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# Deaths in Australian hospitals 2014-15

Web report | Last updated: 10 Mar 2017 | Topic: [Hospitals](#)

## Summary

Information on patient deaths in public and private hospitals for the period 1 July 2014 to 30 June 2015, and comparative information for the previous 10 years.

Cat. no: WEB 186

### Findings from this report:

- In 2014-15, there were 76,856 admitted patient deaths in hospital
- About 82% of deaths in hospital occurred in public hospitals
- There were more male deaths in hospital (55%) than female deaths in hospital (45%)
- Since 2005-06, more than 93% of deaths in hospital were for patients aged 50 or over

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Australian hospitals are an important part of Australia's health landscape and provide services to many Australians each year. Patients who go to hospital may have an urgent need for medical, surgical or other care, or may receive treatment for a long-term condition. Some patients who need urgent care are critically ill, while for some patients, a long-term condition may have resulted in a life threatening condition. It is hardly surprising, then, that for many Australians, a hospital is the location where death occurs.

This spotlight report looks at admitted patient deaths in Australian hospitals during 2014-15. Information includes how many deaths there were, how this has changed over time, characteristics of the people who died (such as their age and the reason for being admitted), and characteristics of the hospital episode (such as the type of care provided and how urgently care was required). Information is not included on the causes of the deaths as that type of information is not routinely available nationally.

More information on admitted patient care in Australian hospitals can be found in *Admitted patient care 2014-15: Australian hospital statistics*.

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In 2014-15, there were 76,856 admitted patient (see Box 1) deaths in hospital, accounting for about 50% of the 153,580 deaths in Australia in 2014 [1].

Hospital separations that ended in death (deaths in hospital) represented less than one per cent (0.7%) of all separations (10,366,142) (see [Data source](#) for clarification of counts of hospital separations in this spotlight). About 82% (63,043) of deaths in hospital occurred in public hospitals (Figure 1).

A further 4,916 patients died in emergency departments without the patient being admitted to the hospital. Deaths in emergency departments are not included in the following analyses.

### Box 1: Understanding admitted patient care terms

This report draws on data from the National Hospital Morbidity Database (NHMD). The NHMD is based on data provided to the Australian Institute of Health and Welfare (AIHW) by state and territory health authorities for the National Minimum Data Set (NMDS) for Admitted patient care. It contains episode-level records from admitted patient morbidity data collection systems in Australian public and private hospitals and includes administrative, demographic and clinical data.

#### *Admitted patient*

An admitted patient is a patient who undergoes a hospital's formal admission process. Statistics on admitted patients are compiled when an admitted patient completes an episode of admitted patient care and 'separates' from the hospital. This is because most of the data on the use of hospitals by admitted patients are based on information provided at the end of the patients' episodes of care, rather than at the beginning. The length of stay and the procedures carried out are then known and the diagnostic information is more accurate.

#### *Hospital separation*

A hospital separation is the term used to refer to the episode of admitted patient care, which can be a total hospital stay (from admission to discharge, transfer or death) or a portion of a hospital stay beginning or ending in a change of type of care (for example, from acute care to rehabilitation). 'Separation' also means the process by which an admitted patient completes an episode of care by being discharged, dying, transferring to another hospital or changing type of care.

#### *Same-day separation*

A same-day separation occurs when a patient is admitted to and separated from the hospital on the same date.

#### *Overnight separation*

An overnight separation occurs when a patient is admitted to and separated from the hospital on different dates.

#### *Length of stay*

Length of stay is measured using 'patient days'. The length of stay for an overnight patient is calculated by subtracting the date the patient is admitted from the date of separation and deducting days the patient was on leave (for example, went home for part of a day with the intention of return). A same-day patient is allocated a length of stay of 1 day.

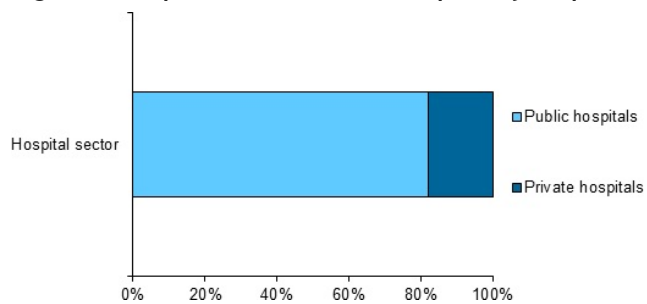
#### *Care type*

The care type describes the overall nature of a clinical service provided to an admitted patient during an episode of care. The care type can be classified as:

- Acute
- Newborn
- Sub-acute (Rehabilitation care, Palliative care, Geriatric evaluation and management, and Psychogeriatric care)

- Non-acute (Maintenance care)
- Other admitted patient care.

