Australian Government
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Movement between hospital and residential aged care 2008–09

DATA LINKAGE SERIES NO. 16

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Authoritative information and statistics to promote better health and wellbeing

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Australian Institute of Health and Welfare
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CSI 16

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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.

Contents

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Abbreviations

ABS	Australian Bureau of Statistics
ACAT	Aged Care Assessment Team
ACCMIS	Aged and Community Care Management Information System
ACFI	Aged Care Funding Instrument
ACT	Australian Capital Territory
AIHW	Australian Institute of Health and Welfare
AR-DRG	Australian refined diagnosis-related group
ASGC	Australian Standard Geographical Classification
CBV	Cerebrovascular disease
ChiSq	Chi-squared statistic
COPD	chronic pulmonary obstructive disease
DOB	date of birth
EP	English Proficiency
GEM	geriatric evaluation and management
ICD–10–AM	International Classification of Diseases 10th revision Australian Modification, based on the World Health Organization's internationally accepted classification of diseases and related health conditions. NHMD data for 2008–09 uses Edition 6 of the classification.
IHD	Ischaemic heart disease
KBL	Key-based linkage
N	Unadjusted and unstandardised count
n.e.c.	Not elsewhere classified
NDI	National Death Index
NHMD	National Hospital Morbidity Database
NSW	New South Wales
NT	Northern Territory
OR	Odds ratio
p	probability of result occurring by chance ($p = 0.05$ equates to a 5% probability)
PCCL	patient clinical complexity level
pctl	percentile
PID	person identifier
Pr	probability
Qld	Queensland
R^2	maximum-rescaled R-squared for logistic regression
RAC	residential aged care
RCS	Resident Classification Scale
RR	relative risk

SA	South Australia
SLK	Statistical linkage key
Tas	Tasmania
TCP	Transition Care Program
u.r.	usual residence
Vic	Victoria
VIF	variance inflation factor
WA	Western Australia

Symbols

–	Nil or rounded to zero
. .	Not applicable
n.a.	Not available
n.p.	Not publishable because of small numbers, confidentiality or other concerns about the quality of the data. In general, cells based on 1 or 2 cases are designated n.p. except where the figure rounds to zero. Derived statistics (for example, mean and percentiles) are considered to be too variable to be published if based on 5 or fewer cases.

Summary

The use of hospitals by people living in residential care and the admission of people into residential care following a period in hospital is of interest to both policy analysts and service providers in the hospital and residential care sectors. This report updates a 2001–02 study on movement from hospital into residential care by people aged 65 and over. The use of hospitals by people already living in residential care is examined for the first time.

The analysis is based on multi-day hospital episodes ending in 2008–09 for people aged 65 and over on 1 July 2008. Movements between the two sectors were identified by linking national 2008–09 hospital and residential aged care service use data. To allow for the different age–sex profiles of the various movement groups, estimates have been age–sex standardised where appropriate.

Hospital use by people in residential aged care

Most (nearly 91%) of the nearly 1.1 million hospitalisations for people aged 65 and over were for people who had come from their home in the community. However, almost 9% were for people living in residential aged care. Respiratory conditions (17%) were the most common reason for hospital admission of permanent aged care residents while circulatory conditions (19%) were most common for people admitted from the community. Falls were a much more common cause of admission for aged care residents than for others (10% versus 5%).

Movement from hospital into residential aged care

On leaving hospital, 83% of patients aged 65 and over returned to their home in the community; a further 8% were discharged back to their home in residential care. Just over 4% of patients were admitted into residential aged care or transition care when they left hospital. The remaining 5% of hospitalisations ended with the patient's death.

Including transfers between residential aged care facilities, it is estimated that in 2008–09 almost one-third of all admissions into residential care were via hospital, with two-thirds of these latter being for permanent care.

Propensity to enter residential aged care

The most significant predictors of admission into residential care as opposed to a return to the community were: longer length of stay; having a diagnosis of dementia or stroke; older age; having an unplanned admission; being in palliative care before discharge; and the state or territory of the hospital. Having at least one of a group of comorbid conditions also tended to increase the likelihood of entering care. Observed geographic effects indicate that variation in regional aged care service provision and practices may be influencing outcomes.

Analysis suggests that admission into residential respite care from hospital may be either for post-hospital care before returning home or as a stepping-stone into permanent care.

Time in hospital

People transitioning from the community into permanent residential care via hospital had the longest stays in hospital, with single-episode stays (that is, no hospital transfers involved) averaging 28.0 days compared with an overall average of 6.1 days. People who returned to their usual residence on discharge tended to have the shortest stays. Death in hospital was generally preceded by a moderately short stay (mean of 12 days for a single-episode stay).

1 Introduction

The Australian Government funds aged care facilities to provide residential aged care (RAC) to older Australians whose care needs are such that they can no longer remain in their own homes. Care is provided on either a permanent or respite basis. Previous studies have shown that there is considerable movement from hospital into RAC. A national study using 2001–02 data estimated that 3% of patients aged 65 and over who left hospital after spending at least 1 night in hospital were admitted directly into RAC and that a further 5% or so returned to their usual residence in RAC (AIHW: Karmel et al. 2008). Similar results were found in an analysis of 2006–07 discharges from New South Wales hospitals (AIHW 2012c).

This report updates the 2001–02 first national estimates of flow from hospital into RAC, and extends the analysis to include movement in the other direction—that is, from RAC into hospital. Transitions involving care under the Transition Care Program (TCP) are also identified. That more people return to RAC as their usual residence than are newly admitted from hospital indicates the importance of looking at flows both from residential care into hospital and from hospital into RAC. The data also allow us to examine more generally the source of admissions into RAC.

As before, data linkage methods have been used to identify moves between the two sectors. The hospital data in this study were linked to RAC event data for three reasons:

- to obtain more reliable information on post-hospital destination
- to obtain data on pre-hospital living arrangement
- to obtain more detailed information on movement between hospital and RAC.

Better identification of transfers to and from RAC means that we can also:

- distinguish between hospital discharges to permanent RAC, respite RAC and Transition Care
- distinguish between hospital admissions from permanent RAC, respite RAC and Transition Care
- identify hospital stays for permanent RAC residents
- identify in-hospital deaths of RAC residents.

The amount of demographic and service date data available for linkage varied by state and territory and hospital sector. To obtain the best quality links possible, three different linkage strategies were used depending on the data available (see Section 1.2). In addition to linking hospital and RAC data, deaths of residential care clients outside hospital were identified through name-based linkage to the National Death Index to improve the analysis of person outcomes.

Before data linkage was undertaken for this study, approvals were obtained from required ethics committees, and permission to use the hospital morbidity and RAC data was obtained from all data custodians (national, state and territory).

The report examines movement into and out of hospital by people using RAC and TCP services. Only hospital stays involving at least 1 night in hospital by people aged 65 or more by 1 July 2008 were included in the analysis. The 2001–02 study recommended a number of changes to enhance the utility and accuracy of analyses (AIHW: Karmel et al. 2008:section 7). Where possible these recommendations have been adopted, resulting in improved data linkage, estimate adjustment methods and movement type identification. Consequently, results from this study are not directly comparable with those from the 2001–02 study.

This Introduction to the report provides background information on the data being used, a summary of the linkage method, and national estimates of flow between hospital and RAC. Section 2 examines the characteristics of people moving into and out of hospital, while Section 3 looks at the length of hospital episodes according to where the patient came from before entering hospital and where they went afterwards. The pre-admission location and demographic characteristics of people entering RAC is discussed in Section 4. The propensity to be discharged from hospital into RAC and care outcomes for people moving into RAC are discussed in Section 5, and Section 6 examines short-term use of residential care after hospital.

The report concludes with several appendices: Appendix A contains additional tables; and appendices B to D contain technical details concerning the linkage process and analyses. A list of terms used in the publication is given in the Glossary.

1.1 Event data

The analyses in this report are concerned with events related to hospital and RAC, including admissions into hospital, discharges from hospital and admissions into RAC.

Hospital data

The hospital data used in this study came from the National Hospital Morbidity Database (NHMD), and included data for both public and private hospital episodes (or separations) in 2008–09 for admitted patients (see Box 1.1 for key terms). Same-day hospital episodes, in which people were admitted and discharged on the same day, were excluded from both the data linkage and analysis as they were unlikely to be for transitions relating to either an admission into RAC or return to RAC following a period in hospital (although they could have related to a day procedure for a RAC resident).

If a patient transferred between hospitals or received more than one care type while they were in hospital, then their hospital stay would have been reported as a number of contiguous episodes of care (see Box 1.1). The hospital data available for this study did not include a universal patient identifier, although most public hospital data and some private hospital data contained a within-hospital patient identifier (Table B.1). Consequently, the analysis is based on hospital episodes rather than hospital stays. As a consequence it is not possible to conduct a joint analysis of pre- and post- hospital location, and estimates of patient days in hospital will understate the period of hospitalisation when there have been moves within the hospital sector. (See the Hospital Dementia Services Project for an example where full length of stay could be estimated: AIHW 2012a, 2012c).

Episodes that started or ended with the patient remaining in the hospital system were excluded from analysis as they should not relate to movement between hospital and RAC. Around 15% of episodes for older people started or ended with a statistical admission/separation (that is, related to a change within the hospital) or a transfer between hospitals, mostly the latter. This meant that, even when a patient had 2 or more episodes of care during a continuous period of care in hospital, only the characteristics of the first or last episode could be used for analysis. Whether or not a hospital stay is recorded as a single episode of care or as several episodes is affected by variations in the use of statistical separations and care types, and may vary by state and territory. The impact of this variation on reported care type and length of stay cannot be determined from the hospital data available for this report.

Across Australia, people aged 65 and over on 1 July 2008 had nearly 1.1 million hospital episodes that lasted at least 1 night and ended in 2008–09 with discharge from hospital or death (Table 1.1).

Box 1.1: Key terms used for the hospital data

A **hospital stay** for an admitted patient (or inpatient) is the period from admission into hospital to discharge from hospital or death. In this publication **hospitalisation** implies entry into the hospital system and **discharge** implies exit from the hospital system. The terms 'hospitalisation' and 'hospital stay' are used interchangeably.

An episode of care for an admitted patient starts with an **admission** and ends with a **separation**. Note that in the annual AIHW publication *Australian hospital statistics* the terms 'episode' and 'separation' are used interchangeably (AIHW 2010).

An **episode** of care for an admitted patient (or inpatient) can be:

- a total hospital stay—from admission to discharge, or
- a portion of a hospital stay beginning and/or ending in a change of type of care (for example, from acute care to rehabilitation), or
- a portion of a hospital stay beginning and/or ending in a transfer from/to another hospital.

Consequently, a hospital stay for an admitted patient can comprise a single hospital episode or a number of contiguous episodes of care. A hospital stay consisting of just 1 episode of care is said to be a **single-episode stay**; a hospital stay consisting of 2 or more episodes of care is said to be a **multi-episode stay**.

There are two types of separations where the patient remains within the hospital system. In a **statistical separation** a patient changes from one hospital episode care type to another (for example, from acute care to rehabilitation). The following episode is said to start with a **statistical admission**. A patient may also **transfer** from one hospital to another.

An episode of care for an admitted patient starting and ending on the same day is called a **same-day** episode. All other episodes of care are called **overnight** episodes.

Length of episode—or **patient days**—is derived for episodes of care. The length of an overnight episode is calculated by subtracting the date the patient is admitted from the date of separation and deducting any days the patient was on leave.

The **care type** of an episode of care defines the overall nature of a clinical service provided to an admitted patient during an episode of care.

Both a **principal diagnosis** and **additional diagnoses** are assigned for each episode of care. The principal diagnosis is that diagnosis established after study to be chiefly responsible for occasioning the episode of admitted patient care. Other conditions that contribute to the care provided or resource use during patient treatment are recorded in the NHMD as additional diagnoses; additional diagnoses may therefore not be inclusive of all comorbid conditions experienced by the patient.

Diagnosis codes are classified according to the International Classification of Diseases 10th revision, Australian modification (ICD–10–AM) Edition 6 diagnosis classification (see Appendix C). In this report, for ease of expression sets of related diagnoses (often ICD–10–AM chapters) may be referred to as a **condition group**.

Source: AIHW 2010.

Residential aged care data

The RAC data were derived from the Australian Department of Health and Ageing's Aged and Community Care Management Information System (ACCMIS) data warehouse which records information to facilitate the payment of government subsidies for people receiving care in accredited RAC facilities. Consequently, only episodes of care in government-subsidised RAC facilities are included. Similar data for the Transition Care Program (TCP)—a program providing short-term care to older Australians directly after discharge from hospital—are also available from this database. Because of the obvious relationship between hospital use and TCP, periods of use in this program were also included to allow a fuller picture of movements. Note, however, that TCP care is not necessarily provided in a RAC facility, but can also be provided in the community or another 'live-in' facility (AIHW 2011b, 2012b). TCP accounted for just over 4% of service events extracted from ACCMIS for this study (see Table B.2). Box 1.2 gives key terms relating to RAC.

Box 1.2: Key terms used for the RAC data

For a person to be able to access government-subsidised permanent or respite RAC, assessment for and approval of care by an **Aged Care Assessment Team** (**ACAT**) is required. During the period covered by this analysis, an ACAT approval remained valid for 12 months. If a person's care needs changed to the extent that a different level or type of care was required, they may have been reassessed. An ACAT approval was also required for residents moving between facilities in order to change from low care to high care, or if there was a break in care of more than 1 day (DoHA 2006:part 5). Assessment approval requirements to access RAC changed significantly from 1 July 2009, with many approvals no longer being time-limited; the new requirements are summarised in Box 4.1.

An ACAT assessment and approval is also needed to access TCP and, for this program, the assessment must be done while the patient is in hospital.

A person may be admitted for **permanent care** in a RAC facility, with the RAC facility becoming the person's place of usual residence. A permanent admission may be preceded by **pre-entry leave** of up to 7 days. This leave gives a prospective resident time to make arrangements to enter an aged care home or to transfer from one home to another home in a distant location.

A person may be admitted for **respite care** in a RAC facility. Residential respite care is important both for people who need a higher level of care just for the short term and as a component of the carer support system, whether for emergency care or to provide a 'break' while carers attend to other affairs or take a holiday. A person can receive up to a total of 63 days of subsidised respite care in any financial year. This total covers respite admissions to all Australian Government-funded RAC services. However, if a person needs more than 63 days of respite care in the financial year, the ACAT may in some circumstances approve extension periods of 21 days at a time.

Care is provided on a **high-care** or **low-care** basis. For permanent residents, care needs are appraised by the admitting RAC facility (see Box 4.2 for details). For respite residents, care needs are assessed by the ACAT, and an overall care level (low or high) is indicated in the RAC approval.

A permanent RAC resident can take unlimited days of leave for the purpose of receiving hospital treatment, termed **hospital leave**. Hospital leave is provided for hospital stays lasting at least 1 night. **Extended hospital leave** is where a resident has hospital leave for a continuous period of 30 days or more. In this case, the daily basic subsidy paid to the RAC facility to subsidise the costs experienced by the RAC resident is reduced.

Sources: AIHW 2007a:chapter 3, AIHW 2009:box 3.7, DoHA 2005, DoHA 2011:29.

There are several ways a client may enter or leave RAC:

- as a new admission, for either permanent or respite RAC or for TCP care
- as a discharge, from either permanent or respite RAC or from TCP care
- to go on hospital leave. Hospital leave is provided to permanent residents for hospital stays lasting at least 1 night
- to go to hospital, but no leave reported
- to go on social leave, in which a permanent resident has a period away from the RAC facility to visit family and/or friends.

To allow sufficient leeway for identifying movement between the two sectors, the RAC service event data for this study included all RAC permanent and respite admissions, reported hospital leave and periods in RAC or TCP events that included care provision at some time in 2008–09 (see Table B.2). Previous linkage studies have shown that very few matches are made to social leave, and so these events were not included explicitly among the RAC events used in the linkage process. However, the linkage strategies included processes to identify stays in hospital by RAC residents even when hospital leave had not been reported. These processes also identified hospital stays by RAC residents while they were on social leave.

A total of almost 600,000 events for 280,000 people aged 64 and over at 1 July 2008 were included in the study for data linkage (see Table B.2), noting that the lower age cut-off was chosen to allowed for some variation in reported date of birth between the hospital and RAC data. Nationally, nearly 30% of these events were hospital leave and just under 60% were periods in RAC that included either an admission into or discharge from RAC during 2008–09. The remainder were for people in permanent care throughout 2008–09. Only the 120,000 admissions occurring in 2008–09 are included in the analysis of movement into RAC (Section 4).

1.2 Linkage methods

Data linkage is a statistical approach that associates records about individuals from different sources. In doing so, the types of statistical investigations that can be carried out—including analysis of movement over time—are expanded without either increasing the reporting load of service providers or requiring special surveys. In the current study, the purpose of data linkage was to identify a variety of transitions between hospital and RAC without relying on information reported by one service sector about the other sector. Relying on third party information such as this can lead to inaccuracies in the reported information.

In the current context, the data linkage aims to identify:

- hospital episodes starting with a discharge from RAC (permanent or respite) or TCP
- hospital episodes ending with an admission into RAC (permanent or respite) or TCP
- hospital episodes for people living permanently in RAC who were not discharged from RAC at the time of hospital admission (usually recorded as 'hospital leave' in the RAC data)
- deaths in hospital for people who were either permanent RAC residents or who were admitted from RAC.

Data linkage of records for individuals is commonly carried out using detailed demographic data, including name and/or a person identification number. As there was no common

person identifier on the hospital and RAC data sets, the data linkage relied on demographic and event data. To protect the privacy of individuals, data linkage was undertaken using purpose-specific linkage data sets that contained only the data required for establishing and validating links; analysis files did not contain identifying data.

The RAC linkage data were obtained from a national database (ACCMIS), and were relatively straightforward to derive, with the database containing a person identifier along with full name for each event. The hospital data were significantly more complicated as they were supplied separately by each jurisdiction, and the demographic data available for linkage varied between jurisdictions as well as hospital sector (that is, public versus private). Some jurisdictions could provide full name or part name data for all their hospital episodes, some for just the public hospital episodes and some for none of their episodes (see Table B.1). These differences meant that the data items that could be used for linkage varied with the state and territory and hospital sector.

In recent years, the AIHW has developed and refined linkage methods based on statistical linkage keys (SLK) and event dates that use demographic and event data to link transition events (Karmel et al. 2010; Karmel & Gibson 2007). The effectiveness of these methods has been established both through theoretical analysis and direct comparison with name-based linkage strategies (AIHW 2011a; AIHW: Karmel & Rosman 2007). For this analysis, linkage was undertaken to identify related hospital and RAC events; that is, to identify which hospital admissions were linked to a RAC discharge, which hospital discharges were linked to a RAC admission, and which hospital episodes were linked to periods when a RAC resident left care temporarily to go to hospital.

Because of the varying data available for data linkage, three different linkage strategies were used to identify movement between hospital and RAC:

- name-based linkage, using full name, date of birth, sex, region and event data (possible for 25% of hospital episodes)
- SLK-based linkage, using parts of name, date of birth, sex, region and event data (possible for 30% of hospital episodes)
- event-based linkage, using date of birth, sex, region and event data (used for the remaining 45% of hospital episodes).

In addition, all public hospital episodes, except those for Tasmanian hospitals, and some private hospital episodes had a within-hospital person identifier, accounting for 77% of all hospital episodes (Table B.1). Using this identifier, contiguous hospital episodes resulting from a change in care type in the same hospital were combined into a single event to improve the event date data available for linkage. All three strategies specifically allowed for some variation and delays in recording event dates. Overall, links identified using at least some name information accounted for nearly two-thirds of links to hospital admissions and just over one-half of links to hospital discharges (see Table B.8 and Table B.9).

A detailed description of the method used to join adjacent hospital episodes (where possible) and the linkage strategies is given in Appendix B. The quality of links identified through the SLK-based and event-based linkage strategies is also examined, using results from the name-based linkage as the 'gold standard' (Section B.3). Both strategies were found to be effective in identifying links (sensitivity>90%) and were highly likely to identify correct links (positive predictive value >94%) (Table B.5).

Overall, 108,000 links to RAC or TCP events were identified for hospital admissions and 147,000 links were identified for hospital separations (Table B.8 and Table B.9).

1.3 Estimates of flow

The flow of people between hospital and RAC can be examined from three viewpoints:

- where people come from before they enter hospital (that is, hospital admissions)
- where people go to when they leave hospital (that is, hospital discharges)
- where people come from when they enter permanent or respite RAC (that is, RAC admissions).

Comparisons with the name-based strategy show that both the SLK-based and event-based linkage processes missed some matches and made some false matches (Section B.3). It is desirable to adjust for these discrepancies when undertaking analyses in order to get more accurate estimates of flow and of the relative importance of movement to and from RAC in the hospital system. Also, under-identification of hospital stays associated with RAC clients implies overestimation of hospital stays *not* associated with a RAC client.

Adjustments for missed and false matches were derived by comparing the results of linking hospital episodes with name data using all three linkage strategies. A detailed description of the derivation of adjustment weights is given in Section B.4.2. Note that adjustments are only required when getting estimates by movement type. Results are discussed using adjusted estimates. Adjusted estimates of numbers of events are rounded to the nearest 100; unadjusted figures are left unrounded.

In order to concentrate on admissions into and discharges from the hospital system, statistical admissions and transfers from another hospital have been excluded from analysis of pre-hospital origin, and statistical separations and transfers to another hospital have been excluded from analysis of discharge destination. Note that because NHMD hospital data for this study were made up of all hospital episodes ending in 2008–09, hospital admissions included in the analyses may have started before 2008–09 but necessarily ended in 2008–09.

People entering hospital: where they come from

Almost 1.1 million admissions into hospital were in scope for analysis of pre-hospital origin (Table 1.1). To be in scope:

- the episode must have been for an admitted patient who was aged 65 and over on 1 July 2008 (the reference date for derivation of patient age)
- the hospital episode must have ended during 2008–09; patients admitted before 1 July 2008 are included as long as the episode ended during 2008–09
- the episode must not have started with a statistical admission or hospital transfer
- the episode must have had a known pre-admission origin; 882 cases did not meet this criterion and so were excluded
- the episode must not have had a care type of posthumous organ procurement or hospital boarder; 890 cases were excluded for this reason.

In general, pre-hospital origin analyses are grouped into: admissions into hospital of permanent RAC residents; discharged from respite RAC; discharged from TCP; or admissions from community/other. Hospital admissions that originated from 'community/other' primarily consisted of people admitted from their homes in the general community; however, a small proportion was from care facilities that were not aged-care specific.

More than 90% of all hospital admissions of people aged 65 and over were for people who were living in the community at the time of admission (Table 1.1). Nearly all of the remaining admissions were for people who came from residential care (9%). Permanent RAC residents accounted for more than 95% of all admissions from RAC (8.7%/9.1%), with most of these people retaining their residence in the RAC facility at least for a time rather than being discharged to hospital on the day of their hospital admission (see Table B.8). People transferring from TCP care accounted for only 0.2% of all hospital admissions, relating to an estimated 2,700 periods of TCP care. As there were around 14,000 admissions into TCP in 2008–09, these results suggest that about one-fifth of TCP episodes ended with transfer back to hospital (AIHW 2011b).

Table 1.1: Pre-hospital origin of hospital admissions, separations in 2008–09 (adjusted)

Pre-hospital origin	Per cent	[(a)]Number
Permanent RAC resident[(b)]	8.7	93,400
From respite RAC[(c)]	0.4	3,900
From TCP[(c)]	0.2	2,700
From community/other	90.7	971,200
Total	**100.0**	**1,071,126**

(a) Estimated number of hospital admissions for people entering hospital. The total (1,071,126) is the observed number of admissions that were not statistical admissions, hospital transfers or admissions with unknown origin or out-of-scope care type (see note 3 below).

(b) Includes both people discharged from RAC into hospital and those attending hospital while still permanent RAC residents.

(c) To be admitted into hospital care a person must actually be discharged from respite RAC or TCP.

Notes

1. Percentages across origin of admission have been adjusted for missed and false matches between hospital and RAC data (see Appendix B). Adjusted numbers have been rounded to reflect the uncertainty in these estimates. Numbers that do not need to be adjusted (that is, those not derived using data linkage) are not rounded.
2. Table includes patients aged 65 and over as at 1 July 2008.
3. All 'origin' tables exclude 890 cases with care type of organ procurement or hospital boarder, and 882 cases with unknown pre-hospital origin.
4. Components may not sum to total due to rounding.
5. 'From community/other' is primarily composed of people who were admitted from their home in the general community. A small proportion will have come from care facilities that were not aged care specific (welfare institutions such as prisons, hostels and group homes providing primarily welfare services). A breakdown of this category is not available.
6. The hospital data provided for this study included only hospital episodes that ended in 2008–09. Consequently, hospital admissions included in the analyses may have started before 2008–09 but necessarily ended in 2008–09.

People leaving hospital: where they go

In 2008–09, almost 1.1 million hospital episodes were in scope for analysis by hospital discharge destination (Table 1.2). Similar to pre-hospital origin tables, to be in scope:

- the episode must have been for an admitted patient who was aged 65 and over on 1 July 2008 (the reference date for derivation of patient age)
- the hospital episode must have ended during 2008–09; patients admitted before 1 July 2008 are included as long as the episode ended during 2008–09
- the episode's mode of separation must not have been a statistical separation or hospital transfer

- the episode must not have had an unknown discharge destination; 5 cases were excluded for this reason
- the episode must not have had a care type of posthumous organ procurement or hospital boarder; 873 cases were excluded for this reason.

For analyses by hospital discharge destination, the pre-hospital origin of people who died in hospital may not be known if the hospital episode started with a statistical admission or transfer from another hospital. Consequently, there may be some under-identification of deaths for patients admitted from RAC or TCP. This under-identification is likely to be smaller for people admitted from permanent RAC than from respite RAC or TCP as many of the former are discharged while on RAC hospital leave (reported or unreported), allowing for stronger date comparisons. The adjustment process accounts for under-identification to some extent by deriving adjustment weights based on whether or not the patient who died was identified as coming from RAC or TCP; due to the small numbers, adjustment weights could not be derived separately for patients coming from permanent RAC, respite RAC and TCP (see Table B.13). The size of this problem can be gauged to a degree by examining the level of statistical and transfer admissions and discharges (see Table 3.1 and Table 3.3).

At the end of their period in hospital, most people (83%) returned to the community. This is lower than the proportion of people who entered hospital from the community, largely because of people admitted from the community being discharged due to death (4%) or to care facilities.

A substantial proportion of people aged over 65 were discharged to a RAC facility (11%). The majority of these transfers related to people returning to their usual residence in RAC. However, one-fifth were new admissions into permanent RAC (2.2%) (Table 1.2). A smaller proportion of discharges (1.2%) were to respite RAC. This last is slightly larger than the proportion (1%) estimated as transferring to transition care on discharge.

For people aged 65 and over, death accounted for 5% of all discharges for hospitalisations ending in 2008–09 (Table 1.2). Permanent RAC residents accounted for 18% of all deaths, a disproportionately large share as they accounted for less than 9% of all admissions into hospital. While potentially concerning, it is likely that this is simply a reflection of the general frailty of the RAC population when compared with patients admitted to hospital from the general community.

Table 1.2: Discharge destination, hospital discharges, 2008–09 (adjusted)

Discharge destination	Per cent	[(a)]Number
Discharged to RAC subtotal	10.9	118,900
To respite RAC	1.2	12,700
To permanent RAC[(b)]	2.2	23,700
Return to RAC (u.r.)[(c)]	7.5	82,500
To TCP	1.0	10,600
To other health care	0.4	4,100
To community/other[(d)]	82.9	906,600
Died subtotal	4.9	53,546
Admitted from permanent RAC[(e)]	0.9	9,600
Admitted from respite RAC/TCP[(e)]	0.1	800
Other	3.9	43,200
Total	**100.0**	**1,093,736**

(a) Estimated number of hospital discharges for people exiting hospital. The total (1,093,736) is the observed number of discharges that were not statistical separations, hospital transfers, or discharges with unknown destination or out-of-scope care type (see note 3 below)..

(b) Almost 9% of discharges to permanent RAC were for people who had been in permanent care previously. Of these 2,100 discharges, more than half (57%) were specifically identified as having being admitted as a discharge to hospital from permanent RAC or while on RAC hospital leave. A further quarter started the exiting hospital event with a hospital transfer or statistical admission. It was not possible from the available linkage data to determine whether these patients had entered hospital from permanent RAC.

(c) Throughout the document usual residence has been abbreviated to u.r. (see list of abbreviations).

(d) 'To community/other' is primarily composed of people who were admitted from their home in the general community. A small proportion will have gone to care facilities that were not aged care specific (welfare institutions such as prisons, hostels and group homes providing primarily welfare services). A breakdown of this category is not available.

(e) Some relevant deaths may not have been identified as being for a patient admitted from RAC or TCP if the hospital episode began as a statistical admission or transfer from hospital. People admitted from respite RAC or TCP were more likely than others to have a multi-episode stay (see Table 3.1 and Table 3.3).

Notes

1. Percentages across origin of admission have been adjusted for missed and false matches between hospital and RAC data (see Appendix B). Adjusted numbers have been rounded to reflect the uncertainty in these estimates. Numbers that do not need to be adjusted (that is, those not derived using data linkage) are not rounded.
2. Table includes patients aged 65 and over as at 1 July 2008.
3. All 'destination' tables exclude 873 cases with care type of organ procurement, hospital boarder, and 5 cases with unknown destination.
4. Components may not sum to total due to rounding.

People entering residential aged care: where they come from

Analysis of movement into RAC was limited to permanent and respite admissions, and excluded TCP as the latter is available only for people leaving hospital and is not necessarily provided in a RAC facility. As in the analysis of movement into and out of hospital, for the analysis of people moving into RAC the client must have been aged 65 or over on 1 July 2008.

A client's pathway into RAC was identified using:

- links between hospital episodes for admitted patients, and RAC admissions and RAC hospital leave
- the location of the person before the hospital episode (that is, in RAC or elsewhere)

It was assumed that if the RAC admission was within 7 days of the hospital discharge then the two events were associated; that is, the RAC admission was 'from hospital'. Also, admissions into RAC were identified as transfers if the gap between discharge from one RAC facility and/or care type (respite or permanent) and readmission into another was no more than 1 day.

Only hospital discharges in the 2008–09 financial year could be used when deriving the source of admissions into RAC. Consequently, people discharged from hospital near the end of the 2007–08 financial year who were then admitted into RAC within 7 days in 2008–09 have not been identified. Estimates of movement into RAC from hospital in 2008–09 may therefore be slightly understated.

In 2008–09, there were just over 120,000 admissions into RAC nationally for people aged 65 and over, including transfers between facilities or between respite and permanent care. It is estimated that almost 39,000 (or 32%) of these admissions were via hospital (Table 1.3). Two-thirds of admissions into residential care from hospital were for permanent care.

Overall, 55% of admissions into RAC during 2008–09 were for permanent care (Table 1.3). Nearly two-fifths of these 66,300 permanent admissions were from hospital (39%) and one-quarter were from the community. The remaining permanent admissions were the result of transfers from respite care (19%), other permanent care (14%) or TCP care (2.6%). Nearly 80% of permanent admissions were for people who had not been in this type of care in the previous 12 months.

Respite admissions had quite a different origin profile, with the majority of the 53,700 respite admissions being for people living in the general community (73%). Under one-quarter of respite admissions were via hospital. There were also small numbers of transfers from other respite care (3.1%), permanent care (0.1%) and TCP care (0.3%).

Table 1.3: Source of admissions into RAC, 2008–09 (adjusted)

Movement type	Per cent	Per cent within care type	Number
Permanent admissions			
First permanent admission in 12 months	*43.0*	*77.9*	*51,667*
From hospital	18.1	32.8	21,700
Transfer from respite RAC	10.4	18.8	12,400
Transfer from TCP	1.4	2.5	1,700
From community	13.2	23.9	15,800
Later permanent admission	*12.2*	*22.1*	*14,681*
From hospital[(a)]	3.5	6.3	4,200
Transfer from RAC	8.2	14.8	9,800
From respite RAC	0.3	0.5	300
From permanent RAC	7.9	14.3	9,500
Transfer from TCP	0.1	0.1	100
From community	0.5	0.8	600
All permanent admissions	*55.3*	*100.0*	*66,348*
Respite admissions			
From hospital	10.7	23.8	12,800
Transfer from RAC	1.5	3.3	1,800
From respite RAC	1.4	3.1	1,700
From permanent RAC	0.1	0.2	100
Transfer from TCP	0.2	0.3	200
From community	32.5	72.5	39,000
All respite admissions	*44.7*	*100.0*	*53,736*
Total	**100.0**	**. .**	**120,084**

(a) In 91% of these cases, the RAC client was identified as being in permanent care just before hospitalisation, and in fewer than 1% the client had been in respite RAC. For a proportion of the remainder the RAC client may also have been in RAC before the hospitalisation but was not identified as such due to moves within the hospital system. (Detailed numbers are given in Appendix Table B.16).

Notes

1. Percentages across movement type have been adjusted for missed and false matches between hospital and RAC data (see Appendix B). Numbers that do not need to be adjusted (that is, those not derived using data linkage) are not rounded.
2. The table incudes RAC admissions in 2008–09 for people aged 65 and over as at 1 July 2008. People discharged from hospital near the end of the 2008–09 financial year who were then admitted into RAC within 7 days but after 30 June 2009 are not included.
3. Only hospital discharges in the 2008–09 financial year could be used when deriving this table. Consequently, people discharged from hospital near the end of the 2007–08 financial year who were then admitted into RAC within 7 days in 2008–09 have not been identified. The table may therefore slightly underestimate the movement into RAC from hospital in 2008–09.
4. Types of movement were determined using:
   - links between hospital episodes and RAC admissions and RAC hospital leave
   - the location of the person before the hospital episode (that is, in RAC or elsewhere).
5. People were identified as moving 'from hospital' if they had been in hospital 7 or fewer days before admission into RAC.
6. An admission into permanent RAC is categorised as:
   - a first permanent admission in 12 months. A small number of these admissions were for people who had been discharged from RAC more than 12 months before the admission of interest.
   - a later permanent admission; that is, the RAC client had been discharged from permanent RAC in the 12 months before the admission of interest.

1.4 Age–sex standardisation

People living in RAC or being admitted into RAC tend to be older than the general hospital population aged 65 and over, and are also more likely to be female. Consequently, age–sex standardisation has been used in this report, where appropriate, to facilitate comparisons between different groups. In general, 5-year age groups have been used for standardisation, except for the oldest group (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, means and percentiles have been directly standardised using the age–sex distribution of all events contributing to the table.

Where applicable, age–sex standardisation has been applied to adjusted estimates. Standardised subtotals have been explicitly calculated, and so may not equal the sum of the adjusted components which contribute to the subtotal.

2 Movement into and out of hospital

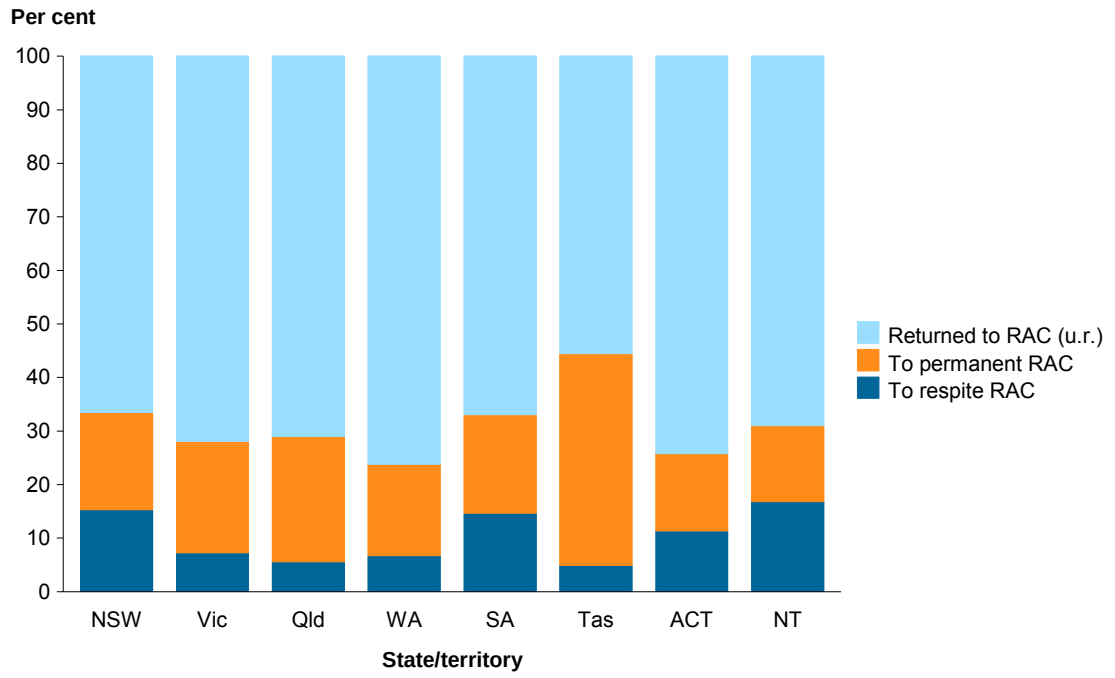
In this section patterns of movements into and out of hospital are examined by a range of client and hospital care characteristics. The analyses are conducted either by origin on admission or destination on discharge. In general the most appropriate view (that is, origin or destination) was selected for reporting to limit the repetition of reporting both. If there was no obvious choice between reporting by origin or destination, then destination was used as it shows changes in people's usual place of residence.

2.1 Region

As expected, in 2008–09 the states with the largest populations also accounted for the largest proportion of all hospital separations for people aged 65 and over. As in the general population aged 65 and over, New South Wales, Victoria and Queensland combined accounted for almost 80% of hospital discharges, while Tasmania and the territories accounted for about 4% (Table 2.1). Although at 30 June 2008 the total population of South Australia was less than that of Western Australia, South Australia accounted for a higher proportion of hospital discharges than Western Australia (9.4% versus 8.7%). This reflects the older population of South Australia: more than 15% of South Australia's population was 65 years or older while less than 12% of Western Australia's population were in this age group.

For all states and territories, a large majority of discharges were to the community, ranging from 81% to 84% (Table 2.1). Tasmania and the Northern Territory had the lowest rates of discharge into RAC (around 9%) and the highest percentages of people dying in hospital. Tasmania also had the highest rate of people going to other types of health care facilities following a hospital separation (3%).

Despite wide variation, return to RAC as usual residence accounted for the largest proportion of discharges to RAC for all states and territories, ranging from 56% of all discharges to RAC in Tasmania to 76% in Western Australia (Figure 2.1). For three jurisdictions the split between discharges to respite RAC and entering permanent RAC as a new admission was fairly even (New South Wales, South Australia and the Australian Capital Territory). Other states—Victoria, Queensland, Western Australia and Tasmania—had substantially smaller percentages of people entering respite RAC compared with permanent RAC as a new admission. This was particularly evident for Tasmania. The Northern Territory was the only jurisdiction to have a higher proportion of discharges to respite RAC than to permanent RAC as a new admission.



Source: Table 2.1

Figure 2.1: State or territory of hospital, by discharge destination for hospital discharges into RAC, 2008–09 (standardised per cent)

The percentage of patients discharged to residential care facilities varied with the remoteness of their usual residence (Table 2.2). People from remote and very remote localities were less likely than their urban counterparts to have their hospital stay end with either an admission or return to a RAC facility (less than 7% versus more than 10%). As a consequence they were more likely to return to their community or die in hospital. Around 87% of patients whose usual residence was in remote or very remote Australia were discharged from hospital to the community compared with 82% from major cities.

Table 2.1: State or territory of hospital, by discharge destination, hospital discharges, 2008–09 (standardised adjusted per cent)

Discharge destination	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Discharged to RAC subtotal	*12.2*	*9.9*	*10.2*	*9.7*	*11.5*	*9.1*	*10.6*	*9.2*	*10.9*
To respite RAC	1.9	0.7	0.6	0.6	1.7	0.4	1.2	1.5	1.2
To permanent RAC	2.2	2.1	2.4	1.7	2.1	3.6	1.5	1.3	2.2
Return to RAC (u.r.)	8.1	7.1	7.3	7.4	7.7	5.1	7.9	6.4	7.5
To TCP	1.0	1.1	0.9	0.8	1.0	1.0	1.6	1.3	1.0
To other health care	0.4	0.1	0.3	0.6	0.2	2.9	1.7	1.0	0.4
To community/other	81.3	84.0	83.8	84.4	82.9	81.6	81.0	81.8	82.9
Died subtotal	*5.1*	*4.9*	*4.8*	*4.6*	*4.3*	*5.4*	*5.1*	*6.7*	*4.9*
Admitted from permanent RAC	1.0	0.8	0.9	0.8	0.8	0.5	0.8	1.3	0.9
Admitted from respite RAC/TCP	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.1
Other	4.1	4.0	3.9	3.7	3.5	4.8	4.3	5.1	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**32.7**	**25.9**	**19.6**	**8.7**	**9.4**	**2.0**	**1.3**	**0.4**	**100.0**
Number N	**357,375**	**282,896**	**213,884**	**95,525**	**103,284**	**22,247**	**14,165**	**4,359**	**1,093,735**
Australian population 30 June 2008									
65+ ('000s)	960.6	715.8	522.2	257.0	244.3	75.0	34.3	10.9	2,820.0
65+ (row %)	34.1	25.4	18.5	9.1	8.7	2.7	1.2	0.4	100.0
65+ (as % of all)	13.8	13.5	12.2	11.8	15.3	15.0	9.9	4.9	13.2
All ('000s)	**6,975.9**	**5,293.1**	**4,270.1**	**2,178.6**	**1,597.3**	**498.6**	**347.3**	**220.9**	**21,381.8**
All (row %)	**32.6**	**24.8**	**20.0**	**10.2**	**7.5**	**2.3**	**1.6**	**1.0**	**100.0**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within state/territory have been age–sex standardised.
3. Table excludes 1 case with missing sex information.
4. Population numbers are based on ABS 2008 preliminary estimated resident population estimates.

Source: ABS 2008 (for population numbers).

Table 2.2: Remoteness of patient's usual residence, by discharge destination, hospital discharges, 2008–09 (standardised adjusted per cent)

	ASGC remoteness[(a)]					
Discharge destination	**Major cities**	**Inner regional**	**Outer regional**	**Remote**	**Very remote**	**Total**
Discharged to RAC subtotal	*11.4*	*10.3*	*9.6*	*6.7*	*6.6*	*10.9*
To respite RAC	1.1	1.2	1.5	1.1	0.7	1.2
To permanent RAC	2.2	2.3	1.8	0.8	1.3	2.2
Return to RAC (u.r.)	8.1	6.8	6.3	4.7	4.6	7.6
To TCP	1.0	1.0	0.7	0.5	0.3	1.0
To other health care	0.4	0.4	0.3	0.6	1.3	0.4
To community/other	82.4	83.5	84.1	87.3	86.4	82.9
Died subtotal	*4.9*	*4.9*	*5.2*	*4.9*	*5.3*	*4.9*
Admitted from permanent RAC	0.9	0.8	0.8	0.6	0.5	0.9
Admitted from respite RAC/TCP	0.1	0.1	0.1	0.1	—	0.1
Other	3.9	4.0	4.3	4.3	4.8	4.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**65.0**	**22.9**	**10.4**	**1.2**	**0.4**	**100.0**
Number N	**708,925**	**249,622**	**113,225**	**13,443**	**4,800**	**1,090,015**

(a) A classification of the remoteness of a patient's usual residence using the Australian Standard Geographical Classification Remoteness Structure.

