.

Note: Age as at 1 July 2006. Table is not standardised because it gives ELOS by age.

Table A11: Discharge destination after a multi-day hospital stay, by dementia status, for HDS patients, 2006–07 (per cent)

	Observed			Standardised ^(a)	
	With dementia	Without dementia	Total	With dementia	Without dementia
<i>To residential aged care</i>	13.9	2.1	3.2	*11.4	2.3
To permanent RAC	8.8	1.2	1.9	*7.2	1.3
To respite RAC	5.1	0.9	1.3	*4.3	1.0
Returned to RAC	29.1	3.6	6.0	*21.5	4.0
Transferred to other health-care accommodation ^(b)	1.2	0.9	0.9	*1.4	0.9
To community ^(c)	47.5	88.8	84.9	*58.9	87.9
<i>Died</i>	8.4	4.6	5.0	*6.8	4.8
Died—RAC resident ^(d)	3.7	0.4	0.7	*2.4	0.5
Died—other	4.6	4.2	4.2	4.4	4.3
Total	100.0	100.0	100.0	100.0	100.0
Total number	38,182	370,334	408,516	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

(b) Includes unidentified hospital transfers.

(c) Includes remaining unlinked records (destination reported as going to own accommodation, discharged at own risk or while on leave, or reported as transferred to RAC).

(d) Includes patients admitted while a permanent RAC resident. Excludes people discharged directly to hospital without any RAC hospital leave.

Notes

1. Destination has been derived using data linkage with RAC data—see AIHW 2012b.

2. Table excludes stays with unknown destination.

3. Component percentages may not sum to total due to rounding.

Table A12: Any re-admission after a multi-day hospital stay, by time to re-admission and dementia status, hospital stays ending in 1 July 2006 – 31 December 2006 for HDS patients (per cent)

Days to next admission	Observed			Standardised ^(a)	
	With dementia	Without dementia	Total	With dementia	Without dementia
With a re-admission within 3 months					
Same day	8.2	6.5	6.7	7.8	6.6
Next day	4.3	4.3	4.3	4.8	4.2
2 to 7 days	15.9	17.4	17.2	16.8	17.3
8 to 28 days	31.2	31.6	31.5	32.1	31.5
29 to 91 days	40.4	40.3	40.3	38.5	40.4
Total	100.0	100.0	100.0	100.0	100.0
Total number	8,730	71,767	80,497	..	..
All					
With a re-admission within 3 months	43.3	37.9	38.4	*48.7	38.0
Next admission later, or never	56.7	62.1	61.6	51.3	62.0
Total	100.0	100.0	100.0	100.0	100.0
Total number	20,170	189,349	209,519	..	..

* Significantly different at .001 level when comparing patients with and without dementia.

(a) Age-sex standardised. The standard distribution was derived from all HDS stays.

Note: Percentages may not sum to 100% due to rounding.

Acknowledgments

Authorship

The authors of this report were Rosemary Karmel and Phil Anderson of the Data Linkage Unit at the Australian Institute of Health and Welfare (AIHW).

Contributors

The Hospital Dementia Services Project was conceived and designed by Diane Gibson (now of the University of Canberra), Brian Draper (University of New South Wales), Cathy Hales (now of the Department of Education, Employment and Workplace Relations) and Ann Peut, Rosemary Karmel and Phil Anderson (all of the AIHW). Project partners are NSW Health, Alzheimer's Australia, Alzheimer's Australia NSW, the Aged & Community Services Association of NSW & ACT Incorporated, and the Benevolent Society.

The project team thanks the Department of Health and Ageing for providing aged care data for this project, NSW Health for providing a special extract from the Admitted Patient Data Collection, and the New South Wales Centre for Health Record Linkage for providing associated patient linkage keys.

Kara Tew and Cath Lawrence assisted with the data linkage undertaken at the AIHW. Brian Draper, Diane Gibson, Ann Peut and Natalie Chan provided valuable comment on and input to the writing of the paper.

Funding

This study is funded by the National Health and Medical Research Council. Chief Investigators are Diane Gibson, Brian Draper, Rosemary Karmel, and Ann Peut.