**Figure 1: Proportion of deaths in hospital by hospital sector, 2014-15**



Source: National Hospital Morbidity Database (NHMD).

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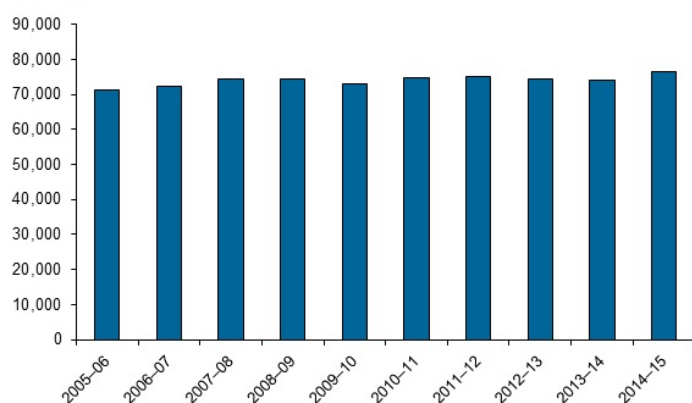
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- Since 2005-06, more than 93% of deaths in hospital were for patients aged 50 or over

Between 2005-06 and 2014-15, the number of deaths in hospital increased by almost 8% overall—from 71,447 in 2005-06 to 76,856 in 2014-15 (Figure 2). This compares with an overall increase of 39% in the number of all separations over the same period, so the proportion of separations that ended in death declined from 1.0% in 2005-06 to 0.7% in 2014-15.

In 2005-06, deaths in hospital represented about 55% of the 130,714 total deaths in Australia in 2005; and in 2014-15 deaths in hospital represented about 50% of the 153,580 total deaths in 2014 [1]. The information in this spotlight on total deaths is sourced from the Australian Bureau of Statistics [1] and it is compiled separately from the information on hospital deaths. The ABS data presented are reported by the calendar year of registration of death, whereas the information on hospital deaths is presented by financial year of occurrence. Therefore, the ABS data and the AIHW data are not entirely comparable. For more information see [Explanatory notes 7-9](#) in the ABS publication Deaths, Australia (ABS cat. no. 3302.0).

**Figure 2: Deaths in hospital, 2005-06 to 2014-15**

Separations



Source: NHMD.

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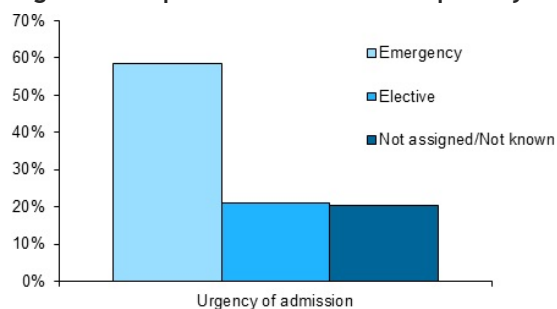
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In 2014-15, more than half (58%, 44,858) of deaths in hospital were emergency admissions, while 21% were elective admissions (16,076) (Figure 3). Urgency status was not assigned or not reported (for example, for planned admissions where the patient receives limited care or treatment for a current condition) for 21% of deaths in hospital (15,909). Over three-quarters of separations that ended in death and for which the urgency status was not assigned were for palliative care.

**Figure 3: Proportion of deaths in hospital by urgency of admission, 2014-15**



Source: NHMD.

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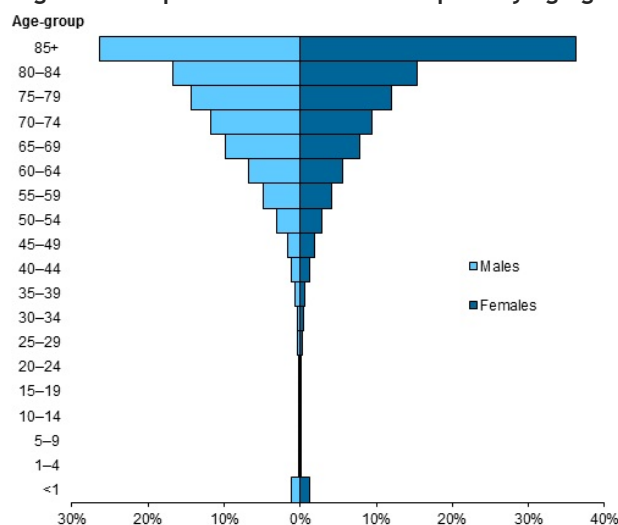
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Overall, there were more male deaths in hospital (55% or 41,853) than female deaths in hospital (45% or 34,999), resulting in a sex ratio of 119.6 male deaths in hospital for every 100.0 female deaths in hospital.