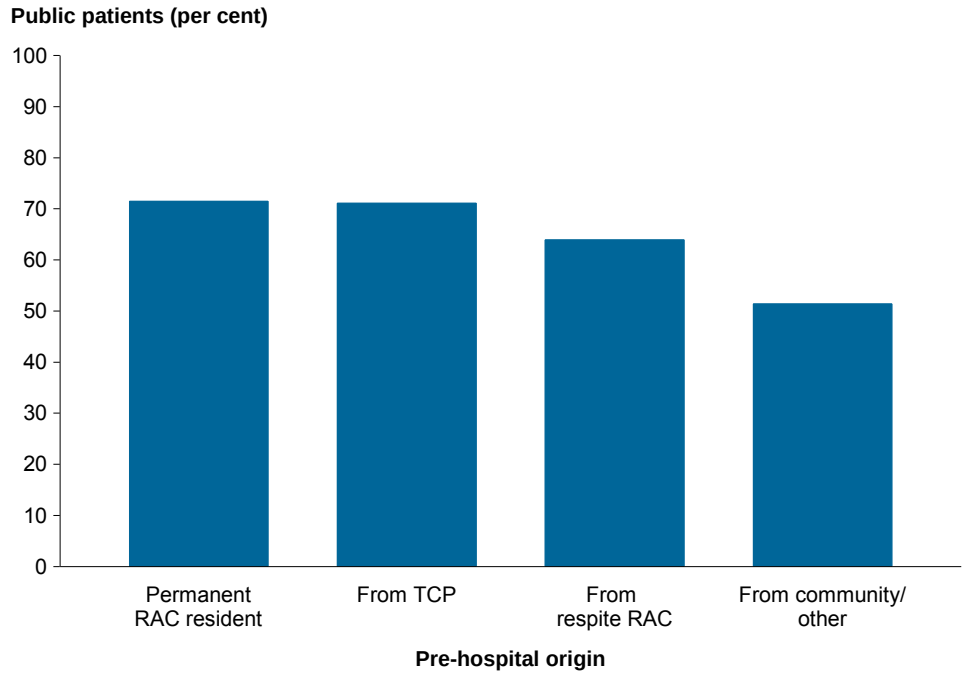
Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within remoteness category have been age–sex standardised.
3. Table excludes 3,720 cases with missing remoteness and 1 case with missing sex information.

2.2 Sector

Patient election status

Just over half of patients aged 65 and over were admitted to hospital as public patients (53%); that is, they agreed to be treated by doctors of the hospital's choice and to accept shared accommodation, and were not charged (Table 2.3). This approximately equal split between public and private patients reflects the fairly even split among patients admitted from the community—the largest group by far (91% of all admissions) (Figure 2.2). For the other three smaller pre-hospital origin groups, there was quite an uneven split, with public patients being the larger group in all cases. For example, more than 70% of patients admitted from permanent RAC were admitted as public patients. As a result, a greater proportion of public patients was admitted from permanent RAC when compared to private patients (11% versus 7%).



Source: Table 2.3.

Figure 2.2: Proportion of admissions that are for public patients, by pre-hospital origin, patient election status on admission into hospital, separations in 2008–09 (standardised per cent)

Hospital sector

A public hospital is one controlled by a state or territory health authority. Discharges from public hospitals (9%) were more likely to be for people returning to a RAC facility where this was their usual residence than those from private hospitals (5%). This indicates that private hospital patients were more likely to still be living in the community in their own homes before hospitalisation (Table 2.4). Following discharge, patients leaving public hospitals were also more likely to be new admissions into RAC, both for respite and permanent care (3.9% versus 2.2%). For both sectors, around two-thirds of discharges to RAC were to permanent care.

Public hospital patients were twice as likely as patients in a private hospital to be discharged due to death (6% versus 3%). However, a similar proportion of deaths in public and private hospitals were accounted for by patients admitted from permanent RAC (19% of public hospital deaths versus 15% of private hospital deaths).

The data available for this study are not sufficient to indicate whether the higher death percentage in public hospitals is due to the characteristics of the patients attending that sector (such as poorer general health or emergency health events), hospital characteristics (such as facilities, quality of care, staff), or timeliness of hospital attendance. This last can be affected by distance to a hospital.

Table 2.3: Pre-hospital origin, by patient election status on admission into hospital, separations in 2008–09 (standardised adjusted per cent)

Pre-hospital origin	Public	Private	Total
		Column %	
Permanent RAC resident	10.8	6.5	8.7
From respite RAC	0.4	0.3	0.4
From TCP	0.3	0.2	0.2
From community/other	88.5	93.0	90.7
Total	**100.0**	**100.0**	**100.0**
		Row %	
Permanent RAC resident	71.5	28.5	100.0
From respite RAC	63.9	36.1	100.0
From TCP	71.1	28.9	100.0
From community/other	51.4	48.6	100.0
Total (N row %)	**52.6**	**47.4**	**100.0**
Number	**563,646**	**507,004**	**1,070,650**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within patient election status have been age–sex standardised.
3. Table excludes 476 cases with missing patient election status.

Table 2.4: Sector of hospital, by discharge destination, hospital discharges, 2008–09 (standardised adjusted per cent)

Discharge destination	Public hospital[(a)]	Private hospital	Total
Discharged to RAC subtotal	*12.9*	*7.1*	*10.9*
To respite RAC	1.3	0.8	1.2
To permanent RAC	2.6	1.4	2.2
Return to RAC (u.r.)	9.0	4.9	7.5
To TCP	1.2	0.5	1.0
To other health care	0.5	0.2	0.4
To community/other	79.4	89.4	82.9
Died subtotal	*6.0*	*2.9*	*4.9*
Admitted from permanent RAC	1.1	0.4	0.9
Admitted from respite RAC/TCP	0.1	—	0.1
Other	4.8	2.4	3.9
Total	**100.0**	**100.0**	**100.0**
Total (N row %)	**64.7**	**35.3**	**100.0**
Number N	**708,110**	**385,625**	**1,093,735**

(a) Includes public psychiatric hospitals.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within hospital sector have been age–sex standardised.
3. Table excludes 1 case with missing sex information.

2.3 Age and sex

Even among older people, the hospital population has an older age profile than the general population. In 2008, people over the age of 85 accounted for less than 13% of the Australian population aged 65 and over (ABS 2008), compared with 20% of hospital stays for older people ending in 2008–09 (Table 2.6).

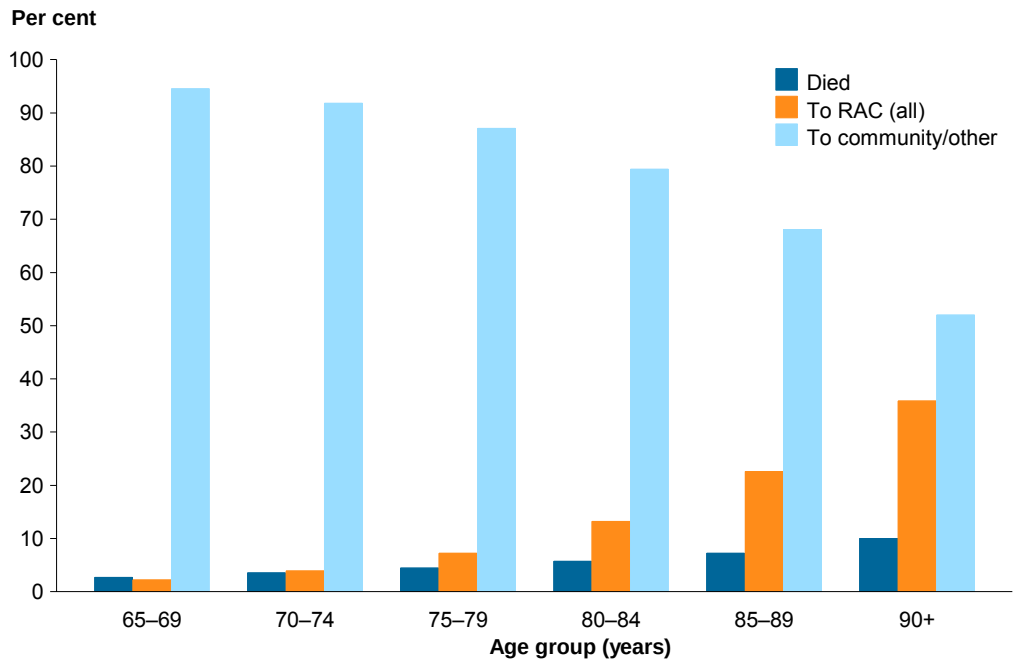
Each of the four 5-year age groups between 65 and 85 used in this analysis contributed around 20% of all hospital discharges for people aged 65 and over, the two oldest age groups (85–89 and 90+) contributing 14% and 7%, respectively (Table 2.6). Despite the older age profile, hospitalisations were almost evenly split between men and women (Table 2.5). This is in contrast to the general population aged 65 and over in 2008, among whom 55% were women.

For all destination groups, female patients tended to be older than their male counterparts (Table 2.5). They were also in the majority except among those returning to live in the community and among those who died in hospital after admission from the community (that is, not identified as admitted from aged care). As expected, people who were discharged to RAC tended to be older than those who returned to live in the community, with an average age of 84 years compared with 77. People who were admitted from permanent RAC and who then died had the oldest average age (84 for men and 87 for women).

Reflecting the above patterns, older age groups had an increased chance of hospital stays ending in death or discharge to a RAC facility (for either respite or permanent care) and consequently a reduced chance of returning to the community (Table 2.6; Figure 2.3). This pattern was particularly strong for returns to RAC as their usual residence: 4.5% of stays for patients aged 65–84 ended with a return to their usual residence in RAC, versus 19% of patients aged 85 or more. While this was true for both men and women, women aged 90 or more were more likely to return to their usual residence in RAC than men in the same age group (30% versus 20%).

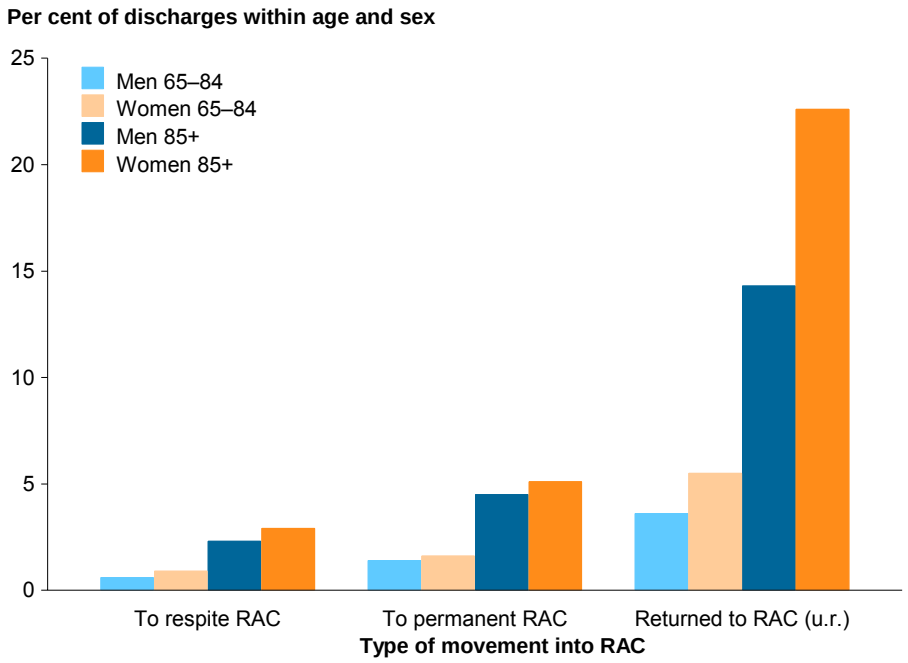
For all age groups under 85, less than 20% of deaths in hospital were accounted for by people who had been admitted from RAC or TCP, although this varied with age. Roughly 95% of all deaths occurring among patients in the youngest two age groups were for people admitted from the general community; this compares with nearly one-third (31%) of all deaths in the 85+ age group being for people admitted from a permanent RAC facility. These patterns largely reflect the differing age profiles—and associated frailty—of people admitted from the various locations: 94% of patients aged 65–84 were admitted from the general community compared with 76% of patients aged 85 and over (Table 2.7).

These patterns across age were seen for both men and women. However, women were more likely than men to be discharged to RAC in all age groups, with women more likely both to be returning to aged care as their usual residence and to be newly admitted into RAC (Figure 2.4).



Source: Table 2.6.

Figure 2.3: Age, by discharge destination, hospital discharges, 2008–09 (per cent within age group)



Source: Table 2.6.

Figure 2.4: Discharge destination within age group and sex, hospital discharges into RAC, 2008–09 (per cent)

Table 2.5: Discharge destination, by sex, hospital discharges, 2008–09 (adjusted)

Discharge destination	Men	Women	Total	Men	Women	Men	Women	All
	Row %			Column %		Mean age (years)		
Discharged to RAC subtotal	*36.6*	*63.4*	*100.0*	*8.1*	*13.6*	*82.9*	*85.3*	*84.4*
To respite RAC	38.3	61.7	100.0	0.9	1.4	82.7	84.4	83.8
To permanent RAC	42.4	57.6	100.0	1.9	2.5	82.3	84.8	83.7
Return to RAC (u.r.)	34.7	65.3	100.0	5.3	9.7	83.1	85.6	84.7
To TCP	34.8	65.2	100.0	0.7	1.2	80.9	82.6	82.0
To other health care	45.5	54.5	100.0	0.4	0.4	78.4	80.6	79.6
To community/other	50.7	49.3	100.0	85.6	80.3	76.3	77.6	76.9
Died subtotal	*53.2*	*46.8*	*100.0*	*5.3*	*4.5*	*80.0*	*82.4*	*81.2*
Admitted from permanent RAC	41.0	59.0	100.0	0.7	1.0	84.1	86.7	85.6
Admitted from respite RAC/TCP	49.6	50.4	100.0	0.1	0.1	83.3	84.8	84.1
Other	55.9	44.1	100.0	4.5	3.4	79.3	81.1	80.1
Total (unadjusted)	**49.2**	**50.8**	**100.0**	**100.0**	**100.0**	**77.1**	**78.9**	**78.0**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table excludes 1 case with missing sex.

Table 2.6: Discharge destination, by age group and sex, hospital discharges, 2008–09 (adjusted per cent)

Sex/destination	65–69	70–74	75–84	80–84	85–89	90+	Subtotal 65–84	Subtotal 85+	Total
Men									
Discharged to RAC subtotal	*2.1*	*3.6*	*6.3*	*10.8*	*18.1*	*28.6*	*5.6*	*21.1*	*8.1*
To respite RAC	0.2	0.4	0.8	1.3	2.0	2.9	0.6	2.3	0.9
To permanent RAC	0.6	0.9	1.5	2.6	4.0	5.8	1.4	4.5	1.9
Return to RAC (u.r.)	1.4	2.3	4.1	6.9	12.1	19.9	3.6	14.3	5.3
To TCP	0.2	0.4	0.7	1.0	1.2	1.4	0.6	1.2	0.7
To other health care	0.3	0.3	0.3	0.4	0.5	0.5	0.3	0.5	0.4
To community/other	94.4	91.8	87.5	81.3	72.1	58.2	88.9	68.2	85.6
Died subtotal	*2.9*	*3.9*	*5.1*	*6.6*	*8.1*	*11.3*	*4.6*	*9.0*	*5.3*
Admitted from permanent RAC	0.1	0.2	0.5	1.0	1.8	3.4	0.4	2.2	0.7
Admitted from respite RAC/TCP	—	—	0.1	0.1	0.2	0.2	—	0.2	0.1
Other	2.8	3.6	4.5	5.5	6.2	7.7	4.1	6.6	4.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**21.3**	**21.4**	**21.7**	**19.5**	**11.6**	**4.5**	**83.9**	**16.1**	**100.0**
Number N	**114,712**	**114,946**	**116,670**	**104,650**	**62,546**	**24,182**	**450,978**	**86,728**	**537,706**

(continued)

Table 2.6 (continued): Discharge destination, by age group and sex, hospital discharges, 2008–09 (adjusted per cent)

Sex/destination	65–69	70–74	75–84	80–84	85–89	90+	Subtotal 65–84	Subtotal 85+	Total
Women									
Discharged to RAC subtotal	*2.3*	*4.1*	*8.2*	*15.3*	*25.8*	*39.3*	*8.0*	*30.7*	*13.6*
To respite RAC	0.3	0.6	1.0	1.7	2.6	3.3	0.9	2.9	1.4
To permanent RAC	0.5	0.9	1.6	3.0	4.4	6.4	1.6	5.1	2.5
Return to RAC (u.r.)	1.6	2.7	5.6	10.6	18.7	29.6	5.5	22.6	9.7
To TCP	0.4	0.7	1.2	1.6	1.9	2.0	1.0	2.0	1.2
To other health care	0.3	0.3	0.4	0.5	0.5	0.5	0.4	0.5	0.4
To community/other	94.7	91.9	86.6	77.8	65.2	48.9	87.1	59.4	80.3
Died subtotal	*2.3*	*3.0*	*3.7*	*4.8*	*6.5*	*9.3*	*3.5*	*7.5*	*4.5*
Admitted from permanent RAC	0.1	0.3	0.4	1.0	2.0	3.8	0.5	2.6	1.0
Admitted from respite RAC/TCP	—	—	0.1	0.1	0.1	0.2	—	0.1	0.1
Other	2.2	2.7	3.2	3.7	4.4	5.3	3.0	4.7	3.4
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**16.8**	**17.4**	**19.9**	**21.3**	**15.8**	**8.8**	**75.4**	**24.6**	**100.0**
Number N	**93,497**	**96,642**	**110,774**	**118,349**	**87,743**	**49,024**	**419,262**	**136,767**	**556,029**

(continued)

Table 2.6 (continued): Discharge destination, by age group and sex, hospital discharges, 2008–09 (adjusted per cent)

Sex/destination	65–69	70–74	75–84	80–84	85–89	90+	Subtotal 65–84	Subtotal 85+	Total
Persons									
Discharged to RAC subtotal	*2.2*	*3.9*	*7.2*	*13.2*	*22.6*	*35.8*	*6.7*	*26.9*	*10.9*
To respite RAC	0.2	0.5	0.9	1.5	2.4	3.2	0.8	2.6	1.2
To permanent RAC	0.5	0.9	1.6	2.8	4.3	6.2	1.5	4.9	2.2
Return to RAC (u.r.)	1.5	2.5	4.8	8.9	16.0	26.4	4.5	19.4	7.5
To TCP	0.3	0.5	0.9	1.3	1.6	1.8	0.8	1.7	1.0
To other health care	0.3	0.3	0.4	0.4	0.5	0.5	0.3	0.5	0.4
To community/other	94.5	91.8	87.1	79.4	68.1	52.0	88.0	62.8	82.9
Died subtotal	*2.7*	*3.5*	*4.4*	*5.7*	*7.2*	*10.0*	*4.1*	*8.1*	*4.9*
Admitted from permanent RAC	0.1	0.2	0.5	1.0	1.9	3.7	0.5	2.5	0.9
Admitted from respite RAC/TCP	—	—	0.1	0.1	0.1	0.2	—	0.2	0.1
Other	2.5	3.2	3.9	4.6	5.1	6.1	3.6	5.4	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**19.0**	**19.3**	**20.8**	**20.4**	**13.7**	**6.7**	**79.6**	**20.4**	**100.0**
Number N	**208,209**	**211,588**	**227,444**	**222,999**	**150,289**	**73,206**	**870,240**	**223,495**	**1,093,735**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

2. Table excludes 1 case with missing sex.

Table 2.7: Pre-hospital origin, by age group, separations in 2008–09 (adjusted per cent)

Pre-hospital origin	65–69	70–74	75–84	80–84	85–89	90+	Subtotal 65–84	Subtotal 85+	All
Permanent RAC resident	1.7	2.9	5.4	10.2	18.5	31.4	5.1	22.7	8.7
From respite RAC	0.1	0.2	0.3	0.5	0.7	0.9	0.3	0.8	0.4
From TCP	0.1	0.1	0.2	0.4	0.4	0.4	0.2	0.4	0.2
From community/other	98.2	96.9	94.0	89.0	80.4	67.3	94.4	76.1	90.7
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Permanent RAC resident	3.7	6.3	13.0	23.9	29.1	24.0	46.9	53.1	100.0
From respite RAC	4.5	8.7	16.6	25.5	27.6	17.2	55.2	44.8	100.0
From TCP	5.6	10.3	20.3	29.5	22.6	11.7	65.7	34.3	100.0
From community/other	20.6	20.7	21.6	20.0	12.2	5.0	82.9	17.1	100.0
Total (N row %)	**19.1**	**19.4**	**20.8**	**20.4**	**13.7**	**6.7**	**79.6**	**20.4**	**100.0**
Number N	**204,170**	**207,700**	**223,018**	**218,144**	**146,769**	**71,325**	**853,032**	**218,094**	**1,071,126**

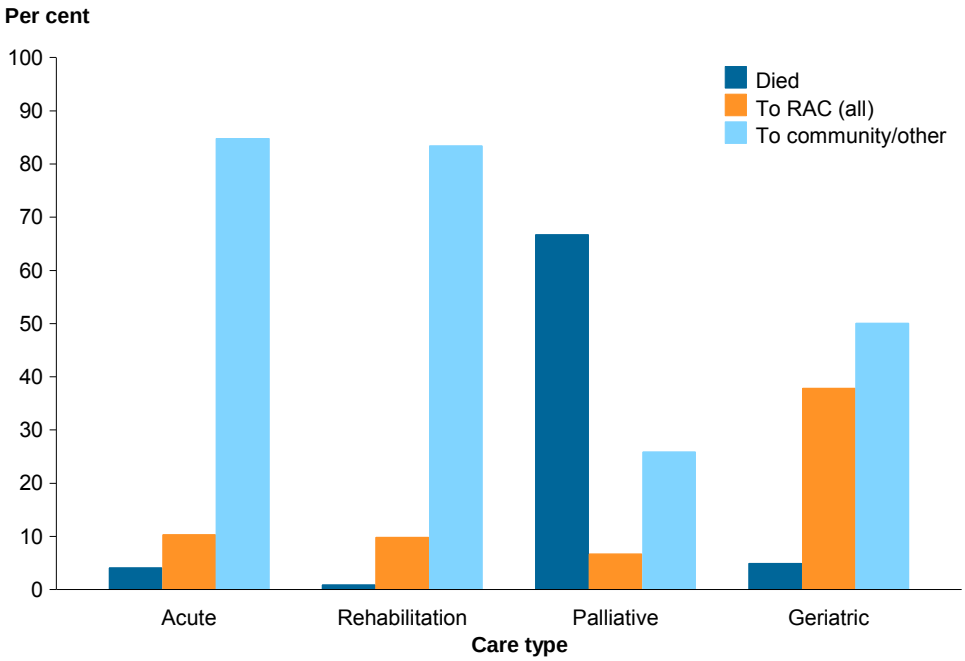
Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

2.4 Care type

People can receive a range of types of care while in hospital, depending on the main clinical intent of the hospital episode. These include acute care, rehabilitative care, palliative care, geriatric evaluation and management (GEM), psychogeriatric care and maintenance care (see Box 2.1 for descriptions). For the purposes of the following analyses, GEM, psychogeriatric care and maintenance care have been grouped together and are referred to as geriatric care. This grouping has been used because of the small numbers in psychogeriatric care, and because of the different program structures, and possibly some inconsistent implementation of the categories, across the jurisdictions. For example, Victorian hospitals accounted for 75% of discharges from GEM but only 5% of those from maintenance care.

Most discharges (90%) for our study group were from acute care (Table 2.8). This is influenced by the fact that the most common reasons for admission to hospital are associated with the circulatory and respiratory systems, cancer, and injury and poisoning (Table 2.9), all of which can have sudden onset and be life-threatening if untreated.

For all care types, other than palliative care, discharge into the community was the most common discharge destination, although this was more likely for patients who had been in acute or rehabilitative care before discharge. Among palliative care patients, only one-quarter were identified as going to a home in the community on discharge (Figure 2.5).



Note: Care type of 'Other admitted patient care' is not presented due to small numbers.

Source: Table 2.8.

Figure 2.5: Care type, by discharge destination, hospital discharges, 2008–09 (standardised per cent within care type)

Box 2.1: Care types for admitted patients

The care type of a hospital episode defines the overall nature of clinical service provided to an admitted patient, or the type of service provided by the hospital for boarders or during posthumous organ procurement. Care types of relevance to older patients include:

- **acute care**, where the clinical intent or treatment goal is either to cure illness or provide definitive treatment of injury, perform surgery, to relieve symptoms of illness or injury (non-palliative), reduce severity of an illness or injury, protect against exacerbation and/or complication of an illness or injury that could threaten life or normal function; and/or perform diagnostic or therapeutic procedures
- **rehabilitation care**, which occurs when a person with a disability is participating in a multidisciplinary program aimed at an improvement in functional capacity, retraining in lost skills and/or change in psychosocial adaptation
- **palliative care**, which occurs when a person's condition has progressed beyond the stage where curative treatment is effective and attainable, or where the person chooses not to pursue curative treatment. Palliation provides relief of suffering and enhancement of quality of life for such a person. Intervention such as radiotherapy, chemotherapy and surgery are considered to be part of the palliative episode if they are undertaken specifically to provide symptomatic relief
- **geriatric evaluation and management (GEM)**, where the clinical intent or treatment goal is to maximise health status and/or optimise the living arrangements for a patient with multi-dimensional medical conditions associated with disabilities and psychosocial problems, and who is usually (but not always) an older patient
- **psychogeriatric care**, in which the clinical intent or treatment goal is improvement in health, modification of symptoms and enhancement in function, behaviour and/or quality of life for a patient with an age-related organic brain impairment with significant behavioural or late onset psychiatric disturbance or a physical condition accompanied by severe psychiatric or behavioural disturbance
- **maintenance care**, in which the clinical intent or treatment goal is prevention of deterioration in the functional and current health status of a patient with a disability or severe level of functional impairment
- **other care** for patients aged 65 and over, where the principal clinical intent does not meet the criteria for any of the above**.**

For the current analysis GEM, psychogeriatric care and maintenance care have been grouped together and are referred to as **geriatric care**.

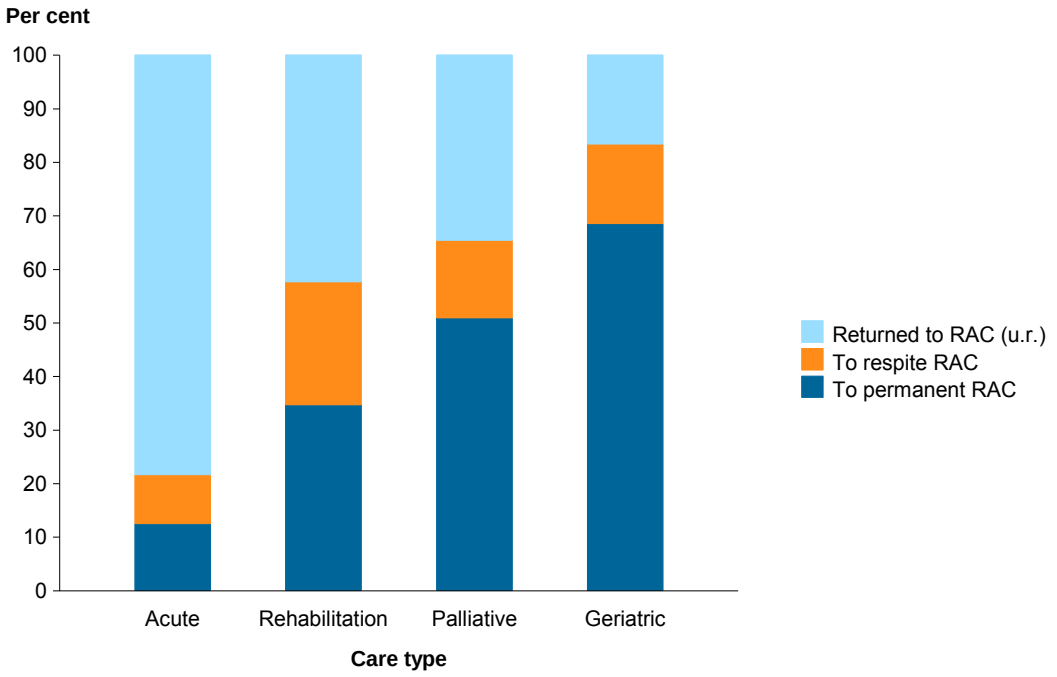
Source: AIHW 2010.

As may be expected, a large proportion of patients aged over 65 in palliative care were discharged due to death (67%). However, for the large group of patients in acute care, 4% of discharges were due to death, while less than 1% of patients in rehabilitation care were discharged for this reason (Table 2.8). For all care types, the majority of deaths occurred among people who had been admitted from the general community. However, a substantial proportion of acute care patients who died (20%) had been admitted from permanent RAC.

Compared with other care types, a very high proportion of patients in geriatric care before discharge were discharged to RAC facilities. More than a quarter (26%) of patients in geriatric care were admitted into permanent RAC on discharge from hospital and a further 12% went to either respite care or returned to their usual residence in RAC (Table 2.7).

Unlike people leaving acute or rehabilitative care, patients discharged to RAC facilities from palliative or geriatric care were more likely to be discharged to RAC as a new permanent admission than as a return to their usual residence (Figure 2.6). In particular, two-thirds of discharges from geriatric care to RAC were as new permanent admissions compared with just over 10% of discharges to RAC facilities from acute care.

Among discharges to RAC facilities, discharges to respite RAC were the least common destination for all care types. However, discharges to respite RAC were relatively more common following rehabilitation care, accounting for almost a quarter of discharges to residential care for this group (Figure 2.6).



Note: Care type of 'Other admitted patient care' is not presented due to small numbers.

Source: Table 2.8.

Figure 2.6: Care type, by discharge destination, hospital discharges into RAC, 2008–09 (standardised per cent)

Table 2.8: Care type before discharge, by discharge destination, hospital discharges, 2008–09 (standardised adjusted per cent)

	Care type at time of discharge from hospital					
Discharge destination	**Acute care**	**Rehabilitation**	**Palliative care[(a)]**	**Geriatric care**	**Other admitted patient care**	**Total**
Discharged to RAC subtotal	*10.3*	*9.8*	*6.6*	*37.8*	*15.3*	*10.9*
To respite RAC	0.9	2.3	1.0	5.6	—	1.2
To permanent RAC	1.3	3.4	3.4	25.9	9.1	2.2
Return to RAC (u.r.)	8.1	4.1	2.3	6.3	6.2	7.5
To TCP	0.5	5.5	0.2	5.8	n.p.	1.0
To other health care	0.3	0.5	0.7	1.5	n.p.	0.4
To community/other	84.8	83.4	25.8	50.0	78.9	82.9
Died subtotal	*4.1*	*0.8*	*66.7*	*4.9*	*3.3*	*4.9*
Admitted from permanent RAC	0.9	0.1	5.9	0.4	—	0.9
Admitted from respite RAC/TCP	0.1	—	0.5	0.1	—	0.1
Other	3.1	0.8	60.3	4.5	3.3	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**89.9**	**5.8**	**1.6**	**2.7**	**—**	**100.0**
Number N	**983,413**	**63,357**	**17,518**	**29,316**	**92**	**1,093,696**

(a) In this publication, reported care type is used to identify the care type provided in a hospital episode. This approach differs from that used in the 2011 AIHW publication *Trends in palliative care in Australian hospitals* (AIHW 2011d), the purpose of which was to quantify and describe episodes in admitted patient settings for which palliation was a substantial component of the care provided. In that report, both reported care type and a diagnosis of *Palliative care* (ICD–10–AM code Z75.1) were used to identify in-scope hospital separations. Across all episodes for 2008–09 classified as 'palliative care' for the purposes of that report, 56% had a reported care type of palliative care (see Appendix B in AIHW 2011d for details).

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within care type have been age–sex standardised.
3. Table excludes 39 cases with missing care type and 1 case with missing sex information.

2.5 Principal diagnosis

During a hospital episode, information about the health conditions that caused or contributed to admission, or which influenced treatment or resource use, is recorded on the patient record. Of all the diagnoses recorded, the principal diagnosis is defined as that found to be primarily responsible for the episode of care. However, where multiple complex health conditions are present, it may be difficult to identify a single condition that caused admission to hospital. In addition, the relatively high prevalence of multi-episode stays for people moving to residential care affects the examination of health conditions causing hospitalisation for these people (see Table 3.3). In some cases the initial reason for the hospitalisation of a person who was discharged into residential care may not be represented in the available data, with the principal diagnosis for the hospital episode immediately before the move either being different from that which caused the initial hospitalisation or indicating care needs rather than a specific health condition. The interaction of multiple health conditions, medication use, and social factors can contribute significantly to the need

for hospitalisation among older people and to the complexity and cost of treatment. Such complexities need to be considered when making deductions from the following analyses.

To examine the principal diagnoses of older patients making various transitions into hospital, diagnoses were combined into 18 main groups corresponding to diagnosis chapters in the International Classification of Diseases 10th revision Australian Modification (ICD–10–AM, 6th edition). For some diagnosis chapters a breakdown into more specific disease groups is also given to allow examination of particular conditions. Throughout the discussion and in tables and figures, these groups of conditions are referred to using abbreviated names for ease of reading and presentation. Table C.1 shows the ICD–10–AM codes contributing to condition groups used in the analysis and maps the abbreviated names to the full ICD–10–AM chapter names. Appendix C also contains a complete list of conditions included in the ICD–10–AM chapters.

Diseases of the circulatory system accounted for 18% of all hospital admissions among people aged 65 and over. Neoplasms (11%), respiratory conditions (10%) and injury and poisoning (10%) were also very common principal diagnoses (Table 2.9).

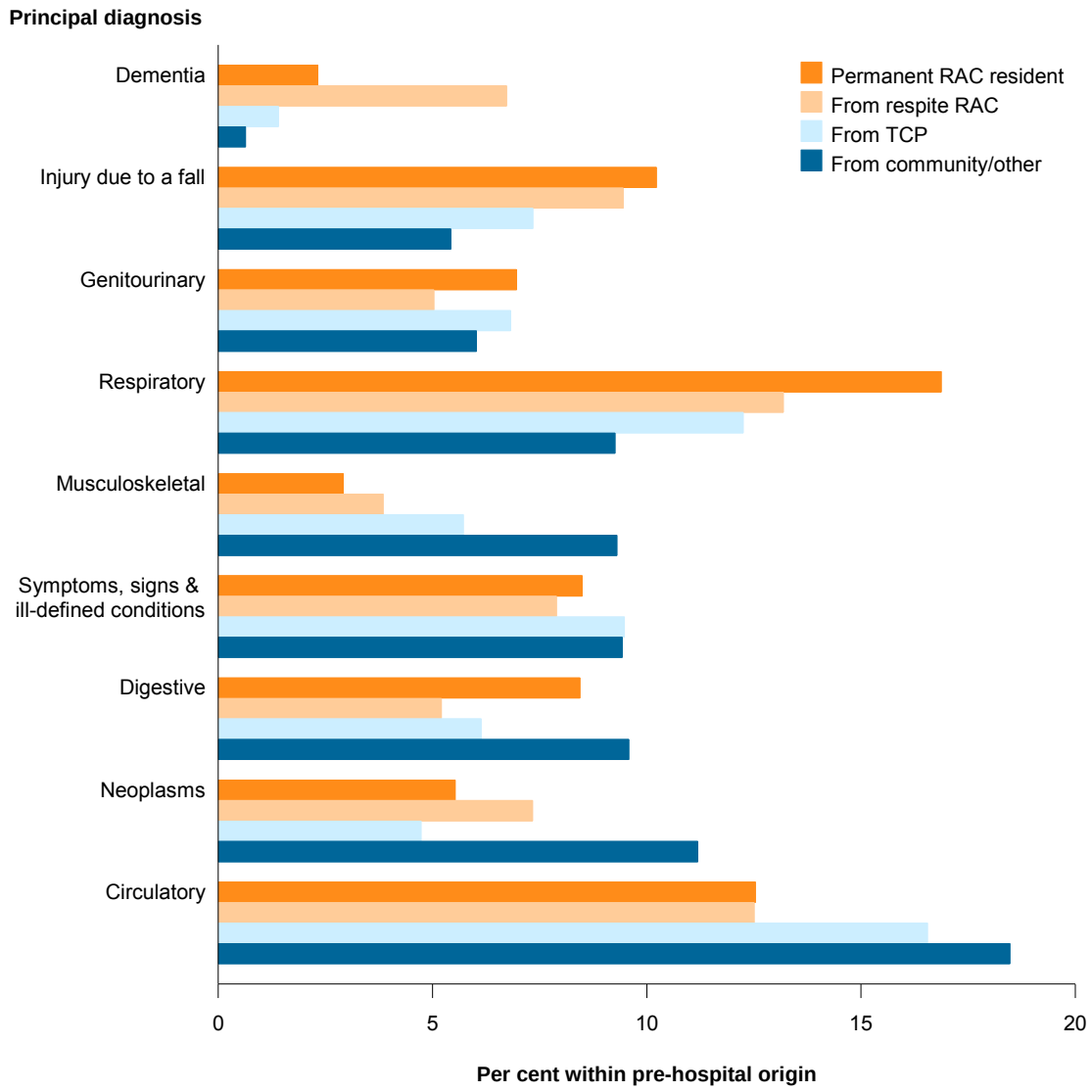
As seen already, permanent RAC residents accounted for 9% of all admissions. However, this proportion varied quite noticeably depending on the principal diagnosis (Table 2.9). For neoplasms, eye and ear conditions, cerebrovascular non-stroke diseases and musculoskeletal conditions, 5% or fewer patients were admitted from permanent RAC. Conversely, for other conditions a relatively large proportion of admissions were for people living in permanent RAC before hospital admission. Permanent RAC residents accounted for 12% or more of admissions for principal diagnoses of infectious diseases, endocrine conditions, mental and behavioural disorders and respiratory conditions.

As well as these broad categories, there are a number of specific conditions where RAC residents were relatively over-represented. In particular, admissions from permanent care accounted for 22% of all dementia-related admissions. This is no surprise as dementia, like other mental and behavioural disorders, is often a leading factor in admission to a RAC facility (see Section 6). This prominence of people from care among admissions due to dementia is again seen in respite RAC and TCP admissions, which accounted for 2.7% and 0.5% of all dementia-related admissions, respectively—relatively high proportions compared with all hospital admissions (0.4% and 0.2%, respectively) (Table 2.9). A large proportion of admissions for *Staphylococcus aureus* (17%), pressure ulcers (32%), respiratory system diseases (13%) and injury due to a fall (14%) were also accounted for by permanent RAC residents.

As expected from the above, the principal diagnosis profile for people admitted from the general community was noticeably different from that for people admitted from RAC (Figure 2.7). Neoplasms (11%) and circulatory conditions (19%) were the top two reasons for admissions from the community but less common for the other three origins (Table 2.10). Differences are also seen for respiratory system, and injury and poisoning as principal diagnoses, which were all more common among admissions from care than from the community.

The most common condition group causing the hospitalisation of permanent RAC residents was respiratory system diseases (17%), almost a third of which were for influenza (Table 2.10). Falls were also important contributors to admissions from permanent RAC (10%), double that for people who were admitted from the general community (5%). Dementia accounted for 7% of all respite RAC admissions to hospital—almost 3 times the

proportion of admissions from permanent RAC and 10 times the proportion of admissions from the community (Table 2.10).



Source: Table 2.10.