Abbreviations

AIHW	Australian Institute of Health and Welfare
APDC	Admitted Patient Data Collection
CT	computerised tomography
ELOS	elapsed length of stay
HDS	Hospital Dementia Services
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
LOS	length of stay
RAC	residential aged care

Symbols

—	nil or rounded to zero
..	not applicable
n.a.	not available
nec	not elsewhere classified
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

References

ABS (Australian Bureau of Statistics) 2008. Australian demographic statistics. ABS cat. no. 3101.0. Canberra: ABS.

ACEMA (Aged Care Evaluation and Management Advisors) 2002. Examination of length of stay for older persons in acute and sub-acute sectors. Canberra: Care of Older Australians Working Group.

AIHW (Australian Institute of Health and Welfare) 2006. Data linkage and protecting privacy: a protocol for linking between two or more data sets held within the Australian Institute of Health and Welfare. Canberra: AIHW. Viewed 28 July 2006, <http://www.aihw.gov.au/dataonline/aihw_privacy_protection_protocols_data_linkage.pdf> .

AIHW 2007. Dementia in Australia: national data analysis and development. Cat. no. AGE 53. Canberra: AIHW.

AIHW 2008. Australian hospital statistics 2006–07. Health services series no. 31. Cat. no. HSE 55. Canberra: AIHW.

AIHW 2010. The Hospital Dementia Services Project. Canberra: AIHW. Viewed 11 October 2012, <<http://www.aihw.gov.au/hospital-dementia-services-project/>> .

AIHW 2011. The Hospital Dementia Services Project: a study description. Cat. no. AGE 67. Canberra: AIHW.

AIHW 2012a. Dementia in Australia. Cat. no. AGE 70. Canberra: AIHW.

AIHW 2012b. Deriving key patient variables: a Hospital Dementia Services technical paper. Cat. no. CSI 15. Canberra: AIHW.

AIHW: Karmel R, Hales C & Lloyd J 2007. Older Australians in hospital. AIHW bulletin no. 53. Cat. no. AUS 92. Canberra: AIHW.

AIHW: Karmel R & Rosman D 2007. Comparing name-based and event-based strategies for data linkage: a study linking hospital and residential aged care data for Western Australia. Data linkage series no. 3. Cat. no. CSI 3. Canberra: AIHW.

CHeReL (Centre for Health Record Linkage) 2009. Centre for Health Record Linkage. Sydney: CHeReL. Viewed 27 July 2010, <<http://www.cherel.org.au/>> .

Covinsky KE, Palmer RM, Fortinsky RH, Counsell SR, Stewart AL, Kresevic D et al. 2003. Loss of independence in activities of daily living in older adults hospitalized with medical illnesses: increased vulnerability with age. *Journal of the American Geriatrics Society* 51:451–8.

Creditor MC 1993. Hazards of hospitalization of the elderly. *Annals of International Medicine*, 118:219–23.

Cunningham C 2006. Understanding challenging behaviour in patients with dementia. *Nursing Standard* 20:42–5.

- Department of Ageing Disability and Home Care (DADHC) & NSW Health 2002. Future directions for dementia care and support in NSW 2001–2006. Sydney: Department of Ageing, Disability and Home Care.
- Draper B, Karmel R, Gibson D, Peut A & Anderson P 2011. The Hospital Dementia Services Project: age differences in hospital stays for older people with and without dementia. *International Psychogeriatrics*:1–10.
- Fleming R, Forbes I & Bennett K 2003. Adapting the ward for people with dementia. Sydney: NSW Department of Health.
- Foreman P & Gardner I 2005. Evaluation of Education and Training of Staff in Dementia Care and Management in Acute setting. Melbourne: Victorian Government Department of Human Services.
- King B, Jones C & Brand C 2006. Relationship between dementia and length of stay of general medical patients admitted to acute care. *Australasian Journal on Ageing* 25:20–3.
- McCusker J, Kakuma R & Abrahamowicz M 2002. Predictors of functional decline in hospitalised elderly patients: a systematic review. *Journal of Gerontology: Medical sciences* 57A.
- NCCH (National Centre for Classification in Health) 2000. The International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD–10–AM) (2nd edn). Sydney: University of Sydney.
- NCCH 2010. Australian coding standards (7th edn). Sydney: University of Sydney.
- Nichol B, Lonergan J & Mould M 2000. The use of hospitals by older people: a casemix analysis. Canberra: Australian Department of Health and Aged Care.
- NSW Department of Health 2007. Annual report 2006/07. Sydney: NSW Department of Health.
- Sager M, Rudberg M, Jalaluddin M, Franke T, Inouye S, Landefeld S et al. 1996. Hospital Admission risk Profile (HARP): Identifying Older Patients at Risk for Functional Decline Following Acute Medical Illness and Hospitalization. *American Geriatrics Society* 44:251–7.
- Thomas EJ & Brennan TA 2000. Incidence and types of preventable adverse events in elderly patients: population based review of medical records. *British Medical Journal* 320:741–4.
- Torian L, Davidson E, Fulop G, Sell L & Fillit H 1992. The effect of dementia on acute care in a geriatric medical unit. *International Psychogeriatrics* 4:231–9.
- Watkin L, Blanchard MR, Tookman A & Sampson EL 2012. Prospective cohort study of adverse events in older people admitted to the acute general hospital: risk factors and the impact of dementia. *International Journal of Geriatric Psychiatry* 27:76–82.