In 2014-15, the most common age group for deaths in hospital was 85 and over for both sexes (Figure 4). About 94% of deaths in hospital (72,057) were for patients aged 50 and over. About 1% of deaths in hospital were for infants under 1 (929).

The highest proportion of deaths that occurred in hospital (compared with deaths in other places) was for infants aged less than 1 year, for which about 92% (929 deaths) of the 1,012 total deaths occurred in hospital. For people aged 55 to 79 years, more than 60% (33,607 deaths) of the total 54,590 deaths occurred in hospital. People aged 20 to 24 years had the lowest proportion of deaths in hospital (20% or 139 deaths of the total of 690) [1].

**Figure 4: Proportion of deaths in hospital by age-group and sex, 2014-15**



Source: NHMD.

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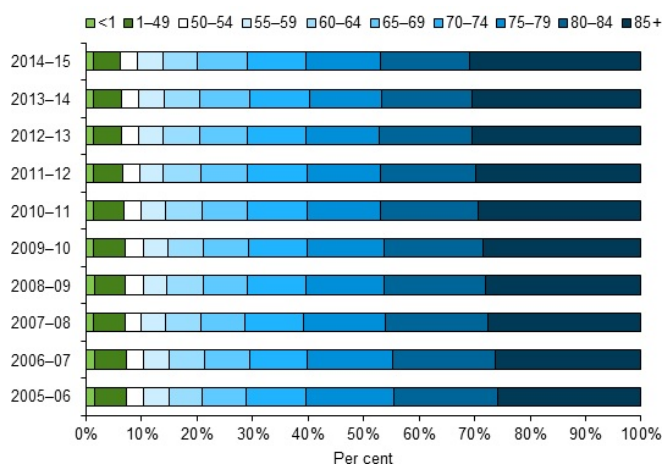
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Since 2005-06, more than 93% of deaths in hospital were for patients aged 50 or over. Patients aged 85 years and over accounted for an increasing proportion of deaths in hospital—rising from 26% of deaths in hospital in 2005-06 (18,499) to 31% in 2014-15 (23,768) (Figure 5).

**Figure 5: Proportion of deaths in hospital by age-group 2005-06 to 2014-15**



Source: NHMD.

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Figure 6 illustrates the five most common disease groups reported as principal diagnoses, in ICD-10-AM chapters (Box 2); they accounted for 79% (60,791) of deaths in hospital, compared with 32% of all separations (Figure 6). More than two-thirds (67%, 51,124) of deaths in hospital had one of three common disease groups: *Neoplasms* (31%, 23,769), *Diseases of the circulatory system* (20%, 15,308), or *Diseases of the respiratory system* (16%, 12,047).

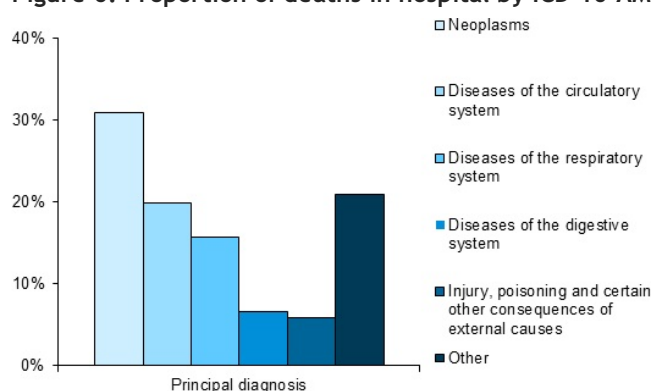
It should be noted that admitted patient care data does not include information on cause of death, and the principal diagnosis may not have been the cause of death.

### Box 2: What is the principal diagnosis and ICD-10-AM?

The principal diagnosis is the diagnosis established after study to be chiefly responsible for occasioning the patient's episode of admitted patient care.

In 2014-15, principal diagnoses were reported using the Eighth edition of the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM). ICD-10-AM groups together similar conditions, organised in a hierarchy of chapters (for example, grouping diseases or disorders that affect certain body systems), subchapters and specific categories.