Figure 2.7: Pre-hospital origin for patients with selected principal diagnoses responsible for admission into hospital, separations in 2008–09 (standardised per cent within pre-hospital origin)

Table 2.9: Principal diagnosis responsible for admission into hospital, by pre-hospital origin, separations in 2008–09 (standardised adjusted row per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From community/other	Total	Total (N col %)	Total N
Infections	12.1	0.5	0.4	87.1	100.0	2.2	23,872
Staphylococcus aureus	16.9	0.7	0.7	81.8	100.0	0.1	707
Other infections	11.9	0.5	0.4	87.2	100.0	2.2	23,165
Neoplasms	5.3	0.2	0.1	94.3	100.0	10.8	115,667
Blood-related	11.4	0.3	0.1	88.1	100.0	1.6	17,184
Endocrine	12.3	0.5	0.3	86.8	100.0	3.0	32,458
Diabetes	12.9	0.5	0.4	86.2	100.0	1.9	19,959
Endocrine, not diabetes	11.6	0.5	0.3	87.6	100.0	1.2	12,499
Dementia	21.5	2.7	0.5	75.2	100.0	0.7	7,639
Mental/behavioural	14.8	1.2	0.4	83.5	100.0	1.9	20,427
Mental/behavioural, not dementia	12.7	0.9	0.5	85.9	100.0	1.4	15,200
Nervous	8.3	0.6	0.3	90.9	100.0	3.0	31,844
Nervous, not dementia	7.0	0.4	0.2	92.4	100.0	2.7	29,432
Eye	5.3	0.1	—	94.6	100.0	1.2	12,898
Ear	2.3	0.2	—	97.5	100.0	0.4	4,675
Circulatory	6.7	0.3	0.2	92.7	100.0	18.0	193,026
IHD	5.9	0.2	0.1	93.8	100.0	5.7	60,586
Stroke	9.6	0.5	0.3	89.6	100.0	1.8	19,595
CBV, not stroke	4.5	0.1	0.2	95.2	100.0	0.3	3,147
Arteries	6.6	0.2	0.2	92.9	100.0	1.4	14,832
Other circulatory	6.7	0.3	0.3	92.7	100.0	8.9	94,866
Respiratory	13.2	0.5	0.3	86.0	100.0	9.8	105,160
Influenza/pneumonia	14.5	0.5	0.3	84.7	100.0	3.0	31,760
COPD	10.6	0.4	0.3	88.7	100.0	3.6	38,101
Other respiratory	14.6	0.4	0.3	84.6	100.0	3.3	35,299
Digestive	8.4	0.2	0.2	91.2	100.0	9.5	102,010
Liver	9.1	0.8	0.5	89.7	100.0	0.2	2,128
Digestive, not liver	8.3	0.2	0.2	91.3	100.0	9.3	99,882
Skin	12.6	0.4	0.3	86.7	100.0	1.9	20,670
Pressure ulcers	31.8	1.1	0.8	66.2	100.0	0.1	722
Other skin diseases	12.0	0.4	0.3	87.4	100.0	1.9	19,948
Musculoskeletal	4.1	0.2	0.2	95.4	100.0	8.9	95,299
Genitourinary	10.5	0.3	0.3	88.9	100.0	6.1	65,739
Kidney failure	12.2	0.5	0.5	86.8	100.0	0.6	6,536
Genitourinary, not kidney	10.2	0.3	0.3	89.2	100.0	5.5	59,203
Congenital anomalies	5.9	—	0.5	93.6	100.0	0.1	593

(continued)

Table 2.9 (continued): Principal diagnosis responsible for admission into hospital, by pre-hospital origin, separations in 2008–09 (standardised adjusted row per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From community/other	Total	Total (N col %)	Total N
Symptoms, signs and ill-defined conditions	7.3	0.3	0.2	92.1	100.0	9.2	98,951
Injury and poisoning	11.7	0.5	0.3	87.5	100.0	9.8	104,890
Due to: Fall	14.3	0.6	0.3	84.8	100.0	5.9	63,014
Transport accident	2.3	0.2	0.1	97.5	100.0	0.4	3,958
Other accident	8.2	0.3	0.2	91.2	100.0	1.1	12,036
Complications	9.0	0.3	0.5	90.3	100.0	2.3	24,305
Sequelae	9.2	—	n.p.	89.4	100.0	—	89
Other	7.9	0.6	0.6	90.9	100.0	0.1	1,488
Health status factors	6.4	1.1	0.6	91.9	100.0	2.4	25,389
Awaiting admission elsewhere	17.0	5.6	1.6	75.8	100.0	0.1	668
Health status factors, not awaiting admission elsewhere	6.1	0.9	0.6	92.4	100.0	2.3	24,721
Total	**8.7**	**0.4**	**0.2**	**90.7**	**100.0**	**100.0**	**1,070,752**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within principal diagnosis have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table 2.10: Pre-hospital origin, by principal diagnosis responsible for admission into hospital, separations in 2008–09 (standardised adjusted column per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total
Infections	3.5	3.0	3.9	2.1	2.2
Staphylococcus aureus	0.2	0.1	0.2	0.1	0.1
Other infections	3.4	2.9	3.7	2.1	2.2
Neoplasms	5.5	7.3	4.7	11.2	10.8
Blood-related	2.1	1.6	0.9	1.5	1.6
Endocrine	4.8	4.8	4.9	2.9	3.0
Diabetes	3.2	3.5	3.4	1.8	1.9
Endocrine, not diabetes	1.6	1.4	1.5	1.1	1.2
Dementia	2.3	6.7	1.4	0.6	0.7
Mental/behavioural	4.5	7.7	3.4	1.8	1.9
Mental/behavioural, not dementia	3.0	3.5	2.6	1.3	1.4
Nervous	3.3	5.9	2.8	3.0	3.0
Nervous, not dementia	2.5	3.4	2.3	2.8	2.7
Eye	0.7	0.2	0.3	1.3	1.2
Ear	0.1	0.1	0.1	0.5	0.4
Circulatory	12.5	12.5	16.6	18.5	18.0
IHD	3.1	2.2	2.4	5.8	5.7
Stroke	2.1	2.5	2.0	1.8	1.8
CBV, not stroke	0.1	—	0.2	0.3	0.3
Arteries	0.8	0.7	1.1	1.4	1.4
Other circulatory	6.4	7.0	10.9	9.1	8.9
Respiratory	16.9	13.2	12.2	9.3	9.8
Influenza/pneumonia	5.5	3.9	3.7	2.7	3.0
COPD	4.9	4.8	4.7	3.5	3.6
Other respiratory	6.4	4.5	3.8	3.1	3.3
Digestive	8.4	5.2	6.1	9.6	9.5
Liver	0.3	0.7	0.6	0.2	0.2
Digestive, not liver	8.1	4.5	5.5	9.4	9.3
Skin	3.3	1.9	2.3	1.8	1.9
Pressure ulcers	0.3	0.2	0.2	0.0	0.1
Other skin diseases	2.9	1.7	2.1	1.8	1.9
Musculoskeletal	2.9	3.8	5.7	9.3	8.9
Genitourinary	7.0	5.0	6.8	6.0	6.1
Kidney failure	0.9	0.8	1.3	0.6	0.6
Genitourinary, not kidney	6.1	4.2	5.6	5.4	5.5
Congenital anomalies	—	—	—	0.1	0.1

(continued)

Table 2.10 (continued): Pre-hospital origin, by principal diagnosis responsible for admission into hospital, separations in 2008–09 (standardised adjusted column per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total
Symptoms, signs and ill-defined conditions	8.5	7.9	9.5	9.4	9.2
Injury and poisoning	13.7	12.2	13.3	9.4	9.8
Due to: Fall	10.2	9.4	7.3	5.4	5.9
Transport accident	0.1	0.2	0.1	0.4	0.4
Other accident	1.1	0.7	1.0	1.1	1.1
Complications	2.2	1.6	4.5	2.3	2.3
Sequelae	—	—	—	—	—
Other	0.1	0.2	0.3	0.1	0.1
Health status factors	2.1	7.5	6.5	2.4	2.4
Awaiting admission elsewhere	0.2	1.1	0.4	0.1	0.1
Health status factors, not awaiting admission elsewhere	2.0	6.3	6.1	2.4	2.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within movement type have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

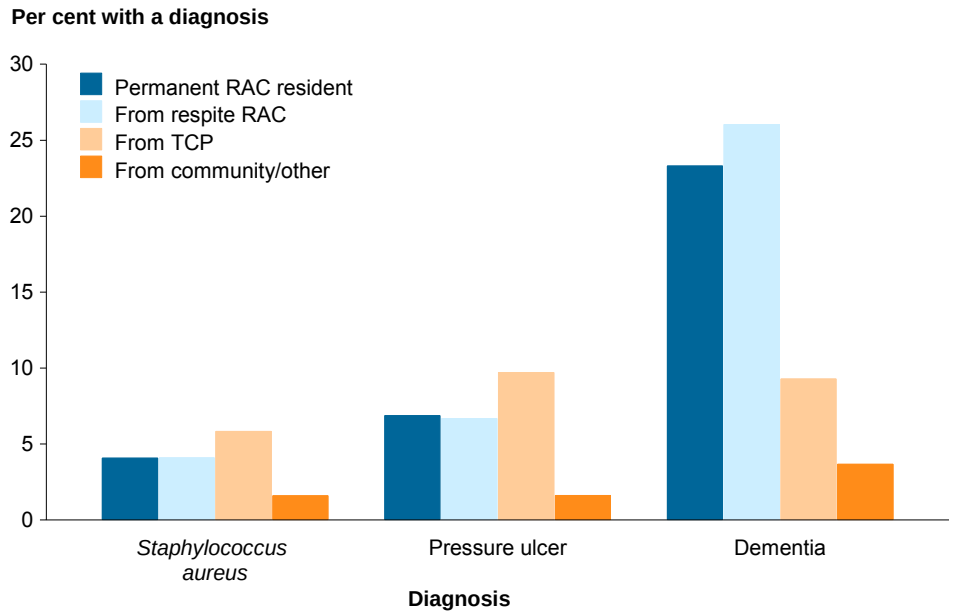
2.6 Selected diagnoses

The preceding discussion highlighted the disproportionate prevalence of *Staphylococcus aureus*, pressure ulcers and dementia as principal diagnoses among patients who were admitted from a RAC facility or TCP. The following analysis focuses on the movement into and out of hospital by patients who had these conditions listed as either their principal or a supplementary diagnosis; that is, as 'any' diagnosis. The ICD–10–AM codes used to define these conditions are given in Table C.1.

The proportions of people admitted from permanent and respite RAC and TCP with a principal diagnosis of *Staphylococcus aureus*, pressure ulcers or dementia were substantially less than those who had these conditions listed as any diagnosis in a hospital episode (Table 2.10 and Table 2.11). Less than half a per cent of people in each of these three hospital admission groups had *Staphylococcus aureus* or pressure ulcers listed as their principal diagnosis, compared with 4%–6% and 6%–9% respectively, having these conditions reported as any diagnosis. Note, however, that it is not possible from the current data to determine whether the patient had these conditions before admission or whether they arose in hospital.

Dementia was a slightly more common principal diagnosis (1%–7%), but still relatively uncommon when compared to numbers reported having dementia as any diagnosis: more than a quarter (26%) of all admissions from respite RAC, 23% of all admissions from permanent RAC and 9% of admissions from TCP had dementia listed as a diagnosis.

Although admissions from the community accounted for more than 80% of all hospital admissions that had a reported diagnosis of *Staphylococcus aureus*, these represented only 1.6% of admissions from the community (Table 2.11 and Table 2.12). On the other hand, the smaller groups of admissions from RAC and TCP, had higher rates of *Staphylococcus aureus* based on all diagnoses (more than 4%). A similar prevalence pattern occurred for pressure ulcers and dementia, indicating that these conditions are more prevalent among permanent and respite RAC residents and people in transition care than in the general population (Figure 2.8). The large difference between the prevalence of these conditions as a principal versus any diagnosis for people being admitted from RAC or TCP indicates that among this frail group, people commonly have dementia and are at high risk of getting *Staphylococcus aureus* and pressure ulcers.



Source: Table 2.11.

Figure 2.8: Selected diagnoses reported as any diagnosis in the hospital episode, by pre-hospital origin, separations in 2008–09 (standardised per cent within pre-hospital origin)

People who had one of these conditions listed as a diagnosis were less likely than others to be discharged back into the community and were more likely to die in hospital or to be discharged to a RAC facility (Table 2.14).

The estimated prevalence of *Staphylococcus aureus* among people discharged back to the community was less than half that seen in all other destination groups (1.4% versus more than 3.3%) (Table 2.13). Also, 20% of patients with a diagnosis of *Staphylococcus aureus* were discharged to RAC, with almost two-thirds of these people returning to RAC as their usual residence (Table 2.14).

One in 10 of all hospitalisations where the patient died had pressure ulcers listed as a diagnosis (Table 2.13). A similar proportion of patients admitted to permanent RAC on discharge from hospital also had this diagnosis. Furthermore, while less than 5% of all discharges were due to death, almost a quarter of all people with a pressure ulcer reported as a diagnosis in the exiting episode were discharged due to death (Table 2.14).

With the exception of discharge to the general community, dementia was given as a diagnosis for a substantial proportion of all discharges. In particular, nearly one-quarter (24%) of people discharged to respite RAC and one-third of patients discharged to permanent RAC (32%) had a diagnosis of dementia (Table 2.13). However, at 9%, dementia was less prevalent among people discharged to TCP. Almost half of people with a dementia diagnosis were discharged to RAC (47%); the majority of these discharges were for RAC residents returning home (Table 2.14).

People who had *Staphylococcus aureus,* pressure ulcers or dementia reported in their hospital episodes often had high numbers of reported diagnoses, both on admission and at discharge (Table 2.13 and Table 2.14). Those with a diagnosis of *Staphylococcus aureus* or pressure ulcers averaged more than twice as many diagnoses reported for a hospital episode than others (mean numbers of diagnoses more than 9 compared with 4.3 across all episodes). People with a diagnosis of dementia also had relatively high numbers of diagnoses, with a mean of almost 7 diagnoses per episode.

Table 2.11: Prevalence of selected diagnoses reported as any diagnosis in admitting episode within pre-hospital origin, separations in 2008–09 (standardised adjusted prevalence)

Pre-hospital origin	*Staphylococcus aureus*	Pressure ulcers	Dementia
	Reported as any diagnosis in admitting episode (%)		
Permanent RAC resident	4.1	6.9	23.3
From respite RAC	4.1	6.7	26.0
From TCP	5.8	9.7	9.3
From community/other	1.6	1.6	3.7
Total with diagnosis (unadjusted)	**1.8**	**2.0**	**5.4**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Percentages within origin have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing principal diagnosis.

Table 2.12: Selected diagnoses reported as any diagnosis in admitting episode, by pre-hospital origin, separations in 2008–09 (standardised adjusted per cent)

Pre-hospital origin	*Staphylococcus aureus*	Pressure ulcers	Dementia	All
Permanent RAC resident	16.1	23.2	34.9	8.7
From respite RAC	0.8	1.0	1.8	0.4
From TCP	0.8	1.1	0.5	0.2
From community/other	82.4	74.7	62.8	90.7
Total	**100.0**	**100.0**	**100.0**	**100.0**
Total with diagnosis (N)	**19,009**	**21,236**	**57,934**	**1,070,754**
Median number of diagnoses (unadjusted)	**8**	**9**	**6**	**3**
Mean number of diagnoses (unadjusted)	**9.2**	**10.2**	**6.7**	**4.3**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within diagnosis have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing diagnosis.

Table 2.13: Prevalence of selected diagnoses reported as any diagnosis in discharging episode within discharge destination, hospital discharges, 2008–09 (standardised adjusted prevalence)

Discharge destination	*Staphylococcus aureus*	Pressure ulcers	Dementia
Discharged to RAC subtotal	4.0	7.2	24.8
To respite RAC	3.9	6.2	23.8
To permanent RAC	4.3	10.1	32.1
Return to RAC (u.r.)	3.9	6.4	22.5
To TCP	4.5	8.5	9.2
To other health care	3.3	5.0	10.5
To community/other	1.4	1.2	2.7
Died subtotal	3.9	10.3	9.2
Admitted from permanent RAC	5.2	12.7	28.1
Admitted from respite RAC/TCP	6.1	13.3	17.7
Other	3.7	10.1	6.0
Total with diagnosis (unadjusted %)	**1.8**	**2.2**	**5.5**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Percentages within discharge destination have been age–sex standardised
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 429 cases with missing diagnosis.

Table 2.14: Selected diagnoses reported as any diagnosis in discharging episode, by discharge destination, hospital discharges, 2008–09 (standardised adjusted per cent)

Discharge destination	*Staphylococcus aureus*	Pressure ulcers	Dementia	All
Discharged to RAC subtotal	19.9	28.0	46.8	10.9
To respite RAC	2.1	2.6	5.0	1.2
To permanent RAC	4.6	8.5	13.0	2.2
Return to RAC (u.r.)	13.2	16.9	28.8	7.5
To TCP	2.0	3.4	1.8	1.0
To other health care	0.7	0.9	0.9	0.4
To community/other	67.3	44.6	41.7	82.9
Died subtotal	*10.1*	*23.1*	*8.8*	*4.9*
Admitted from permanent RAC	2.0	3.6	3.9	0.9
Admitted from respite RAC/TCP	0.2	0.3	0.2	0.1
Other	8.0	19.2	4.7	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**
Total with diagnosis (N)	**19,841**	**24,292**	**60,351**	**1,093,306**
Median number of diagnoses (unadjusted)	**8**	**9**	**6**	**3**
Mean number of diagnoses (unadjusted)	**9.2**	**9.9**	**6.7**	**4.3**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within diagnosis have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 429 cases with missing diagnosis and 1 case with missing sex.

2.7 First reported procedure

A procedure is defined as a clinical intervention that:

- is surgical in nature, and/or
- carries a procedural risk, and/or
- carries an anaesthetic risk, and/or
- requires specialised training, and/or
- requires special facilities or equipment available only in an acute care setting.

When coding the procedures provided to a patient in an episode of care, a priority system is used by hospital data 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, with surgical procedures coded higher than non-surgical procedures. The priority system is 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.

All significant procedures undertaken from the time of admission to the time of separation are coded; a significant procedure is one that is either surgical in nature, carries a procedural risk, carries an anaesthetic risk, or requires special facilities or equipment, or specialised training (NCCH 2008: standard 0016).

The analysis in this section focuses on the first procedure reported on the NHMD for an episode of care (that is, the top priority procedure using the order given above).This procedure is referred to as the 'first procedure'. Table C.2 shows the ICD–10–AM codes contributing to procedure groups used in the analysis and maps abbreviated names to the full ICD–10–AM procedure chapter names. Note, that an episode of care may not always include a procedure; 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.

A large proportion of hospitalisations (20%) for patients aged over 65 who were discharged from hospital during 2008–09 did not have a procedure reported for their admitting episode (Table 2.15). People admitted from permanent RAC were more likely than others (23%) not to have procedure reported while those admitted from TCP were the least likely (9%).

Excluding admissions where no procedure was reported, more than half of all admissions from permanent, respite or TCP had allied health interventions or imaging services as the first procedure (Table 2.15). While these two procedure types also accounted for a substantial proportion of admissions from the general community—20% and 17% respectively—procedures on the cardiovascular, digestive and musculoskeletal system were also very common, indicating that patients admitted from RAC are somewhat different from those admitted from the community.

There are several first procedure groups for which permanent RAC residents were disproportionately represented: dental procedures (14%), allied health (11%), non-invasive cognitive interventions (10%), and imaging services (10%) (Table 2.16). Conversely, while permanent RAC residents accounted for 13% of all respiratory system principal diagnoses (Table 2.9), they only accounted for 8% of all procedures on the respiratory system. The relatively high proportions for allied health procedures, non-invasive cognitive interventions and imaging may reflect the relatively high proportions of people admitted from RAC due to dementia, mental and behavioural disorders, injury and poisoning and endocrine, nutritional, metabolic and immunity conditions. The differences may also reflect a reduced likelihood of undergoing surgical procedures due to the relative frailty of RAC residents.

As expected from their generally small numbers, patients admitted from respite care and TCP accounted for only very small proportions of all procedure groups.

Table 2.15: Pre-hospital origin, by first reported procedure, separations in 2008–09 (standardised adjusted per cent)

First reported procedure	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total (N col %)	Total N
With a procedure						
On nervous system	0.7	0.6	1.1	1.9	1.8	15,857
On endocrine system	—	—	—	0.4	0.3	3,001
On eye and adnexa	1.1	0.6	0.3	1.7	1.6	14,079
On ear and mastoid process	0.1	—	—	0.2	0.2	1,368
On nose, mouth and pharynx	0.3	0.2	n.p.	0.8	0.7	6,373
Dental services	0.3	0.0	n.p.	0.1	0.1	1,040
On respiratory system	3.1	3.5	3.4	2.8	2.8	24,367
On cardiovascular system	3.0	2.5	3.9	9.7	9.2	79,596
On blood and blood-forming organs	0.2	0.2	n.p.	0.5	0.5	4,209
On digestive system	8.2	4.9	6.3	12.4	12.0	103,487
On urinary system	4.4	2.3	3.0	4.2	4.2	36,074
On male genital organs	0.7	0.3	1.0	2.5	2.5	21,122
Gynaecological	0.4	n.p.	—	1.3	1.3	10,764
On musculoskeletal system	9.0	7.1	8.6	11.7	11.7	100,894
Dermatological and plastic	3.2	1.5	2.1	3.2	3.2	27,396
On breast	0.3	0.1	n.p.	0.8	0.7	6,395
Radiation oncology	0.2	0.2	0.1	0.4	0.3	3,000
Non-invasive, cognitive and other interventions, n.e.c.	9.2	8.8	8.1	8.0	8.2	70,701
Allied health	33.0	42.9	39.6	20.4	21.1	181,183
Imaging services	22.7	24.1	22.0	17.0	17.3	148,557
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**. .**
Total number	**71,700**	**3,100**	**2,400**	**782,200**	**. .**	**859,463**
All						
With a procedure	77.0	81.2	90.6	80.5	80.2	859,463
No procedure	23.0	18.8	9.4	19.5	19.8	211,660
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**1,071,123**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within pre-hospital origin have been age standardised using sex and 10-year age groups up to 85+ with the table population as the standard. Finer age–sex standardisation could not be used due to very small numbers in several categories. Adjusted numbers have been rounded to reflect the uncertainty in these estimates.
3. Where a hospital stay comprised more than 1 episode, the first procedure refers to the first episode of the stay.
4. See Table C.2 for the ICD–10–AM codes contributing to procedure groups. Table excludes 3 cases with missing procedure, or inconsistent procedure and sex (gynaecological procedures reported for men and procedures on male genital organs reported for women).

Table 2.16: First reported procedure, by pre-hospital origin, separations in 2008–09 (standardised adjusted row per cent)

First reported procedure	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total	Total N
On nervous system	3.4	0.2	0.2	96.2	100.0	15,857
On endocrine system	2.6	—	n.p.	97.3	100.0	3,001
On eye and adnexa	5.3	0.1	0.1	94.5	100.0	14,079
On ear and mastoid process	4.6	n.p.	0.1	95.0	100.0	1,368
On nose, mouth and pharynx	5.7	0.1	n.p.	94.1	100.0	6,373
Dental services	13.7	—	n.p.	86.2	100.0	1,040
On respiratory system	8.4	0.4	0.3	90.8	100.0	24,367
On cardiovascular system	3.6	0.1	0.1	96.1	100.0	79,596
On blood and blood-forming organs	4.2	0.1	n.p.	95.6	100.0	4,209
On digestive system	5.9	0.2	0.2	93.8	100.0	103,487
On urinary system	8.4	0.2	0.2	91.2	100.0	36,074
On male genital organs	2.4	0.1	0.1	97.5	100.0	21,122
Gynaecological	4.6	—	—	95.4	100.0	10,764
On musculoskeletal system	8.7	0.3	0.2	90.7	100.0	100,894
Dermatological and plastic	8.6	0.2	0.2	91.1	100.0	27,396
On breast	3.4	0.5	—	96.0	100.0	6,395
Radiation oncology	5.6	0.3	0.1	94.0	100.0	3,000
Non-invasive, cognitive and other interventions, n.e.c	10.2	0.4	0.3	89.1	100.0	70,701
Allied health	11.1	0.7	0.5	87.7	100.0	181,183
Imaging services	10.0	0.5	0.3	89.2	100.0	148,557
None given	9.9	0.3	0.1	89.6	100.0	211,660
Total	**8.7**	**0.4**	**0.2**	**90.7**	**100.0**	**1,071,123**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within first procedure have been age standardised using sex and 10-year age groups up to 85+ with the table population as the standard. Finer age–sex standardisation could not be used due to very small numbers in several categories.
3. Where a hospital stay comprised more than 1 episode, the first procedure refers to the first episode of the stay.
4. See Table C.2 for the ICD–10–AM codes contributing to procedure groups. Table excludes 3 cases with missing procedure, or inconsistent procedure and sex (gynaecological procedures reported for men and procedures on male genital organs reported for women).

3 Patient days by selected characteristics

If a patient transferred between hospitals or received more than one care type while they were in hospital, then their hospital stay would have been reported as a number of episodes of care (Box 1.1). The majority of multi-episode stays involved a transfer between hospitals (see Table B.8 and Table B.9).

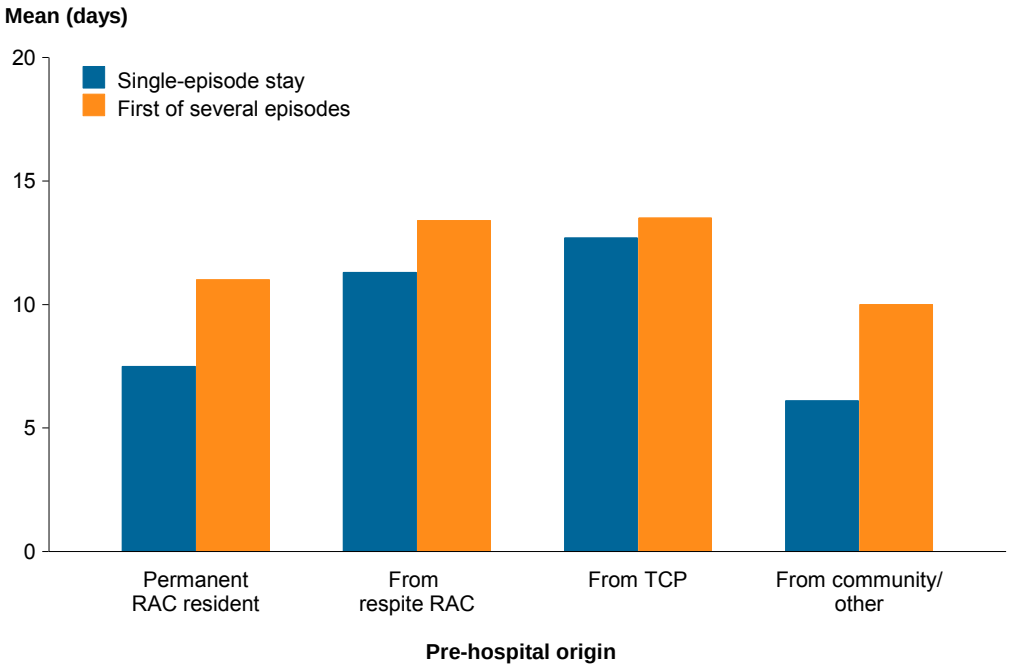
The hospital data available for this study did not include a universal patient identifier, so it was not possible to measure the total time a patient had spent in hospital during a particular hospitalisation. Consequently, the estimates of patient days in this section refer to hospital episode length. However, to better understand the total time people spent in hospital, episode patient days are presented separately for single-episode stays and multi-episode stays, using either the first or last episode of a stay as appropriate for the table. This allows some estimation of differences in length of stay for people who did and did not change hospitals and/or care type during their time in hospital. Note that days on leave from hospital are not included in the number of patient days.

The majority of hospital stays involved a single hospital episode: 87% of admitting episodes were for single-episode stays, as were 85% of discharging episodes (Table 3.1 and Table 3.3). The small discrepancy between these two numbers is caused by the episodic nature and scope of the hospital data; that is, some people with a statistical separation in 2008–09 were still in hospital on 30 June 2009 so that the episode with their final discharge from hospital was not included in the analysis data set.

3.1 By pre-hospital origin

Around one-quarter of patients admitted from respite RAC (24%) or TCP (29%) had a multi-episode stay. This was almost twice the proportion seen for people admitted from the community (13%). At 11%, patients admitted from permanent RAC were the least likely to have a stay involving either a change in care type or hospital transfer (Table 3.1).

The first episode of multi-episode stays tended to be longer than single-episode stays, with a mean length of 10.0 days compared with 6.1 days (medians of 7 and 4 days respectively) (Table 3.2). This pattern was seen for all pre-hospital origins. Patients admitted from respite RAC and TCP had longer hospital stays for both types of episodes when compared with the other origins. Table 3.2 indicates that this difference was greater for single-episodes stays than for first episodes of a multi-episode stay: the mean number of days for single-episode stays for patients coming from respite RAC and TCP was close to double that across all origins (around 12 days compared with 6.1 days), while for multi-episode stays the first episodes of a stay were only about 30% longer (around 13 days compared with 10.0).



Source: Table 3.2.

Figure 3.1: Mean patient days of hospital episode for pre-hospital origin, by type of episode, separations in 2008–09 (standardised days)

Table 3.1: Pre-hospital origin, by type of hospital stay, separations in 2008–09 (standardised adjusted per cent)

Pre-hospital origin	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]
	Row %			Column %	
Permanent RAC resident	89.1	10.9	100.0	9.2	6.5
From respite RAC	76.4	23.6	100.0	0.3	0.6
From TCP	71.0	29.0	100.0	0.2	0.5
From community/other	86.7	13.3	100.0	90.3	92.4
Total (unadjusted row %, standardised)	**87.1**	**12.9**	**100.0**	**100.0**	**100.0**
Total N	**933,376**	**137,750**	**1,071,126**	**. .**	**. .**

(a) Episodes ending with a statistical separation or hospital transfer imply a multi-episode stay.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages have been age–sex standardised using the table population (that is, admitting episodes from both single- and multi-episode stays) as the standard.

Table 3.2: Patient days of hospital episode for pre-hospital origin, by type of hospital episode, separations in 2008–09 (standardised adjusted days)

	Only episode in stay			First of several episodes		
Pre-hospital origin	Mean	Median	90th percentile	Mean	Median	90th percentile
Permanent RAC resident	7.5	5	16	11.0	6	24
From respite RAC	11.3	7	26	13.4	8	27
From TCP	12.7	8	28	13.5	10	28
From community/other	6.1	3	13	10.0	7	22
Total (unadjusted, standardised)	**6.1**	**4**	**13**	**10.0**	**7**	**22**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Estimates have been age–sex standardised using the table population (that is, admitting episodes from both single- and multi-episode stays) as the standard.

3.2 By discharge destination

As expected from the above, a large majority (85%) of hospital discharges were after a single-episode stay (Table 3.3). However, there were some noticeable differences in the episode type profiles between the different discharge destinations. Unlike other patients, more than half of those who were discharged to permanent RAC as a new admission (55%) or to TCP (58%) left from multi-episode stays. By comparison, almost 90% of people discharged back to their usual residence—either in the community or in residential care—had had a single-episode stay.

As expected, returning to the community was the most common discharge destination for both single- and multi-episode stays, although less common for the latter (85% versus 73%) (Table 3.3). Overall, discharges to RAC accounted for a larger proportion of last episodes of a multi-episode stay (15%) compared with single-episode stays (10%). In particular, among episodes that were the last of several, admissions to permanent RAC accounted for 7% of all discharges, while for single-episode stays this group only accounted for 1.2% of all discharges. Conversely, there was a smaller proportion of people who returned to permanent RAC following the last of several episodes (5%) than single-episode stays (8%) and all hospital discharges (7.5%) (Table 1.2).

The proportion of multi-episode stays that ended in death was about double that among single-episode stays (9% versus 4%) (Table 3.3). For the last of several episodes, the proportion of deaths that were accounted for by patients admitted from permanent RAC was less than it was for single-episode stays (0.7%/8.6% versus 0.9%/4.3%). This reflects the relatively high proportion of single-episode stays for patients admitted from RAC (more than 89%).

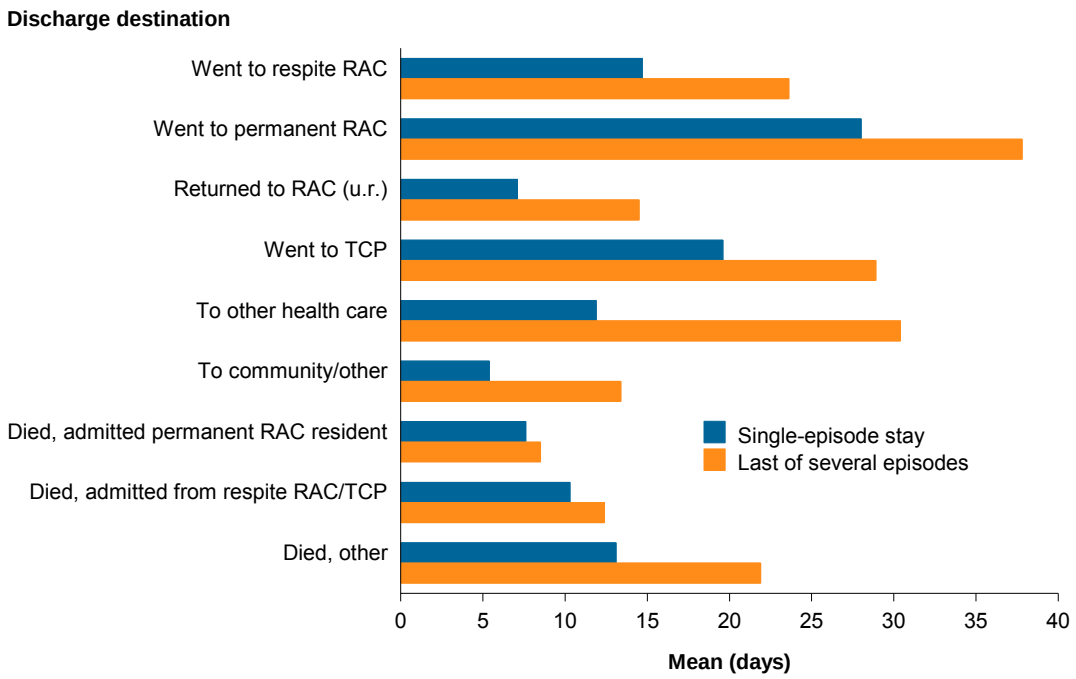
Consistent with the results found in the preceding analysis by pre-hospital origin, episodes that were the last of several in a stay tended to be longer than single-episode stays, with a mean of 16.6 days (median of 10 days) compared with a mean of 6.1 days (median of 4 days) (Table 3.4). Such differences are apparent across all discharge destinations (Figure 3.2).

As would be expected, people transitioning from the community into permanent RAC via hospital had the longest stays in hospital, with means of 28.0 and 37.8 days for

single-episode stays and the last episode of multi-episode stays, respectively (Table 3.4). Patients admitted into TCP also had relatively long stays, while those returning to their usual residence or discharged due to death after admission from care had significantly shorter stays. People admitted into respite on leaving hospital or who died after admission from the community averaged mid-range episode lengths.

Given that a large majority (87%) of people returning to the community were discharged from single-episode stays, the median of 3 days for single-episodes stays for such patients indicates that the majority of patients returning to the community would have had a stay of 3 days or less (Table 3.4). Only 10% of single-episode stays for this group were 12 days or longer. People returning to RAC as their usual residence tended to have slightly longer stays than those returning to their home in the community.

Length of stay for patients who died was shorter for patients who had been admitted from permanent RAC than for those admitted from the general community (Table 3.4). This was particularly noticeable for the last episode of multi-episode stays, with means of 8.5 and 21.9 days for patients who died after admission from permanent RAC and from the community, respectively.



Source: Table 3.4.

Figure 3.2: Mean patient days of hospital episode for discharge destination, by type of episode, hospital discharges, 2008–09 (standardised days)

Overall, length of stay increased with age and this was true for both single- and multi-episode stays (Table 3.5). However, this pattern reflects that seen for the predominant destination—discharges to the community. In contrast, for discharges to a RAC facility (either as a return to care or as a new admission), episode length for single- and multi-episode stays tended to decrease with age. Other discharge types had more fluctuation and showed no distinct pattern for episode length of stay by age group.

Finally, considering the analyses of both pre-hospital origin and discharge destination together, the longer length of both the first and last episodes in multi-episode stays implies

that people who either transfer between hospitals or have changes in care type during their hospital stay tend to have much longer stays than patients with single-episode stays. If we make the simplifying assumption that multi-episode stays have just 2 episodes, then we can estimate the mean length of a multi-episode stay rather crudely as 26.6 days (10.0 + 16.6 days). This compares with just 6.1 days for single-episode stays.

A similar approach can be used to estimate length of multi-episode stays within movement groups. If we assume that people who returned to the community also came from the community—and ignoring the effect of episodes ending with death—we can crudely estimate the average length of multi-episode stays as 23.4 days for these people (compared with 5.4 days for single-episode stays). Similarly, the length of multi-episode stays for permanent residents going to hospital and then returning to care is estimated roughly as 25.5 days (versus 7.1 days for single-episode stays). Finally, assuming that people who left hospital to be admitted into respite or permanent RAC came from the community we can estimate the average lengths of their multi-episode stays as 33.6 and 47.8 days respectively, again ignoring the effect of episodes ending with death (compared with 14.7 and 28.0 days for single-episode stays). These approximations underestimate the average length of multi-episode stays as some will involve more than 2 episodes. In a stay-based analysis of New South Wales hospital data for people aged 50 or more, around one-fifth of multi-episode stays consisted of 3 or more episodes (AIHW 2012c:table 4.1).

Table 3.3: Discharge destination, by type of hospital stay, hospital discharges 2008–09 (standardised adjusted %)

Discharge destination	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]
	Row %			Column %	
Discharged to RAC subtotal	*77.3*	*22.7*	*100.0*	*10.3*	*14.5*
To respite RAC	65.5	34.5	100.0	0.9	2.5
To permanent RAC	45.5	54.5	100.0	1.2	7.1
Return to RAC (u.r.)	89.7	10.3	100.0	8.1	4.9
To TCP	41.9	58.1	100.0	0.5	3.5
To other health care	71.7	28.3	100.0	0.3	0.7
To community/other	87.2	12.8	100.0	84.6	72.7
Died subtotal	*73.5*	*26.5*	*100.0*	*4.3*	*8.6*
Admitted from permanent RAC	85.6	14.4	100.0	0.9	0.7
Admitted from respite RAC/TCP	89.5	10.5	100.0	0.1	—
Other	71.2	28.8	100.0	3.3	7.8
Total (N row %)	**85.3**	**14.7**	**100.0**	**100.0**	**100.0**
Total N	**933,376**	**160,359**	**1,093,735**	**. .**	**. .**

(a) Episodes starting with a statistical admission or hospital transfer imply a multi-episode stay.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Estimates have been age–sex standardised using the table population (that is, exiting episodes from both single- and multi-episode stays) as the standard.
3. Table excludes 1 case with missing sex information.

Table 3.4: Patient days of hospital episode for discharge destination, by type of hospital episode, hospital discharges 2008–09 (standardised adjusted days)

	Only episode in stay			Last of several episodes		
Discharge destination	**Mean**	**Median**	**90th percentile**	**Mean**	**Median**	**90th percentile**
Discharged to RAC subtotal	*10.5*	*6*	*24*	*28.4*	*16*	*56*
To respite RAC	14.7	11	31	23.6	16	48
To permanent RAC	28.0	20	51	37.8	22	70
Return to RAC (u.r.)	7.1	4	15	14.5	9	29
To TCP	19.6	15	39	28.9	24	56
To other health care	11.9	8	27	30.4	13	49
To community/other	5.4	3	12	13.4	9	27
Died subtotal	*12.1*	*7*	*26*	*20.2*	*8*	*34*
Admitted from permanent RAC	7.6	5	17	8.5	4	16
Admitted from respite RAC/TCP	10.3	6	25	12.4	7	35
Other	13.1	7	28	21.9	8	36
Total (unadjusted, standardised)	**6.1**	**4**	**13**	**16.6**	**10**	**32**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Estimates have been age–sex standardised using the table population (that is, exiting episodes from both single- and multi-episode stays) as the standard.
3. Table excludes 1 case with missing sex information.

Table 3.5: Patient days of hospital episode for discharge destination, by age group and type of hospital episode, hospital discharges 2008–09 (adjusted days)

Discharge destination	65–69	70–74	75–84	80–84	85–89	90+	Total
Part A: Only episode in stay				**Mean**			
Discharged to RAC subtotal	*12.0*	*11.4*	*10.6*	*9.8*	*9.0*	*8.4*	*9.6*
To respite RAC	14.8	16.6	14.4	14.2	13.5	13.4	14.1
To permanent RAC	34.5	29.5	30.1	24.1	22.5	20.1	24.6
Return to RAC (u.r.)	8.0	7.4	6.9	6.8	6.6	6.5	6.8
To TCP	18.9	19.9	19.1	19.8	19.4	19.0	19.4
To other health care	10.6	10.1	13.7	12.5	12.3	12.6	12.0
To community/other	4.8	5.0	5.3	5.6	6.1	6.5	5.3
Died subtotal	*13.9*	*12.0*	*12.5*	*11.6*	*10.6*	*11.3*	*11.8*
Admitted from permanent RAC	7.5	7.5	7.7	7.9	7.4	6.8	7.4
Admitted from respite RAC/TCP	15.5	7.7	9.9	9.6	8.8	10.9	9.7
Other	14.2	12.5	13.2	12.7	12.0	14.6	13.0
Total (unadjusted)	**5.1**	**5.5**	**6.0**	**6.5**	**7.1**	**7.7**	**6.1**
				Median			
Discharged to RAC subtotal	*6*	*6*	*6*	*6*	*5*	*5*	*6*
To respite RAC	10	12	10	10	10	10	10
To permanent RAC	24	21	20	18	18	16	19
Return to RAC (u.r.)	4	5	4	5	4	4	4
To TCP	14	15	14	16	16	17	15
To other health care	7	7	8	8	8	9	8
To community/other	3	3	3	3	4	4	3
Died subtotal	*7*	*7*	*7*	*7*	*6*	*6*	*6*
Admitted from permanent RAC	5	4	4	5	5	4	4
Admitted from respite RAC/TCP	13	3	6	5	6	5	6
Other	7	7	8	7	7	7	7
Total (unadjusted)	**3**	**3**	**3**	**4**	**4**	**5**	**3**
				90th percentile			
Discharged to RAC subtotal	*28*	*27*	*24*	*22*	*21*	*19*	*22*
To respite RAC	35	35	31	30	28	29	30
To permanent RAC	70	54	56	44	41	37	45
Return to RAC (u.r.)	16	16	15	15	14	14	15
To TCP	41	42	38	37	37	34	38
To other health care	24	23	33	27	26	28	27
To community/other	10	11	12	12	13	14	12
Died subtotal	*28*	*27*	*28*	*25*	*24*	*21*	*25*
Admitted from permanent RAC	17	19	18	16	16	15	16
Admitted from respite RAC/TCP	n.p.	n.p.	24	26	21	21	22
Other	28	28	29	27	26	24	27
Total (unadjusted)	**11**	**12**	**13**	**14**	**16**	**17**	**13**

(continued)

Table 3.5 (continued): Patient days of hospital episode for discharge destination, by age group and type of hospital episode, hospital discharges 2008–09 (adjusted days)

Discharge destination	65–69	70–74	75–84	80–84	85–89	90+	Total
Part B: Last of several episodes				**Mean**			
Discharged to RAC subtotal	*36.7*	*34.7*	*26.2*	*23.5*	*21.8*	*21.4*	*24.3*
To respite RAC	29.3	25.1	22.4	22.0	19.5	20.8	21.6
To permanent RAC	47.9	45.9	35.1	31.0	29.8	29.3	33.1
Return to RAC (u.r.)	15.9	17.4	13.6	13.1	13.2	13.6	13.6
To TCP	32.5	28.7	28.1	27.4	26.5	26.5	27.7
To other health care	30.5	57.2	19.1	25.6	20.7	22.7	27.7
To community/other	11.6	12.4	13.2	13.7	15.5	17.0	13.5
Died subtotal	*15.9*	*14.4*	*18.0*	*21.2*	*27.4*	*35.8*	*22.0*
Admitted from permanent RAC	5.9	7.5	6.5	13.7	8.2	8.0	9.2
Admitted from respite RAC/TCP	n.p.	n.p.	9.7	10.5	17.3	4.2	12.0
Other	16.2	14.7	18.7	22.2	30.9	44.1	23.4
Total (unadjusted)	**13.6**	**14.9**	**15.6**	**16.7**	**18.8**	**21.3**	**16.6**
				Median			
Discharged to RAC subtotal	*18*	*16*	*16*	*15*	*15*	*15*	*15*
To respite RAC	19	16	17	15	15	16	16
To permanent RAC	24	22	21	21	21	20	21
Return to RAC (u.r.)	9	8	9	9	10	11	10
To TCP	25	24	23	23	23	24	23
To other health care	11	13	11	14	15	16	14
To community/other	7	8	9	11	12	13	10
Died subtotal	*7*	*8*	*8*	*8*	*8*	*8*	*8*
Admitted from permanent RAC	4	4	4	5	4	5	4
Admitted from respite RAC/TCP	n.p.	n.p.	n.p.	3	6	n.p.	6
Other	8	8	9	8	9	9	8
Total (unadjusted)	**8**	**9**	**10**	**11**	**13**	**13**	**11**
				90th percentile			
Discharged to RAC subtotal	*69*	*63*	*54*	*49*	*46*	*43*	*49*
To respite RAC	62	56	42	42	38	40	42
To permanent RAC	83	79	67	63	61	57	65
Return to RAC (u.r.)	33	28	29	28	27	28	28
To TCP	65	57	56	51	49	49	53
To other health care	46	57	42	53	48	54	49
To community/other	24	25	26	27	29	31	27
Died subtotal	*32*	*33*	*36*	*33*	*36*	*36*	*35*
Admitted from permanent RAC	11	19	16	18	19	17	17
Admitted from respite RAC/TCP	n.p.	n.p.	n.p.	n.p.	n.p.	n.p.	34
Other	33	33	37	35	39	43	36
Total (unadjusted)	**28**	**29**	**31**	**34**	**36**	**38**	**33**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type.

3.3 By principal diagnosis causing admission

It is to be expected that treatments for some conditions are more likely than others to require changes in care type or hospital transfers. For example, a person admitted for hip replacement is more likely to require rehabilitative care than someone admitted for an infection.

Reflecting the general pattern, for all principal diagnoses causing admission into hospital, single-episode stays were more common than multi-episode stays (Table 3.6). However, when taking into consideration that single-episode stays accounted for 87% of all hospital stays, multi-episode stays accounted for a disproportionately large percentage of some principal diagnoses. This was particularly evident for patients admitted with a principal diagnosis of stroke (39% were multi-episode stays), musculoskeletal conditions (20%), and injury and poisoning (25%).

For the three diagnoses focused on in Section 2.6—*Staphylococcus aureus,* pressure ulcers and dementia—admitting hospital episodes for patients with 1 of these as either a principal or additional diagnosis were also more likely than others to be part of a multi-episode stay (Table 3.6 and Table 3.7). Episodes with *Staphylococcus aureus* or dementia as the principal diagnosis were more likely to be from a multi-episode stay than those with these conditions reported as any diagnosis (25% versus 20% for *Staphylococcus aureus,* and 29% versus 21% for dementia). The reverse was true for pressure ulcers: 20% of episodes with a principal diagnosis of pressure ulcers were from a multi-episode stay compared with 27% of episodes with any diagnosis of pressure ulcers.

The distributions of principal diagnosis causing admission within the two hospital episode types were generally similar and comparable to the distribution of principal diagnosis for all hospital episode types (Table 2.8 and Table 3.6). In particular, diseases of the circulatory system accounted for the largest proportion of both single- and multi-episode stays. However, there were also a number of differences. For example, injury and poisoning accounted for the second highest proportion (19%) of principal diagnoses for the first episode in a multi-episode stay, while it represented only 8% of single-episode stays and 10% of all stays. This indicates that, not surprisingly, principal diagnosis causing admission may affect whether a stay is 1 or more episodes (that is, whether it includes a change in care type or transfer between hospitals), and consequently whether the patient is likely to spend a long period in hospital.