List of tables

Table 3.1: Patients: people aged 65+ with at least one night in a public hospital in New South Wales in 2006–07, by age and dementia (per cent)	10
Table 3.2: Patients with dementia: type of dementia by age, HDS patients, 2006–07 (per cent)	11
Table 4.1: Multi-day hospital stays, by number of episodes and transfers and dementia status, for HDS patients, 2006–07 (per cent)	13
Table 4.2: Multi-day hospital stays, by Area Health Service of admission and dementia status, for HDS patients 2006–07 (per cent).....	15
Table 4.3: Multi-day hospital stays, by care type on admission and on discharge, by dementia status, for HDS patients 2006–07	16
Table 4.4: Multi-day hospital stays, principal procedure after admission by dementia status, for HDS patients, 2006–07	21
Table 4.5: Multi-day hospital stays, by elapsed time in hospital and dementia status, for HDS patients, 2006–07 (per cent).....	22
Table 4.6: Re-admission to a multi-day stay after a multi-day hospital stay, by time to re-admission and dementia status, hospital stays ending in 1 July 2006—31 December 2006 for HDS patients (per cent).....	26
Table A1: ICD–10–AM codes identifying dementia	27
Table A2: Patients: sex and age by dementia status, HDS patients 2006–07 (per cent)	28
Table A3: Patients: hospital stays per HDS patient, by age and dementia status, 2006–07	29
Table A4: Patients: hospital stays per HDS patient ending in the 12 months before the end of the last stay in 2006–07, by age and dementia status, 2006–07	30
Table A5: Hospital stays, by same-day status and dementia status, for HDS patients, 2006–07 (per cent)	31
Table A6: Hospital stays, by same-day status, hospital sector and dementia status, for HDS patients 2006–07	31
Table A7: Multi-day hospital stays, by principal diagnosis on admission by dementia status, for HDS patients, 2006–07 (per cent)	32
Table A8: Multi-day hospital stays, with injury/poisoning as principal diagnosis on admission by dementia status, for HDS patients 2006–07 (per cent)	33

Table A9: Multi-day hospital stays, with principal procedure of allied health, by dementia status, for HDS patients, 2006–07 (per cent)	34
Table A10: Multi-day hospital stays, elapsed time in hospital by dementia status, for HDS patients, 2006–07 (days)	35
Table A11: Discharge destination after a multi-day hospital stay, by dementia status, for HDS patients, 2006–07 (per cent)	36
Table A12: Any re-admission after a multi-day hospital stay, by time to re-admission and dementia status, hospital stays ending in 1 July 2006—31 December 2006 for HDS patients (per cent)	37

List of figures

Figure 2.1: Examples of the relationship between hospital episodes and stays	6
Figure 3.1: Prevalence of dementia in HDS patients and Australian population (per cent)	9
Figure 3.2: Proportion of people with a multi-day stay in a public hospital by dementia status, New South Wales, 2006–07 (per cent)	10
Figure 4.1: Area Health Services in New South Wales	14
Figure 4.2: Selected principal diagnoses (excluding dementia) on admission by dementia status of patient, multi-day hospital stays for HDS patients, 2006–07 (standardised per cent)	17
Figure 4.3: Type of injury or poisoning reported as principal diagnosis, by dementia status of patient, multi-day hospital stays for HDS patients, 2006–07 (standardised per cent)	18
Figure 4.4: Type of allied health intervention reported as principal procedure, by dementia status of patient, multi-day hospital stays for HDS patients, 2006–07 (standardised per cent, stays with allied health intervention as the principal procedure)	20
Figure 4.5: Mean ELOS for multi-day stays, HDS patients, 2006–07	23
Figure 4.6: Discharge destination following multi-day stays, HDS patients, 2006–07 (standardised per cent)	25