**Figure 6: Proportion of deaths in hospital by ICD-10-AM principal diagnosis chapter, 2014-15**

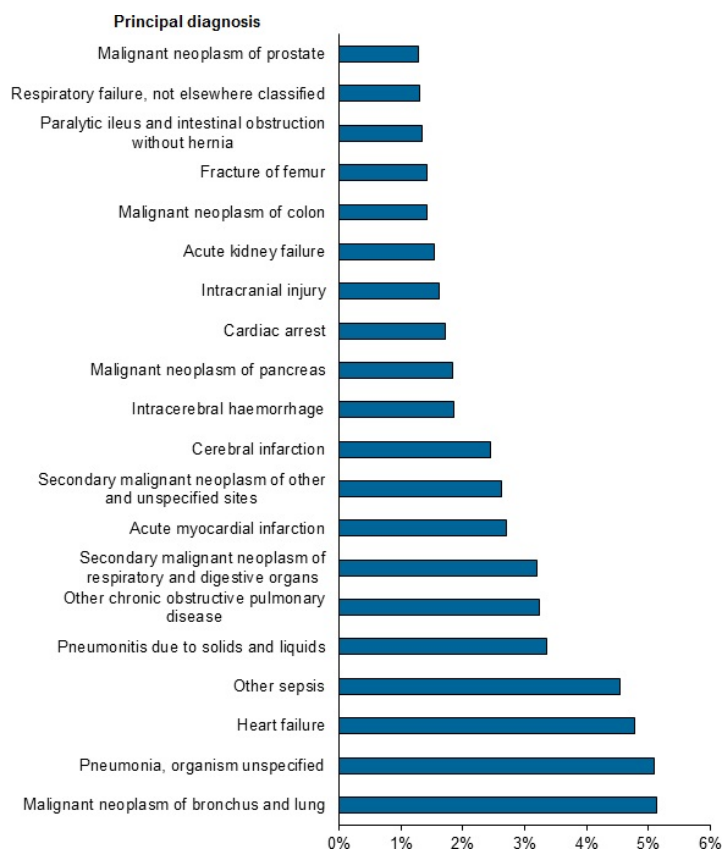


Source: NHMD.

The 3 most common specific principal diagnoses represented 15% of all deaths in hospital in 2014-15—*Malignant neoplasm of bronchus and lung* (5.1%, 3,936), *Pneumonia, organism unspecified* (5.1%, 3,903) and *Heart failure* (4.8%, 3,653) (Figure 7). The 20 most common individual principal diagnoses accounted for 52% (40,138) of deaths in hospitals.

**Figure 7: The 20 most common 3-character principal diagnoses for deaths in hospital, 2014-15, per cent**





Source: NHMD.

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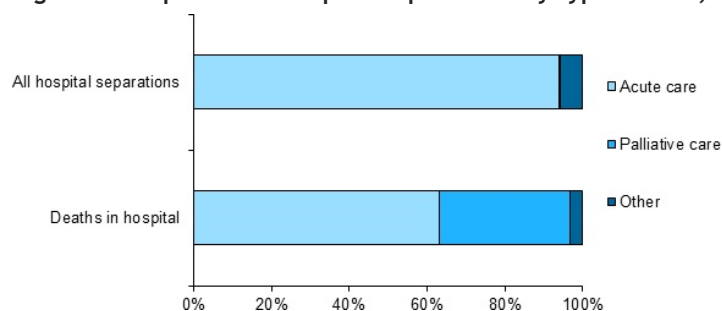
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In 2014-15, *Acute care* (94%) was the most frequent overall type of care for all hospital separations, and 0.4% had *Palliative care*. Patients who died in hospital had a different profile of care: 63% (49,256) received *Acute care* and one-third (33%, 25,570) received *Palliative care* (Figure 8) in the admitted patient episode of care in which they died.

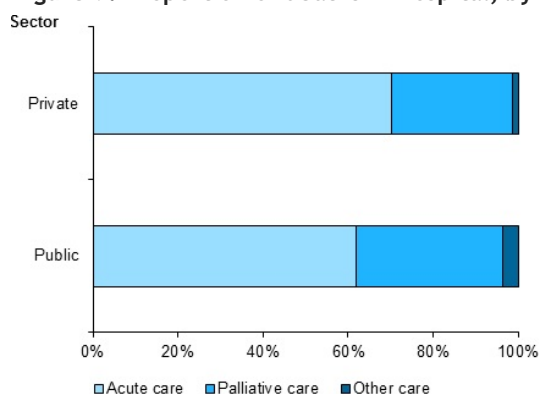
**Figure 8: Proportion of hospital separations by type of care, 2014-15**



Source: NHMD.

In public hospitals, 63% (39,543) of patients who died in hospital had received *Acute care*, and one-third (34%, 21,640) had received *Palliative care*. In private hospitals, 70% (9,713) of patients who died in hospital had received *Acute care*, and 28% (3,930) had received *Palliative care* (Figure 9).

**Figure 9: Proportion of deaths in hospital, by sector and type of care, 2014-15**



Source: NHMD.