While for many conditions the episode length tended to be shorter for single-episode stays compared with the first episode of multi-episode stays, there were a few exceptions, most notably dementia, and mental and behavioural conditions (Table 3.8). Length of stay for patients admitted because of dementia was similar for both episode types (mean 17–18 days, median 10–11). For patients admitted because of non-dementia mental and behavioural disorders, the first of several episodes was actually shorter than single-episode stays: single-episode stays had a mean of 18 days and median of 9 days, versus the first of several episodes having a mean of 15 days and median of 8 days.

The average length of stay varied substantially depending on the principal diagnosis causing hospital admission. For example, hospital patients aged 65 and over admitted for eye conditions were highly likely (99%) to have had a single-episode stay that was short (mean 1.7 days, median 1 day) (Table 3.6 and Table 3.8). On the other hand, only 75% of patients admitted with *Staphylococcus aureus* had a single-episode stay, and even these stays were quite long (mean 19.4 days, median 14 days).

While they only accounted for a small portion of all hospital stays, the longest stays were for patients with a principal diagnosis of awaiting admission elsewhere. This was true for both single-episode stays (mean 68.3 days, median 16 days) and the first of several episodes (mean 122.6 days, 23 median) (Table 3.8). That these patients are a special group is supported by the analysis presented in Section 5.1 on propensity to be admitted to RAC on leaving hospital.

Measures of episode length by principal diagnosis and origin, within type of episode (that is, episodes for single- or multi-episode stays) are presented in Table 3.9 (mean), Table 3.10 (median) and Table 3.11 (90th percentile). Due to very small numbers in some categories, less detailed breakdowns of both diagnosis and pre-hospital origin are presented.

Episode length varied with the combination of origin, principal diagnosis and type of hospital episode. As seen above, for most conditions, single-episode stays tended to be shorter than the first episode of a multi-episode stay for all pre-hospital origins (Table 3.9 and Table 3.10). A key exception to this is seen for people admitted from TCP, respite RAC or the community with a mental or behavioural disorder. While small numbers make it impractical to show a specific condition breakdown at this level, this difference appears to be driven by two groups of patients for whom single-episode stays tended to be longer than the first episode in a series: patients with dementia, and patients admitted from the community for a non-dementia mental health disorder.

Across most principal diagnosis groups, people admitted from respite RAC or TCP tended to have a longer median length of stay than others for both episode types. This tendency was also seen in the 90th percentiles for single-episode stays, the exception being mental and behavioural disorders. On the other hand, looking at the first of several episodes, the pattern was not as consistent: while the 90th percentile for those discharged from TCP or respite RAC was sometimes longer than that for other groups (for example, circulatory conditions, and symptoms, signs and ill-defined conditions), it was often shorter or between the 90th percentile for people admitted from permanent RAC and from the community (for example, neoplasms and nervous system disorders).

For most conditions, single-episode stays for people admitted from permanent RAC had mean and 90th percentile episode lengths similar to those for people admitted from the general community (Table 3.9 and Table 3.10). Exceptions to this included mental or behavioural disorders, nervous system disorders, musculoskeletal conditions and diagnoses related to factors affecting health status, which all had considerably higher 90th percentiles (Table 3.11).

Except for episodes with a principal diagnosis of infection or factors influencing health status, median lengths for the first of several episodes for people admitted from permanent RAC were within 2 days of those admitted from the community. However, despite this, the 90th percentile was shorter for people admitted from permanent RAC for neoplasms and genitourinary conditions (Table 3.11). For other conditions—such as mental and nervous system conditions, and factors influencing health status (which includes awaiting admission elsewhere)—the 90th percentile was considerably longer.

Table 3.6: Principal diagnosis responsible for admission, by type of hospital stay, separations in 2008–09 (standardised)

Condition group of principal diagnosis	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]	Total
		Row %			Column %	
Infections	88.4	11.6	100.0	2.3	2.0	2.2
Staphylococcus aureus	74.6	25.4	100.0	0.1	0.1	0.1
Other infections	88.8	11.2	100.0	2.2	1.9	2.2
Neoplasms	91.4	8.6	100.0	11.3	7.5	10.8
Blood-related	93.9	6.1	100.0	1.7	0.8	1.6
Endocrine	88.6	11.4	100.0	3.1	2.8	3.0
Diabetes	88.1	11.9	100.0	1.9	1.9	1.9
Endocrine, not diabetes	89.8	10.2	100.0	1.2	0.9	1.2
Dementia	71.1	28.9	100.0	0.6	1.5	0.7
Mental/behavioural	80.1	19.9	100.0	1.8	2.9	1.9
Mental/behavioural, not dementia	82.8	17.2	100.0	1.4	1.9	1.4
Nervous	88.4	11.6	100.0	3.0	2.6	3.0
Nervous, not dementia	89.8	10.2	100.0	2.8	2.1	2.7
Eye	98.6	1.4	100.0	1.4	0.1	1.2
Ear	93.3	6.7	100.0	0.5	0.2	0.4
Circulatory	85.0	15.0	100.0	17.6	21.9	18.0
IHD	84.1	15.9	100.0	5.4	7.7	5.7
Stroke	61.0	39.0	100.0	1.3	5.5	1.8
CBV, not stroke	89.7	10.3	100.0	0.3	0.2	0.3
Arteries	88.8	11.2	100.0	1.4	1.2	1.4
Other circulatory	89.6	10.4	100.0	9.1	7.2	8.9
Respiratory	90.2	9.8	100.0	10.2	7.6	9.8
Influenza/pneumonia	88.1	11.9	100.0	3.0	2.8	3.0
COPD	90.7	9.3	100.0	3.7	2.6	3.6
Other respiratory	91.3	8.7	100.0	3.5	2.3	3.3
Digestive	91.6	8.4	100.0	10.0	6.1	9.5
Liver	86.0	14.0	100.0	0.2	0.2	0.2
Digestive, not liver	91.7	8.3	100.0	9.8	5.8	9.3
Skin	90.6	9.4	100.0	2.0	1.4	1.9
Pressure ulcers	79.7	20.3	100.0	0.1	0.1	0.1
Other skin diseases	91.0	9.0	100.0	2.0	1.3	1.9
Musculoskeletal	79.5	20.5	100.0	8.2	14.0	8.9
Genitourinary	92.5	7.5	100.0	6.5	3.3	6.1
Kidney failure	85.3	14.7	100.0	0.6	0.7	0.6
Genitourinary, not kidney	93.2	6.8	100.0	5.9	2.6	5.5

(continued)

Table 3.6 (continued): Principal diagnosis responsible for admission, by type of hospital stay, separations in 2008–09 (standardised)

Condition group of principal diagnosis	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]	Total
		Row %			Column %	
Congenital anomalies	93.4	6.6	100.0	0.1	—	0.1
Symptoms, signs and ill-defined conditions	91.1	8.9	100.0	9.7	6.4	9.2
Injury and poisoning	74.9	25.1	100.0	8.3	19.1	9.8
Due to: Fall	68.3	31.7	100.0	4.5	14.0	5.9
Transport accident	70.6	29.4	100.0	0.3	0.9	0.4
Other accident	85.1	14.9	100.0	1.1	1.3	1.1
Complications	85.1	14.9	100.0	2.2	2.6	2.3
Sequelae	82.6	17.4	100.0	—	—	—
Other	75.3	24.7	100.0	0.1	0.3	0.1
Health status factors	93.2	6.8	100.0	2.5	1.2	2.4
Awaiting admission elsewhere	78.8	21.2	100.0	0.1	0.1	0.1
Health status factors, not awaiting admission elsewhere	93.5	6.5	100.0	2.5	1.1	2.3
Total	**87.1**	**12.9**	**100.0**	**100.0**	**100.0**	**100.0**
Total N	**933,059**	**137,693**	**100.0**	**933,059**	**137,693**	**1,070,752**

(a) Episodes ending with a statistical admission or hospital transfer imply a multi-episode stay.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Percentages have been age–sex standardised using 10-year age groups up to 85+ with the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table 3.7: Selected diagnoses on admission into hospital, by type of hospital episode, hospital separations 2008-09 (standardised)

Selected diagnosis (any) on admission	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]	Total
		Row %			Column %	
With *Staphylococcus aureus*	79.9	20.1	100.0	1.6	2.9	1.8
Without *Staphylococcus aureus*	87.3	12.7	100.0	98.4	97.1	98.2
With dementia	78.9	21.1	100.0	5.1	7.6	5.4
Without dementia	87.4	12.6	100.0	94.9	92.4	94.6
With pressure ulcers	73.1	26.9	100.0	1.7	4.0	2.0
Without pressure ulcers	87.4	12.6	100.0	98.3	96.0	98.0
All	**87.1**	**12.9**	**100.0**	**100.0**	**100.0**	**100.0**

(a) Episodes ending with a statistical admission or hospital transfer imply a multi-episode stay.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Percentages have been age–sex standardised using 10-year age groups up to 85+ using the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.

2 See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing diagnosis.

Table 3.8: Patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode, separations in 2008–09 (standardised days)

	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Mean	Median	90th percentile	Mean	Median	90th percentile
Infections	7.0	5	15	12.7	8	30
Staphylococcus aureus	19.4	14	44	23.1	16	58
Other infections	6.7	4	14	12.0	7	28
Neoplasms	6.9	4	16	12.8	9	28
Blood-related	4.5	3	10	8.0	4	19
Endocrine	6.9	4	15	13.0	8	30
Diabetes	7.6	4	17	14.5	9	34
Endocrine, not diabetes	5.6	3	12	9.9	7	20
Dementia	17.7	10	38	17.2	10	35
Mental/behavioural	17.4	9	38	15.8	9	35
Mental/behavioural, not dementia	18.0	9	38	15.0	8	32
Nervous	5.4	2	13	12.2	7	28
Nervous, not dementia	4.4	2	10	11.1	7	25
Eye	1.7	1	3	6.9	3	17
Ear	3.4	2	7	6.9	5	14
Circulatory	5.8	4	13	9.0	6	21
IHD	4.6	3	10	6.2	3	14
Stroke	9.3	6	21	11.7	9	25
CBV, not stroke	5.2	3	10	12.0	8	25
Arteries	6.4	3	15	14.6	10	35
Other circulatory	5.9	4	13	9.0	6	20
Respiratory	6.9	5	14	9.2	6	21
Influenza/pneumonia	7.4	6	14	9.4	6	21
COPD	7.2	6	14	9.1	6	20
Other respiratory	6.3	4	13	9.3	6	22
Digestive	4.8	3	11	9.2	5	22
Liver	9.0	6	20	11.9	9	27
Digestive, not liver	4.7	3	10	9.0	4	22
Skin	8.0	6	16	11.2	7	26
Pressure ulcers	17.1	11	35	20.6	11	45
Other skin diseases	7.8	6	16	10.5	7	25
Musculoskeletal	6.4	5	13	8.7	7	15
Genitourinary	4.8	3	10	8.5	5	20
Kidney failure	7.8	5	17	9.8	6	23
Genitourinary, not kidney	4.5	3	9	8.1	5	20

(continued)

Table 3.8 (continued): Patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode, separations in 2008–09 (standardised days)

	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	**Mean**	**Median**	**90th percentile**	**Mean**	**Median**	**90th percentile**
Congenital anomalies	4.6	2	11	14.8	9	n.p.
Symptoms, signs and ill-defined conditions	3.7	2	8	6.4	3	16
Injury and poisoning	7.0	4	16	10.3	7	22
Due to: Fall	7.2	4	17	10.0	7	21
Transport accident	6.3	3	14	12.9	8	31
Other accident	4.9	2	12	9.0	5	21
Complications	7.6	4	17	11.7	7	27
Sequelae	8.8	5	22	6.3	4	n.p.
Other	6.3	3	15	8.6	4	22
Health status factors	9.0	3	20	23.0	8	35
Awaiting admission elsewhere	68.3	16	95	122.6	23	324
Health status factors, not awaiting admission elsewhere	7.7	2	19	15.6	7	34
Total	**6.1**	**4**	**13**	**10.0**	**7**	**22**
Total N		**933,059**			**137,693**	

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Percentages have been age–sex standardised using 10-year age groups up to 85+ using the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table 3.9: Mean patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (standardised adjusted days)

Part a	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From respite RAC or TCP	From community /other	Permanent RAC resident	From respite RAC or TCP	From community /other
	Mean (days)					
Infections	7.6	10.2	7.0	8.8	n.p.	12.9
Neoplasms	7.1	11.6	6.9	10.4	10.7	12.9
Endocrine	7.5	12.7	6.9	11.5	15.8	13.2
Mental/behavioural	19.4	18.5	17.7	21.4	14.4	15.2
Nervous	9.6	13.6	5.2	19.9	17.9	11.9
Circulatory	6.9	9.5	5.8	9.1	12.1	9.1
Respiratory	7.0	9.5	7.0	8.2	10.8	9.4
Digestive	5.7	9.3	4.7	7.2	13.4	9.4
Skin	8.8	10.1	8.0	9.5	n.p.	11.4
Musculoskeletal	8.0	13.2	6.4	10.8	10.8	8.6
Genitourinary	5.9	8.5	4.8	7.2	12.1	8.7
Symptoms, signs and ill-defined conditions	4.1	10.2	3.7	6.6	12.9	6.4
Injury and poisoning	6.9	12.1	7.2	9.7	13.0	10.4
Health status factors	13.9	20.3	8.9	37.9	34.4	22.4
Other (blood-related, eye, ear, congenital)	3.5	6.6	3.3	7.0	n.p.	7.9
Total (adjusted, standardised)	**7.3**	**11.8**	**6.1**	**11.0**	**13.5**	**10.0**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Estimates have been age–sex standardised using 10-year age groups up to 85+ using the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table 3.10: Median patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (standardised adjusted days)

Part b	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From respite RAC or TCP	From community /other	Permanent RAC resident	From respite RAC or TCP	From community /other
			Median (days)			
Infections	5	6	4	5	n.p.	8
Neoplasms	4	8	4	8	8	9
Endocrine	5	8	4	7	15	8
Mental/behavioural	10	12	10	9	9	9
Nervous	5	7	2	7	15	7
Circulatory	5	6	4	5	9	6
Respiratory	5	7	5	5	10	6
Digestive	4	6	3	4	9	5
Skin	6	6	6	5	n.p.	7
Musculoskeletal	5	9	5	7	8	7
Genitourinary	4	6	3	4	9	5
Symptoms, signs and ill-defined conditions	2	6	2	3	7	3
Injury and poisoning	4	8	4	7	9	7
Health status factors	4	15	2	12	19	8
Other (blood-related, eye, ear, congenital)	2	4	1	3	n.p.	4
Total (adjusted, standardised)	**5**	**7**	**3**	**6**	**9**	**7**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Estimates have been age–sex standardised using 10-year age groups up to 85+ using the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table 3.11: 90th percentile of patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (standardised adjusted days)

Part c	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From respite RAC or TCP	From community /other	Permanent RAC resident	From respite RAC or TCP	From community /other
	90th percentile (days)					
Infections	16	24	15	20	n.p.	31
Neoplasms	17	27	16	21	24	28
Endocrine	16	31	15	30	28	30
Mental/behavioural	42	40	37	41	39	34
Nervous	22	32	12	48	36	27
Circulatory	15	21	13	22	28	21
Respiratory	14	20	14	20	21	21
Digestive	12	20	10	19	29	22
Skin	18	25	16	24	n.p.	26
Musculoskeletal	19	34	13	22	22	15
Genitourinary	12	19	10	16	25	21
Symptoms, signs and ill-defined conditions	9	25	8	15	27	15
Injury and poisoning	15	28	17	22	25	22
Health status factors	30	41	19	62	52	35
Other (blood-related, eye, ear, congenital)	8	16	7	20	n.p.	18
Total (adjusted, standardised)	**16**	**27**	**13**	**23**	**28**	**22**

Notes

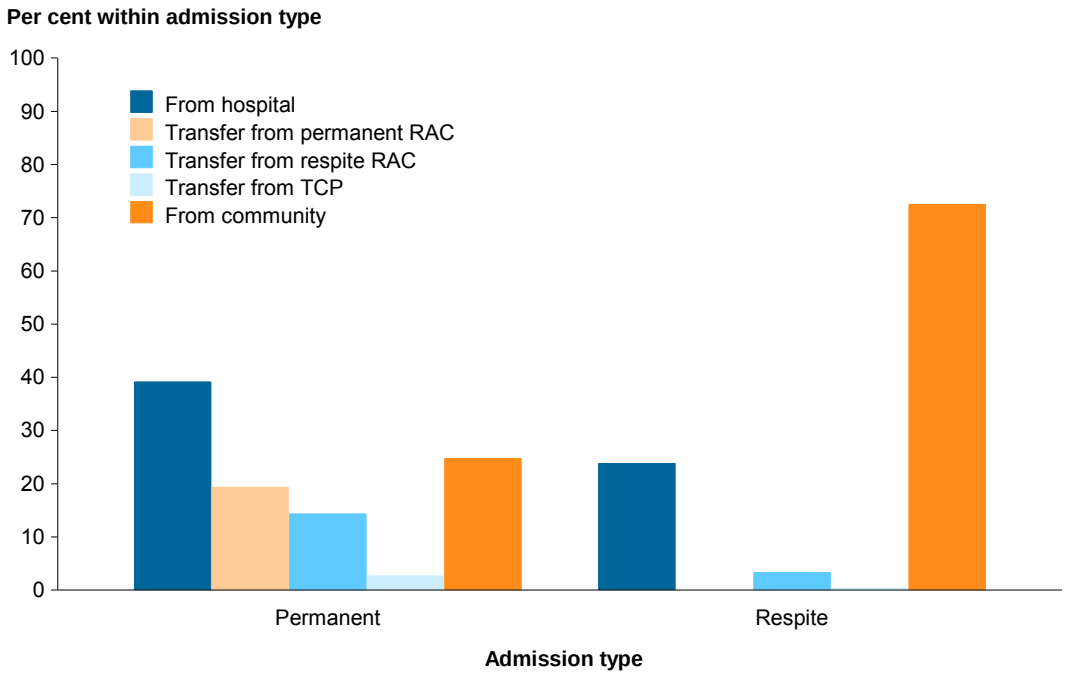
1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type.
2. Estimates have been age–sex standardised using 10-year age groups up to 85+ using the table population (that is, admitting episodes from single- and multi-episode stays) as the standard.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

4. Moving into residential aged care

People moving into a particular RAC facility may have come from a number of places and care situations:

- from their home in the community
- from another RAC facility to change type of care, for example, from respite to permanent care
- from another RAC facility to change location or level of care, for example, moving to a facility nearer family, or to go from low-level to high-level permanent care
- from an episode of TCP care
- from hospital.

As reported in Section 1, in 2008–09, there were just over 120,000 admissions into RAC nationally for people aged 65 and over, including transfers between facilities or between respite and permanent care. The majority (65%) of admissions into RAC from hospital were for permanent care. However, the reverse was true for admissions from the community, with only 30% of such admissions being into permanent care (Table 4.1). Consequently, the source profiles of respite and permanent admissions were quite different (Figure 4.1).



Note: Due to small numbers of permanent to respite transfers, all transfers into respite RAC are included in 'Transfer from respite RAC'.

Source: Table 4.1.

Figure 4.1: Source of admission into RAC within admission type, RAC admissions, 2008–09 (per cent)

A large majority of respite admissions were from the community (73%), while only one-quarter of permanent admissions came from this source. On the other hand, relatively few

people transferred into respite RAC from other residential care, with transfers into permanent care being 10 times more common (34% of permanent admissions versus 3.3% of respite admissions). Among admissions into permanent RAC, transfer from respite care was more common than transfer from permanent care (19% versus 14%). Transfers from TCP were much more likely to be into permanent care than respite care (among all admissions, 1.5% compared with 0.2% respectively).

Table 4.1: Source of admissions into RAC, RAC admissions 2008–09 (adjusted)

Source of admission	Per cent	Per cent	Number
Permanent			
From hospital (first)	18.1	32.8	21,700
From hospital (readmission)	3.5	6.3	4,200
Transfer from respite RAC	10.7	19.3	12,800
Transfer from permanent RAC	7.9	14.3	9,500
Transfer from TCP	1.5	2.6	1,700
From community	13.6	24.7	16,400
Total	**55.3**	**100.0**	**66,348**
Respite			
From hospital	10.7	23.8	12,800
Transfer from RAC	1.5	3.3	1,800
Transfer from TCP	0.2	0.3	200
From community	32.5	72.5	39,000
Total	**44.7**	**100.0**	**53,736**
Total	**100.0**	**. .**	**120,084**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

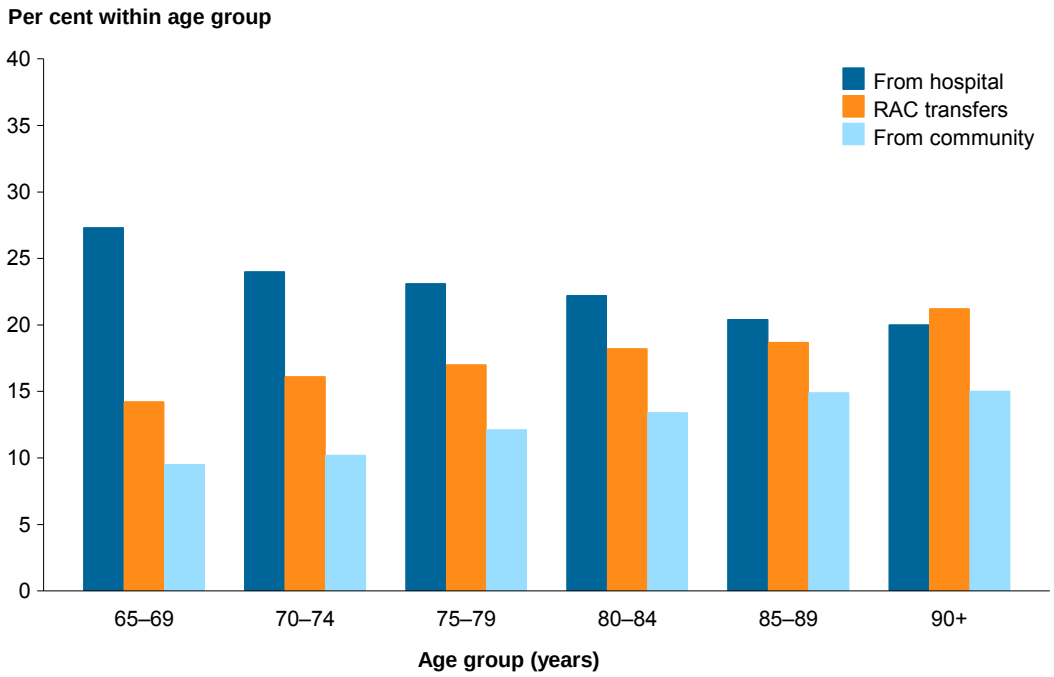
4.1 Age and sex differences

At 30 June 2008, in the general population aged 65 and over women slightly outnumbered men, accounting for 55% of older people, and 13% of people were very old, that is, were aged 85 and over. Women were more likely than men to be very old so that two-thirds of people in this age group were women (ABS 2008). In contrast, just over half of all RAC admissions were for people aged 85 or more. However, as expected from the population figures, admissions for women were more likely to be for this very old age group (56% of women versus 43% of men) (Table 4.2). This difference in age profiles between the sexes was seen for all admission types; that is, women on average were older than men. Despite this pattern, within sex there was still significant variation in the age profile depending on the type of admission.

For men, the youngest age profile was seen for first permanent admissions from hospital with just over 60% of these moves being for men aged less than 85 (Table 4.2). On the other hand, permanent admissions from the community had the oldest age profile for men, with 50% of such admissions being for those aged 85 or more. For women, the oldest age profile was seen for readmissions to permanent care via hospital (63% aged 85 and over) and the youngest profile was for respite admissions via hospital (50% aged less than 85).

Older people were more likely than younger people to be admitted for permanent care, and transfers within RAC were also relatively more common for older people (Table 4.3). In particular, transfers into permanent care from either respite or permanent care were more common among admissions for older people, with 14% of admissions for people aged 65 to 69 being such transfers compared with 21% of admissions for people aged 90 and over.

Overall, the proportion of admissions coming via hospital was lower among older age groups (Figure 4.2). On the other hand, both transfers within RAC and admissions into permanent care from the community were more common among admissions for older groups. Admission patterns across age groups for men and women were broadly similar.



Source: Table 4.3.

Figure 4.2: Source of permanent admissions within age group, RAC admissions, 2008–09 (per cent)

Table 4.2: Source of admissions into RAC, by broad age group and sex, admissions into RAC, 2008–09 (adjusted per cent)

	Men			Women			Persons		
Source of admission	**65–84**	**85+**	**Total**	**65–84**	**85+**	**Total**	**65–84**	**85+**	**Total**
Permanent admissions subtotal	*55.7*	*44.3*	*100.0*	*43.5*	*56.5*	*100.0*	*47.9*	*52.1*	*100.0*
From hospital (first)	61.3	38.7	100.0	48.8	51.2	100.0	54.1	45.9	100.0
From hospital (readmission)	55.6	44.4	100.0	37.0	63.0	100.0	43.0	57.0	100.0
Transfer from respite RAC	52.2	47.8	100.0	43.9	56.1	100.0	46.8	53.2	100.0
Transfer from permanent RAC	54.1	45.9	100.0	39.5	60.5	100.0	44.4	55.6	100.0
Transfer from TCP	54.4	45.6	100.0	40.5	59.5	100.0	45.5	54.5	100.0
From community	50.0	50.0	100.0	41.5	58.5	100.0	44.2	55.8	100.0
Respite admissions subtotal	*58.8*	*41.2*	*100.0*	*45.1*	*54.9*	*100.0*	*50.3*	*49.7*	*100.0*
From hospital	59.6	40.4	100.0	49.6	50.4	100.0	53.4	46.6	100.0
Transfer from RAC	54.2	45.8	100.0	46.2	53.8	100.0	49.4	50.6	100.0
Transfer from TCP	60.3	39.7	100.0	38.0	62.0	100.0	47.0	53.0	100.0
From community	58.7	41.3	100.0	43.6	56.4	100.0	49.3	50.7	100.0
Total (unadjusted)	**57.1**	**42.9**	**100.0**	**44.2**	**55.8**	**100.0**	**49.0**	**51.0**	**100.0**
Total N	**25,514**	**19,171**	**44,685**	**33,326**	**42,073**	**75,399**	**58,840**	**61,244**	**120,084**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

Table 4.3: Source of admissions into RAC, by age group and sex, RAC admissions, 2008–09 (adjusted per cent)

Sex/source of admission	65–69	70–74	75–84	80–84	85–89	90+	65–84	85+	Total
Men									
Permanent admissions subtotal	*52.7*	*51.7*	*51.7*	*54.4*	*55.3*	*57.4*	*53.0*	*56.1*	*54.3*
From hospital (first)	26.3	23.7	21.9	21.3	19.6	17.4	22.3	18.8	20.8
From hospital (readmission)	3.5	2.9	2.9	3.0	2.9	3.7	3.0	3.2	3.1
Transfer from respite RAC	6.9	8.3	8.9	10.4	11.0	11.8	9.3	11.3	10.2
Transfer from permanent RAC	6.7	6.6	6.5	6.9	7.0	8.4	6.7	7.6	7.1
Transfer from TCP	0.7	1.4	1.4	1.4	1.5	1.5	1.3	1.5	1.4
From community	8.6	8.9	10.0	11.4	13.2	14.5	10.3	13.7	11.8
Respite admissions subtotal	*47.3*	*48.3*	*48.3*	*45.6*	*44.7*	*42.6*	*47.0*	*43.9*	*45.7*
From hospital	10.7	10.9	11.8	11.5	10.6	9.9	11.4	10.3	10.9
Transfer from RAC	1.4	1.4	1.6	1.5	1.7	1.8	1.5	1.7	1.6
Transfer from TCP	0.0	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2
From community	35.3	35.9	34.8	32.4	32.4	30.7	33.9	31.8	33.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**5.1**	**9.5**	**16.6**	**25.8**	**26.6**	**16.3**	**57.1**	**42.9**	**100.0**
Total N	**2,291**	**4,267**	**7,419**	**11,537**	**11,900**	**7,271**	**25,514**	**19,171**	**44,685**

(continued)

Table 4.3 (continued): Source of admissions into RAC, by age group and sex, RAC admissions, 2008–09 (adjusted per cent)

Sex/source of admission	65–69	70–74	75–84	80–84	85–89	90+	65–84	85+	Total
Women									
Permanent admissions subtotal	*51.2*	*51.4*	*55.3*	*55.9*	*55.4*	*57.9*	*54.9*	*56.5*	*55.8*
From hospital (first)	21.2	18.6	18.7	17.6	15.8	14.4	18.2	15.1	16.5
From hospital (readmission)	3.1	2.8	2.9	3.3	3.5	5.2	3.1	4.2	3.8
Transfer from respite RAC	8.5	10.6	10.8	11.2	10.9	11.1	10.9	11.0	10.9
Transfer from permanent RAC	6.5	6.8	7.7	7.6	8.0	10.4	7.5	9.1	8.4
Transfer from TCP	1.3	1.1	1.3	1.4	1.5	1.7	1.4	1.6	1.5
From community	10.6	11.6	13.9	14.7	15.7	15.2	13.8	15.5	14.8
Respite admissions subtotal	*48.8*	*48.6*	*44.7*	*44.1*	*44.6*	*42.1*	*45.1*	*43.5*	*44.2*
From hospital	12.7	13.0	12.4	11.1	10.2	8.6	11.8	9.5	10.5
Transfer from RAC	1.3	1.4	1.6	1.4	1.4	1.3	1.5	1.3	1.4
Transfer from TCP	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1
From community	34.6	34.0	30.6	31.5	32.8	32.1	31.7	32.5	32.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**2.5**	**5.5**	**12.0**	**24.3**	**30.5**	**25.3**	**44.2**	**55.8**	**100.0**
Total N	**1,856**	**4,160**	**9,016**	**18,294**	**22,991**	**19,082**	**33,326**	**42,073**	**75,399**

(continued)

Table 4.3 (continued): Source of admissions into RAC, by age group and sex, RAC admissions, 2008–09 (adjusted per cent)

Sex/source of admission	65–69	70–74	75–84	80–84	85–89	90+	65–84	85+	Total
Persons									
Permanent admissions subtotal	*52.0*	*51.6*	*53.6*	*55.3*	*55.3*	*57.8*	*54.1*	*56.4*	*55.3*
From hospital (first)	24.0	21.2	20.2	19.0	17.1	15.2	20.0	16.3	18.1
From hospital (readmission)	3.3	2.8	2.9	3.2	3.3	4.8	3.1	3.9	3.5
Transfer from respite RAC	7.6	9.4	9.9	10.9	11.0	11.3	10.2	11.1	10.7
Transfer from permanent RAC	6.6	6.7	7.1	7.3	7.7	9.9	7.1	8.6	7.9
Transfer from TCP	1.0	1.2	1.4	1.4	1.5	1.7	1.4	1.6	1.5
From community	9.5	10.2	12.1	13.4	14.9	15.0	12.3	14.9	13.6
Respite admissions subtotal	*48.0*	*48.4*	*46.4*	*44.7*	*44.7*	*42.2*	*45.9*	*43.6*	*44.7*
From hospital	11.6	11.9	12.1	11.2	10.3	9.0	11.6	9.7	10.7
Transfer from RAC	1.3	1.4	1.6	1.5	1.5	1.4	1.5	1.5	1.5
Transfer from TCP	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2
From community	35.0	34.9	32.5	31.8	32.7	31.7	32.7	32.2	32.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**3.5**	**7.0**	**13.7**	**24.8**	**29.1**	**21.9**	**49.0**	**51.0**	**100.0**
Total N	**4,147**	**8,427**	**16,435**	**29,831**	**34,891**	**26,353**	**58,840**	**61,244**	**120,084**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

4.2 Location of ACAT assessment

Assessment by an Aged Care Assessment Team (ACAT) provides a single point of entry to a range of government-funded aged care services, including permanent and respite RAC (AIHW 2009). Before a person can enter either respite or permanent residential aged care, they must obtain an approval through an ACAT assessment, although in the case of an emergency admission, the ACAT assessment may take place soon after admission into RAC, rather than before. Up until 1 July 2009—that is, including the period covered by this report—an ACAT approval remained valid for only 12 months (approval requirements from 1 July 2009 are given in Box 4.1). An ACAT approval was also required for residents moving between facilities in order to change from low care to high care, or if there was a break of more than 1 day (Box 1.2). If a person's care needs change to the extent that a different level or type of care is required, they may be reassessed at any time.

From the above it is apparent that in 2008–09 people transferring between RAC facilities may not have had an assessment in the preceding 12 months. In the following discussion, only admissions for people with an ACAT assessment completed within the 12 months preceding the admission are considered. The extent of assessments outside this period can be seen in Table A.24. People admitted into respite RAC had nearly always had an assessment in the preceding 12 months (for more than 99% of admissions). This was also the case for permanent admissions, except when people were transferring from permanent care (58%) or being readmitted following a period in hospital (89%). People moving into RAC directly from hospital would have received an ACAT assessment either in hospital or before entering hospital.

Box 4.1: ACAT approval requirements from 1 July 2009

Since 1 July 2009, in general an ACAT approval for high-level permanent residential care, and low-level and high-level residential respite care, does not lapse unless the ACAT has specified the approval as time-limited. An ACAT approval is also required for residents moving between facilities in order to change from low care to high care.

There are number of exceptions to the above:

- Approvals for low-level permanent residential care lapse after 12 months if the person is not provided with the care.
- For people in low-level residential care, a new ACAT approval is required if there has been a break in care of more than 28 days (excluding approved leave) outside the 12-month lapsing period.
- A new approval is required if the ACAT originally approved low-level permanent care but the first Aged Care Funding Instrument (ACFI) results in a 'High Level' classification for the resident and the provider wishes to claim a high care ACFI subsidy rather than the interim low subsidy (see Box 4.2 on resident care needs appraisal).
- A new approval is required on transfer if the resident has aged in place and wishes to pay an accommodation charge to the new home rather than rolling over an existing bond.

Source: DoHA 2009:72–3.

As expected from both the assessment requirements and the movement patterns presented previously, people admitted into permanent care were more likely to have been assessed in hospital than people admitted into respite care (50% versus 21%) (Table 4.4). Assessment

took place in hospital for just over three-quarters of permanent admissions that were via hospital, compared with 58% of respite admissions via hospital. People admitted from the community were highly likely to have been assessed at home (for 73% and 88% of permanent and respite admissions from the community, respectively). The relevant assessment was least likely to have been in a person's home in the community for permanent readmissions via hospital and for people admitted into permanent care from TCP (both around 8%).

Table 4.4: Source of admissions into RAC, by location of ACAT assessment, RAC admissions 2008–09 with an ACAT assessment in the 365 days before admission (standardised adjusted per cent)

Source of admission	At home	In RAC	In hospital	Total
Permanent				
From hospital (first)	21.3	1.1	77.6	100.0
From hospital (readmission)	8.5	12.7	78.8	100.0
Transfer from respite RAC	53.7	13.4	32.9	100.0
Transfer from permanent RAC	21.7	37.7	40.5	100.0
Transfer from TCP	8.0	11.0	81.0	100.0
From community	72.7	5.0	22.3	100.0
Total (unweighted and unstandardised)	**41.0**	**9.0**	**50.0**	**100.0**
N (unweighted and unstandardised)	**25,322**	**5,559**	**30,724**	**61,605**
Respite				
From hospital	39.7	2.0	58.2	100.0
Transfer from RAC	61.9	11.9	26.1	100.0
Transfer from TCP	19.5	6.7	73.9	100.0
From community	88.3	3.3	8.4	100.0
Total (unweighted and unstandardised)	**76.0**	**3.3**	**20.7**	**100.0**
N (unweighted and unstandardised)	**40,573**	**1,766**	**11,052**	**53,391**
All				
Per cent (unweighted and unstandardised)	**57.3**	**6.4**	**36.3**	**100.0**
N (unweighted and unstandardised)	**65,895**	**7,325**	**41,776**	**114,996**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Table excludes 4,743 permanent admissions and 375 respite admissions for people who did not have an ACAT assessment recorded for the 365 days before the admission. For permanent admissions, 94% of these were either for permanent to permanent transfers or for people readmitted from hospital. For respite admissions, 72% were admissions from the community and 20% were admissions from hospital (adjusted per cents).
3. The relevant assessment is that closest to the admission.
4. Percentages within source of admission have been age–sex standardised.

4.3 Regional patterns

State or territory of usual residence

In 2008–09, RAC admission patterns varied with state and territory (Table 4.5). Analysis suggests that there were considerable differences in the way that hospitals and RAC services interacted and in the way that aged care services operated in the various jurisdictions. At the most basic level, the proportion of admissions that were for permanent care varied noticeably—from less than 45% for the two territories to more than 60% for Queensland and Western Australia.

Looking at new moves into permanent care—that is, excluding transfers from permanent care and readmissions into permanent care from hospital—we can see quite substantial differences (Figure 4.3, Table 4.5). For example, Western Australia had the highest proportion of these admissions coming from the community and the smallest proportion of new permanent admissions coming via hospital (52% and 29% respectively). On the other hand, New South Wales and South Australia both had relatively small proportions of first permanent admissions coming from the community (24% and 27% respectively). Transfers from respite into permanent care also varied as a source of new permanent admissions, with these being least likely in Tasmania (5%) and most likely in New South Wales (35%). At 10%, TCP was most important in Victoria as a source of first admissions into permanent RAC, even though the provision of places for this program was around the Australian average in 2008–09 (AIHW 2011b).

Note: Figure includes all admissions from the community and all transfers from respite care and TCP. A small proportion of these were second or later admissions into permanent care (under 5%, see Table B.16). Northern Territory is not presented due to small numbers.

Source: Table 4.5.

Figure 4.3: Source of new permanent admissions to residential care, by state/territory of usual residence, RAC admissions 2008–09 (standardised per cent)

Striking differences are also seen for respite admissions (Figure 4.4). Both New South Wales and South Australia had relatively high proportions of respite admissions coming from hospital (around one-third). In contrast, few respite admissions in Tasmania had that source—around 5%.

Note: Northern Territory is not presented due to small numbers.

Source: Table 4.5.

Figure 4.4: Source of respite admissions, by state/territory of usual residence, RAC admissions 2008–09 (standardised per cent)

Remoteness of usual residence

Admission patterns also varied with the remoteness of the client's usual residence (Table 4.6). The more remote the region of usual residence, the more likely it was that the person was admitted into respite care: 42% of admissions for people from major cities were for respite care compared with 57% for people from remote or very remote regions.

With the exception of remote regions, first time admission via hospital was the most common entry point into permanent care. In general, people from outer regional and remote regions were less likely to be admitted for permanent care for the first time from hospital than other people, with respite care being the most common source of admission into permanent care for remote regions.

For both care types, the proportion of people admitted into RAC from the community was similar for all regions—around one-quarter of permanent admissions and between 71% and 76% of respite admissions were from the community (Table 4.6).

Table 4.5: State or territory of usual residence, by source of RAC admission, RAC admissions 2008–09 (standardised adjusted per cent)

Source of admission	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Permanent admissions subtotal	*52.7*	*55.3*	*61.8*	*60.7*	*54.0*	*49.9*	*44.6*	*40.8*	*55.3*
From hospital (first)	16.5	17.1	25.0	13.6	20.2	20.2	12.1	8.3	18.1
From hospital (readmission)	4.5	3.0	2.9	4.7	2.0	1.6	1.5	2.1	3.5
Transfer from respite RAC	14.1	8.1	8.1	8.1	12.2	4.9	10.7	11.7	10.7
Transfer from permanent RAC	7.4	8.5	8.8	8.8	6.6	6.5	5.9	11.2	7.9
Transfer from TCP	0.3	4.4	0.2	1.1	1.0	0.1	0.5	0.7	1.5
From community	10.0	14.3	16.8	24.4	12.1	16.5	13.8	6.8	13.6
Respite admissions subtotal	*47.3*	*44.7*	*38.2*	*39.3*	*46.0*	*50.1*	*55.4*	*59.2*	*44.7*
From hospital	15.6	6.6	6.1	6.6	16.1	2.7	9.9	9.2	10.7
Transfer from RAC	1.8	1.1	1.1	1.0	1.8	1.5	3.1	1.6	1.5
Transfer from TCP	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.5	0.2
From community	29.6	36.9	30.9	31.5	27.9	45.8	42.2	47.9	32.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**37.1**	**25.8**	**15.5**	**7.7**	**9.3**	**3.0**	**1.3**	**0.4**	**100.0**
Total N	**44,481**	**30,972**	**18,618**	**9,202**	**11,151**	**3,540**	**1,534**	**481**	**119,979**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within jurisdiction have been age–sex standardised.
3. Table excludes 105 cases with missing state/territory of usual residence.

Table 4.6: Remoteness of usual residence by source of RAC admission, RAC admissions 2008–09 (standardised adjusted per cent)

Source of admission	Major Cities	Inner Regional	Outer Regional	Remote/Very remote	Total
Permanent admissions subtotal	*58.2*	*50.9*	*48.1*	*43.4*	*55.2*
From hospital (first)	19.1	17.5	13.9	12.8	18.1
From hospital (readmission)	4.0	2.6	3.0	1.9	3.5
Transfer from respite RAC	10.5	10.3	12.4	13.3	10.6
Transfer from permanent RAC	8.6	6.8	6.8	3.4	7.9
Transfer from TCP	2.0	0.6	0.1	0.2	1.5
From community	14.1	13.2	12.0	11.8	13.6
Respite admissions subtotal	*41.8*	*49.1*	*51.9*	*56.6*	*44.8*
From hospital	10.5	10.1	13.1	14.2	10.7
Transfer from RAC	1.5	1.3	1.5	1.5	1.5
Transfer from TCP	0.2	0.2	0.1	0.1	0.2
From community	29.7	37.5	37.2	40.9	32.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**64.5**	**24.8**	**9.6**	**1.1**	**100.0**
Total N	**77,348**	**29,798**	**11,524**	**1,309**	**119,979**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Region allocation is based on postcode of usual residence and derived using the ABS postcode–region concordance (ABS 2011). If postcodes crossed region boundaries then the population proportions provided by the ABS were used as weights to allocate a record's contribution to the various regions.
3. Percentages within remoteness region have been age–sex standardised.
4. Table excludes 105 cases with missing region of usual residence.

4.4 Care needs

Care is provided on a high-care or low-care basis. People newly admitted to permanent RAC have their care needs assessed by the admitting RAC facility soon after entering the facility, with the resulting appraisal being applied for subsidy purposes from the date of admission. Transfer admissions from permanent care and readmissions within a short period do not generally require a reappraisal. From 20 March 2008, the care needs of permanent residents have been appraised using the ACFI (Box 4.2). People in permanent RAC on 20 March 2008 were appraised using the ACFI if and when they required a review of their current classification. For people admitted to respite care, care needs are assessed by the ACAT, and an overall care level (low or high) is indicated in the RAC approval.

There were a number of 2008–09 permanent admissions for which there was no valid appraisal active on the admission date reported on ACCMIS (Table A.28). For almost 6% of all admissions a late appraisal (within 3 months of admission) was available to identify care level at admission (see note to Table A.28). Where multiple late appraisals had been undertaken, the first valid appraisal was used. A small percentage (around 2%) of all admissions only had a very late appraisal reported (more than 3 months after admission) or no appraisal at all. For these admissions care level was determined by a current ACAT approval.

Box 4.2: Care needs appraisal of permanent residents

Care is provided on a **high-care** or **low-care** basis, according to care needs as appraised by the admitting RAC facility. Resident dependency levels of permanent residents were determined by the Resident Classification Scale (RCS) up to 20 March 2008. Since this date, care needs have been appraised using the **Aged Care Funding Instrument** (**ACFI**). People in permanent RAC on 20 March 2008 were appraised using the ACFI if and when they required a review of their current classification. Care needs appraisals are also used for determining the daily basic subsidy paid by the Australian Government.