List of boxes

Box 1.1: HDS Project	4
----------------------------	---

Other Hospital Dementia Services publications

AIHW 2011. The Hospital Dementia Services Project: a study description. Cat. no. AGE 67. Canberra: AIHW.

AIHW 2012. Deriving key patient variables: a Hospital Dementia Services technical paper. Canberra: AIHW.

Bail K & Draper B 2011. Blurring lines between acute and aged. Aged care Insite. Viewed 11 October 2012. <<http://www.agedcareinsite.com.au/pages/section/article.php?s=Breaking+News&idArticle=22774>>.

Draper B, Karmel R, Gibson D, Peut A & Anderson P 2011. The Hospital Dementia Services Project: age differences in hospital stays for older people with and without dementia. *International Psychogeriatrics* 1–10.

Draper B, Karmel R, Gibson D & Peut A 2011. Alcohol related cognitive impairment in NSW hospital patients aged 50 years and over. *Australian and New Zealand Journal of Psychiatry* 45: 985–92.

Glossary

Elapsed length of stay: derived as difference in dates of admission into hospital and discharged from hospital. All changes in care type and transfers between hospitals are included (see 'hospital stay'). No adjustment is made for absences on hospital leave or hospital visits.

HDS patient: person aged 50 and over who had a completed stay in 2006-07 that included at least one night in a New South Wales public hospital.

Hospital episode: period in hospital of a particular care type in a particular hospital.

Hospital stay: the period from admission into the hospital system to discharge from the system, or death in hospital.

Hospital visit: a hospital episode in one hospital while admitted to another.


Multi-day stay: a hospital stay that includes at least one night in hospital.

Person with dementia: a patient with dementia recorded for any hospital episode (private or public) ending between 1 July 2005 and 30 June 2007.

Same-day stay: a hospital stay starting and ending on the same date.

The Australian Institute of Health and Welfare is a major national agency which provides reliable, regular and relevant information and statistics on Australia's health and welfare. The Institute's mission is *authoritative information and statistics to promote better health and wellbeing.*

Bulletin 110

© Australian Institute of Health and Welfare 2012 

This product, excluding the AIHW logo, Commonwealth Coat of Arms and any material owned by a third party or protected by a trademark, has been released under a Creative Commons BY 3.0 (CC BY 3.0) licence. Excluded material owned by third parties may include, for example, design and layout, images obtained under licence from third parties and signatures. We have made all reasonable efforts to identify and label material owned by third parties.

You may distribute, remix and build upon this work. However, you must attribute the AIHW as the copyright holder of the work in compliance with our attribution policy available at <www.aihw.gov.au/copyright/>. The full terms and conditions of this licence are available at <<http://creativecommons.org/licenses/by/3.0/au/>>.

Enquiries relating to copyright should be addressed to the Head of the Communications, Media and Marketing Unit, Australian Institute of Health and Welfare, GPO Box 570, Canberra ACT 2601.

A complete list of the Institute's publications is available from the Institute's website <www.aihw.gov.au>.

ISBN 978-1-74249-368-8

Suggested citation

Australian Institute of Health and Welfare 2012. People with dementia in hospitals in New South Wales 2006–07 Bulletin no. 110. Cat. no. AUS 165. Canberra: AIHW.

Australian Institute of Health and Welfare

Board Chair

Dr Andrew Refshauge

Director

David Kalisch

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

Communications, Media and Marketing Unit

Australian Institute of Health and Welfare

GPO Box 570

Canberra ACT 2601

Tel: (02) 6244 1032

Email: info@aihw.gov.au

Published by the Australian Institute of Health and Welfare

Please note that there is the potential for minor revisions of data in this report.

Please check the online version at <www.aihw.gov.au> for any amendments.