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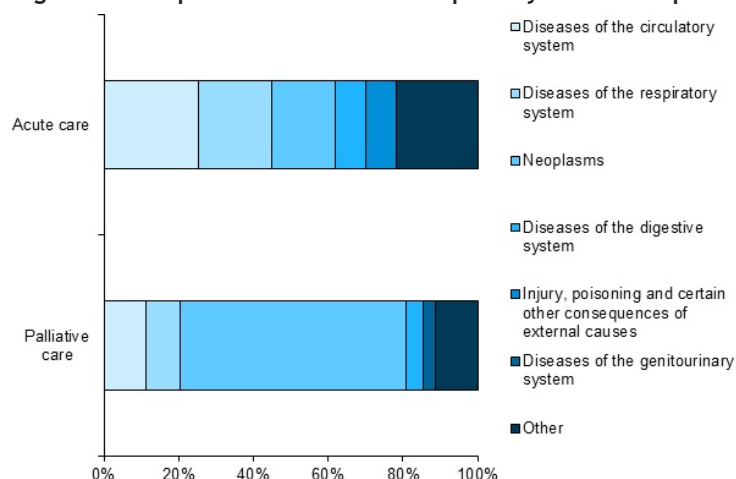
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In 2014-15, 62% of *Acute care* separations that ended in death had a principal diagnosis in either *Diseases of the circulatory system* (25%, 12,254), *Diseases of the respiratory system* (19%, 9,547) or *Neoplasms* (17%, 8,248) (Figure 10).

For *Palliative care* separations ending in death, 60% had a principal diagnosis in *Neoplasms* (15,405), while *Diseases of the circulatory system* was the second most common diagnosis chapter (11%, 2,876) (Figure 10).

**Figure 10: Proportion of deaths in hospital by ICD-10-AM principal diagnosis chapter and type of care, 2014-15**



Source: NHMD.

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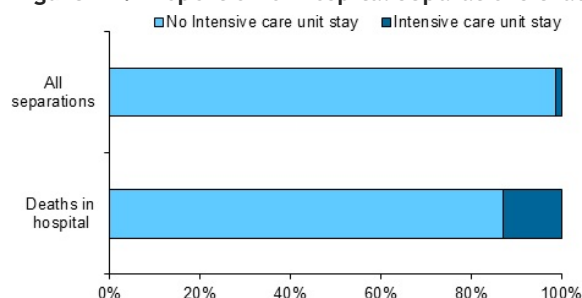
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In 2014-15, separations that ended in death were more likely to involve a stay in an intensive care unit (ICU) (12.8% or 9,829) compared with all hospital separations (1.3%, 131,236) (Figure 11).

Intensive care unit data reported here is from public hospitals that had an approved level 3 ICU or an approved paediatric ICU. Data for private hospital ICUs was only available for Victoria, Queensland, Western Australia and South Australia and the ICU level was not specified. Therefore, these numbers are likely to underestimate stays in intensive care. Data are not available on whether the death occurred in the ICU or elsewhere in the hospital.

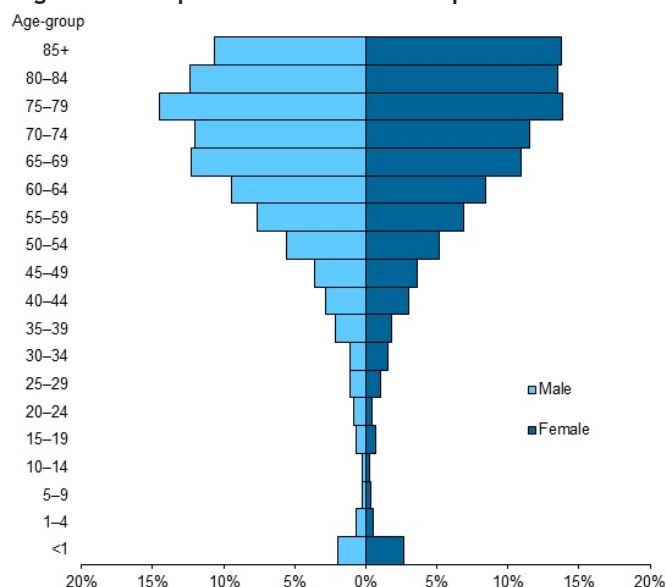
**Figure 11: Proportion of hospital separations that included a stay in an intensive care unit, 2014-15**



Source: NHMD.

In 2014-15, patients aged 65 years and over accounted for almost two-thirds (63%, 6,148) of deaths in hospital that involved a stay in an ICU, and these accounted for about 10% of deaths in hospital for patients aged 65 years and over (Figure 12). About 2% (221) of deaths in hospital that involved a stay in an ICU were for infants under 1—these accounted for about 24% of deaths in hospital for infants under 1.