Under the ACFI, a resident's dependency level is appraised in respect of three domains: activities of daily living (ADL); behaviour characteristics (BEH); and complex health care needs (CHC). Scores in each of these domains determine the level of care required (high, medium or low) for that domain, and the overall level of resident subsidy is derived from this.

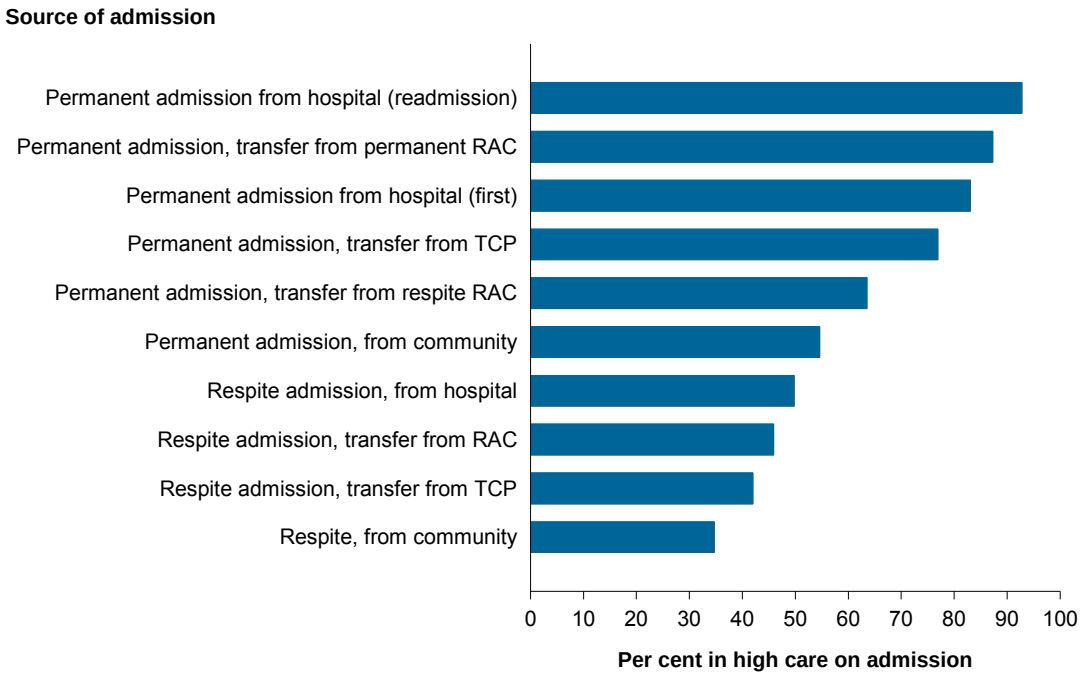
The concepts of ACFI high and low care are defined through various combinations of scores in the three ACFI domains. This enables an approximate comparison with RCS high care (RCS 1–4) and RCS low care (RCS 5–8). Until 1 January 2010, residents were considered to be receiving a high level of residential care if they were classified at any one of the following need levels: medium or high in the ADL domain; or high in the BEH domain; or medium or high in the CHC domain. Some changes in the definition of ACFI high care were implemented on 1 January 2010.

Sources: DoHA 2005, DoHA 2011:29.

The proportion of people with high-care needs on admission to RAC varied considerably with the type of transition, ranging from 34% for people entering respite care from the community to 93% for people readmitted to permanent care from hospital (Figure 4.5). Overall a higher proportion of people entering permanent RAC had high care needs (73%) than those entering respite RAC (38%). For both permanent and respite care, a smaller proportion of people admitted from the community had high care needs compared with those transferring within RAC and those admitted from hospital. Significantly more people readmitted to permanent care from hospital (93%) than admitted for the first time (83%) had high care needs. Care needs were also generally higher for people undertaking a permanent to permanent care transfer than those transferring into permanent RAC from respite care (87% versus 64%) (Table 4.7).

On average women had lower care needs than men for most transition types into permanent care (Table 4.7). Two exceptions were readmissions from hospital and transfers from permanent RAC. Women were also more likely to be admitted for low-level respite care than men; this was true for all groups of admission into respite care.

For some admission types there were patterns in care needs by age. In particular, the average level of care needs for people admitted from the community for either respite or permanent care generally decreased with increasing age (Table A.29). In contrast, permanent admissions from hospital or transfers from permanent care did not exhibit trends in care needs related to age.



Source: Table 4.7.

Figure 4.5: Proportion of residents requiring high care at admission, by source of RAC admission, RAC admissions 2008–09 (standardised per cent)

Table 4.7: Per cent of residents requiring high care at admission, by source of RAC admission and sex, RAC admissions 2008–09 (standardised adjusted per cent)

Source of RAC admission	Men	Women	Total
Permanent admissions subtotal	*76.0*	*71.4*	*73.2*
From hospital (first)	85.8	81.1	83.0
From hospital (readmission)	91.3	93.3	92.6
Transfer from respite RAC	66.9	62.2	63.8
Transfer from permanent RAC	86.1	88.0	87.3
Transfer from TCP	78.9	76.0	77.0
From community	59.2	53.3	55.3
Respite admissions subtotal	*43.6*	*35.3*	*38.4*
From hospital	55.6	46.3	49.8
Transfer from RAC	51.5	42.2	46.0
Transfer from TCP	54.5	34.2	42.0
From community	39.4	31.6	34.6
All	**61.4**	**55.4**	**57.7**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. See Table A.28 for derivation of care level at admission.
3. Percentages within sex have been age standardised.
4. Table excludes 8 cases with missing appraisal information.

5 Person outcomes: entry into RAC from hospital

Identifying whether a range of factors are associated with an outcome, such as whether or not a person's characteristics and experience in hospital can predict whether they will be admitted to RAC when they are discharged from hospital, can be done using logistic regression models.

Logistic regression models result in an equation that estimates the probability of the event of interest occurring based on characteristics of units in the study population. They also allow the estimation of odds ratios (ORs)—a relative measure which compares the odds of people in a particular group experiencing an event with the odds of people in another group experiencing the same event. If the probability of the event happening is small—less than 10%—the OR is approximately equal to the relative risk (RR). That is, an OR of 1.25 can be interpreted as meaning that the probability of the event occurring for people in group 2 is 25% more than the probability of the event occurring for people in group 1.

Fitting such models allows us to bring together the various elements considered individually in Sections 2 and 3 so that factors underlying observed differences in entry into RAC from hospital can be identified.

Two logistic regression models were fitted to identify, firstly, factors associated with whether a person was admitted to RAC on leaving hospital, and, secondly, if they were admitted to RAC whether they went into permanent or respite care. The two models are:

- **Model A** for people who returned to the community or were admitted into RAC following discharge from hospital. This model estimates the probability that a person leaving hospital would be admitted to RAC rather than return to the community.
- **Model B** for people who were admitted into RAC following discharge from hospital. This model estimates the probability that a person leaving hospital would be admitted into permanent rather than respite RAC, given that it is known that the person moved into RAC from hospital.

To identify factors associated with admission into RAC, only hospital episodes that ended with a return to living in the community, admission into respite RAC or in admission into permanent RAC for their first use of such care in 12 months (abbreviated to 'first permanent admission within 12 months') were included in the analysis. That is, episodes ending with the death of the patient, admission into TCP or other health care accommodation, or with readmission or return to permanent RAC were excluded from the model fitting process. These last were excluded as many of these patients had been discharged from permanent RAC into hospital, and so were returning to that type of care (see note b of Table 1.2).

Variables available as covariates when fitting the models were:

- age at 1 July 2008
- sex
- state/territory of hospital admission
- remoteness of usual residence (using ASGC) (see AIHW 2010:304)
- English Proficiency (EP) group
- hospital sector
- person election status (private versus public)

- urgency of admission
- Australian refined diagnosis-related group (AR-DRG) type (medical/surgical/other) (see AIHW 2010:301)
- patient clinical complexity level (PCCL, as classified in AR-DRG Version 56.0)
- care type in hospital before discharge
- hospital admission mode
- length of hospital episode before discharge (LOE)
- principal diagnosis (31 categories) (see Table D.1 for the categorisation used in the regression analyses, and Appendix C for detailed descriptions of ICD–10–AM codes)
- first procedure (11 categories, including none given) (see Table D.2 for the categorisation used in the regression analyses, and Appendix C for detailed descriptions of ICD–10–AM codes)
- presence of specific diseases as additional diagnoses (28 groups) (see Table D.1).
- presence of any specific external causes of injury (not falls), (transport accident, other accident, assault, medical/surgical complications) (see Table D.1). Note: injury with a fall as first external cause is included explicitly as a principal diagnosis.

For hospital stays consisting of 2 or more episodes, all variables included in the model related to the discharging episode. This is because the hospital data available for this project did not include a person identifier that would enable hospital episodes relating to the same stay to be grouped together; that is, it is not possible to incorporate data from all episodes in a stay (see Appendix B).

Models were fitted using adjusted data. Examination of association between covariates indicated that patient clinical complexity level (PCCL) was related to a number of other variables, in particular, to some diagnoses and procedures. This is not surprising given that it is a summary measure. To aid interpretation, models were therefore fitted with diagnoses and procedures but without PCCL (the 'full model'), and vice versa (the 'PCCL model'). Finally, it is known that length of stay can be affected by the need to move to RAC, for example, because of the time involved in identifying a suitable place in RAC. Consequently, a long length of stay can reflect either hospital care needs or post-hospital needs. Therefore, further models were fitted excluding LOE from the covariates. Results from fitting the above models are summarised below. An explanation of logistic regression models, interpretation of results, specifications of the variables used for models A and B and the final fitted models are given in Appendix D.

5.1 Propensity to be discharged to RAC

In 2008–09, an estimated 940,800 people aged 65 and over were discharged from hospital either to be admitted into RAC (respite and permanent) or to return to the community. Of these, 3.6% were admitted into RAC directly following discharge from hospital (Table 5.1).

Model A (propensity to be discharged to RAC) was initially fitted using all hospital episodes that ended with a return to living in the community, admission into respite RAC or in a person's first admission into permanent RAC within 12 months. However, the resulting model was not very informative in terms of explaining the characteristics of people who went to RAC rather than to their home in the community. This is because the two most significant predictors were variables concerning whether or not a patient was waiting for admission elsewhere (as principal or other diagnosis), with episode length being the third. In order to gain greater insight into factors affecting movement into RAC, the population

was therefore split into two groups based on whether the patient had any diagnosis of 'awaiting admission elsewhere' (ICD–10–AM code Z75.1). The model was then fitted for both groups separately.

Patients reported as 'awaiting admission elsewhere'

Just over 1.5% of hospital discharges in scope for Model A, or 15,400 (adjusted), included a diagnosis of awaiting admission elsewhere (Table 5.1). Three-quarters of these people were admitted to RAC on leaving hospital, compared with 2.5% of patients without such a diagnosis. Consequently, one-third of all patients admitted to RAC from hospital had been designated as 'awaiting admission elsewhere'.

Table 5.1: Movement from hospital into RAC, by whether patient was awaiting admission elsewhere, hospital discharges 2008–09 resulting in admission into RAC or return to the community (adjusted)

Patient was awaiting admission elsewhere	To RAC			To RAC			Number (adjusted)
	No	Yes	Total	No	Yes	Total	
	Row %			Column %			
No	97.5	2.5	100.0	99.6	66.1	98.4	925,400
Yes	24.2	75.8	100.0	0.4	33.9	1.6	15,400
Total	**96.4**	**3.7**	**100.0**	**100.0**	**100.0**	**100.0**	**. .**
Number (adjusted)	**906,500**	**34,300**	**940,800**	**906,500**	**34,300**	**. .**	**940,800**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table includes hospital episodes that ended with a return to living in the community (including left at own risk, discharged while on leave, and discharged to the community but admitted from RAC), admission into respite RAC or in a person's first admission into permanent RAC within 12 months.

Diagnostic statistics showing how well the model explains the variation in the data showed that the logistic regression model fitted to patients reported as awaiting admission elsewhere had little predictive power (see Table D.4). This result suggests that being assigned as 'awaiting admission elsewhere' largely summarises a person's capacity—or rather, incapacity—to return to their home, with other data items in the hospital data adding little further information. In addition, when hospital staff give this diagnosis they are presumably taking into account factors outside hospital care, such as family support and financial resources that could be affecting where the patient can go on leaving hospital.

From the fitted model, the six most significant predictors of entry to RAC for this 'waiting' group were, in order of statistical significance: hospital state or territory; LOE; hospital care type on discharge; having a diagnosis of dementia; age; and remoteness of the patient's usual residence.

As mentioned above, length of stay can be affected by the need to move to RAC; for example, because of the requirement to have a current ACAT approval to use RAC, and because of the time involved in identifying a suitable place in RAC and arranging the transfer. Consequently, although a long length of stay is predictive of a move to RAC it is not necessarily an underlying cause of entry to care. Therefore, a further model was fitted excluding length of stay in the covariates. As expected, this model was not as strong (compare Table D.4 and Table D.5). The top variables selected for the model remained

unchanged; however, there were some differences among the less significant variables included and their order of inclusion.

It is not surprising that there were factors affecting the discharge destination of these people that were not explicitly captured in the hospital data for this group of patients. More than two-thirds of the exiting episodes for people awaiting admission elsewhere began as either a hospital transfer (16%) or a change in care type (54%), and almost two-thirds (63%) were for non-rehabilitative non-acute care. Consequently, much of the health and care information that led to being classified as 'awaiting admission elsewhere' may have been reported in a preceding episode. By contrast, for exiting episodes for patients without this classification, just 2% were for non-rehabilitative non-acute care and 13% began as an admission from within the hospital system.

Patients not reported as 'awaiting admission elsewhere'

A summary of the main results from the logistic regression model fitted to the remaining 98% of episodes of the Model A population is given below. Details of the fitted model are given in Table D.8 and Table D.10.

The most significant predictors (see Table D.8) of entry into RAC rather than a return to the community were:

- LOE
- having a diagnosis of dementia or related disorders
- age
- urgency of admission
- hospital care type before discharge
- state or territory of the hospital.

Other variables included in the fitted model were:

- principal diagnosis
- a range of additional diagnoses
- first procedure
- the demographic factors EP group, region of usual residence and sex.

When LOE was excluded, there were noticeable changes in the fitted model (compare Table D.8 and Table D.9). The top six predictors in this second model included having dementia, age and hospital care type as before, and also having additional diagnoses of symptoms, signs and ill-defined conditions, infection, or non-dementia mental health conditions (see Table D.1 for definitions). Urgency of admission and state or territory of admission were no longer in the top six but were included later in the model (at steps 17 and 8, respectively). The remainder of this section is based on the predicted probabilities and ORs estimated from Model A fitted including LOE (Table D.8 and Table D.10).

The effects of particular variables can be seen by comparing predicted probabilities of being admitted into RAC. Such comparisons are most easily understood in reference to a person with specific characteristics, that is, by comparing the predicted probabilities for a patient type of interest with that for a reference patient.

The characteristics of the reference patient used for the following discussion are described in Box 5.1. These values were chosen either because they were the most common category within a variable or to aid the discussion. The traits of this person (in particular that she was aged 75 and was discharged from acute care after a short stay for treatment) mean that she

was unlikely to have been admitted into RAC on discharge from hospital; the predicted probability of this happening for our reference patient is 0.9% (Table D.10), compared with an observed rate of discharge to RAC of 2.5% across all discharges for patients not reported as awaiting admission elsewhere (Table 5.1). In the discussion below, the effect of a particular variable on the predicted probability of discharge to RAC is illustrated by comparing the predicted probability for the reference patient (0.9%) with that for a 'contrast patient', where the contrast patient differs from the reference patient in only the characteristic(s) being discussed. The predicted probabilities for patients who differed from the reference patient in only a single characteristic included in the model are presented in Table D.10.

Box 5.1: Reference patient for comparisons using Model A for patients not awaiting admission elsewhere (discharge to community or RAC admission)

For this analysis the **reference patient** used for comparing predicted probabilities has the following characteristics:

- 75 years old at 1 July 2008
- female
- born in Australia
- usual residence in a major city
- an emergency admission
- in a hospital in New South Wales
- a public patient
- receiving acute care in hospital
- LOE of 1 to 2 days
- a principal diagnosis of stroke
- with no additional diagnoses explicitly included in the model
- with no medical or surgical complications reported
- with no procedures reported for the episode.

These values were chosen either because within the variable they were the most common or to aid the discussion.

The predicted probability of this person being admitted to RAC from hospital is low at 0.9%. Therefore the predicted probability of this person returning to the community is 99.1%. Details of how to calculate predicted probabilities of admission into RAC for other combinations of variable values are given in Appendix D.

A **contrast patient** for Model A is a patient who has similar characteristics to the reference patient for Model A, but with one or more contrasting characteristics. The differences in characteristics depend on the comparison being made.

If a person differs from the reference patient in several characteristics then large differences in the predicted probabilities can be observed. For example, a person who was different from the reference patient by being aged 85, male, with a dementia diagnosis and who was in hospital for 4 to 8 weeks in palliative care, has a predicted probability of 88% and so would have been highly likely to have been discharged to RAC.

Episode length

Longer hospital episodes were associated with relatively high probabilities of admission into RAC rather than a return to the community (Table D.10). The reference patient, with a hospital episode before discharge lasting just 1 or 2 days, has a 0.9% predicted probability of

entering RAC. This compares with a predicted probability of 4.2% if the episode had lasted for 7–13 days and 31% if the episode had been for 8 weeks or more. That is, a contrast patient who stayed more than 8 weeks was 34 times more likely to be transferred to RAC than the reference patient who stayed just 1 or 2 days. These results are consistent with the analysis of episode length by movement type (Section 3).

Diagnoses

Model A shows that people's health conditions are associated with their discharge destination. People with a diagnosis of dementia and related disorders were almost 5 times as likely as other patients to be admitted into RAC on leaving hospital. Thus if our reference patient also has dementia her predicted probability of being admitted into RAC rises from 0.9% to 4.1%.

Other than dementia, having a principal diagnosis of stroke had the highest OR (1.55) of all the principal diagnoses explicitly included in the fitted model (Table D.10). Noting that the RR is approximately equal to the OR for percentages under 10%, this means that being in hospital because of a stroke increases the likelihood of being transferred into RAC by more than 50%. Consequently, our reference patient without a principal diagnosis of stroke has a predicted probability of 0.6%.

Two other principal diagnoses increased the likelihood of a transfer to RAC: non-dementia diseases of the nervous system (OR = 1.19) and injury due to a fall (OR = 1.14). The remaining principal diagnoses included in the model have ORs of less than 1, implying that people with one of these principal diagnoses are less likely to transfer to RAC than people with a principal diagnosis in the model reference category, where the model reference category is a conglomerate group including diagnoses of: non-dementia mental or behavioural conditions, non-stroke cerebrovascular conditions, liver disease, genitourinary conditions, congenital conditions, ill-defined conditions, and factors influencing health status excluding awaiting admission elsewhere (see Table D.1).

In addition to principal diagnosis and dementia status, 11 types of additional diagnoses were included in the fitted model. Of these, all but two (both related to circulatory disease, but not stroke) were associated with an increase in the predicted probability of transferring to RAC. This finding is reflected in the reduced model that was fitted using PCCL and AR-DRG type rather than diagnosis and procedure variables, in which increasing patient complexity (that is, PCCL) was associated with a higher likelihood of transferring to residential care. In the PCCL model, a patient with PCCL = 4 ('catastrophic') was around 50% more likely than a patient with PCCL of 0 or 1 ('none' or 'minor') to enter RAC (OR = 1.55) (Table D.12). The importance of comorbidities is emphasised in the PCCL model fitted excluding LOE: PCCL was the third most significant predictor after having dementia and age (Table D.11).

Age

As expected, older age was associated with an increased likelihood of entering RAC from hospital rather than returning to the community. A 65 year-old was less than half as likely to be discharged to RAC (0.4% predicted probability for the contrast patient) as a 75-year-old, while a 95-year-old was more than 5 times as likely to have this destination (5.0% predicted probability for the contrast patient) (Table D.10). This agrees with earlier analysis (Section 2), which indicated that people moving into RAC from hospital had an older age profile than those returning to the community.

Urgency of admission and care type

People who were reported as being in hospital for elective surgery were less likely to be transferred into RAC than those admitted because of an emergency (OR = 0.72) (Table D.10). On the other hand, those whose emergency status was unassigned were more likely to be transferred to RAC (OR = 1.25).

Care type in hospital before discharge was also associated with post-hospital destination (Table D.10). People who were receiving palliative care were more than twice as likely to be admitted to RAC as those in acute care before discharge (2.0% predicted probability for the contrast patient). Those reported as being in rehabilitative care were about one-third as likely as those leaving acute care (OR = 0.4).

State or territory

The predicted probability of entering RAC when leaving hospital also varies with the state or territory of hospital admission. For example, our reference patient using a hospital in New South Wales has the highest predicted probability of being admitted into RAC (0.9%) (Table D.10). A similar patient in South Australia also has a relatively high chance of going to RAC (0.8%), with contrast patients in Western Australia having the lowest predicted probabilities (0.4%) (OR = 0.46). This result suggests that jurisdictional differences in care services provision and/or practices could be affecting post-hospital destination. Note, that while there are jurisdictional differences in the propensity to be admitted to RAC, overall among the population included in this model, the proportion of people admitted to RAC varied between 1.4% and 3.3% across the states and territories (Table D.7).

Procedures

Having either no procedures or a first procedure in allied health was associated with an increase in the likelihood of moving from hospital to RAC (ORs of 1.20 and 1.38 respectively) (Table D.10). All other procedures included explicitly in the model had ORs of less than 1.0 (OR from 0.39 for cardiovascular procedures to 0.72 musculoskeletal procedures), and so were associated with a lower likelihood of transfer to RAC.

The PCCL model shows that patients with a surgical or 'other' AR-DRG type were more than 60% less likely to go into RAC on leaving hospital than those who had a medical AR-DRG (OR < 0.4) (Table D.12).

English proficiency

People born in Australia were more likely than others to be admitted into RAC on leaving hospital. That is, lower levels in English proficiency were associated with a reduced likelihood of such a transfer (Table D.10). In particular, people born in countries in the lowest two EP groups (EP3 and EP4) have the lowest predicted probability of RAC admission (0.6% for the contrast patient, with OR = 0.68).

5.2 Discharge to permanent rather than respite RAC

An estimated 34,300 people aged 65 and over were identified as leaving hospital to be admitted into permanent RAC for the first time within 12 months or to be admitted into respite RAC (Table 5.1). Of these, nearly two-thirds (65%) moved into permanent RAC. Model B estimates the probability that a person leaving hospital would be admitted into permanent rather than respite RAC, given that it is known that the person moved into RAC

from hospital. A summary of the main results from the logistic regression (Model B) fitted to the group of people moving from hospital into RAC is given below; details of the fitted model are given in Appendix D.

As for Model A, the effects of particular variables are most easily understood in reference to a person with specific characteristics; that is, by comparing the predicted probabilities of entry into permanent RAC for a patient type of interest with that for a reference patient. The characteristics chosen for the reference patient, again generally selected because they were the most common, are given in Box 5.2. Someone with the same characteristics as the reference patient has a predicted probability of 67% of entering permanent rather than respite residential care—slightly higher than the observed rate across all admissions into RAC from hospital (63%) (Table D.13). As when discussing Model A, the effect of a particular variable on the predicted probability is illustrated by comparing the predicted probability for the reference patient with that for a contrast patient, where the contrast patient differs from the reference patient in only the characteristic or characteristics being discussed. The predicted probabilities for patients who differed from the reference patient in only a single characteristic included in the model are presented in Table D.16.

Note that for Model B, an OR cannot be used as an approximation for RR because we are looking at probabilities much higher than 10%. In this situation, ORs of more than 1 tend to be greater than the associated RR, while ORs under 1 tend to be less than the associated RR. For example, for two groups with probabilities of an event happening of 0.6 and 0.5, the RR is 0.6/0.5 = 1.2 while the OR is 25% higher at 1.5—that is, (0.6/0.4) /(0.5/0.5)—and so provides a poor estimate of RR. Alternatively, reversing the reference group, RR = 0.5/0.6= 0.83, and the OR is considerably lower at 0.67—that is, (0.5/0.5) / (0.6/0.4). Consequently, in the discussion below differences in predicted probabilities for reference and contrast patients are explored without reference to ORs.

When fitting Model B, the most significant predictors of admission into permanent rather than respite RAC on admission from hospital were:

- LOE
- hospital care type before discharge
- state or territory of hospital
- region of usual residence before hospital admission
- having a diagnosis of stroke—either as the principal diagnosis or as an additional diagnosis.
- a number of additional diagnoses, in particular 'awaiting admission elsewhere' and dementia.

The demographic variables age, sex and EP group were also selected for Model B. However, 14 other variables had higher statistical significance as predictors than these three (Table D.14).

As before, excluding LOE from the model fitting process resulted in changes in the model (compare Table D.14 and Table D.15). However, four of the variables that were in the original top six predictors (along with LOE) were still in this position (hospital state/territory, hospital care type, region of usual residence and additional diagnosis of awaiting admission elsewhere), although their order of inclusion changed. New variables included in the top six were additional diagnosis of ill-defined conditions (previously tenth) and having dementia (previously seventh).

Box 5.2: Reference patient for comparisons using Model B (discharge to permanent versus respite RAC admission)

For this analysis the **reference patient** on discharge from hospital is a patient with the following characteristics:

- 85 years old at 1 July 2008
- female
- born in Australia
- usual residence in a major city
- a public patient
- in a hospital in New South Wales
- with an emergency admission
- receiving acute care
- for a principal diagnosis of stroke
- with none of the additional diagnoses explicitly included in the model
- with a medical AR-DRG
- with no procedures reported
- with the hospital episode lasting 14 to 27 days.

These values were chosen either because within the variable they were the most common or to aid the discussion.

The predicted probability of this person being admitted to permanent RAC is 67.2%. Hence, the predicted probability of this person going into respite RAC is 32.8%. Details of how to calculate predicted probabilities of admission into permanent RAC for other combinations of variable values are given in Appendix D.

A **contrast patient** for Model B is a patient who has similar characteristics to the reference patient for Model B, but with one or more contrasting characteristics. The differences in characteristics depend on the comparison being made.

The probability of being admitted into permanent rather than respite care varied considerably with a person's circumstances. For example, consider two people who differ from the reference patient in several characteristics. Firstly, an 85 year old Sydney woman in public hospital for a stroke who was in rehabilitative care for more than 8 weeks (urgency of admission not reported) before being admitted into RAC is most likely to have gone into permanent care, with a predicted probability of 78% for being admitted into permanent rather than respite care. On the other hand, a 75 year old man from outer regional New South Wales before a cancer-related planned admission to a private hospital for surgical treatment who spent 2 weeks in acute care before discharge to RAC, was much more likely to have gone into respite rather than permanent care, having a predicted probability of 19% for having a permanent RAC admission.

Episode length

The results from Model B show that the length of the hospital episode before discharge was statistically the most significant factor associated with the likelihood of entering permanent RAC from hospital (Table D.14). The longer a person was in hospital, the more likely it was that they were going into permanent rather than respite RAC (Table D.14 and Table D.16). For example, a contrast patient whose final hospital episode lasted 3 to 6 days has a 46% predicted probability of entering permanent RAC and so is predicted to be slightly more

likely to enter respite than permanent RAC. The predicted probability increases to 83% for a contrast patient who was discharged following a hospital episode lasting longer than 8 weeks; that is, this patient is highly likely to go into permanent RAC. This result is as expected given that people admitted into permanent RAC from hospital tended to have longer episodes than people admitted into respite RAC (Section 3).

Care type

Care type just before leaving hospital was also highly predictive of the type of RAC a person would enter. People who received palliative care or geriatric care (namely, GEM, psychogeriatric care or maintenance care) before discharge were more likely to enter permanent RAC than people who received acute care before discharge (Table D.16). On the other hand, people in rehabilitation were more likely to be transferring to respite RAC. For example, at 58% a contrast patient discharged from rehabilitative care has a relatively low predicted probability of entering permanent RAC, compared with 76% for a contrast patient discharged from palliative care, and 83% for a contrast patient discharged from geriatric care. These higher probabilities reflect earlier results on discharge destination by care type (Section 2).

Region effects

There are significant geographic effects seen in the model. A person living in a major city before hospitalisation was more likely than other patients to be admitted into permanent RAC (Table D.16). As a result, the estimated probability drops from 67% for our reference patient living in a major city to under 45% for a contrast patient coming from an outer regional or more remote area.

The state or territory of the hospital also plays a significant role in predicting someone's admission into permanent RAC. For example, people discharged from a hospital in the Australian Capital Territory and New South Wales have the lowest predicted probabilities of being admitted into permanent RAC (67%), while people using Tasmanian hospitals have the highest (96% for the contrast patient). These last two results indicate that variation in jurisdictional and regional aged care service provision and/or practices may be influencing outcomes.

Diagnoses

Having a diagnosis of stroke—either as a principal or additional diagnosis—increased the risk of entering permanent RAC (Table D.16). The predicted probability for our reference patient with a principal diagnosis of stroke is 67% compared with 51% for a similar patient with a principal diagnosis not explicitly included in the model (derived using the fitted model equation). Similarly, the predicted probability for a contrast patient with a principal diagnosis not explicitly included in the model but with an additional diagnosis of stroke is 69% compared with 51% for a similar patient without the additional diagnosis of stroke (again derived using the fitted model equation).

Having a diagnosis of dementia increased the likelihood of entering permanent care: a contrast patient with a diagnosis of dementia on top of a principal diagnosis of stroke has a predicted probability of 75%. People with a principal diagnosis of neoplasm also had an increased likelihood of entering permanent care, but the effect was not as strong as stroke (contrast patient predicted probabilities of entering permanent RAC of 61% versus 67%). On the other hand, a principal diagnosis of a non-dementia mental health condition was

associated with a reduced risk of entering permanent RAC, with a predicted probability of 42% for entering permanent RAC and hence 58% for entering respite RAC.

Having any of the additional diagnoses explicitly included in the model led to higher probabilities of entering permanent care, except for a diagnosis of factors affecting health status excluding 'awaiting admission elsewhere'. Additional diagnoses with particularly strong effects included stroke, arterial conditions, and awaiting admission elsewhere. For our reference patient, having one of these additional diagnoses increased the predicted probability of entering permanent RAC from 67% to between 74% (additional diagnosis related to arteries) and 81% (additional diagnosis of stroke).

Odds ratios greater than 1 for additional diagnoses indicate that having multiple conditions is a risk factor for entering permanent RAC. The fitted model that included PCCL supports this finding, with predicted probabilities rising from 66% (reference patient with no or minor complexity, and also for a contrast patient with moderate complexity) to 74% for contrast patients classified as 'catastrophic' (Table D.18). This model also shows that having a diagnosis of stroke or dementia increases the likelihood of entering permanent care for a given patient complexity level. Again, excluding LOE from the PCCL model highlighted the importance of comorbidities, with PCCL being the third most significant predictor in this reduced model (Table D.17).

Other factors

The analysis of Model A for people with a diagnosis of awaiting admission elsewhere suggested that there were factors not available in the hospital data affecting the outcome. A further indicator of the effect of non-health factors is the inclusion of the patient election status in the fitted Model B. This effect entered both the full and PCCL models at step 9. In both models the OR for this covariate was under 1, indicating that being a private patient (or, perhaps more specifically, having the resources to be a private patient) decreases the likelihood of entering permanent RAC. For our (public) reference patient the predicted probability reduces from 67% to 61% for a private contrast patient (using the full model).

6 Person outcomes: short-term use of residential aged care after hospital

From a policy perspective, finding out what happens to people who enter RAC via hospital is of particular interest. Establishing whether a person remains in residential care, returns to hospital or the community, and if they return to the community, whether they remain there, or are readmitted to RAC soon after, helps to provide information on how RAC is being used by both service providers and clients. One question of particular interest is whether the admission to respite care was used to aid recovery following hospitalisation or to facilitate a transition into permanent residential care. Also of interest is whether the transition to permanent RAC was appropriate.

To provide insight into these issues, transitions following a person's first move from hospital to RAC in 2008–09 were analysed using events over two key periods:

- In the 12 weeks following admission, was the client discharged from RAC, and if so, was it due to death?
- If the person left RAC, did they return in the 4 weeks following their discharge?

A period of 12 weeks was used because nearly all (99%) of respite stays starting in 2008–09 were shorter than this (excluding transfer admissions). In addition, 12 weeks allows for one extension period following the initial approval for up to 63 days of residential respite care in a financial year (Box 1.2). Using a period of 12 weeks also allows examination of key changes in care for permanent residents in the short term.

People were then classified as:

- **discharged to hospital** if they were discharged from RAC to hospital within 12 weeks of their admission
- **discharged to the community** if they were discharged from RAC—but not to hospital—within 12 weeks of their admission
- **not discharged to the community or hospital** if, by 12 weeks after admission, they had not been discharged from RAC except due to death. People who transferred only between RAC care type or RAC facilities were included in this group. Transfers were identified using the ACCMIS admissions data.

People who were discharged to hospital were identified through the hospital–RAC links. Two groups were identified. First, those discharged to hospital while not on hospital leave (reported and unreported) were identified. These included people who moved to hospital within 3 days of discharge from RAC. Second, people who did not return from RAC hospital leave (reported and unreported), were identified by links to hospital episodes that ended within a day of the RAC discharge. Note, however, that in general hospital leave has not been counted as a discharge to hospital. Also, hospital episodes between a person's unconnected periods in RAC could not be identified if they were not linked to a RAC admission or discharge. First moves into respite and permanent care were analysed separately.

Deaths among people admitted to RAC from hospital were identified by linking the RAC client data to the National Death Index (see Appendix B). This allowed us to see whether people died in the 4 weeks after leaving RAC.

Some examples of transition events are illustrated in Figure 6.1. Because a 16-week window was required to identify a successful return to the community, only hospital-to-RAC transition events occurring in the first 36 weeks of 2008–09 could be used for the analysis.

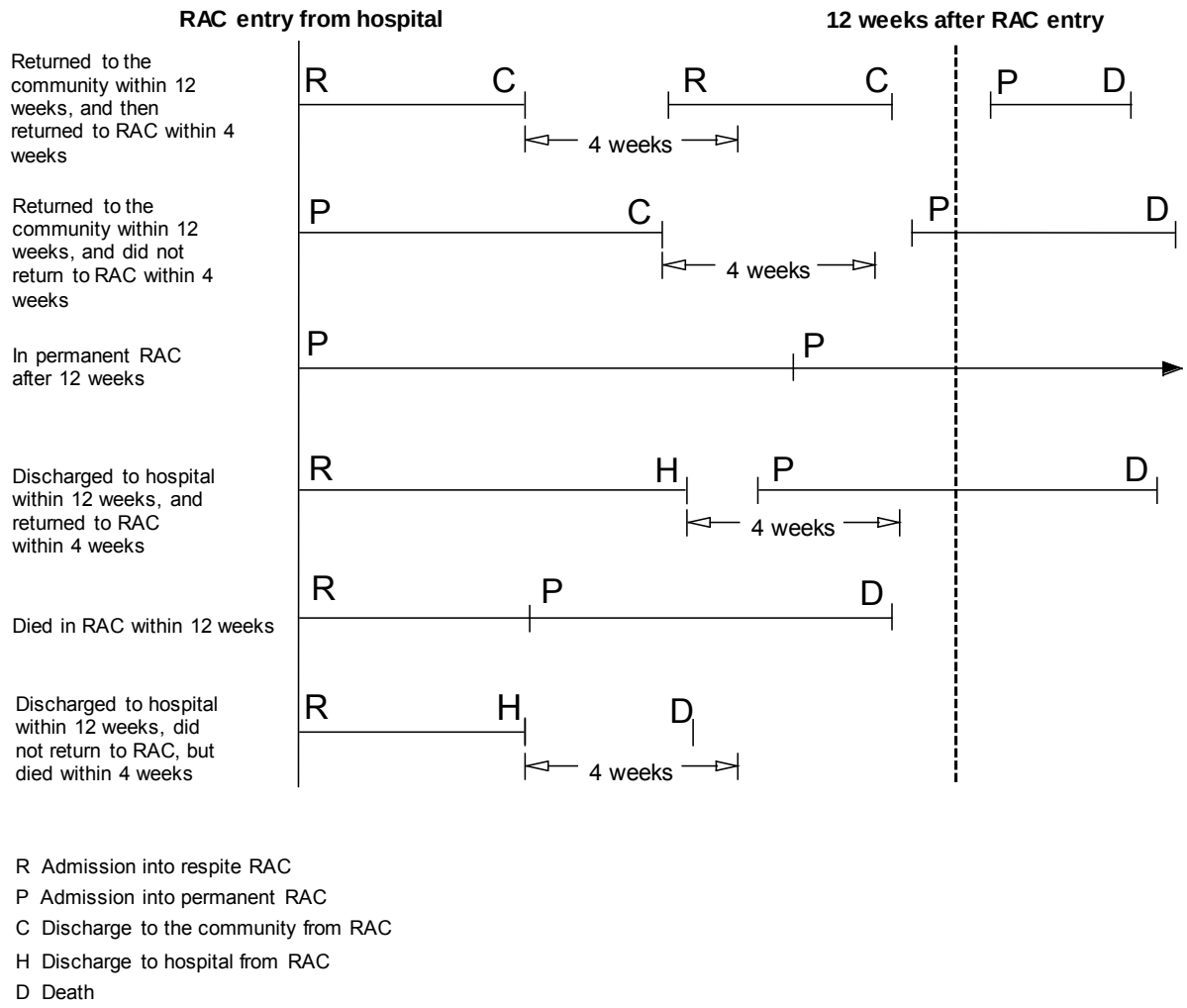
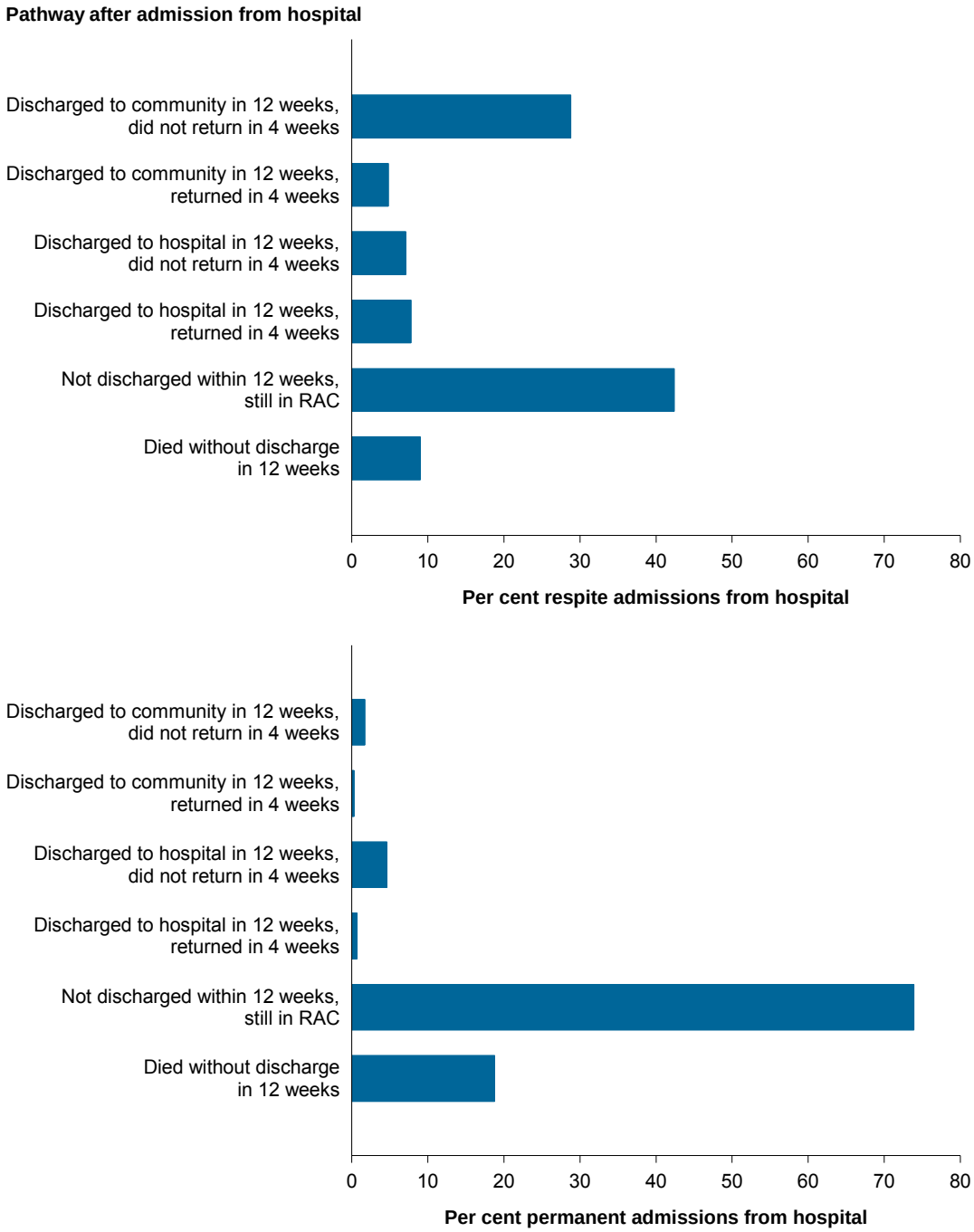


Figure 6.1: Examples of short-term pathways of people after admission to RAC from hospital

As expected, the situation of people 12 weeks after their admission to RAC from hospital differed according to whether they were admitted into respite or permanent care (Table 6.1, Table 6.2, and Figure 6.2). In both groups, the majority of people either remained in RAC 12 weeks after admission, or had died in RAC without leaving (that is, they had not been discharged to the community or hospital). For people admitted to permanent care this was a clear majority (93%), while only a little over half of those admitted for respite care had this experience (52%).



Note: Analysis includes first admission from hospital within care type during the first 36 weeks of 2008–09.

Source: Table 6.1, Table 6.2.

Figure 6.2: Pathway after admission into RAC from hospital within care type, RAC first admissions 2008–09 (per cent)

6.1 People admitted for respite care

The pathway patterns for people admitted into respite RAC from hospital indicate that respite was playing a dual role: as post-hospital care before returning home and as a stepping-stone into permanent care. One-third of people admitted to respite care were discharged to the community within 12 weeks (Table 6.1, Figure 6.2). The majority (86%) of

these were not readmitted to RAC within 4 weeks and had not died. Of the people who were readmitted to RAC within 4 weeks of their discharge (5% of all respite admissions), a small majority returned to respite care (52%), with the remainder entering permanent care. Almost 20% of these readmissions were via hospital.

Just under 15% of people admitted to respite RAC were discharged back to hospital within 12 weeks of their admission. Of these, just under one-half did not return to RAC within 4 weeks (7% of all respite admissions), with around one-third of these non-returners dying within the 4 week period. Among the 8% who were readmitted to RAC within 4 weeks, a slight majority (54%) returned to respite care; more than 80% of these people were readmitted from hospital. This suggests that the person had spent the whole time in hospital.

More than half (52%) of the people admitted to respite RAC from hospital were not discharged to either the community or to hospital within 12 weeks of their admission. The majority of these people had been transferred to permanent RAC by the 12-week point, and a substantial portion had also died in RAC (40% and 9% of people with a respite admission, respectively) There were no strong patterns across age groups. However, there were some differences (Table 6.1). In particular, among people admitted to respite care from hospital, older people (85+) were less likely than others to be discharged to the community, and were more likely to be in permanent care at the 12-week point.

6.2 People admitted for permanent care

As stated above, the overwhelming majority (93%) of people admitted for permanent care had not left RAC within the 12-week period, including 19% who died in RAC (Table 6.2, Figure 6.2). Apart from a very small number in respite care, the remaining 74% were still in permanent care 12 weeks after admission.