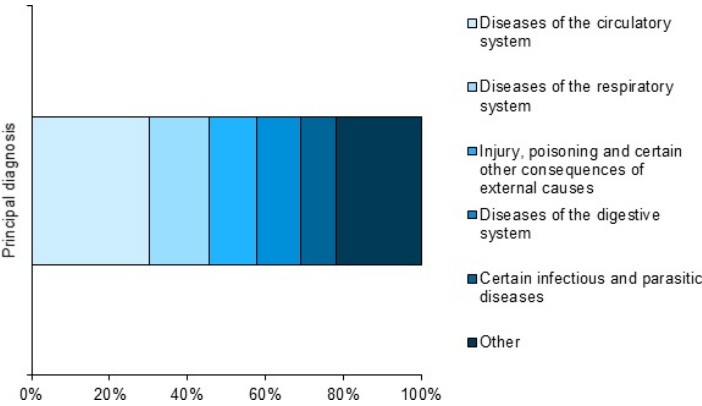
**Figure 12: Proportion of deaths in hospital that involved an ICU stay by age-group and sex, 2014-15**



Source: NHMD.

About 30% of separations that ended in death which involved a stay in an ICU (2,977) reported a principal diagnosis within *Diseases of the circulatory system* (Figure 13).

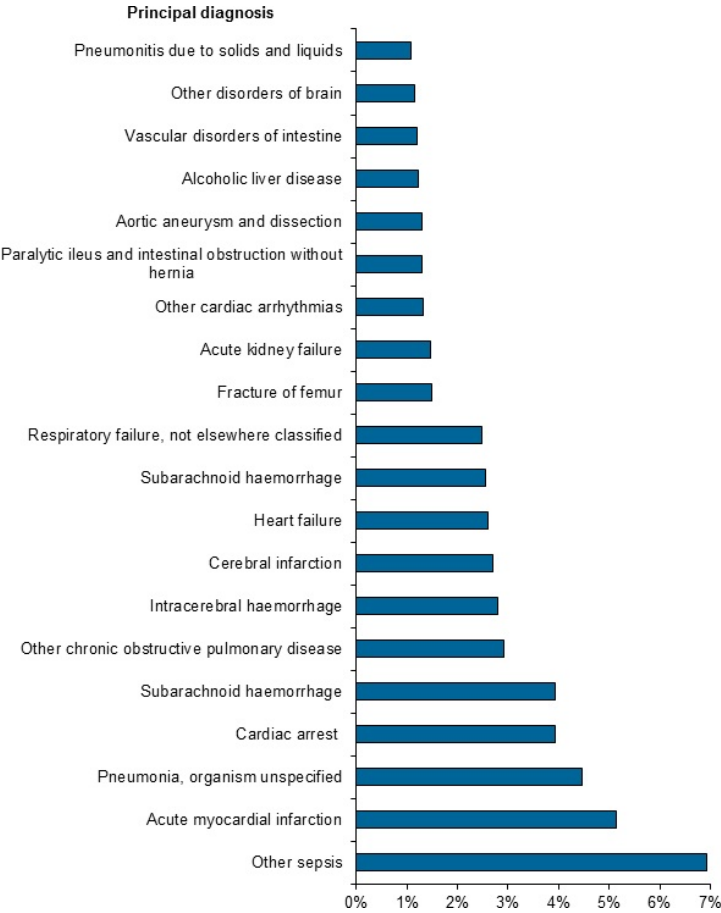
Figure 13: Proportion of deaths in hospital that involved an ICU stay by ICD-10-AM principal diagnosis chapter, 2014-15



Source: NHMD.

Figure 14 shows the 20 most common 3-character principal diagnoses for deaths in hospital that involved a stay in an ICU in 2014-15. These twenty principal diagnoses accounted for 52% (5,104) of these episodes. The top five (*Other sepsis*, *Acute myocardial infarction*, *Pneumonia organism unspecified*, *Cardiac arrest* and *Subarachnoid haemorrhage*) accounted for 24% (2,395) of principal diagnoses for deaths in hospital that included a stay in an ICU. It is not known whether the principal diagnosis was related to the ICU stay or not.

Figure 14: The 20 most common 3-character principal diagnoses reported for deaths in hospital that involved a stay in ICU, 2014-15, per cent



Source: NHMD.

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### Box 3: Understanding the classification of hospital procedures

A procedure is a clinical intervention that is surgical in nature, carries an anaesthetic risk, requires specialised training and/or requires special facilities or services available only in an acute care setting. Procedures therefore encompass surgical procedures and non-surgical investigative and therapeutic procedures, such as x-rays. Patient support interventions that are neither investigative nor therapeutic (such as anaesthesia) are also included.

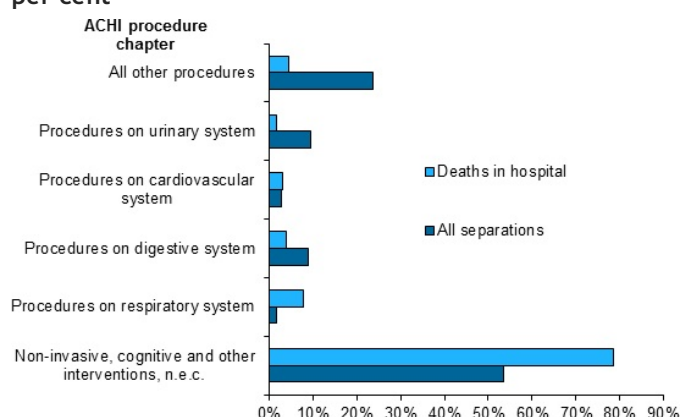
One or more procedures can be reported for each hospital admission, but procedures are not undertaken for all admissions, so only some records include information on procedures.

In 2014-15, procedures were reported for hospital patients using the Eighth edition of the Australian Classification of Health Interventions (ACHI) that groups together similar interventions.

The ACHI classification is divided into 20 chapters by anatomical site, and within each chapter by a 'superior' to 'inferior' (head to toe) approach. These subchapters are further divided into more specific procedure blocks, ordered from the least invasive to the most invasive. The blocks, which are numbered sequentially, group the very specific procedure information.

In 2014-15, more than three-quarters (79%, 171,945) of procedures reported for patients who died in hospital were *Non-invasive, cognitive and other interventions* (such as diagnostic, therapeutic, anaesthesia, pharmacotherapy and allied health interventions) compared to 53% (10,889,651 procedures) for all patients. *Procedures on respiratory system* were also proportionally more common among patients who died in hospital (8%, 17,412) than among all patients (1%, 217,719) (Figure 15).

**Figure 15: Proportion of separations by ACHI procedure chapters for all separations and deaths in hospital, 2014-15, per cent**



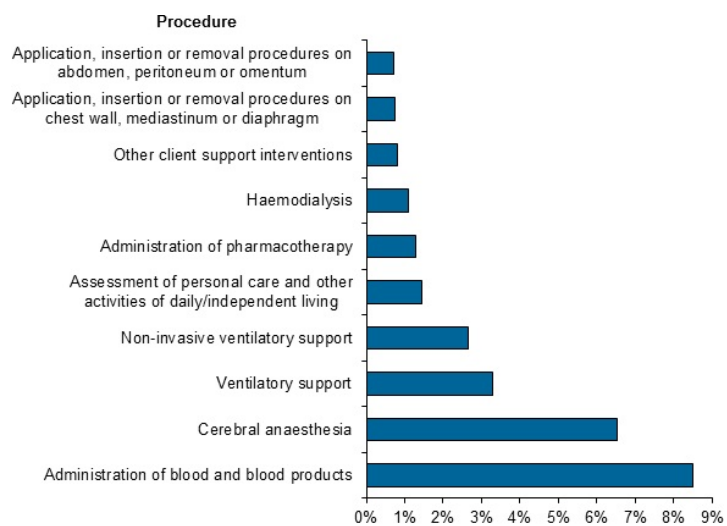
Note: n.e.c. not elsewhere classified.

Source: NHMD.

Examining specific procedures blocks, in 2014-15 more than half (57%, 124,681) of all procedures for patients who died in hospital were *Generalised allied health interventions* (such as social work, physiotherapy, occupational therapy, pastoral care and pharmacy).

The second most common group for patients who died in hospital was *Administration of blood and blood products* (8.5%, 18,596). Respiratory support in the form of *Ventilatory support* and *Non-invasive ventilatory support* together represented 5.9% (12,974) of procedures for patients who died in hospital (Figure 16).

**Figure 16: The 10 most common procedure blocks (excluding Generalised allied health interventions) reported for separations that ended in death, 2014-15, per cent**



Source: NHMD.

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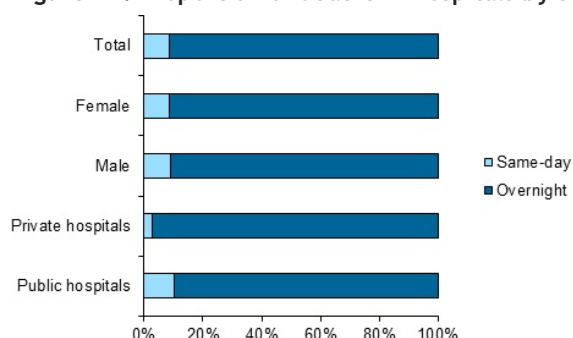
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The average length of stay before dying in hospital was 10.6 days (see [Box 1](#)), compared with an average of 2.8 days spent in hospital for all separations.

In 2014-15, 9.0% (6,939) of deaths in hospitals were same-day separations. Same-day separations accounted for similar proportions of male and female deaths in hospitals (9.3% or 3,875 and 8.8% or 3,063, respectively).