Among those who left RAC, the majority were discharged back to hospital (5.3% out of 7.3%). Around 80% of those discharged back to hospital died within 4 weeks of leaving RAC, with the remainder largely returning to permanent RAC within 4 weeks. The high death rate soon after admission, together with a noticeable proportion of people being discharged back to hospital and then dying, suggests that that it is possible that either some people are being discharged too soon from hospital, or that permanent RAC is being used as de facto palliative care.

Just 2% of people admitted to permanent RAC from hospital were discharged to the community within 12 weeks of their admission. Seventy per cent of these (1.4% of all people admitted for permanent care) appear to have been successful discharges back to the community, with the client not being linked to either a death or a return to RAC within 4 weeks of discharge. This suggests that permanent RAC was not providing the desired care for this small group of people.

Across age groups, there were some weak patterns in terms of pathways (Table 6.2). Again, older people were less likely to be discharged to the community. They were also less likely to be discharged back to hospital than younger people, and were more likely to die in RAC within 12 weeks of their admission to permanent RAC.

Table 6.1: Pathway after first respite admission from hospital during 1 July 2008 to 10 March 2009, by broad age group (adjusted per cent)

Pathway	65–84	85+	All
Discharged to the community in 12 weeks subtotal	*34.9*	*32.1*	*33.6*
Discharged to the community in 12 weeks, did not return in 4 weeks subtotal	*30.4*	*27.1*	*28.8*
Died	0.6	0.7	0.7
Left, reported as going to RAC	0.6	0.4	0.5
Other	29.2	25.9	27.6
Discharged to the community in 12 weeks, returned in 4 weeks subtotal	*4.6*	*5.0*	*4.8*
To respite RAC via hospital	0.3	0.4	0.4
To respite RAC, other	2.0	2.2	2.1
To permanent RAC via hospital	0.4	0.6	0.5
To permanent RAC, other	1.9	1.8	1.8
Discharged to hospital in 12 weeks subtotal	*15.0*	*14.9*	*14.9*
Discharged to hospital in 12 weeks, did not return in 4 weeks subtotal	*7.3*	*6.9*	*7.1*
Died	2.2	2.8	2.5
Other	5.1	4.1	4.6
Discharged to hospital in 12 weeks, returned in 4 weeks subtotal	*7.6*	*8.0*	*7.8*
To respite RAC via hospital	3.7	4.0	3.9
To respite RAC, other	0.3	0.2	0.3
To permanent RAC via hospital	2.6	2.5	2.5
To permanent RAC, other	1.0	1.3	1.1
Not discharged to the community or hospital in 12 weeks subtotal	*50.1*	*53.0*	*51.5*
In respite RAC	3.2	2.5	2.8
In permanent RAC	38.1	41.4	39.6
Died	8.9	9.1	9.0
Total	**100.0**	**100.0**	**100.0**
Total (adjusted row %)	**52.6**	**47.4**	**100.0**
Number (people, adjusted)	**4,500**	**4,000**	**8,500**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table is based on a RAC client's first respite admission from hospital during the first 36 weeks of 2008–09 to allow a 12-week window to identify discharges to the community or hospital followed by a 4-week window to identify unsuccessful returns.
3. Discharges to hospital were identified through the hospital–RAC data linkage.
4. Deaths were identified through name-based data linkage between RAC clients and the National Death Index (NDI), with the exception of 3 RAC clients reported as discharged due to death who were not linked to the NDI.

Table 6.2: Pathway after first permanent admission from hospital during 1 July 2008 to 10 March 2009, by broad age group (adjusted per cent)

Pathway	65–84	85+	All
Discharged to the community in 12 weeks subtotal	*2.5*	*1.5*	*2.0*
Discharged to the community in 12 weeks, did not return in 4 weeks subtotal	*2.2*	*1.2*	*1.7*
Died	0.4	0.1	0.2
Left, reported as going to RAC	0.1	0.1	0.1
Other	1.7	1.0	1.4
Discharged to the community in 12 weeks, returned in 4 weeks subtotal	*0.3*	*0.3*	*0.3*
To respite RAC via hospital	—	—	—
To respite RAC, other	—	—	—
To permanent RAC via hospital	0.1	0.1	0.1
To permanent RAC, other	0.1	0.2	0.1
Discharged to hospital in 12 weeks subtotal	*5.8*	*4.9*	*5.3*
Discharged to hospital in 12 weeks, did not return in 4 weeks subtotal	4.9	4.4	4.6
Died	4.4	4.1	4.2
Other	0.6	0.3	0.4
Discharged to hospital in 12 weeks, returned in 4 weeks subtotal	*0.8*	*0.6*	*0.7*
To respite RAC via hospital	0.1	—	—
To respite RAC, other	—	—	—
To permanent RAC via hospital	0.7	0.4	0.5
To permanent RAC, other	0.1	0.1	0.1
Not discharged to the community or hospital in 12 weeks subtotal	*91.8*	*93.6*	*92.7*
In respite RAC	—	—	—
In permanent RAC	74.2	73.6	73.9
Died	17.5	20.0	18.8
Total	**100.0**	**100.0**	**100.0**
Total (adjusted row %)	**51.0**	**49.0**	**100.0**
Number (people, adjusted)	**9,200**	**8,800**	**18,100**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table is based on a RAC client's first permanent admission from hospital during the first 36 weeks of 2008–09 to allow a 12-week window to identify discharges to the community or hospital followed by a 4-week window to identify unsuccessful returns. This includes 2,259 people who were being readmitted within 12 months of an earlier discharge from permanent RAC.
3. Discharges to hospital were identified through the hospital–RAC data linkage.
4. Deaths were identified through name-based data linkage between RAC clients and the National Death Index (NDI), with the exception of 18 RAC clients reported as discharged due to death who were not linked to the NDI.

Appendix A: Unstandardised tables

A.1 Movement into and out of hospital

Table A.1: State or territory of hospital, by discharge destination, hospital discharges 2008–09 (adjusted per cent)

Discharge destination	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Discharged to RAC subtotal	*12.5*	*10.0*	*9.7*	*9.4*	*11.9*	*8.7*	*9.9*	*6.2*	*10.9*
To respite RAC	1.9	0.7	0.5	0.6	1.7	0.4	1.1	0.9	1.2
To permanent RAC	2.3	2.1	2.3	1.6	2.2	3.5	1.4	1.0	2.2
Return to RAC (u.r.)	8.4	7.2	6.9	7.2	8.0	4.8	7.3	4.3	7.5
To TCP	1.0	1.1	0.9	0.7	1.0	0.9	1.5	1.3	1.0
To other health care	0.4	0.2	0.3	0.6	0.2	2.9	1.7	1.2	0.4
To community/other	80.9	83.8	84.4	84.8	82.5	82.1	81.9	85.8	82.9
Died subtotal	*5.2*	*4.9*	*4.8*	*4.5*	*4.4*	*5.4*	*5.0*	*5.5*	*4.9*
Admitted from permanent RAC	1.0	0.8	0.8	0.8	0.8	0.5	0.7	0.9	0.9
Admitted from respite RAC/TCP	0.1	0.1	—	—	0.1	0.1	0.1	0.2	0.1
Other	4.1	4.0	3.9	3.7	3.5	4.8	4.2	4.5	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**32.7**	**25.9**	**19.6**	**8.7**	**9.4**	**2.0**	**1.3**	**0.4**	**100.0**
Number N	**357,375**	**282,896**	**213,884**	**95,525**	**103,284**	**22,247**	**14,165**	**4,359**	**1,093,735**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

Table A.2: Remoteness of patient's usual residence, by discharge destination, hospital discharges, 2008–09 (adjusted per cent)

	ASGC remoteness[(a)]					
Discharge destination	**Major Cities**	**Inner Regional**	**Outer Regional**	**Remote Australia**	**Very Remote**	**Total**
Discharged to RAC subtotal	*11.7*	*9.8*	*8.8*	*5.8*	*5.2*	*10.9*
To respite RAC	1.1	1.2	1.4	1.0	0.6	1.2
To permanent RAC	2.3	2.2	1.6	0.8	1.1	2.2
Return to RAC (u.r.)	8.3	6.4	5.8	4.1	3.5	7.6
To TCP	1.0	0.9	0.7	0.5	0.3	1.0
To other health care	0.4	0.4	0.3	0.5	1.4	0.4
To community/other	81.9	84.1	85.2	88.5	88.4	82.9
Died subtotal	*4.9*	*4.8*	*5.0*	*4.7*	*4.7*	*4.9*
Admitted from permanent RAC	1.0	0.8	0.7	0.5	0.4	0.9
Admitted from respite RAC/TCP	0.1	0.1	0.1	0.1	—	0.1
Other	3.9	3.9	4.2	4.1	4.4	4.0
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**65.0**	**22.9**	**10.4**	**1.2**	**0.4**	**100.0**
Number N	**708,925**	**249,622**	**113,226**	**13,443**	**4,800**	**1,090,016**

(a) A classification of the remoteness of a patient's usual residence using the Australian Standard Geographical Classification Remoteness Structure.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

3. Table excludes 3,720 cases with missing remoteness.

Table A.3: Pre-hospital origin, by patient election status on admission into hospital, separations in 2008–09 (adjusted per cent)

Pre-hospital origin	Public	Private	Total
		Column %	
Permanent RAC resident	10.4	6.9	8.7
From respite RAC	0.4	0.3	0.4
From TCP	0.3	0.2	0.2
From community/other	88.9	92.6	90.7
Total	**100.0**	**100.0**	**100.0**
		Row %	
Permanent RAC resident	62.7	37.3	100.0
From respite RAC	57.4	42.6	100.0
From TCP	67.6	32.4	100.0
From community/other	51.6	48.4	100.0
Total (N row %)	52.7	47.3	**100.0**
Number	**563,646**	**507,004**	**1,070,650**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table excludes 476 cases with missing patient election status.

Table A.4: Sector of hospital, by discharge destination, hospital discharges, 2008–09 (adjusted per cent)

Discharge destination	Public hospital (including public psychiatric)	Private hospital	Total
Discharged to RAC subtotal	*13.1*	*6.7*	*10.9*
To respite RAC	1.4	0.8	1.2
To permanent RAC	2.6	1.3	2.2
Return to RAC (u.r.)	9.1	4.6	7.5
To TCP	1.2	0.4	1.0
To other health care	0.5	0.2	0.4
To community/other	79.1	89.8	82.9
Died subtotal	*6.0*	*2.8*	*4.9*
Admitted from permanent RAC	1.1	0.4	0.9
Admitted from respite RAC/TCP	0.1	—	0.1
Other	4.8	2.4	3.9
Total	**100.0**	**100.0**	**100.0**
Total (N row %)	**64.7**	**35.3**	**100.0**
Number N	**708,111**	**385,625**	**1,093,736**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

Table A.5: Care type before discharge, by discharge destination, hospital discharges, 2008–09 (adjusted per cent)

	Care type at time of discharge from hospital					
Discharge destination	**Acute care**	**Rehabilitation**	**Palliative care**	**Geriatric care**	**Other admitted patient care**	**Total**
Discharged to RAC subtotal	*10.0*	*11.6*	*6.7*	*42.2*	*13.0*	*10.9*
To respite RAC	0.9	2.7	1.0	6.2	—	1.2
To permanent RAC	1.2	3.8	3.4	28.4	7.6	2.2
Return to RAC (u.r.)	7.8	5.1	2.3	7.6	5.4	7.5
To TCP	0.5	5.9	0.2	6.4	n.p.	1.0
To other health care	0.3	0.5	0.7	1.5	n.p.	0.4
To community/other	85.2	81.2	25.4	44.5	81.5	82.9
Died subtotal	*4.0*	*0.9*	*67.0*	*5.4*	*3.3*	*4.9*
Admitted from permanent RAC	0.8	0.1	6.1	0.5	—	0.9
Admitted from respite RAC/TCP	0.1	—	0.5	0.1	—	0.1
Other	3.1	0.8	60.4	4.8	3.3	3.9
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**89.9**	**5.8**	**1.6**	**2.7**	—	**100.0**
Number N	**983,414**	**63,357**	**17,518**	**29,316**	**92**	**1,093,697**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.

2. Table excludes 39 cases with missing care type.

Table A.6: Principal diagnosis responsible for admission into hospital, by pre-hospital origin, separations in 2008–09 (adjusted row per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From community/ other	Total	Total (N col %)	Total N
Infections	13.4	0.5	0.4	85.7	100.0	2.2	23,872
Staphylococcus aureus	19.4	0.6	0.8	79.2	100.0	0.1	707
Other infections	13.2	0.5	0.4	85.9	100.0	2.2	23,165
Neoplasms	4.2	0.2	0.1	95.5	100.0	10.8	115,667
Blood-related	13.3	0.4	0.2	86.1	100.0	1.6	17,184
Endocrine	12.0	0.5	0.3	87.2	100.0	3.0	32,458
Diabetes	11.5	0.4	0.4	87.7	100.0	1.9	19,959
Endocrine, not diabetes	12.8	0.5	0.3	86.4	100.0	1.2	12,499
Dementia	24.0	2.5	0.5	73.0	100.0	0.7	7,639
Mental/behavioural	15.4	1.2	0.5	83.0	100.0	1.9	20,427
Mental/behavioural, not dementia	12.1	0.8	0.5	86.6	100.0	1.4	15,200
Nervous	7.2	0.5	0.2	92.1	100.0	3.0	31,844
Nervous, not dementia	5.8	0.3	0.2	93.7	100.0	2.7	29,432
Eye	5.2	0.1	—	94.6	100.0	1.2	12,898
Ear	1.8	0.1	—	98.0	100.0	0.4	4,675
Circulatory	7.1	0.3	0.2	92.4	100.0	18.0	193,026
IHD	5.1	0.2	0.1	94.6	100.0	5.7	60,586
Stroke	11.9	0.6	0.3	87.2	100.0	1.8	19,595
CBV, not stroke	3.0	—	0.2	96.7	100.0	0.3	3,147
Arteries	6.3	0.2	0.2	93.3	100.0	1.4	14,832
Other circulatory	7.6	0.3	0.3	91.7	100.0	8.9	94,866
Respiratory	14.0	0.5	0.3	85.2	100.0	9.8	105,160
Influenza/pneumonia	17.6	0.6	0.3	81.5	100.0	3.0	31,760
COPD	9.4	0.4	0.3	89.8	100.0	3.6	38,101
Other respiratory	15.8	0.5	0.3	83.5	100.0	3.3	35,299
Digestive	7.5	0.2	0.2	92.2	100.0	9.5	102,010
Liver	6.0	0.6	0.4	93.0	100.0	0.2	2,128
Digestive, not liver	7.5	0.2	0.2	92.2	100.0	9.3	99,882
Skin	14.6	0.5	0.3	84.7	100.0	1.9	20,670
Pressure ulcers	36.4	1.4	1.0	61.2	100.0	0.1	722
Other skin diseases	13.8	0.4	0.3	85.5	100.0	1.9	19,948
Musculoskeletal	2.9	0.2	0.2	96.8	100.0	8.9	95,299
Genitourinary	9.5	0.3	0.3	89.9	100.0	6.1	65,739
Kidney failure	14.5	0.6	0.5	84.4	100.0	0.6	6,536
Genitourinary, not kidney	9.0	0.3	0.2	90.5	100.0	5.5	59,203
Congenital anomalies	4.2	—	n.p.	95.5	100.0	0.1	593

(continued)

Table A.6 (continued): Principal diagnosis responsible for admission into hospital, by pre-hospital origin, separations in 2008–09 (adjusted row per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From community/ other	Total	Total (N col %)	Total N
Symptoms, signs and ill-defined conditions	7.7	0.3	0.2	91.8	100.0	9.2	98,951
Injury and poisoning	14.8	0.5	0.4	84.3	100.0	9.8	104,890
Due to: Fall	20.1	0.7	0.4	78.8	100.0	5.9	63,014
Transport accident	1.9	0.2	0.1	97.9	100.0	0.4	3,958
Other accident	8.5	0.3	0.2	91.0	100.0	1.1	12,036
Complications	6.7	0.2	0.4	92.6	100.0	2.3	24,305
Sequelae	6.7	—	n.p.	92.2	100.0	0.0	89
Other	6.6	0.5	0.5	92.4	100.0	0.1	1,488
Health status factors	6.7	1.1	0.6	91.6	100.0	2.4	25,389
Awaiting admission elsewhere	23.2	6.2	1.7	68.9	100.0	0.1	668
Health status factors, not awaiting admission elsewhere	6.2	0.9	0.6	92.3	100.0	2.3	24,721
Total	8.7	0.4	0.2	90.7	**100.0**	**100.0**	**1,070,752**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within principal diagnosis have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.7: Pre-hospital origin, by principal diagnosis responsible for admission into hospital, separations in 2008–09 (adjusted column per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total
Infections	3.4	3.2	3.6	2.1	2.2
Staphylococcus aureus	0.1	0.1	0.2	0.1	0.1
Other infections	3.3	3.1	3.4	2.0	2.2
Neoplasms	5.2	6.2	4.1	11.4	10.8
Blood-related	2.5	1.7	1.0	1.5	1.6
Endocrine	4.2	3.9	4.1	2.9	3.0
Diabetes	2.5	2.3	2.7	1.8	1.9
Endocrine, not diabetes	1.7	1.6	1.4	1.1	1.2
Dementia	2.1	5.1	1.6	0.6	0.7
Mental/behavioural	3.4	6.4	3.6	1.8	1.9
Mental/behavioural, not dementia	2.0	3.1	2.7	1.4	1.4
Nervous	2.5	4.3	2.8	3.0	3.0
Nervous, not dementia	1.8	2.4	2.2	2.8	2.7
Eye	0.7	0.3	0.2	1.3	1.2
Ear	0.1	0.2	0.1	0.5	0.4
Circulatory	14.6	14.7	17.8	18.4	18.0
IHD	3.3	2.6	2.6	5.9	5.7
Stroke	2.5	2.8	2.1	1.8	1.8
CBV, not stroke	0.1	—	0.2	0.3	0.3
Arteries	1.0	0.7	1.2	1.4	1.4
Other circulatory	7.7	8.5	11.7	9.0	8.9
Respiratory	15.8	13.2	12.1	9.2	9.8
Influenza/pneumonia	6.0	4.8	4.1	2.7	3.0
COPD	3.9	4.1	4.2	3.5	3.6
Other respiratory	6.0	4.4	3.8	3.0	3.3
Digestive	8.2	5.0	6.1	9.7	9.5
Liver disease	0.1	0.3	0.3	0.2	0.2
Digestive, not liver	8.0	4.7	5.8	9.5	9.3
Skin	3.2	2.4	2.6	1.8	1.9
Pressure ulcers	0.3	0.3	0.3	—	0.1
Other skin diseases	2.9	2.1	2.3	1.8	1.9
Musculoskeletal	3.0	3.8	6.5	9.5	8.9
Genitourinary	6.7	5.3	6.5	6.1	6.1
Kidney failure	1.0	1.1	1.2	0.6	0.6
Genitourinary, not kidney	5.7	4.2	5.3	5.5	5.5
Congenital anomalies	—	—	n.p.	0.1	0.1

(continued)

Table A.7 (continued): Pre-hospital origin, by principal diagnosis responsible for admission into hospital, separations in 2008–09 (adjusted column per cent)

Condition group of principal diagnosis	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total
Symptoms, signs and ill-defined conditions	8.1	8.0	8.5	9.4	9.2
Injury and poisoning	16.6	14.4	14.1	9.1	9.8
Due to: Fall	13.6	11.5	9.0	5.1	5.9
Transport accident	0.1	0.2	0.1	0.4	0.4
Other accident	1.1	1.0	0.9	1.1	1.1
Complications	1.7	1.6	3.7	2.3	2.3
Sequelae	—	—	—	—	—
Other	0.1	0.2	0.3	0.1	0.1
Health status factors	1.8	7.2	6.2	2.4	2.4
Awaiting admission elsewhere	0.2	1.3	0.5	0.1	0.1
Health status factors, not awaiting admission elsewhere	1.6	5.9	5.7	2.4	2.3
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 to 1.4 outline the derivation of adjusted and age–sex standardised estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding or standardisation of subtotals.
2. Percentages within principal diagnosis have been age–sex standardised.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.8: Prevalence of selected diagnoses reported as any diagnosis in admitting episode within pre-hospital origin, separations in 2008–09 (unstandardised adjusted within origin group, prevalence)

Pre-hospital origin	*Staphylococcus aureus*	Pressure ulcers	Dementia
Permanent RAC resident	3.6	6.3	25.7
From respite RAC	4.0	6.4	25.2
From TCP	5.6	9.3	10.1
From community/other	1.6	1.5	3.4
Total with diagnosis (unadjusted)	**1.8**	**2.0**	**5.4**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing diagnosis.

Table A.9: Selected diagnoses reported as any diagnosis in admitting episode, by pre-hospital origin, separations in 2008–09 (unstandardised adjusted per cent)

Pre-hospital origin	*Staphylococcus aureus*	Pressure ulcers	Dementia
Permanent RAC resident	17.9	27.4	40.9
Discharged to hosp. from respite RAC	0.8	1.2	1.7
Discharged to hosp. from TCP	0.8	1.2	0.5
Other new admission	80.6	70.3	56.9
Total	**100.0**	**100.0**	**100.0**
Total with diagnosis (N row %)	**1.8**	**2.0**	**5.4**
Total with diagnosis (N)	**19,009**	**21,236**	**57,934**
Median number of diagnoses (unadjusted)	**8**	**9**	**6**
Mean number of diagnoses (unadjusted)	**9.2**	**9.9**	**6.5**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing diagnosis.

Table A.10: Prevalence of selected diagnoses reported as any diagnosis in discharging episode within discharge destination, hospital discharges, 2008–09 (unstandardised adjusted prevalence)

Discharge destination	*Staphylococcus aureus*	Pressure ulcers	Dementia
	Reported as any diagnosis in admitting episode (%)		
Discharged to RAC subtotal	*3.7*	*6.7*	*26.6*
To respite RAC	3.5	5.8	23.9
To permanent RAC	4.3	10.1	34.0
Return to RAC (u.r.)	3.6	5.9	24.8
To TCP	3.9	8.1	10.3
To other health care	3.3	5.1	11.6
To community/other	1.4	1.1	2.4
Died subtotal	*3.9*	*10.3*	*11.3*
Admitted from permanent RAC	4.6	11.1	30.5
Admitted from respite RAC/TCP	4.9	12.2	19.0
Other	3.8	10.0	6.8
Total (unadjusted)	**1.8**	**2.2**	**5.5**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 427 cases with missing diagnosis.

Table A.11: Selected diagnoses reported as any diagnosis in discharging episode, by discharge destination, hospital discharges, 2008–09 (unstandardised adjusted per cent)

Discharge destination	*Staphylococcus aureus*	Pressure ulcers	Dementia
Discharged to RAC subtotal	*22.1*	*32.6*	*51.7*
To respite RAC	2.3	3.0	5.0
To permanent RAC	5.1	9.8	13.2
Return to RAC (u.r.)	14.8	19.8	33.5
To TCP	2.1	3.5	1.8
To other health care	0.7	0.9	0.8
To community/other	64.5	40.6	35.9
Died subtotal	*10.6*	*22.4*	*9.9*
Admitted from permanent RAC	2.2	4.3	4.8
Admitted from respite RAC/TCP	0.2	0.4	0.2
Other	8.2	17.7	4.8
Total	**100.0**	**100.0**	**100.0**
Total with diagnosis (N row %)	**1.8**	**2.2**	**5.5**
Total with diagnosis (N)	**19,841**	**24,292**	**60,351**
Median number of diagnoses (unadjusted)	**8**	**8**	**6**
Mean number of diagnoses (unadjusted)	**9.2**	**9.6**	**6.6**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 427 cases with missing diagnosis.

Table A.12: Pre-hospital origin, by first reported procedure, separations in 2008–09 (standardised unadjusted per cent)

First reported procedure	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total (N col %)	Total N
With a procedure						
On nervous system	0.5	0.6	1.1	2.0	1.8	15,857
On endocrine system	—	—	—	0.4	0.3	3,001
On eye and adnexa	1.0	0.6	0.3	1.7	1.6	14,079
On ear and mastoid process	—	0.1	—	0.2	0.2	1,368
On nose, mouth and pharynx	0.3	0.1	n.p.	0.8	0.7	6,373
Dental services	0.2	—	—	0.1	0.1	1,040
On respiratory system	2.4	2.9	3.0	2.9	2.8	24,367
On cardiovascular system	2.7	2.2	3.4	9.9	9.2	79,596
On blood and blood-forming organs	0.2	0.2	n.p.	0.5	0.5	4,209
On digestive system	7.1	4.7	6.2	12.5	12.0	103,487
On urinary system	3.4	2.2	2.2	4.3	4.2	36,074
On male genital organs	0.5	0.3	0.8	2.6	2.5	21,122
Gynaecological	0.3	n.p.	—	1.3	1.3	10,764
On musculoskeletal system	10.0	8.3	8.5	11.9	11.7	100,894
Dermatological and plastic	3.8	1.7	2.3	3.1	3.2	27,396
On breast	0.2	0.1	n.p.	0.8	0.7	6,395
Radiation oncology	0.1	0.2	0.1	0.4	0.3	3,000
Non-invasive, cognitive and other interventions, n.e.c.	9.9	8.8	7.7	8.1	8.2	70,701
Allied health	33.9	42.6	41.2	19.8	21.1	181,183
Imaging services	23.3	24.3	22.8	16.7	17.3	148,557
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**859,463**
Total number	**71,700**	**3,100**	**2,400**	**782,200**	**. .**	**859,463**
All						
With a procedure	76.8	80.9	90.4	80.5	80.2	859,463
No procedure	23.2	19.1	9.6	19.5	19.8	211,660
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**1,071,123**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Adjusted numbers have been rounded to reflect the uncertainty in these estimates.
3. Where a hospital stay comprised more than 1 episode, the first procedure refers to the first episode of the stay.
4. See Table C.2 for the ICD–10–AM codes contributing to procedure groups. Table excludes 3 cases with missing procedure, or inconsistent procedure and sex (gynaecological procedures reported for men and procedures on male genital organs reported for women).

Table A.13: First reported procedure, by pre-hospital origin, separations in 2008–09 (standardised unadjusted row per cent)

First reported procedure	Permanent RAC resident	From respite RAC	From TCP	From the community/ other	Total	Total N
On nervous system	2.4	0.1	0.2	97.3	100.0	15,857
On endocrine system	1.0	—	—	98.9	100.0	3,001
On eye and adnexa	5.3	0.1	—	94.6	100.0	14,079
On ear and mastoid process	2.6	0.2	0.1	97.2	100.0	1,368
On nose, mouth and pharynx	3.6	0.1	—	96.3	100.0	6,373
Dental services	14.1	—	n.p.	85.8	100.0	1,040
On respiratory system	7.1	0.4	0.3	92.3	100.0	24,367
On cardiovascular system	2.4	0.1	0.1	97.4	100.0	79,596
On blood and blood-forming organs	2.8	0.1	n.p.	97.0	100.0	4,209
On digestive system	4.9	0.1	0.1	94.8	100.0	103,487
On urinary system	6.7	0.2	0.1	93.0	100.0	36,074
On male genital organs	1.7	—	0.1	98.2	100.0	21,122
Gynaecological	2.0	—	—	98.0	100.0	10,764
On musculoskeletal system	7.1	0.3	0.2	92.4	100.0	100,894
Dermatological and plastic	9.9	0.2	0.2	89.7	100.0	27,396
On breast	2.7	0.1	—	97.2	100.0	6,395
Radiation oncology	3.4	0.2	0.1	96.3	100.0	3,000
Non-invasive, cognitive and other interventions, n.e.c.	10.1	0.4	0.3	89.3	100.0	70,701
Allied health	13.4	0.7	0.5	85.3	100.0	181,183
Imaging services	11.3	0.5	0.4	87.9	100.0	148,557
None given	10.2	0.4	0.1	89.3	100.0	211,660
Total	8.7	0.4	0.2	90.7	**100.0**	**1,071,123**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Where a hospital stay comprised more than 1 episode, the first procedure refers to the first episode of the stay.
3. See Table C.2 for the ICD–10–AM codes contributing to procedure groups. Table excludes 3 cases with missing procedure, or inconsistent procedure and sex (gynaecological procedures reported for men and procedures on male genital organs reported for women).

Table A.14: Pre-hospital origin, by type of hospital stay, separations in 2008–09 (unstandardised adjusted per cent)

Pre-hospital origin	Single-episode stay	First of several episodes	Total	Single-episode stay	First of several episodes
		Row %		Column %	
Permanent RAC resident	88.6	11.4	100.0	8.9	7.7
From respite RAC	76.8	23.2	100.0	0.3	0.7
From TCP	69.8	30.2	100.0	0.2	0.6
From community/other	87.1	12.9	100.0	90.6	91.0
Total (unadjusted row %,)	87.1	12.9	**100.0**	**100.0**	**100.0**
Total N	**933,376**	**137,750**	**1,071,126**	**. .**	**. .**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

Table A.15: Patient days of hospital episode for pre-hospital origin, by type of hospital episode, separations in 2008–09 (unstandardised adjusted per cent)

	Only episode in stay			First of several episodes		
Pre-hospital origin	Mean	Median	90th percentile	Mean	Median	90th percentile
Permanent RAC resident	7.1	5	15	9.8	6	21
From respite RAC	10.9	7	24	12.0	8	25
From TCP	13.2	9	29	13.2	10	28
From community/other	6.0	3	13	10.1	7	22
Total (unadjusted)	6.1	3	13	10.1	7	22

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type.

Table A.16: Discharge destination, by type of hospital stay, hospital discharges 2008–09 (unstandardised adjusted per cent)

	Single-episode stay	Multi-episode stay[(a)]	Total	Single-episode stay	Multi-episode stay[(a)]
Discharge destination	**Row %**			**Column %**	
Discharged to RAC subtotal	*77.8*	*22.2*	*100.0*	*9.9*	*16.5*
To respite RAC	64.6	35.4	100.0	0.9	2.8
To permanent RAC	46.7	53.3	100.0	1.2	7.9
Return to RAC (u.r.)	88.8	11.2	100.0	7.8	5.8
To TCP	41.9	58.1	100.0	0.5	3.8
To other health care	70.7	29.3	100.0	0.3	0.8
To community/other	87.6	12.4	100.0	85.1	70.2
Died subtotal	*74.1*	*25.9*	*100.0*	*4.3*	*8.7*
Admitted from permanent RAC	85.7	14.3	100.0	0.9	0.9
Admitted from respite RAC/TCP	91.0	9.0	100.0	0.1	—
Other	71.3	28.7	100.0	3.3	7.8
Total (unadjusted row %)	85.4	14.6	**100.0**	**100.0**	**100.0**
Total N	**933,376**	**160,360**	**1,093,736**	**. .**	**. .**

(a) Episodes starting with a statistical admission or hospital transfer imply a multi-episode stay.

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

Table A.17: Patient days of hospital episode for discharge destination, by type of hospital episode, hospital discharges 2008–09 (unstandardised adjusted per cent)

	Only episode in stay			Last of several episodes		
Discharge destination	**Mean**	**Median**	**90th percentile**	**Mean**	**Median**	**90th percentile**
Discharged to RAC subtotal	*9.6*	*6*	*22*	*24.3*	*15*	*49*
To respite RAC	14.1	10	30	21.6	16	42
To permanent RAC	24.6	19	45	33.1	21	65
Return to RAC (u.r.)	6.8	4	15	13.6	10	28
To TCP	19.4	15	38	27.7	23	53
To other health care	12.0	8	27	27.7	14	49
To community/other	5.3	3	12	13.5	10	27
Died subtotal	*11.8*	*6*	*25*	*22.0*	*8*	*35*
Admitted from permanent RAC	7.4	4	16	9.2	4	17
Admitted from respite RAC/TCP	9.7	6	22	12.0	6	34
Other	13.0	7	27	23.4	8	36
Total (unadjusted)	**6.1**	**3**	**13**	**16.6**	**11**	**33**

Note: Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type.

Table A.18: Principal diagnosis responsible for admission, by type of hospital stay, separations in 2008–09 (unstandardised adjusted per cent)

Condition group of principal diagnosis	Single-episode stay	Multi-episode stay	Total	Single-episode stay	First of several episodes	Total	Total (N)
		Row %			Column %		
Infections	88.2	11.8	100.0	2.3	2.0	2.2	23,872
Staphylococcus aureus	75.2	24.8	100.0	0.1	0.1	0.1	707
Other infections	88.6	11.4	100.0	2.2	1.9	2.2	23,165
Neoplasms	91.7	8.3	100.0	11.4	7.0	10.8	115,667
Blood-related	93.9	6.1	100.0	1.7	0.8	1.6	17,184
Endocrine	88.6	11.4	100.0	3.1	2.7	3.0	32,458
Diabetes	88.0	12.0	100.0	1.9	1.7	1.9	19,959
Endocrine, not diabetes	89.6	10.4	100.0	1.2	0.9	1.2	12,499
Dementia	71.0	29.0	100.0	0.6	1.6	0.7	7,639
Mental/behavioural	80.3	19.7	100.0	1.8	2.9	1.9	15,200
Mental/behavioural, not dementia	83.7	16.3	100.0	1.4	1.8	1.4	15,200
Nervous	89.0	11.0	100.0	3.0	2.5	3.0	29,432
Nervous, not dementia	90.4	9.6	100.0	2.9	2.0	2.7	29,432
Eye	98.6	1.4	100.0	1.4	0.1	1.2	12,898
Ear	93.9	6.1	100.0	0.5	0.2	0.4	4,675
Circulatory	84.8	15.2	100.0	17.5	21.3	18.0	193,026
IHD	84.2	15.8	100.0	5.5	6.9	5.7	60,586
Stroke	61.1	38.9	100.0	1.3	5.5	1.8	19,595
CBV, not stroke	90.6	9.4	100.0	0.3	0.2	0.3	3,147
Arteries	88.8	11.2	100.0	1.4	1.2	1.4	14,832
Other circulatory	89.3	10.7	100.0	9.1	7.4	8.9	94,866
Respiratory	90.0	10.0	100.0	10.1	7.6	9.8	105,160
Influenza/pneumonia	87.5	12.5	100.0	3.0	2.9	3.0	31,760
COPD	90.9	9.1	100.0	3.7	2.5	3.6	38,101
Other respiratory	91.2	8.8	100.0	3.4	2.3	3.3	35,299
Digestive	91.9	8.1	100.0	10.0	6.0	9.5	102,010
Liver disease	86.9	13.1	100.0	0.2	0.2	0.2	2,128
Digestive, not liver	92.0	8.0	100.0	9.8	5.8	9.3	99,882
Skin	90.2	9.8	100.0	2.0	1.5	1.9	20,670
Pressure ulcers	79.4	20.6	100.0	0.1	0.1	0.1	722
Other skin diseases	90.6	9.4	100.0	1.9	1.4	1.9	19,948
Musculoskeletal	80.7	19.3	100.0	8.2	13.4	8.9	95,299
Genitourinary	92.9	7.1	100.0	6.5	3.4	6.1	65,739
Kidney failure	84.9	15.1	100.0	0.6	0.7	0.6	6,536
Genitourinary, not kidney	93.7	6.3	100.0	5.9	2.7	5.5	59,203
Congenital anomalies	94.1	5.9	100.0	0.1	0.0	0.1	593

(continued)

Table A.18 (continued): Principal diagnosis responsible for admission, by type of hospital stay, separations in 2008–09 (unstandardised adjusted per cent)

Condition group of principal diagnosis	Single-episode stay	Multi-episode stay	Total	Single-episode stay	First of several episodes	Total	Total (N)
		Row %			Column %		
Symptoms, signs and ill-defined conditions	90.9	9.1	100.0	9.6	6.5	9.2	98,951
Injury and poisoning	72.8	27.2	100.0	8.2	20.7	9.8	103,402
Due to:Fall	65.3	34.7	100.0	4.4	15.9	5.9	63,014
Transport accident	71.3	28.7	100.0	0.3	0.8	0.4	3,958
Other accident	85.0	15.0	100.0	1.1	1.3	1.1	12,036
Complications	86.0	14.0	100.0	2.2	2.5	2.3	24,305
Sequelae	84.3	15.7	100.0	—	—	—	89
Other	75.9	24.1	100.0	0.1	0.3	0.1	1,488
Health status factors	93.1	6.9	100.0	2.5	1.3	2.4	25,389
Awaiting admission elsewhere	81.1	18.9	100.0	0.1	0.1	0.1	668
Health status factors, not awaiting admission elsewhere	93.4	6.6	100.0	2.5	1.2	2.3	24,721
Total	**87.1**	**12.9**	**100.0**	**87.1**	**12.9**	**100.0**	. .
Total N	**933,059**	**137,693**	**1,070,752**	**933,059**	**137,693**	**. .**	**1,070,752**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

2 See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.19: Selected diagnoses on admission into hospital, by type of hospital episode, hospital separations 2008-09 (unstandardised unadjusted per cent)

Selected diagnosis (any) on admission	Single-episode stay	Multi-episode stay	Total	Single-episode stay	Multi-episode stay	Total	Total (N)
		Row %			Column %		
With *Staphylococcus aureus*	79.5	20.5	100.0	1.6	2.8	1.8	19,009
Without *Staphylococcus aureus*	87.3	12.7	100.0	98.4	97.2	98.2	1,051,745
With dementia	79.5	20.5	100.0	4.9	8.6	5.4	57,934
Without dementia	87.6	12.4	100.0	95.1	91.4	94.6	1,012,820
With pressure ulcers	73.2	26.8	100.0	1.7	4.1	2.0	21,236
Without pressure ulcers	87.4	12.6	100.0	98.3	95.9	98.0	1,049,518
All	**87.1**	**12.9**	**100.0**	**100.0**	**100.0**	**100.0**	**1,070,754**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

2 See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 372 cases with missing diagnosis.

Table A.20: Patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode, separations in 2008–09 (unstandardised adjusted per cent)

	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Mean	Median	90th percentile	Mean	Median	90th percentile
Infections	7.0	5	15	12.6	8	29
Staphylococcus aureus	18.8	13	43	22.8	16	57
Other infections	6.7	4	14	11.9	8	27
Neoplasms	6.8	4	16	12.8	9	28
Blood-related	4.5	3	10	8.1	4	19
Endocrine	6.8	4	15	13.0	8	29
Diabetes	7.6	4	17	14.7	9	34
Endocrine, not diabetes	5.6	3	13	9.8	7	20
Dementia	16.8	10	36	16.3	10	35
Mental/behavioural	17.7	10	38	15.3	9	34
Mental/behavioural, not dementia	18.4	10	40	14.9	8	32
Nervous	5.2	2	12	12.2	7	28
Nervous, not dementia	4.2	1	10	11.1	7	25
Eye	1.7	1	3	7.3	4	18
Ear	3.3	2	7	7.1	5	15
Circulatory	5.8	4	13	9.2	6	21
IHD	4.6	3	10	6.1	3	14
Stroke	9.5	6	22	11.7	9	25
CBV, not stroke	4.9	3	9	11.9	9	25
Arteries	6.4	3	15	14.9	10	35
Other circulatory	6.0	4	13	9.2	6	21
Respiratory	7.0	5	14	9.4	7	21
Influenza/pneumonia	7.6	6	14	9.5	7	21
COPD	7.1	5	14	9.2	7	21
Other respiratory	6.4	5	13	9.5	6	22
Digestive	4.7	3	10	9.3	5	22
Liver disease	8.7	6	19	12.4	10	28
Digestive, not liver	4.6	3	10	9.2	5	22
Skin	8.1	6	17	11.3	7	26
Pressure ulcers	15.9	10	34	17.6	10	39
Other skin diseases	7.9	6	16	10.8	7	25
Musculoskeletal	6.0	5	12	8.5	7	15
Genitourinary	4.6	3	10	9.0	6	21
Kidney failure	8.0	5	17	10.1	7	24
Genitourinary, not kidney	4.3	3	9	8.7	6	20
Congenital anomalies	4.7	2	11	15.8	9	n.p.
Symptoms, signs and ill-defined conditions	3.7	2	8	6.7	3	16

(continued)

Table A.20 (continued): Patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode, separations in 2008–09 (unstandardised adjusted per cent)

	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	**Mean**	**Median**	**90th percentile**	**Mean**	**Median**	**90th percentile**
Injury and poisoning	7.2	4	17	10.3	8	21
Due to: Fall	7.7	5	18	10.0	8	20
Transport accident	6.1	3	13	12.7	8	31
Other accident	4.8	2	11	9.2	6	21
Complications	7.5	4	17	11.7	7	27
Sequelae	8.2	3	18	13.6	6	n.p.
Other	6.1	3	14	8.3	3	22
Health status factors	9.1	3	20	24.1	8	35
Awaiting admission elsewhere	68.3	16	97	133.9	21	348
Health status factors, not awaiting admission elsewhere	7.7	2	19	15.5	8	34
Total	**6.1**	**3**	**13**	**10.1**	**7**	**22**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.21: Mean patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (unstandardised adjusted per cent)

Part a	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From TCP or respite RAC	From community/ other	Permanent RAC resident	From TCP or respite RAC	From community /other
			Mean (days)			
Infections	7.3	10.2	6.9	9.2	11.9	12.9
Neoplasms	6.3	11.0	6.8	10.5	10.8	12.9
Endocrine	7.3	12.5	6.7	11.5	15.8	13.2
Mental/behavioural	17.1	18.6	18.0	18.4	14.6	14.9
Nervous	9.2	13.1	4.9	17.2	18.0	11.9
Circulatory	6.9	9.7	5.7	8.5	11.6	9.2
Respiratory	7.0	10.0	7.0	8.1	10.2	9.6
Digestive	5.8	9.0	4.6	7.5	12.5	9.5
Skin	8.8	12.1	8.0	9.4	11.8	11.6
Musculoskeletal	7.7	12.8	6.0	9.4	11.3	8.5
Genitourinary	6.1	9.6	4.5	7.4	12.0	9.1
Symptoms, signs and ill-defined conditions	4.3	9.7	3.6	6.6	11.4	6.6
Injury and poisoning	7.2	12.5	7.2	9.3	11.9	10.4
Health status factors	13.4	21.0	8.8	34.3	21.1	23.4
Other (blood-related, eye, ear, congenital)	3.7	6.2	3.3	7.0	12.7	8.0
Total	**7.1**	**11.8**	**6.0**	**9.8**	**12.5**	**10.1**

Notes

1. Table excludes statistical admissions and between-hospital transfers and unknown origin. Admissions from TCP and respite RAC have been combined due to small numbers in some cells. Statistics for detailed diagnoses are also not presented due to small numbers.
2. Table includes patients aged 65 and over as at 1 July 2008.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.22: Median patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (unstandardised adjusted per cent)

Part b	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From TCP or respite RAC	From community/ other	Permanent RAC resident	From TCP or respite RAC	From community /other
			Median (days)			
Infections	5	6	4	7	10	8
Neoplasms	3	7	4	7	8	9
Endocrine	5	9	4	7	13	8
Mental/behavioural	9	12	10	10	9	9
Nervous	4	8	1	8	13	7
Circulatory	5	6	4	6	9	6
Respiratory	5	7	5	5	9	7
Digestive	4	6	3	4	9	5
Skin	6	8	6	6	9	8
Musculoskeletal	5	9	5	7	8	7
Genitourinary	4	7	3	5	9	6
Symptoms, signs and ill-defined conditions	2	6	2	4	6	3
Injury and poisoning	5	8	4	7	8	8
Health status factors	4	16	2	12	19	8
Other (blood-related, eye, ear, congenital)	2	4	1	3	15	5
Total	**5**	**8**	**3**	**6**	**9**	**7**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Admissions from TCP and respite RAC have been combined due to small numbers in some cells. Statistics for detailed diagnoses are also not presented due to small numbers.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

Table A.23: 90th percentile of patient days of hospital episode for principal diagnosis responsible for admission, by type of hospital episode and pre-hospital origin, separations in 2008–09 (unstandardised adjusted per cent)

Part c	Only episode in stay			First of several episodes		
Condition group of principal diagnosis	Permanent RAC resident	From TCP or respite RAC	From community/ other	Permanent RAC resident	From TCP or respite RAC	From community /other
	90th percentile (days)					
Infections	16	24	15	20	25	30
Neoplasms	15	26	16	24	24	28
Endocrine	16	30	15	28	28	30
Mental/behavioural	39	40	39	35	39	34
Nervous	21	30	11	35	36	27
Circulatory	15	21	12	20	25	21
Respiratory	14	21	14	19	19	22
Digestive	13	18	10	19	27	22
Skin	18	25	17	23	n.p.	26
Musculoskeletal	17	27	11	18	25	15
Genitourinary	13	22	9	16	25	22
Symptoms, signs and ill-defined conditions	10	23	8	17	27	16
Injury and poisoning	16	29	17	20	24	21
Health status factors	28	45	19	51	35	35
Other (blood-related, eye, ear, congenital)	8	16	7	15	n.p.	18
Total	**15**	**27**	**13**	**21**	**27**	**22**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Admissions from TCP and respite RAC have been combined due to small numbers in some cells. Statistics for detailed diagnoses are also not presented due to small numbers.
3. See Table C.1 for the ICD–10–AM codes contributing to condition groups. Table excludes 374 cases with missing principal diagnosis, or a principal diagnosis relating to pregnancy or perinatal care.