A higher proportion of deaths in public hospitals were same-day separations compared with deaths in private hospitals (10.4% or 6,558 compared with 2.8% or 381) (Figure 17).

**Figure 17: Proportion of deaths in hospitals by same-day/overnight status, by hospital sector, and by sex, 2014-15**



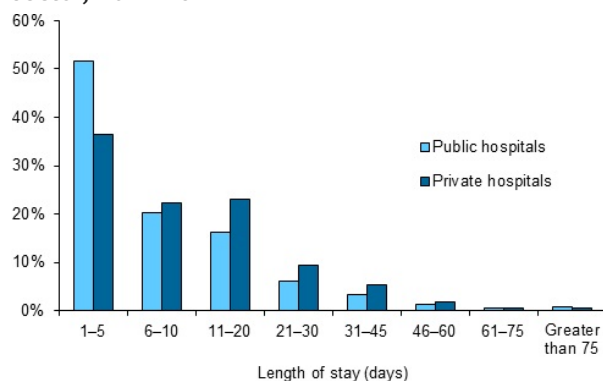
Source: NHMD.

More than 91% of deaths in hospital (69,917) were for patients who stayed at least one night (overnight admissions).

In 2014-15, the average length of stay for deaths in hospital that were overnight admissions was 11.5 days, more than twice as long as the average length of stay for all overnight admissions (5.5 days)

In 2014-15, more than half (52%, 29,182) of patients who died in public hospitals that were overnight admissions were in hospital one to five days, compared with 37% (4,911) of patients who died in private hospitals (Figure 18).

**Figure 18: Proportion of deaths in hospital (excluding same-day admissions) by length of stay in hospital and hospital sector, 2014-15**



Source: NHMD.



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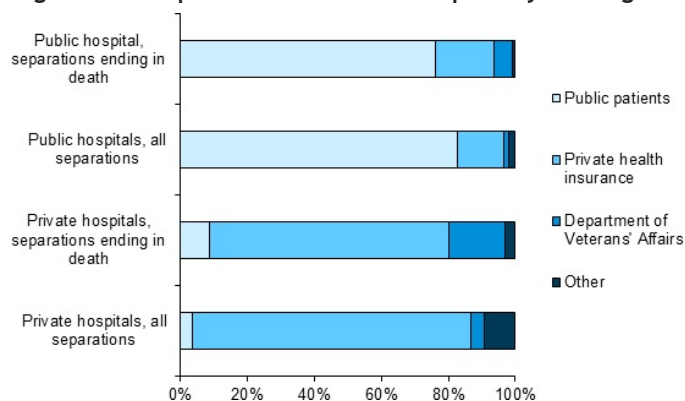
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In 2014-15, the funding sources reported for separations that ended in death differed between public and private hospitals (Figure 19).

In public hospitals, more than three-quarters of patients that died in hospital were publicly funded (76%, 47,952), 17% (10,989) were funded by private health insurance, the Department of Veterans' Affairs funded 6% (3,498) and 1% had other funding sources.

In private hospitals, private health insurance was reported as the funding source for 71% (9,842) of patients that died in hospital, the Department of Veterans' Affairs funded 17% (2,358), 9% (1,210) were publicly funded and 3% had other funding sources.

**Figure 19: Proportion of deaths in hospital by funding source and sector, 2014-15**



Source: NHMD.

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## Data source

These data are from the National Hospital Morbidity Database (NHMD) and from the Australian Bureau of Statistics (ABS) publication *Deaths 2014* [1] for total deaths in Australia. For more information on the data drawn from the NHMD, please refer to *Admitted patient care 2014-15: Australian hospital statistics*.

In this spotlight and the *Admitted patient care 2014-15* report, counts of separations do not include stillborn babies or Posthumous organ procurement (deceased organ donors). However, this spotlight includes separations for newborns did not have any 'qualified patient days' (for example, they did not receive care in a neonatal intensive care unit). This differs from counts of separations presented in *Admitted patient care 2014-15*, which exclude newborns who did not have any 'qualified patient days' as they do not meet admission criteria for all purposes.

Two NHMD data items—Care type and Additional diagnosis—capture information on palliative care. In this spotlight and the *Admitted patient care series* of reports Palliative care refers to separations with a Care type of *Palliative care*. More detailed information on the provision of palliative care is available in the AIHW's online *Palliative care services in Australia* publication which includes both separations with a Care type of *Palliative care* and/or an Additional diagnosis of *Palliative care*.

## References

1. Australian Bureau of Statistics (ABS) 2016. Deaths 2014. Canberra: [Australian Bureau of Statistics](#).
2. Australian Institute of Health and Welfare (AIHW) 2016. Admitted patient care 2014-15: Australian hospital statistics. Health services no. 68. Cat. no. HSE 172. Canberra: AIHW.