A.2 Movement into RAC

Table A.24: Source of admissions into RAC, by location and timing of ACAT assessment, RAC admissions 2008–09 (unstandardised adjusted per cent)

	With assessment in 0–365 days before admission				No assessment in 0–365 days before admission: time of assessment				
					No previous assessment				
Type of RAC admission	At home	In RAC	In hospital	Total	<14 days after adm.	≥14 days after adm.	>365 days before or none	Total	Total
Permanent									
From hospital (first)	21.1	1.1	77.6	99.8	0.1	—	0.1	0.2	100.0
From hospital (readmission)	7.3	11.5	70.0	88.8	—	—	11.1	11.2	100.0
Transfer from respite RAC	53.5	13.4	32.6	99.5	—	—	0.5	0.5	100.0
Transfer from permanent RAC	12.4	22.3	23.2	57.9	—	0.1	42.0	42.1	100.0
Transfer from TCP	8.1	11.2	80.8	100.0	—	—	—	—	100.0
From community	72.5	5.0	21.7	99.1	0.1	—	0.8	0.9	100.0
Total	**37.6**	**8.4**	**47.0**	**92.9**	**0.1**	**—**	**7.0**	**7.1**	**100.0**
N	**25,322**	**5,559**	**30,724**	**61,605**	**36**	**15**	**4,692**	**4,743**	**66,348**
Respite									
From hospital	39.5	2.0	57.9	99.5	0.3	—	0.2	0.5	100.0
Transfer from RAC	61.6	11.8	26.0	99.4	—	—	0.6	0.6	100.0
Transfer from TCP	20.4	7.2	72.4	100.0	—	—	—	—	100.0
From community	87.6	3.3	8.4	99.3	0.1	—	0.5	0.7	100.0
Total	**75.1**	**3.3**	**21.0**	**99.4**	**0.2**	**—**	**0.4**	**0.6**	**100.0**
N	**40,573**	**1,766**	**11,052**	**53,391**	**100**	**10**	**235**	**345**	**53,736**
All									
Total	**54.9**	**6.1**	**34.8**	**95.8**	**0.1**	**—**	**4.1**	**4.2**	**100.0**
N	**65,895**	**7,325**	**41,776**	**114,996**	**136**	**25**	**4,927**	**5,088**	**120,084**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.

2. If the person had an ACAT assessment in the 12 months before the admission, the relevant assessment was that closest to the admission date. If there was not an assessment in the 12 months before the admission, the relevant assessment was that which was the most recent assessment before admission. If there was no assessment before admission, the closest assessment after the RAC admission was used.

Table A.25: Source of admissions into RAC, by location of ACAT assessment, RAC admissions 2008–09 with an ACAP assessment in the 365 days before admission (unstandardised adjusted per cent)

Source of admission	At home	In RAC	In hospital	Total	Total
Permanent					
From hospital (first)	21.1	1.1	77.8	100.0	21,700
From hospital (readmission)	8.2	13.0	78.8	100.0	3,700
Transfer from respite RAC	53.8	13.5	32.8	100.0	12,700
Transfer from permanent RAC	21.4	38.4	40.1	100.0	5,500
Transfer from TCP	8.1	11.2	80.8	100.0	1,700
From community	73.1	5.0	21.9	100.0	16,200
Total (unadjusted)	**41.1**	**9.0**	**49.9**	**100.0**	. .
N (unadjusted)	**25,322**	**5,559**	**30,724**	**. .**	**61,605**
Respite					
From hospital	39.7	2.0	58.3	100.0	12,700
Transfer from RAC	61.9	11.9	26.2	100.0	1,800
Transfer from TCP	20.4	7.2	72.4	100.0	200
From community	88.2	3.3	8.4	100.0	38,700
Total (unadjusted)	**76.0**	**3.3**	**20.7**	**100.0**	**. .**
N (unadjusted)	**40,573**	**1,766**	**11,052**	**. .**	**53,391**
All (unadjusted)	**57.3**	**6.4**	**36.3**	**57.3**	**. .**
All (N)	**65,895**	**7,325**	**41,776**	**. .**	**114,996**

Notes:

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table excludes 4,743 permanent admissions and 375 respite admissions for people who did not have an ACAT assessment recorded for the 365 days before the admission. For permanent admissions, 94% of these were either for permanent to permanent transfers or for people readmitted from hospital. For respite admissions, 72% were admissions from the community and 20% were admissions from hospital (adjusted per cents).
3. The relevant assessment is that closest to the admission.

Table A.26: State or territory of usual residence, by source of RAC admission, RAC admissions 2008–09 (unstandardised adjusted per cent)

Source of admission	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Permanent admissions subtotal	*52.8*	*55.4*	*61.7*	*60.5*	*53.9*	*49.6*	*44.6*	*37.6*	*55.3*
From hospital (first)	16.5	17.1	25.1	13.6	20.0	20.1	12.3	8.7	18.1
From hospital (readmission)	4.5	3.0	2.9	4.7	2.0	1.6	1.5	1.5	3.5
Transfer from respite RAC	14.1	8.1	8.1	8.0	12.3	4.9	10.6	10.9	10.7
Transfer from permanent RAC	7.4	8.5	8.8	8.8	6.6	6.5	6.0	9.0	7.9
Transfer from TCP	0.3	4.4	0.2	1.1	1.0	0.1	0.5	0.8	1.5
From community	10.0	14.3	16.7	24.2	12.1	16.4	13.8	6.6	13.6
Respite admissions subtotal	*47.2*	*44.6*	*38.3*	*39.5*	*46.1*	*50.4*	*55.4*	*62.4*	*44.7*
From hospital	15.6	6.6	6.1	6.6	16.2	2.7	9.8	8.5	10.7
Transfer from RAC	1.8	1.1	1.1	1.0	1.8	1.5	3.1	1.9	1.5
Transfer from TCP	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.6	0.2
From community	29.6	36.9	31.0	31.7	27.9	46.0	42.3	51.4	32.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**37.1**	**25.8**	**15.5**	**7.7**	**9.3**	**3.0**	**1.3**	**0.4**	**100.0**
Total (N)	**44,481**	**30,972**	**18,618**	**9,202**	**11,151**	**3,540**	**1,534**	**481**	**119,979**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table excludes 105 cases with missing region of usual residence.

Table A.27: Remoteness of usual residence, by source of RAC admission, RAC admissions 2008–09 (unstandardised adjusted per cent)

Source of admission	Major Cities	Inner Regional	Outer Regional	Remote/Very remote	Total
Permanent admissions subtotal	58.2	50.9	48.1	42.4	55.3
From hospital (first)	19.0	17.5	14.0	13.1	18.1
From hospital (readmission)	4.0	2.6	3.0	1.9	3.5
Transfer from respite RAC	10.5	10.3	12.4	12.7	10.7
Transfer from permanent RAC	8.6	6.8	6.7	3.4	7.9
Transfer from TCP	2.0	0.6	0.1	0.2	1.5
From community	14.1	13.2	11.9	11.1	13.6
Respite admissions subtotal	41.8	49.1	51.9	57.6	44.7
From hospital	10.5	10.1	13.1	14.3	10.7
Transfer from RAC	1.5	1.3	1.5	1.4	1.5
Transfer from TCP	0.2	0.2	0.1	0.1	0.2
From community	29.6	37.6	37.2	41.9	32.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Total (N row %)	**64.5**	**24.8**	**9.6**	**1.1**	**100.0**
Total (N)	**77,348**	**29,798**	**11,524**	**1,309**	**119,979**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. Table excludes 105 cases with missing region of usual residence.
3. Region allocation is based on postcode of usual residence and derived using the ABS postcode–region concordance (ABS 2011). If postcodes crossed region boundaries then the population proportions provided by the ABS were used as weights to allocate a record's contribution to the various regions. There were 313 admissions in very remote regions.

Table A.28: Source of care level classification, by source of RAC admission (per cent), permanent RAC admissions 2008–09 (unadjusted per cent)

Source of care level classification	From hospital (first)	From hospital (readmission)	Transfer from respite RAC	Transfer from permanent RAC	Transfer from TCP	From community	Total
Appraisal on admission	90.3	77.7	90.9	60.0	89.9	89.4	85.1
Valid appraisal from before admission	—	20.9	0.5	39.7	0.5	0.9	7.2
Readmission requires new appraisal: appraised 1–92 days after admission	0.1	0.5	—	—	0.1	0.3	0.1
Readmission requires new appraisal: none available so used the previous appraisal	—	0.2	—	—	—	—	—
Appraisal 1–92 days after admission	6.8	0.1	6.4	0.2	6.8	7.1	5.5
Readmission requires new appraisal: none available and no relevant earlier appraisal, so used current ACAT approval level	—	0.4	—	—	0.1	0.1	0.1
Very late or no appraisal available, so used current ACAT approval level	2.7	0.2	2.2	0.1	2.6	2.2	2.0
Very old appraisal only available, so used current ACAT approval level	—	—	—	—	—	—	—
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Number	**21,092**	**3,845**	**12,790**	**9,474**	**1,748**	**17,391**	**66,340**

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Section 1.3 describes the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. RCS and ACFI appraisals and ACAT approval levels were used to identify the care needs of residents at admission (see Box 4.2). No appraisal or current ACAT approval data were available for 8 admissions. Late appraisals after discharge were used if other appraisal data were not available; such appraisals were used in 3 cases where the appraisal was before the admission of interest and in 319 cases where the appraisal was after the admission of interest (that is, for 0.5% of admissions).
3. The appraisal period on admission into permanent RAC lasts from the date of admission to 2 months and 1 day after this. A previous resident requires a reappraisal on readmission except when transferring from another RAC facility within 28 days. A reappraisal period (grace period) is the period from 1 month before to 1 month after the expiry of the existing appraisal. Analysis showed that late appraisals are generally in effect within 3 months of admission (87%). This is based on last admission in 2008–09 for a resident and using ACFI appraisals only. Therefore this period (92 days = 2 months and 1 day for appraisal plus 1 month for reappraisal) has been used to identify the care level at admission if no appraisal data has been recorded on ACCMIS for the day of admission.

Table A.29: Per cent of residents requiring high care at admission, by source of RAC admission and age and sex, RAC admissions 2008–09 (adjusted per cent)

Sex/source of admission	65–69	70–74	75–84	80–84	85–89	90+	65–84	85+	Total
Men									
Permanent admissions subtotal[(a)]	*81.4*	*80.2*	*80.3*	*77.6*	*73.6*	*72.8*	*79.1*	*73.3*	*76.5*
From hospital (first)	85.8	85.8	86.3	86.5	85.5	85.2	86.3	85.4	85.9
From hospital (readmission)	88.5	95.2	85.3	94.1	91.8	90.5	91.2	91.2	91.2
Transfer from respite RAC	72.8	69.3	72.2	68.8	63.5	64.3	70.1	63.8	67.1
Transfer from permanent RAC	81.8	90.0	87.1	85.6	85.8	85.8	86.4	85.8	86.1
Transfer from TCP	75.0	72.4	80.2	79.1	78.7	80.9	78.1	79.5	78.8
From community	72.5	66.9	68.3	61.1	54.3	53.2	64.8	53.9	59.3
Respite admissions subtotal[(a)]	*54.5*	*54.7*	*50.6*	*44.1*	*39.7*	*38.6*	*48.8*	*39.3*	*44.9*
From hospital	60.0	54.4	58.7	55.0	54.1	55.9	56.4	54.8	55.8
Transfer from RAC	74.2	58.3	59.2	47.4	50.0	47.7	54.9	49.1	52.3
Transfer from TCP	n.p.	71.4	41.7	54.2	60.0	42.9	54.5	51.7	53.4
From community	52.1	54.6	47.6	40.2	34.6	32.7	46.1	33.9	41.0
Total[(a)]	**68.7**	**67.9**	**66.0**	**62.3**	**58.4**	**58.2**	**64.9**	**58.3**	**62.1**
Women									
Permanent admissions subtotal[(a)]	*82.7*	*79.7*	*73.2*	*70.4*	*67.9*	*71.8*	*72.9*	*69.7*	*71.1*
From hospital (first)	87.2	87.5	80.9	80.3	79.1	81.9	81.8	80.3	81.1
From hospital (readmission)	94.6	94.8	88.9	93.5	93.6	94.5	92.6	94.1	93.5
Transfer from respite RAC	76.1	74.3	66.0	60.9	58.3	60.4	64.6	59.3	61.6
Transfer from permanent RAC	94.2	89.8	87.4	87.3	87.1	88.7	87.9	88.0	88.0
Transfer from TCP	91.7	73.3	74.2	77.9	73.4	76.8	77.2	75.0	75.9
From community	68.9	64.7	58.1	52.2	48.6	51.7	55.8	50.0	52.4
Respite admissions subtotal[(a)]	*55.3*	*50.0*	*41.4*	*32.7*	*30.4*	*33.0*	*38.7*	*31.5*	*34.8*
From hospital	52.4	53.6	48.7	43.6	42.3	49.7	47.0	45.3	46.2
Transfer from RAC	58.3	61.0	38.3	43.4	34.8	44.5	44.8	38.9	41.6
Transfer from TCP	66.7	16.7	33.3	42.3	22.2	41.9	39.0	31.3	34.3
From community	56.1	48.5	38.6	28.5	26.6	28.2	35.5	27.3	30.9
Total[(a)]	**69.3**	**65.3**	**59.0**	**53.7**	**51.2**	**55.5**	**57.5**	**53.1**	**55.0**

(continued)

Table A.29 (continued): Per cent of residents requiring high care at admission, by source of RAC admission and age and sex, RAC admissions 2008–09 (adjusted per cent)

Sex/source of admission	65–69	70–74	75–84	80–84	85–89	90+	65–84	85+	Total
Persons									
Permanent admissions subtotal[(a)]	*81.9*	*80.0*	*76.3*	*73.1*	*69.9*	*72.1*	*75.5*	*70.8*	*73.1*
From hospital (first)	86.4	86.5	83.5	83.0	81.6	83.0	84.0	82.1	83.1
From hospital (readmission)	91.1	95.0	87.3	93.8	93.1	93.7	92.0	93.4	92.8
Transfer from respite RAC	74.4	72.0	68.5	63.8	60.1	61.5	66.7	60.7	63.5
Transfer from permanent RAC	87.2	89.9	87.3	86.7	86.7	88.1	87.3	87.4	87.3
Transfer from TCP	85.0	72.8	77.0	78.4	75.2	77.8	77.6	76.4	76.9
From community	70.7	65.7	61.9	55.1	50.3	52.1	59.1	51.1	54.6
Respite admissions subtotal[(a)]	*54.9*	*52.4*	*45.7*	*37.2*	*33.6*	*34.6*	*43.2*	*34.0*	*38.6*
From hospital	56.3	54.0	53.1	48.1	46.4	51.6	51.0	48.5	49.8
Transfer from RAC	67.3	59.7	47.8	45.0	40.5	45.6	49.3	42.6	45.9
Transfer from TCP	75.0	46.2	38.9	48.0	33.3	42.2	47.1	37.5	42.0
From community	53.9	51.6	43.0	33.1	29.3	29.4	40.2	29.4	34.7
Total[(a)]	**68.9**	**66.6**	**62.1**	**57.0**	**53.6**	**56.2**	**60.7**	**54.8**	**57.7**

(a) Unadjusted estimates as weighting not required for subtotals by care type.

Notes

1. Table includes cases for people aged 65 and over as at 1 July 2008. Sections 1.2 and 1.3 outline the derivation of adjusted estimates and describe the scope of episodes used in tables by movement type. Components may not sum to totals due to rounding.
2. See Table A.27 for derivation of care level at admission.
3. Table excludes 8 cases with missing appraisal information.

Appendix B: Data linkage and weighting

The NHMD reports the discharge destination of patients, nominally distinguishing between people transferring into RAC for the first time (coded as 'discharge/transfer to a Residential Aged Care service, unless this is the usual place of residence') and those returning to their usual place of residence (coded as 'other (includes discharge to usual residence/own accommodation/welfare institution (includes prisons, hostels and group homes providing primarily welfare services))'. However, differences between reported and actual destination have been seen in earlier studies that have linked hospital discharges to entries into RAC. In particular, substantial errors were identified when distinguishing between people returning to live in RAC and those being newly admitted to such care from hospital. (AIHW: Karmel & Rosman 2007:table A6.2; AIHW 2012a:table 3.3). Moreover, these studies showed that, because of these errors, analyses based on the reported hospital data item could be misleading. In addition, the NHMD does not contain a variable that distinguishes between people being admitted to hospital from their home in the community and from a period in residential care.

The NHMD data in this study were linked to RAC event data for three reasons:

- to obtain data on pre-hospital living arrangement
- to obtain more reliable information on post-hospital destination
- to obtain more detailed information on movement between hospital and RAC.

Better identification of transfers to and from RAC means that we can also: distinguish between hospital admissions from permanent RAC, respite RAC and TCP; distinguish between hospital discharges to permanent RAC, respite RAC and TCP; identify hospital stays for permanent RAC residents; and identify in-hospital deaths of RAC residents.

More specifically, the purpose of data linkage was to identify:

1. hospital episodes starting with a discharge from RAC (permanent or respite) or TCP
2. hospital episodes ending with an admission into RAC (permanent or respite) or TCP
3. hospital episodes for people living permanently in RAC who were not discharged from RAC at the time of hospital admission (usually recorded as 'hospital leave' in the RAC data)
4. deaths in hospital for people who were either permanent RAC residents or who were admitted from RAC.

Note that care under the TCP can be provided in a person's home or in a residential setting; the residential setting can be in an aged care facility or a separate wing of a hospital (AIHW 2011b). Episodes of TCP care are reported on the RAC database, and so were included in the data linkage as TCP can be provided in RAC facilities. However, data on the setting of the care (home, RAC or elsewhere) were not included in the data available for this project. In the following discussion, the term 'RAC events' includes TCP episodes.

To make the most of available data, several linkage processes were carried out to match hospital and RAC events. The processes reflect the varying amount of data available for linking the two data sets. The most accurate matching process (name-based matching) was used to estimate weights to adjust for missed and false matches made in the processes using more limited data for linkage (that is, without full name data). The linkage processes and weight derivation are described below. Note that same-day hospital episodes were excluded from the linkage (and therefore the analysis) because of the high likelihood of making false

matches for hospital episodes without name information available for matching. Furthermore, people are unlikely to be admitted to RAC on the same day they enter hospital, or to be discharged from RAC to hospital for a same-day hospital procedure. In addition, RAC hospital leave is reported only for hospital stays lasting at least 1 night. In 2008–09, people aged 65 and over at the time of separation had 1.7 million same-day episodes compared with 1.3 million multi-day episodes (including transfers and statistical separations) (AIHW 2013). Prior to data linkage, ethics approval and permission to use the required data were obtained from all relevant bodies.

B.1 Data for linkage

B.1.1 Hospital data

The data available in the hospital data set for linkage varied with jurisdiction and hospital sector, and so the underlying strategy was to use the best data available to link hospital episodes to RAC events. Sufficient data for linkage were available for all multi-day hospital episodes, so that no episodes were excluded from the linkage process.

The linkage data items that were always available were:

- date of birth
- sex
- postcode of usual residence
- episode admission and separation dates.

Depending on the jurisdiction and hospital sector other data items were also available for data linkage:

- given name and surname
- 5 letters of name (second and third letter of given name and second, third and fifth letter of surname)
- within-hospital person identifier (PID).

The availability of these data across jurisdictions and hospital sector is shown in Table B.1.

Table B.1: Name and person identifier data available for linkage, by state/territory and sector of hospital, hospital episodes for people born after 30 June 1944, 2008–09

State/territory of hospital	Hospital sector	Number of episodes	Full name	Five letters of name	Within-hospital PID	Linkage used to identify matches
NSW	Public	328,932	×	✓	✓	SLK-based
	Private	107,169	×	×	×	Event-based U[(a)]
Vic	Public	226,247	×	×	✓	Event-based J[(b)]
	Private	122,056	×	×	×	Event-based U
Qld	Public	141,642	✓	. .	✓	Name-based
	Private	114,410	✓	. .	✓	Name-based
WA	Public	73,871	×	✓	✓	SLK-based
	Private	42,020	×	×	×	Event-based U
SA	Public	81,330	✓	. .	✓	Name-based
	Private	41,361	×	×	✓	Event-based J
Tas	Public	16,622	×	×	×	Event-based U
	Private	9,481	×	×	×	Event-based[(a)]
ACT	Public	14,653	×	×	✓	Event-based J
	Private	5,172	×	×	✓	Event-based J
NT	Public	4,662	×	✓	✓	SLK-based
	Private	919	×	×	×	Event-based U
Total (N)	**. .**	**1,330,547**	**[(c)]335,668**	**[(c)]399,851**	**[(c)]1,025,597**	**. .**
Total (%)	**. .**	**100.0**	**25.2**	**30.1**	**77.1**	**. .**

(a) Hospital episodes do not have a within-hospital PID: 'U' means that the hospital episodes are 'unjoinable' (see section B.2.1 and Box B.1).

(b) Hospital episodes have a within-hospital PID: 'J' means that the hospital episodes are 'joinable' (see section B.2.1 and Box B.1).

(c) Based on hospital episodes with valid PID data.

B.1.2 RAC data

As the RAC data set was drawn from the national subsidy payment system for RAC (that is, ACCMIS), the data available for linkage from this relational database were nationally consistent. In the database, each RAC client has a PID that is used to combine information on client characteristics and care events. As mentioned before, use of TCP is recorded in the same database, with TCP client PIDs integrated with those for RAC clients.

The events of interest for this analysis included:

- admissions into permanent and respite RAC, and TCP
- discharges from permanent and respite RAC, and TCP
- periods of hospital leave while in permanent RAC. These are periods in which the permanent resident has been reported as being in hospital. Note that people in respite RAC or TCP do not have access to hospital leave. Also, periods of hospital leave of more than 30 days receive a reduced government subsidy.
- periods in permanent RAC (from admission to discharge) that could include episodes in hospital that were not reported as RAC hospital leave.

All events between 1 January 2008 and 31 December 2009 for people born after 30 June 1944 were retained for data linkage to facilitate matches to events that extended across more than

one financial year. Overall, the RAC data set consisted of 591,141 care events for 282,385 people (Table B.2).

The data available for data linkage included:

- full name data
- date of birth
- sex
- postcode of usual residence before admission into RAC
- postcode of service provider
- event start and end dates; that is admission and discharge dates, and start and end dates for hospital leave.

Table B.2: Residential aged care events and clients, people born after 30 June 1944, by event type and state/territory of usual residence, events between 1 January 2008 and 31 December 2009

RAC/TCP event type	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total	Col %	N
Hospital Leave	36.4	24.1	18.2	8.7	10.0	1.4	1.0	0.3	100.0	28.9	170,879
Permanent care events subtotal	*34.8*	*25.6*	*17.7*	*8.5*	*9.6*	*2.6*	*1.0*	*0.2*	*100.0*	*48.0*	*283,611*
Admission date only in 2008–09	34.1	26.3	17.8	8.6	9.3	2.6	1.1	0.3	100.0	13.6	80,467
Both admission and discharge in 2008–09	37.1	24.8	16.9	8.4	9.0	2.6	1.0	0.2	100.0	9.0	52,968
Discharge date only in 2008–09	34.4	25.8	17.7	8.6	9.6	2.7	1.0	0.3	100.0	13.0	76,676
Admission date < 2008–09 < discharge date	34.2	25.3	18.3	8.3	10.3	2.6	0.9	0.2	100.0	12.4	73,500
Respite care events subtotal	*34.8*	*25.6*	*17.7*	*8.5*	*9.6*	*2.6*	*1.0*	*0.2*	*100.0*	*23.1*	*136,651*
Admission date only in 2008–09	45.5	21.7	13.9	6.3	9.3	1.8	1.1	0.6	100.0	0.6	3,418
Both admission and discharge in 2008–09	38.6	26.2	13.3	6.9	9.4	3.4	1.5	0.5	100.0	17.7	104,660
Discharge date only in 2008–09	46.0	22.8	12.0	5.5	9.6	2.2	1.3	0.6	100.0	0.5	2,907
TCP	33.6	29.3	16.3	6.5	9.7	2.6	1.6	0.5	100.0	4.3	25,666
Total events	**36.0**	**25.4**	**17.0**	**8.1**	**9.7**	**2.4**	**1.1**	**0.3**	**100.0**	**100.0**	**591,141**
Total clients %	**35.1**	**25.3**	**17.5**	**8.1**	**9.9**	**2.7**	**1.1**	**0.3**	**100.0**	**100.0**	**282,385**
Total clients N	**99,110**	**71,425**	**49,452**	**22,828**	**27,930**	**7,747**	**3,095**	**798**	**282,385**	**. .**	**. .**

Note that in earlier studies of movement between hospital and RAC, social leave events (that is, leave to visit family and friends) were included as a distinct group in the linkage process (AIHW: Karmel & Rosman 2007, AIHW: Karmel et al. 2008, AIHW 2012c). Few matches were made to these leave events. Also, in the Hospital Dementia Services Project, linkage to identify hospital episodes that were related to unreported RAC hospital leave was included and a substantial number of matches were found (AIHW 2012a). Since using hospital services while on social leave is in effect unreported RAC hospital leave, explicit matching to

RAC social leave events was not included in the match processes for this project; instead, any such matches were included with matches to unidentified RAC hospital leave.

B.2 Linkage processes

B.2.1 Joining adjacent hospital episodes

As described in Box 1.1, a hospital episode for a patient can start with:

- admission into hospital
- a statistical admission due to change of type of care, or
- a transfer from another hospital.

Similarly, an episode of care can end with:

- discharge from hospital or death
- a statistical separation due to a change of type of care, or
- a transfer to another hospital.

As an all-hospital PID was not available in the hospital data it was not possible to join hospital episodes into complete hospital stays (for a study where this was possible see AIHW 2012a, 2012c). However, a within-hospital PID was available for all public hospital episodes, except for those in Tasmania, and for some private hospital episodes; that is, a within-hospital PID was available for 77% of all episodes (Table B.1). For these 'joinable' episodes, better event dates for matching could be derived by joining adjacent episodes ending and then starting with a change of care type within a hospital (see Box B.1 for terminology).

The rules for joining adjacent episodes were based on those derived for the Hospital Dementia Services Project (AIHW 2012a). Adjacent hospital episodes for a patient were joined if the 2 episodes had the same PID and:

- the dates for the episodes overlapped (that is, the end date of the first episode was after the start date of the second episode), or
- the gap between 2 episodes was zero days and the separation mode of the earlier episode was reported as a statistical separation.

Adjacent hospital episodes with the same PID were not joined if:

- the gap between the 2 episodes was 1 day or more (that is, the end date of the first episode was before the start date of the second episode), or
- the gap between the 2 episodes was zero days and the separation mode of the earlier episode was not reported as a statistical separation.

Using the above process, the 1,025,597 'joinable' episodes were reduced to 974,938 'joined' episodes—a reduction of 5%.

In the following discussion, joinable episodes that have been combined where appropriate are referred to as hospital periods; unjoinable episodes are referred to simply as episodes; together hospital periods and unjoinable episodes are termed hospital events (Box B.1). In general, hospital periods were used in the matching processes whenever possible. There were two exceptions to this: original episode data were used in an additional name-based linkage and an additional event-based linkage. These were required to derive weights to adjust for missed and false matches between unjoinable hospital episodes and RAC events.

The name-based linkage provided the 'gold standard' linkage while the event-based linkage provided the comparison links whose quality needed to be quantified (see Section B.3).

Box B.1: Terminology for hospital events used in the linkage

Hospital episodes reported in the hospital data with a corresponding within-hospital PID are said to be **joinable**. Adjacent joinable episodes were combined into a single event for linkage if:

- the 2 episodes had the same PID

  and

- the dates for the episodes overlapped, or
- the gap between 2 episodes was zero days and the separation mode of the earlier episode was reported as a statistical separation.

Overall, 77% of hospital episodes were joinable (Table B.1). The remaining 23% of episodes were **unjoinable**.

Two types of **hospital events** were used in the data linkage process.

- **Hospital periods**: joinable episodes were combined into hospital periods using the above rules. Thus a hospital period comprises 1 or more joinable episodes.
- **Episodes**: unjoinable episodes were used as reported, and are simply referred to as episodes in sections B.2 to B.5.Note that there was no name information available for unjoinable episodes (Table B.1).

B.2.3 Linking hospital and residential aged care events

Name-based linkage

Name-based linkage was restricted to the 25% of hospital episodes with name information. Although only hospital records for Queensland and South Australia had name data, RAC clients from all states were included in the linkage to allow for cross-border movements. Hospital records that included name information also had a within-hospital PID, and so this linkage process matched hospital periods to RAC events. The linkage process was probabilistic; that is, the linkage of records in the two data sets was based on the probabilities of agreement and disagreement between a range of match variables. The process consisted of three steps:

Step 1. Identify all hospital periods relating to the same person

In this step, a file with one record per individual patient was derived as follows:

- Hospital records that included name information also had a within-hospital PID. Therefore, within hospitals, periods relating to individual patients were readily identified. Overall, 317,125 hospital periods related to 224,926 within-hospital PIDs.
- Patients using 2 or more hospitals were then identified via probabilistic linkage using name, date of birth, sex and postcode information. In this internal matching process, the 224,926 within-hospital PIDs were identified as relating to 182,345 individuals. Variation in personal information found through this process was retained to assist in Step 2. Prior to matching, the name data were prepared by splitting space-separated names and removing spurious sections of the name fields such as 'Sister', 'Alias' and 'Known as'. Common pseudonyms for given

names were also used in the linkage process (for example, 'Liz' was recognised as an alternative for 'Elizabeth').

Step 2. Match hospital patients to RAC clients

In this step, the 182,345 hospital patients from Step 1 were linked probabilistically to the 282,385 RAC clients in the RAC linkage data set using data on name, date of birth, sex, postcode and date of death (when available). Prior to linking, the name data in the RAC data set were also prepared by splitting space-separated names and removing spurious sections of the name fields. Again, common pseudonyms for given names were used in the matching process. A total of 34,683 hospital patients matched to RAC clients.

Clerical assessment (that is, manual review of links) showed that the positive predictive value (PPV) and sensitivity for these matches were both 99.8% (see Box B.2 for definitions).

Box B.2: Measuring linkage quality

When linking records four outcomes are possible: a true link, a true non-link, a false link (false positive) and a missed link (false negative). In the diagram below, the G linkage process provides the reference—or gold standard—and so the status of the M links (that is, whether a link is a true link, a true non-link, a false link or a missed link) is determined by comparing the M links with the G links.

	G*[(a)] *matches	***G non-matches***
M*[(a)] *links	*a = M true links*	*b = M false links*
M non-links	*c = M missed matches*	*d = M true non-matches*

(a) G is the known 'truth', or gold standard linkage process. M is the process being measured.

In this study, two key measures are used when comparing matches:

- **Positive predictive value** (PPV): the percentage of M links that are true links
  = M true links/(M true links + M false links)
  = M true links/M links
  = a/(a+b)
- **Sensitivity**: the percentage of all matches that are identified by the M linkage strategy
  = M true links/(M true links + M missed matches)
  = M true links/G matches
  = a/(a+c)

An overall measure of link quality—the F score—is then obtained from the harmonic mean of these two rates:

F score = 2 x PPV x Sensitivity**/(** PPV + Sensitivity)

Step 3. Identify RAC events associated with hospital periods

Related hospital and RAC events were identified by comparing all hospital and RAC event dates for matched people:

- Date of hospital entry was compared with date of RAC exit (for RAC leave and discharges).

- Date of hospital exit was compared with date of RAC entry (for RAC leave and admissions).

As a hospital event can validly match to more than 1 RAC event (for example, both a discharge from RAC and an admission into RAC), and a RAC event can match to 2 or more hospital events (for example, 1 period of hospital leave could include a transfer between hospitals), date matching was carried out in four phases.

Hospital periods were linked to RAC events in the following order:

i. Matching to RAC hospital leave events

   Hospital period start and end dates were compared with RAC leave start and end dates. Up to 3 days difference between hospital and RAC dates were considered (symmetric test) to allow for differences in reporting dates. One period of RAC hospital leave was allowed to match to multiple hospital periods. Also, related RAC admissions due to a change of RAC facility on leaving hospital were identified, allowing +/-1 day date differences. This identified 22,227 matches. RAC admissions coinciding with a return to RAC after a period in hospital were excluded when identifying matches between hospital discharges and RAC admissions, as per below.

ii. Matching to RAC admissions

   Permanent RAC, respite RAC and TCP admissions were then matched to unmatched hospital periods by comparing the hospital discharge date with the RAC admission date. When identifying these event links RAC entry dates could be up to 3 days before the hospital exit date or up to 6 days after (to allow for pre-entry leave that provides reservation of a RAC place for up to 6 days before admission into permanent residential care). Same-day transfers (including between respite and permanent care) were combined into 1 RAC event. This resulted in 12,098 matches to RAC and TCP admissions.

iii. Matching to RAC discharges

   Because a hospital period may match to both a RAC admission and discharge, all permanent RAC, respite RAC and TCP discharges were again linked to hospital periods that had not matched to RAC hospital leave. Permanent RAC, respite RAC and TCP discharges were matched to unmatched hospital periods by comparing the hospital admission date with the RAC discharge date. When identifying these event matches RAC exit dates could be up to 3 days before or after the hospital entry date. Same-day transfers (including between respite and permanent care) were combined into 1 RAC event. Only 1,687 matches to RAC and TCP discharges were identified.

iv. Matching to unreported RAC hospital leave (that is, hospital stays by permanent RAC residents not reported in the RAC data):

   Previous projects that linked hospital and RAC data have shown that periods in hospital for permanent RAC residents are not always reported as hospital leave (AIHW 2012a). Therefore, additional hospital stays by permanent RAC residents were identified by comparing permanent RAC admission and discharge dates with hospital stay dates for matched people: hospital event dates had to be encompassed by the RAC entry and exit dates. This process identified 4,255 matches.

Overall, the above linkage process resulted in a total of 39,267 matches.

Note that Step 3 was repeated using hospital episodes as reported (that is, before being joined up) to provide the necessary information to measure the quality of matches to episodes without a within-hospital PID (that is, 'unjoinable' episodes) resulting from the event-based linkage process (see below). This process gave a total of 40,286 hospital episodes matching to RAC events.

SLK-based linkage

Just over 55% of episodes had either name or 5 letters of name available for data linkage. Again, episodes with name or part-name data also had within-hospital PIDs, and so hospital periods were used in the matching process. Hospital periods with full name information were included in the linkage process to provide the necessary information to measure the quality of matches derived for those periods that only had data for 5 letters of name.

Data linkage between these hospital periods and RAC events was undertaken using key-based linkage (KBL) centred around the statistical linkage key SLK-581; this key consists of 5 letters of name, full date of birth and sex. The KBL process involves matching via multiple match passes using a range of linkage keys. The elements contributing to these keys are described below. Three measures—calculated for each linkage key—are used in this linkage process to identify suitable linkage keys and their order of use:

- The *estimated false match rate* (FMR) for links established using the match key (the lower the better).
- The *estimated marginal trade-off* (m_tf) between additional true and additional false matches for links established using the match key when compared with matches made by a slightly more precise key (the higher the better).
- A measure of *discriminating power* (expressed as %). This is the product of the unique key rates for the two data sets being linked, where the unique key rate is the proportion of records within a data set that have a unique value for the key in question (the higher the better).

The first two of these are used to identify keys to be used in the linkage process by setting cut-offs, while the third determines their order of use (highest to lowest). The derivation of these measures and a more detailed description of KBL are given in AIHW 2011c and Karmel et al. 2010. Note that the number of keys selected for a linkage process depends on a range of factors, including the size of the groups being matched, the match rate and the number of variables available for inclusion in the linkage keys.

In the SLK-based linkage, the KBL process used linkage keys based on components of the statistical linkage key SLK-581, postcode of usual residence and event dates; specifically:

- second, third and fifth letters of surname (providing 4 components: S23, S25, S35, S235)
- second and third letters of given name (providing 1 component: F23)
- day, month and of birth (providing 3 components: d, m, y)
- sex (providing 1 component: s)
- region of residence based on postcode (providing 4 components: pc4, pc3 pc2, pc1)
- event dates for matching (start date, end date)
  - start date (can be used with event length when matching to RAC hospital leave)
  - end date (can be used with event length when matching to RAC hospital leave)
  - event length (used with either start date or end date when matching to RAC hospital leave).

For people in transition, it is not always clear which 'usual residence' should be reported. Therefore, for RAC residents, both the postcode of their (prior) residence in the community and of the RAC facility providing care were included in the linkage process. When matching to RAC hospital leave, unreported hospital leave or discharge from permanent RAC the postcode of the service provider was given preference over the community postcode; for matches to other RAC events the reverse priority was used.

Because of its limited name data, SLK-581 on its own was not used to link within the hospital data to establish a person-level file, as it could allow for only limited differential reporting of personal information across hospitals and RAC. However, such variation can be allowed for if additional data items are available, such as postcode and event dates. Consequently, person-to-person matching was not used in the SLK linkage process, but rather SLK-581 components underpinned the event-matching process.

Comparisons of SLK-based matches with name-based matches for those records with name data were used to refine the linkage process in terms of the values of the false match rate FMR and marginal trade-off m_tf cut-offs used to identify suitable keys and also in terms of the amount of variation allowed—for example, allowing for date or postcode variation in reporting—when using a particular match key. For individual keys, the number of variations allowed when using a particular key was limited by max_FMR/FMR, where max_FMR is set for the particular linkage process and may be different from the FMR cut-off used to select linkage keys. For example, if max_FMR is set to 0.5% then when linking using a key with FMR = 0.1% up to 5 different versions (altogether) of the match information for the event being linked would be considered (0.5/0.1=5).

As for the name-based event linkage, to allow for many to many matches between hospital and RAC events, event linkage was carried out in four phases. To minimise the number of false matches, hospital event dates relating to between hospital transfers were treated as missing when matching dates (that is, these dates were not available for matching). The four match phases are described in detail below, and summarised in Table B.3.

i. Matching to RAC hospital leave events

   Hospital periods were first linked to RAC hospital leave as these had already been identified as being related to a period in hospital. In this match phase, cut-offs of FMR =0.5% and m_tf =40 were used to identify suitable match keys. These parameters resulted in selecting 866 keys. When selecting linkage keys, both event dates and length were included as key components. Note that keys using 1 event date in conjunction with event length were considered rather than keys with 2 event dates to allow for the strong relationship between hospital start and end date (due to the very skewed distribution of hospital episode length) when identifying suitable keys.

   A maximum of +/– 3 days difference was allowed when matching hospital and RAC event dates. For individual keys, variation used in the matching was limited by max_FMR = 0.5%.

   Because RAC hospital leave can match to the beginning of one hospital episode and the end of another, RAC leave events were linked to hospital periods twice, with hospital periods that matched on the first round being excluded from the second round. Second round matches to hospital leave that were inconsistent with first round matches were dropped (that is, the same RAC hospital leave event matching to two hospital periods with inconsistent dates). Finally, the event dates for the resulting hospital period – RAC leave matches were compared in the context of other

RAC and hospital data items (such as death in hospital) and again inconsistent matches were dropped.

Using this process 52,587 hospital periods with name or 5 letters of name information were matched to RAC hospital leave events.

ii. Matching to RAC admissions

Permanent RAC, respite RAC and TCP admissions were then linked to unmatched hospital periods by comparing the hospital discharge date with the RAC admission date. Again, cut-offs of FMR =0.5% and m_tf =40 were used to identify suitable linkage keys. These parameters resulted in selecting 93 linkage keys. A maximum of +/– 2 days difference was allowed when matching event dates. Max_FMR was again set to 0.5%.

This linkage process resulted in 28,924 hospital periods with name or 5 letters of name information matching to RAC and TCP admissions.

iii. Matching to RAC discharges

As in the name-based linkage, permanent RAC, respite RAC and TCP discharges were linked to hospital periods that had not matched to RAC hospital leave. Hospital admission dates were compared with RAC event discharge dates. Again, cut-offs of FMR =0.5%, m_tf =40 and max_FMR = 0.5% were used to identify suitable linkage keys and determine the amount of variation allowed in matching. These parameters resulted in selecting 61 linkage keys. Again, a maximum of +/– 2 days difference was allowed when matching event dates.

This linkage resulted in 4,846 hospital periods with name or 5 letters of name information matching to RAC and TCP discharges.

iv. Matching to unreported RAC hospital leave

In order to match hospital periods to unreported RAC hospital leave we needed to be able to apply the following inequality:

RAC admission date ≤ hospital period admission date ≤ hospital period discharge date ≤ RAC discharge date.

In the SLK-based linkage this was achieved by doing a 'person'-based linkage between hospital and RAC clients using KBL with key components coming from SLK-581 and postcode; event dates were then compared for matched clients:

- Person matching

  An individual hospital patient was defined by SLK-581 and the first digit of the postcode of usual residence (with adjustments for PO boxes and missing data). This definition overestimates the number of individuals when there has been variation in reported name, date of birth, sex or postcode data (first digit). Analysis of the internal linkage carried out as part of the name-based linkage showed that such differences were rare (less than 100 out of 225,000 for each SLK-581 component and state/territory). Conversely, if two hospital patients from the same state or territory had the same SLK-581 data then their records were conflated. The extent of this second problem for the 'SLK' hospital data is not known as we do not have a person indicator; however, it is expected to be small: analysis of RAC client data showed that 0.1% out of 300,000 people had a non-unique SLK-581.

Hospital clients identified as above were matched to RAC clients via KBL using the components of SLK-581 and postcode. Cut-offs of FMR =0.5% and m_tf =2 were used to identify suitable match keys. These parameters resulted in selecting 19 match keys. Variation (primarily in postcode) used in the matching was limited by max_FMR =1.0% for individual keys. All hospital clients were included in the matching to avoid false matches between RAC clients and hospital clients with similar personal information.

This linkage process resulted in 62,976 hospital patients with name or 5 letters of name information being matched to RAC clients.

- Identifying unreported RAC hospital leave

  Event matching for matched persons was then carried out using the inequality stated above. Only hospital events still not matched after phases (i) to (iii) were included. A total of 12,531 hospital periods with name or 5 letters of name information matched to RAC periods of permanent residence.

Overall, the above SLK-based linkage process resulted in a total of 98,888 matches between hospital periods with name or 5 letters of name information and RAC events.

Event-based linkage

As for the SLK-based linkage, linkage without any name data (termed 'event-based linkage' here) was carried out using KBL. The process used linkage keys based on components of date of birth, sex, postcode of usual residence, event dates and event length. Again, for RAC residents, both the postcode of their (prior) residence in the community and of the RAC facility providing care were included in the linkage process using the same preferences as used in the SLK-based matching.

Just under 45% of hospital episodes had no name data available for data linkage; three-fifths (59%) of these had a within-hospital PID. To aid the linkage, again hospital periods were used where possible in the matching process; reported hospital episodes were used for those without a PID ('unjoinable' episodes). All hospital periods with full or part name information were included in the linkage process both to provide the necessary information to measure the quality of the event-based matches, and to avoid false matches to hospital events without name information.

The same phased approach as that used in the SLK-based linkage was used for this linkage as well. Due to delays in receiving hospital data with names, comparisons between the SLK-based and event-based linkage were used to refine the latter; that is, to set the values of the FMR and m_tf cut-offs used to identify suitable keys and also to determine the amount of postcode and date variation allowed when using a particular match key. Because of the very limited data available to identify matches, less stringent cut-offs were used to select suitable linkage keys. Even so, only a small number of keys were identified as suitable for KBL. Similar to SLK-based linkage, hospital event dates relating to between hospital transfers or changes in care type were treated as missing when comparing dates. The four match phases are described in detail below, and summarised in Table B.3.

i. Matching to RAC hospital leave events

   Again, hospital events were first linked to RAC hospital leave as these had already been identified as being related to a period in hospital. When selecting suitable linkage keys, both event dates and length were included as key components. In this match phase, cut-offs of FMR =1% and m_tf =2 were used to identify suitable match keys. (Note, however, that the lowest observed m_tf for a key meeting the FMR

cut-off was 3.6). These parameters resulted in selecting 18 linkage keys. A maximum of +/– 2 days difference was allowed when matching hospital and RAC event dates. For individual keys, variation used in the match data was limited by max_FMR = 5%.

As for SLK-based linkage, RAC leave events were linked to hospital events twice, with hospital events that matched on the first round being excluded from the second round, and any inconsistent matches being dropped. Using this process 77,555 hospital events were matched to RAC hospital leave events.

ii. Matching to RAC admissions

Permanent RAC, respite RAC and TCP admissions were then linked to unmatched hospital events by comparing the hospital discharge date with the RAC event admission date using cut-offs of FMR =1.5%, m_tf =2 and max_FMR =10%. These parameters resulted in selecting just two linkage keys: date of birth, sex and event date with pc4 or pc3—the second (less accurate) key had m_tf = 8.5. A maximum of +/– 2 days difference was allowed when matching hospital and RAC event dates.

Through this linkage process 43,067 hospital events were matched to admissions.

iii. Matching to RAC discharges

Like the SLK-based linkage, hospital events that had not matched to RAC hospital leave were linked to RAC discharges. Cut-offs of FMR =5%, m_tf =2 and max_FMR =30% were used to identify suitable match keys and allow variation when linking. These parameters, in conjunction with the limited match data and the low expected match rate, resulted in selecting just one linkage key: date of birth, sex, event date and pc4 with FMR =2.2%. Again, a maximum of +/– 2 days difference was allowed when matching hospital and RAC event dates.

This process resulted in 6,812 hospital events matching to discharges.

iv. Matching to unreported RAC hospital leave

There was insufficient information to link unmatched hospital events to unreported RAC hospital leave using KBL. Therefore simple deterministic matching on date of birth, sex and pc4 was combined with the date inequality used for the corresponding SLK-based linkage. That is, all permanent RAC admission/discharge events were compared with unmatched hospital events to see if they encompassed a hospital event, after matching on date of birth, sex and pc4. Because of the crudeness of the match process the number of false matches was expected to be relatively high. Comparisons using SLK data suggested the following two rules to reduce this problem. Matches were dropped if:

- the hospital event matched to 2 or more RAC events
- the RAC event matched to more than 1 hospital event (which can in fact be valid) *and* the RAC client had not already been matched to a hospital event via RAC hospital leave.

This linkage process resulted in 20,593 hospital events matching to permanent RAC admissions.

Overall, the above event-based linkage process resulted in a total of 148,027 matches between hospital events and RAC events.

Note that the above process was repeated using all hospital episodes as reported (that is, before being joined up into hospital periods) to provide the necessary information to adjust

matches to the 23% of episodes without a within-hospital PID (that is, 'unjoinable' episodes) for missed and false matches (see Section B.4.2 below).

Table B.3: Summary of KBL linkage processes

Linkage process and RAC event type	FMR cut-off (%)	m_tf cut-off (ratio)	Number of keys	Max_FMR for variation (%)	Maximum day gap allowed when matching event dates	Number of matches
SLK-based[(a)]						
Hospital leave	0.5	40	866	0.5	3	52,587
Admission	0.5	40	93	0.5	2	28,924
Discharge	0.5	40	61	0.5	2	4,846
Unreported hospital leave	0.5	2	19	1.0	Date inequality test	12,531
Total	. .	. .	. .	. .	. .	**98,888**
Event-based[(b)]						
Hospital leave	1.0	2	18	5	2	77,555
Admission	1.5	2	2	10	2	43,067
Discharge	5	2	1	30	2	6,812
Unreported hospital leave	. .	. .	1	. .	Date inequality test	20,593
Total	. .	. .	. .	. .	. .	148,027

(a) SLK-based matching was applied to all hospital periods with name or letters of name data. Values for FMR, max_FMR, m_tf cut-offs and date variation were determined by comparisons with name-based linkages.

(b) Event-based matching was applied to all hospital periods and unjoinable episodes. Values for FMR, max_FMR, m_tf cut-offs and date variation were determined by comparisons with SLK-based linkages.

Note: Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

B.3 Quality of matches identified using key-based linkage

The quality of the SLK- and event-based matches were examined by comparing their identified matches with those achieved using name-based matching for the subset of hospital periods that had full name information (Table B.4). Three measures were considered (see Box B.2), assuming that the name-based matches were correct and complete:

- Positive predictive value (PPV) = proportion of KBL matches that were also name-based matches.
- Sensitivity = proportion of name-based matches that were identified by the KBL match processes.
- F score = harmonic mean of PPV and sensitivity (used to gauge overall quality).

Because multiple events can occur within a short time in both the hospital and RAC systems, two sets of comparisons were made for all matches:

1. comparing the RAC event identified as matching to a particular hospital period under the KBL and name-based linkages

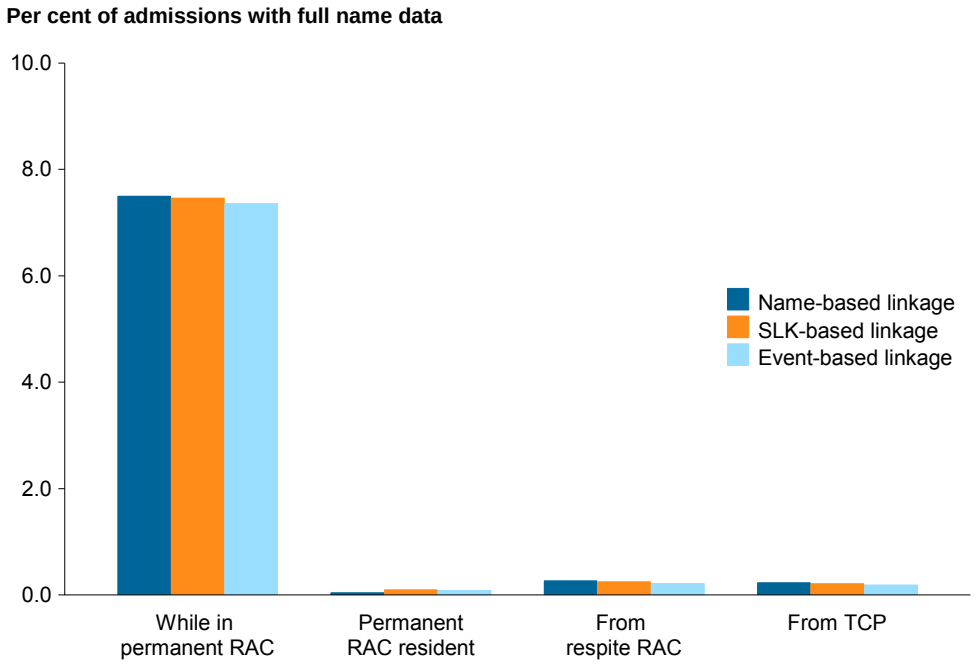
2. comparing the RAC client identified as matching to a particular hospital period under the KBL and name-based linkages. This allows for differences arising from the date variation used in the linkage processes.

Overall, when comparing matches to RAC events, the SLK-based matches were true matches 97% of the time (PPV) and the process identified 95% of the name-based matches (sensitivity); this compares with a PPV of 94% and sensitivity of 90% for the event-based linkage (Table B.5). Consequently, the overall quality of the SLK-based matches was higher than that of the event-based matches (F score of 95.9% versus 92.1%). There were two main reasons for this: the lower sensitivity of the event-based matching for all RAC event types, and the relatively low PPV of event-based matches to unreported RAC hospital leave. The latter was to be expected given the very limited data available to make the matches.

Table B.5 also shows that there were cases where the KBL processes linked to different events for the same person when compared with the name-based links. Using the RAC client as the basis for comparison increased the F scores by more than 2 percentage points for both processes. The effect was most noticeable for matches to unreported RAC hospital leave, and was caused by missed matches to hospital leave being picked up as matches to unreported hospital leave: 15–17% of hospital events matched to 'unreported hospital leave' using KBL linkage processes matched to a hospital leave event in the name-based linkage.

The comparisons also show that both the KBL processes were less likely to identify matches of discharges from RAC to hospital than matches of hospital events to RAC admissions or RAC hospital leave (that is, had lower sensitivity). This is most likely caused by the combined effects of the rarity of these events (making them harder to identify through KBL) and varying date reporting practices between the hospital and aged care systems—especially when RAC residents may not be admitted straight into hospital but may go to an Emergency Department first.

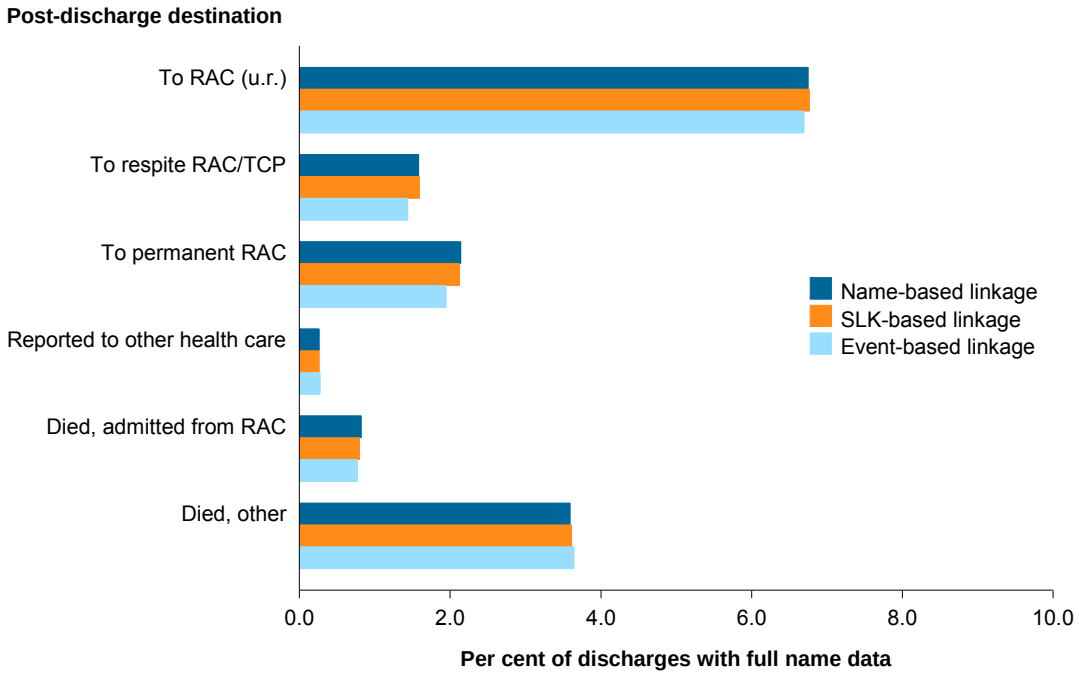
Given the high F scores for both KBL processes, especially with respect to matching to the same RAC client, the proportions of hospital admissions and discharges identified as relating to various types of RAC events are very similar for the three linkage processes. The closeness of these distributions is shown in Figure B.1 and Figure B.2, and Table B.6 and Table B.7.



Source: Table B.6.

Note: Only admissions involving a move from RAC are shown.

Figure B.1: Pre-admission origin of hospital periods, by linkage type, hospital periods with name information, 2008–09 (per cent)



Source: Table B.7.

Note: Figure shows only discharges involving a move to RAC, TCP or other health care, or ending with the death of the patient.

Figure B.2: Discharge destination of hospital periods, by linkage type, hospital periods with name information, 2008–09 (per cent)

Table B.4: Hospital period matches, by type of linkage and RAC event type, matches to hospital periods with name information

RAC event type matched to hospital event	Linkage process		
	Name-based	SLK-based	Event-based
	Number of matches		
Hospital leave	21,227	20,745	20,227
Admission	12,098	11,602	10,858
Discharge	1,687	1,741	1,567
Unreported hospital leave	4,255	4,661	4,697
Total	**39,267**	**38,749**	**37,349**

Note: Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

Table B.5: Hospital period match quality, by type of linkage

RAC event type matched to hospital event	SLK-based linkage			Event-based linkage		
	PPV	Sensitivity	F score	PPV	Sensitivity	F score
Comparing RAC events[(a)]						
Hospital leave	98.4	96.2	97.3	99.4	94.7	97.0
Admission	98.6	94.6	96.6	98.1	88.1	92.8
Discharge	95.5	87.6	91.4	94.0	77.2	84.8
Unreported hospital leave	83.5	95.8	89.2	64.7	75.4	69.6
Total	**96.5**	**95.3**	**95.9**	**94.4**	**89.9**	**92.1**
Comparing RAC clients[(b)]						
Hospital leave	98.5	99.7	99.1	99.5	97.9	98.7
Admission	98.9	96.5	97.7	98.4	89.8	93.9
Discharge	94.9	86.9	90.7	92.7	77.5	84.4
Unreported hospital leave	98.4	96.0	97.2	77.7	75.5	76.6
Total	**98.5**	**98.0**	**98.2**	**96.2**	**92.4**	**94.3**

(a) Hospital event matching to RAC event.

(b) Hospital event matching to RAC client.

Note: Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

Table B.6: Pre-hospital origin, by type of linkage, hospital periods with name information, 2008–09 (per cent)

	Linkage process		
Pre-hospital origin	**Name-based**	**SLK-based**	**Event-based**
Reported transfer from other hospital (unlinked)	7.85	7.89	7.92
Transfer from other hospital, permanent RAC resident	0.47	0.45	0.42
Reported statistical admission (unlinked)	0.45	0.45	0.46
Statistical admission, permanent RAC resident	0.02	0.02	0.02
Reported 'Other', that is, new admission (unlinked)	83.12	83.10	83.27
Admission while permanent RAC resident	7.49	7.45	7.35
From respite RAC	0.26	0.24	0.22
From TCP	0.22	0.21	0.19
Discharged to hospital from permanent RAC	0.04	0.09	0.08
Reported 'Unknown' (unlinked)	0.07	0.07	0.07
Reported 'Unknown', permanent RAC resident	—	—	—
Total	**100.0**	**100.0**	**100.0**
Total N	**316,990**	**316,990**	**316,990**

Note: Derivation of origin of admission from the linked records is discussed in Section B.4.1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

Table B.7: Discharge destination, by type of linkage, hospital periods with name information, 2008–09 (per cent)

	Linkage process		
Discharge destination	**Name-based**	**SLK-based**	**Event-based**
Statistical separation	0.45	0.45	0.45
Transfer to other hospital	7.62	7.62	7.62
Returned to RAC (u.r.)	6.75	6.76	6.69
Went to permanent RAC	2.14	2.12	1.95
Went to respite RAC/TCP	1.58	1.59	1.44
Reported going to other health care (unlinked)	0.26	0.26	0.27
Died, admitted from RAC	0.82	0.80	0.77
Died, other (unlinked)	3.59	3.61	3.64
Reported left/discharged at own risk or on leave (unlinked)	0.30	0.30	0.30
Other (including to u.r.)	76.51	76.50	76.88
Total	**100.00**	**100.00**	**100.00**
Total N	**316,990**	**316,990**	**316,990**

Note: Derivation of discharge destination from the linked records is discussed in Section B.4.1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

B.4 Deriving hospital-based variables for analysis of movement

B.4.1 Derivation

Identified hospital–RAC event matches were used to derive where people came from before entering hospital (termed 'pre-hospital origin') and where they went to afterwards (termed 'discharge destination'). This process involved comparing the hospital event admission and discharge dates with data for the matching RAC event. RAC events adjacent in time to the matched RAC event were also considered when assigning hospital origin and destination categories; in particular, whether the RAC client was receiving care at the time or just before or after the hospital event dates was taken into account. Hospital events reported as ending in death were assumed to be correct, as were between-hospital transfers and statistical admissions or separations. These comparisons very occasionally revealed false event matches; these matches were ignored when deriving the movement variables.

The origin and destination data used for a particular hospital event were based on the match obtained using the most linkage items available; that is, using name-based matches where name data were available, SLK-based matches where only 5 letters of name were available, and event-based matches otherwise. The final results by the type of linkage used are given in Table B.8 and Table B.9.

Table B.8: Detailed derived pre-hospital origin, by type of linkage, 2008–09

	Linkage process				
Derived pre-hospital origin of admission	**Name-based**	**SLK-based**	**Event-based**	**Event-based**	**Total**
	Periods	**Periods**	**Periods**	**Episodes**	**Events**
Reported transfer from other hospital (unlinked)	24,074	38,613	35,987	41,669	140,343
Transfer from other hospital, permanent RAC resident	1,472	3,193	2,061	2,042	8,768
Reported statistical admission (unlinked)	1,410	1,435	559	7,542	10,946
Statistical admission, permanent RAC resident	66	104	25	277	472
Reported 'Other', that is, admission from community (unlinked)	251,845	282,576	209,885	229,237	973,543
Admission while permanent RAC resident	23,824	36,090	20,702	10,836	91,452
From respite RAC	825	1,582	742	380	3,529
From TCP	705	897	574	225	2,401
Discharged to hospital from permanent RAC	126	510	338	107	1,081
Reported 'Unknown' (unlinked)	221	516	23	122	882
Reported 'Unknown', permanent RAC resident	8	35	1	7	51
Linked events	*27,026*	*42,411*	*24,443*	*13,874*	*107,754*
Total	**304,576**	**365,551**	**270,897**	**292,444**	**1,233,468**

Note: 'Hospital period' is derivable only for episodes in hospitals that have a within-hospital PID (that is, for 'joinable' episodes). See Box B.1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

Table B.9: Detailed derived discharge destination, by type of linkage, 2008–09

Derived discharge destination on discharge	Linkage process				Total
	Name-based	SLK-based	Event-based	Event-based	
	Periods	Periods	Periods	Episodes	Events
Reported hospital transfer out (unlinked)	39,077	21,639	36,197	21,904	118,817
Transfer to other hospital, permanent RAC resident	3,486	759	2,494	1,364	8,103
Transfer to other hospital, discharged permanent RAC resident	85	9	43	24	161
Went to respite RAC	5,909	1,863	2,149	2,229	12,150
Went to permanent RAC (first admission)	7,133	2,978	4,473	6,450	21,034
Went to permanent RAC (readmission)	480	115	235	285	1,115
Went to TCP	3,377	1,068	2,922	2,740	10,107
Reported transfer to psychiatric hospital (unlinked)	340	28	157	126	651
Transfer to psychiatric hospital, permanent RAC resident	42	2	54	26	124
Transfer to psychiatric hospital, discharged permanent RAC resident	9	—	7	3	19
Reported 'To other health care' (unlinked)	1,652	1,053	751	786	4,242
Reported statistical separation (unlinked)	1,407	7,058	606	1,294	10,365
Statistical separation, permanent RAC resident	128	349	49	73	599
Statistical separation, discharged permanent RAC resident	15	11	3	17	46
Reported left/discharge at own risk (unlinked)	2,061	441	703	826	4,031
Reported statistical separation on leave (unlinked)	960	17	2	53	1,032
Reported died (unlinked)	15,323	6,275	10,802	11,055	43,455
Died, admitted from permanent RAC	3,904	836	2,149	2,462	9,351
Died, admitted from TCP or respite RAC	327	59	179	182	747
Reported 'Other' (generally to usual residence in the community) (unlinked)	247,639	236,587	188,613	231,338	904,177
Return to RAC as usual residence	30,420	10,931	17,738	20,863	79,952
Return to RAC, but new RAC	1,567	310	501	409	2,787
Return to RAC, but respite RAC	16	4	—	1	21
To 'Other', but admitted from RAC	192	52	67	66	377
Reported unknown (unlinked)	2	—	3	—	5
Derived from linked events	*57,090*	*19,346*	*33,063*	*37,194*	*146,693*
Total	**365,551**	**292,444**	**270,897**	**304,576**	**1,233,468**

Note: 'Hospital period' is derivable only for episodes in hospitals that have a within-hospital PID (that is, for 'joinable' episodes). See Box B.1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944.

Comparing reported and derived variables

As stated at the beginning of this Appendix, differences between reported and actual destination have been seen in earlier studies that linked hospital discharges to entries into RAC. In this section, reported and derived pre-hospital origin and discharge destination are compared.

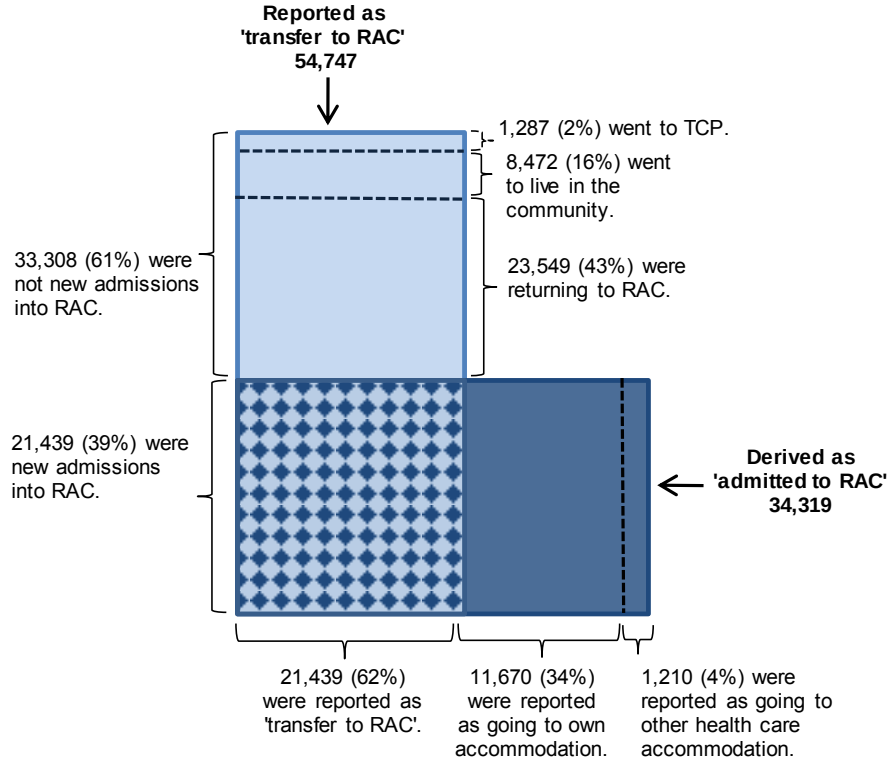
Just over 9% of episodes reported as being an admission from outside the hospital system were identified as an admission from permanent RAC, respite RAC or TCP. The large majority were for permanent RAC residents, with respite RAC and TCP contributing 0.3% and 0.2% respectively (Table B.10). A breakdown into these categories is not possible using data reported in the NHMD.

As seen in other linkage studies, reported discharge destination does not distinguish well between people being admitted into RAC and those returning to permanent care (Table B.11, Figure B.3). Under half of all hospital events (39%) reported as transferred to RAC (that is, a new admission into RAC) were confirmed as a new admission through data linkage; slightly more discharges were for residents returning to permanent RAC (43%). Most of the remaining 18% were not linked, and so were not associated with a move to RAC.

Among the large group reported as returning to their usual accommodation, 7% were probably incorrectly classified as they had matched to an admission into RAC; 6% were identified through data linkage as a RAC resident returning to live in permanent RAC. The examination of the quality of identified matches between hospital and RAC events in Section B.3 indicate that this level of difference is highly likely to be due to reporting issues rather than errors in the linkage (that is, missed or false matches).

Data linkage also indicated that just over 1 in 4 episodes reported as ending in a move to other health care accommodation was either an admission into or a return to RAC (27%); a further 20% were transfers to TCP. On the other hand, 71% of hospital episodes matching to a transfer into TCP were reported as returning to their usual residence, 13% were reported as transferring to RAC and 16% as going to other health care accommodation (Table B.11). (Note, however, that TCP care is not necessarily provided in an aged care facility).

Finally, the linked data show that almost 20% of deaths in hospital among patients aged 65 and over were for people admitted from RAC. The vast majority of these were permanent residents (93%).



Source: Table B.11.

Figure B.3: Comparing hospital events reported as transferring to RAC and events with a derived discharge destination of admitted into RAC or TCP

Table B.10: Derived and reported pre-hospital origin, 2008–09

Derived pre-hospital origin	Reported pre-hospital origin: From community/other	
	Events	**Per cent**
Permanent RAC resident[(a)]	92,486	8.6
From respite RAC	3,495	0.3
From TCP	2,363	0.2
From community/other	972,670	90.8
Total	**1,071,014**	**100.0**

(a) Includes people on hospital leave from RAC and people discharged from permanent RAC into hospital.

Notes

1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944. Table excludes episodes reported as starting with a statistical admission or hospital transfer or unknown origin. A different pre-hospital origin was derived for 112 of these cases.
2. 'Events' are hospital periods or episodes, as relevant (see Box B.2).

Table B.11: Derived and reported discharge destination, patients aged 65 and over at 1 July 2008, hospital discharges 2008–09

	Reported discharge destination					
Derived discharge destination	**Transfer to RAC[(a)]**	**To other health care**	**To community/ other**	**Died**	**Total**	**Total**
			Events			**Per cent**
Discharged to RAC subtotal	*44,988*	*2,189*	*69,873*	*. .*	*117,050*	*10.7*
To respite RAC	6,103	597	5,470	. .	12,170	1.1
To permanent RAC	15,336	613	6,200	. .	22,149	2.0
Return to RAC (u.r.)	23,549	979	58,203	. .	82,731	7.6
To TCP	1,287	1,600	7,220	. .	10,107	0.9
To other health care	. .	4,237	. .	. .	4,237	0.4
To community/other	8,472	66	900,256	. .	908,794	83.1
Died subtotal	*. .*	*. .*	*. .*	*53,547*	*53,547*	*4.9*
Admitted from permanent RAC	. .	. .	. .	9,351	9,351	0.9
Admitted from respite RAC/TCP	. .	. .	. .	747	747	0.1
Other	. .	. .	. .	43,449	43,449	4.0
Total (N)	**54,747**	**8,092**	**977,349**	**53,547**	**1,093,735**	**100.0**
Total (%)	**5.0**	**0.7**	**89.4**	**4.9**	**100.0**	**. .**

(a) Discharge/transfer to a RAC facility, unless this is the usual place of residence.

Notes

1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944. Table excludes episodes reported as ending with a statistical separation or hospital transfer or unknown destination. Discharge destination was derived for 1 case with reported unknown destination.

2. 'Events' are hospital periods or episodes, as relevant (see Box B.2).

B.4.2 Adjusting estimates from KBL

Adjusting estimates of movement into and out of hospital

Section B.3 shows that both KBL processes missed some matches and made some false ones. It is desirable to adjust for these discrepancies when undertaking analyses in order to get more accurate estimates of flow and of the relative importance of movement to and from RAC in the hospital system. Also, under-identification of hospital stays associated with RAC clients implies overestimation of hospital stays *not* associated with a RAC client.

In analysis of 2001–02 movement from hospital to RAC, adjustments were based on RAC match type (AIHW: Karmel et al. 2008:Appendix B). However, in that analysis only movement from hospital was of interest while in the current analysis movements in both directions are being analysed. Also, adjustments by match type only affected the destination categories identified through matching (such as 'Return to RAC'), with other categories being derived by subtraction. This required specific adjustments depending on the cross-classifications of interest; that is, for each analysis table, the proportion estimated as going back to their home in the community was derived through subtraction.

Drawing on this earlier experience, when deciding on the approach to adjust for missed and false matches, several properties were considered desirable:

- that the same adjustment could be used for estimates by either pre-hospital origin or discharge destination
- that table-specific adjustments would not be required when deriving cross-classifications of interest
- that few adjustments would be based on small cell sizes
- that adjustments allow for patient hospital use patterns (within the limitations imposed by small cell sizes); for example, age and sex differences.

Because different linkage processes were used depending on the data available, and because sometimes hospital periods (from 'joinable' episodes) could be used for linkage and sometimes hospital episodes (for 'unjoinable' episodes) had to be used (see Table B.1), three adjustment regimes were required:

- to adjust hospital periods linkable using SLK-581 (SLK-based)
- to adjust hospital periods linkable using event-based linkage only (Event-based J)
- to adjust unjoinable hospital episodes linkable using event-based linkage only (Event-based U).

Name-based matches were assumed to be correct and so were not adjusted.

Adjustments were obtained by comparing results derived from applying all of the different linkage processes to hospital records with full name information. In order to get the three sets of adjustments required, these records were linked in five ways:

A. using name-based linkage to link hospital periods

B. using name-based linkage to link hospital episodes

C. using SLK-based linkage to link hospital periods

D. using event-based linkage to link hospital periods

E. using event-based linkage to link hospital episodes.

Results from C and D were compared with those from A, and results from E were compared with results from B.

The approach taken to calculate all three sets of adjustment weights was the same: weights were derived by benchmarking results from C, D, and E against results from the relevant name-based matches for a selected cross-classification. This is illustrated using SLK-based linkage (that is, C above) as an example:

- First, derive frequency counts for the adjustment cross-classification using the results from linkages A and C, namely n_{Ak} and n_{Ck} for k = 1 to K, where K is the number of cells in the adjustment cross-classification.
- Within cell k of the cross-classification, the adjustment factor is (n_{Ak} / n_{Ck}).
- Hospital periods within adjustment cell k are given a weight of (n_{Ak} / n_{Ck}) when deriving any cross-classification of interest involving pre-hospital origin or discharge destination.

A number of cross-classifications (or stratifications) using derived pre-hospital origin, derived discharge destination, age and sex were considered for deriving the adjustments. Note that only adjustment stratifications that include both pre-hospital origin and discharge destination can adjust both origin and destination estimates, and so are to be preferred.

Quality of adjustment was measured by comparing weighted estimates from the KBL results with those from the relevant name-based linkage for cross-classifications of interest: origin and destination by age, origin and destination by sex; origin and destination by principal diagnosis; origin and destination by care type; and origin and destination by remoteness of patient usual residence. Differences in the cross-classification estimates were measured using the absolute relative difference (ARD) in the proportions in each cell in the cross-classification. Because cells with a small percentage of the table population can have large ARDs that are not practically important, comparisons were made excluding cells containing less than 1% per cent of name-based linked records. Table B.12 gives an example of the types of comparisons made, and the effects of using various adjustment stratifications for the event-based (joinable) matching.

Analysis of adjustment stratifications indicated that:

- Derived origin and, in particular, derived destination classifications have to be grouped because of small numbers in some categories (see Table B.8 and Table B.9).
- The number of age groups has to be restricted to limit the number of small cells.
- Using separate adjustments for origin and destination had a marginal effect on the mean ARD when compared with adjustments incorporating both origin and destination.
- Including age and sex improved the quality of the adjustment, with age being more important.
- Including both age and sex along with derived origin and derived destination can lead to a large number of small cells.

After considering these findings, adjustments were based on derived pre-hospital origin by derived discharge destination and age (3 age groups: 65–79, 80–89, 90+). The groupings used for derived origin and derived destination in the adjustment stratifications are given in Table B.13. Using this, the maximum ARD for cells containing more than 1% of hospital periods observed in the tabulations included in Table B.12 was 1.035; that is, the estimated percentages using links obtained via KBL were within 3.5% of the name-based percentage.

The distributions of adjustment weights across adjustment cells, and the number of observations in these cells, are given in Table B.14. The number of hospital events with adjustment weights of various sizes is given in Table B.15. From these we can see that:

- only a very small proportion of hospital events have weights of less than 0.75 or greater than 1.5
- 97.4% of hospital events have an adjustment weight between 0.95 and 1.05
- 99.9% have weights between 0.75 and 1.25.

Table B.12: Accuracy of different adjustment schemes for event-based (joinable) linkage for selected cross tabulations, patients aged 65 and over at 1 July 2008, hospital periods with name data, 2008–09

Tabulation estimated	Cells containing more than 1 % (name-based)	Maximum ARD	Minimum ARD	Mean ARD	Median ARD
Adjusting by: destination x origin x age_10 x sex					
Origin by principal diagnosis	19	1.01895	1.00044	1.00459	1.00243
Origin by care type	4	1.00173	1.00012	1.00087	1.00081
Origin by rrma	12	1.03559	1.00014	1.00609	1.00285
Origin by age_5	15	1.00617	1.00016	1.00269	1.00267
Origin by sex	6	1.00253	1.00016	1.00056	1.00016
Destination by principal diagnosis	18	1.01965	1.00040	1.00443	1.00269
Destination by care type	5	1.00442	1.00051	1.00162	1.00109
Destination by rrma	13	1.00930	1.00017	1.00348	1.00288
Destination by age_5	15	1.00770	1.00011	1.00189	1.00094
Destination by sex	10	1.00787	1.00003	1.00123	1.00016
Adjusting by: destination x origin x age_10					
Origin by principal diagnosis	19	1.01840	1.00031	1.00453	1.00248
Origin by care type	4	1.00196	1.00003	1.00105	1.00110
Origin by rrma	12	1.03496	1.00018	1.0058	1.00291
Origin by age_5	15	1.00632	1.00006	1.00233	1.00189
Origin by sex	6	1.00239	1.00008	1.00109	1.00073
Destination by principal diagnosis	18	1.01979	1.00057	1.00414	1.00277
Destination by care type	5	1.00450	1.00037	1.00156	1.00092
Destination by rrma	13	1.00933	1.00010	1.00347	1.00301
Destination by age_5	15	1.00735	1.00006	1.00189	1.00094
Destination by sex	10	1.01507	1.00070	1.00338	1.00231
Adjusting by: destination x origin					
Origin by principal diagnosis	19	1.02171	1.00004	1.00489	1.00321
Origin by care type	4	1.00326	1.00001	1.0017	1.00177
Origin by rrma	12	1.03041	1.00107	1.00569	1.00289
Origin by age_5	15	1.03282	1.00040	1.00783	1.00345
Origin by sex	6	1.00341	1.00089	1.00194	1.00154
Destination by principal diagnosis	18	1.02170	1.00025	1.00490	1.00361
Destination by care type	5	1.00456	1.0003	1.00180	1.00139
Destination by rrma	13	1.00948	1.00009	1.00314	1.00254
Destination by age_5	15	1.03376	1.00014	1.00760	1.00353
Destination by sex	10	1.01051	1.00042	1.00271	1.00139

Note: ARD = absolute relative difference = |(per cent using adjusted SLK-based estimates – per cent using name-based estimates)|/(per cent using name-based estimates). rrma = remoteness classification, age_5 = 5 year age groups, age_10 = 10 year age groups. Origin and destination classifications are as in Table B.13.

Table B.13: Classification of pre-hospital origin and discharge destination used for derivation of adjustment weights

Movement type/adjustment group	Contributing categories
Discharge destination adjustment group	
Transfer to other hospital	Transfer to other hospital, permanent RAC resident
	Transfer to other hospital, discharged permanent RAC resident
	Transfer to psychiatric hospital, permanent RAC resident'
	Transfer to psychiatric hospital, discharged permanent RAC resident
	Other reported hospital transfer out (unlinked)
	Other reported transfer to psychiatric hospital (unlinked)
Went to respite RAC or TCP	Went to RAC—respite admission
	Went to TCP
Went to permanent RAC	Went to RAC—first permanent admission
	Went to RAC—permanent re- admission
To other health care	Reported 'To other health care' (unlinked)
Statistical separation	Statistical separation, permanent RAC resident
	Statistical separation, discharged permanent RAC resident
	Other reported statistical separation (unlinked)
Left/discharge at own risk or on leave	Reported left/discharge at own risk (unlinked)
	Reported statistical separation on leave (unlinked)
Died, admitted from RAC	Died, admitted from permanent RAC
	Died, admitted from respite RAC or TCP
Died, other	Reported Died (unlinked)
Other (including to usual residence in the community)	Reported Other (incl. to usual residence) (unlinked)
	To other, but admitted from RAC
Return to RAC	Return to RAC as usual residence
	Return to RAC, but new RAC
	Return to RAC, but respite RAC
Unknown	Reported unknown (not identified through linkage)
Pre-hospital origin adjustment group	
Hospital transfer	Transfer from other hospital, permanent RAC resident
	Reported transfer from other hospital (unlinked)
Statistical admission	Statistical admission, permanent RAC resident
	Reported statistical admission (unlinked)
Permanent RAC resident	Admission while permanent RAC resident
	Discharged to hospital from permanent RAC
From respite RAC or TCP	From respite RAC
	From TCP
Other new admission into hospital	Reported 'Other', that is, new admission (unlinked)
Unknown	Reported Unknown (unlinked)
	Unknown, permanent RAC resident

Table B.14: Statistics on adjustment weights, by linkage type

Linkage type	Number of cells	Min.	Max.	Mean	Median	5th pctl	10th pctl	25th pctl	90th pctl
SLK-based									
Weights (all)	140	0.714	19.000	1.240	1.000	0.962	0.979	0.998	1.113
Weights (≠ 1)	92	0.714	19.000	1.365	1.002	0.951	0.975	0.991	1.138
SLK-based linkage cell size	. .	1	152,280	3,362	169	7	10	46	4,690
Event-based (joined)									
Weights (all)	137	0.500	38.000	1.510	1.000	0.909	0.959	0.992	1.260
Weights (≠ 1)	106	0.500	38.000	1.660	1.054	0.906	0.931	0.982	1.333
Event-based linkage cell size	. .	1	152,444	2,986	149.5	4	8	39	4,494
Event-based (unjoined)									
Weights (all)	139	0.700	24.000	1.428	1.000	0.922	0.958	0.994	1.288
Weights (≠ 1)	116	0.700	24.000	1.513	1.048	0.919	0.956	0.989	1.301
Event-based linkage cell size	. .	1	149,801	2,891	288	9	22	54	4,367

Notes

1. Table is based on adjustment classification 'destination x origin x age_10' (maximum of 11x6x3 =198 cells). Some cells are empty using both name-based and KBL linkage. A small number of cells may include only name-based links or KBL links. These cells are not included in this table. Note that if a weight could not be derived, the adjustment weight is set to 1 when deriving estimates. This affects only a small number of cases.
2. The distribution statistics are for adjustment classification cells, and do not relate to hospital periods or episodes. Note that cells with very small or large weights had few hospital events, so that these weights were applied to few records when deriving estimates.

Table B.15: Number of hospital events in weight range, by linkage type used to identify pre-hospital origin and discharge destination, patients aged 65+ at 1 July 2008, 2008–09

	Linkage type					
Weight range	Name-based	SLK-based	Event-based (joinable)	Event-based (unjoinable)	Total (N)	Total (%)
	Periods	Periods	Periods	Episodes	Events	Events
0.5-<0.75	. .	11	11	16	38	0.003
0.75-<0.95	. .	91	2,171	5,042	7,304	0.592
0.95-<1	. .	79,036	248,112	274,887	602,035	48.808
1-<1.001	304,576	243,388	279	166	548,409	44.461
1.001-<1.05	. .	40,586	6,045	4,145	50,776	4.117
1.05-<1.25	. .	2,359	13,841	7,834	24,034	1.948
1.25-<1.5	. .	5	412	336	753	0.061
1.5-<2	. .	—	8	9	17	0.001
2-<3	. .	3	—	3	6	—
3-<5	. .	33	—	—	33	0.003
5+	. .	39	18	6	63	0.005
Total	**304,576**	**365,551**	**270,897**	**292,444**	**1,233,468**	**100.000**

Notes

1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944. 'Events' include hospital periods and episodes, as relevant (see Box B.2).
2. Hospital periods matched using name-base matching are assumed to be correct and so have a weight of 1.

B.5 Deriving source of RAC admissions

B.5.1 Derivation

A client's pathway into RAC was identified using:

- links between hospital episodes and RAC admissions and RAC hospital leave
- the location of the person before the linked hospital episode (that is, in RAC or elsewhere)
- if the client was in RAC before the current admission:
  - the type of care (permanent or respite)
  - the provider of that care
  - the time since the previous discharge
- the type of care for the current RAC admission (permanent or respite)
- the gap between hospital discharge and RAC admission: if the RAC admission was within 7 days of the hospital discharge then the two events were assumed to be associated; that is, the RAC admission was 'from hospital'.

The pathways into RAC derived using this process, and unadjusted numbers in each group, are given in detail in Table B.16.

Table B.16: Details of derived type of movement into RAC

Movement type	Unadjusted	Adjusted	Average weight
First permanent admissions			
From hospital, admitted from respite RAC	1,055	1,150	1.089
From hospital	20,040	20,590	1.027
Transfer from respite RAC	12,443	12,440	1.000
Transfer from TCP	1,656	1,660	1.000
From community	16,473	15,830	0.961
Total	**51,667**	**51,667**	**. .**
Later permanent admissions			
From hospital, admitted from permanent RAC	3,396	3,750	1.105
From hospital, admitted from respite RAC	29	30	1.106
From hospital, admitted from permanent RAC after unmatched hospital leave	94	90	1.000
From hospital	326	330	1.022
Transfer from respite RAC	349	350	1.000
Transfer from permanent RAC	9,474	9,480	1.000
Transfer from TCP	92	90	1.000
From community	921	550	0.599
Total	**14,681**	**14,681**	**. .**
Respite admissions			
From hospital, admitted from permanent RAC	189	190	1.004
From hospital, admitted from respite RAC	1,204	1,320	1.095
From hospital, admitted from permanent RAC after unmatched hospital leave	1	—	1.000
From hospital	10,884	11,290	1.038
Transfer from respite RAC	1,673	1,670	1.000
Transfer from permanent RAC	94	90	1.002
Transfer from TCP	181	180	1.000
From community	39,510	38,990	0.987
Total	**53,736**	**53,736**	**. .**

Notes

1. Linkage was carried out using hospital and RAC events for people born after 30 June 1944.
2. A movement is considered to be 'from hospital' if the resident had been in hospital in the 7 days before admission. This means that there will be a small amount of under-identification due to hospital discharges in 2007–08 for people admitted into RAC within 7 days but in 2008–09.
3. In a 'transfer' event the client is discharged from one care type or provider and admitted to the next on the same or next day.
4. Adjusted percentages across movement type allow for missed and false matches between hospital and RAC data. Adjusted numbers have been rounded to the nearest 10 to reflect that they are estimates.

B.5.2 Adjusting estimates of movement into RAC

For the same reasons as discussed when looking at movement into and out of hospital, it is also desirable to adjust estimates for missed and false matches when looking at movement into RAC. In this case, however, under-identification of hospital stays associated with RAC clients implies overestimation of RAC admissions *not* associated with a hospital stay; that is, overestimation of admissions from the community and of transfer admissions not related to

a period in hospital. Analysis of movement into RAC was limited to permanent and respite admissions, and excluded TCP as the latter is available only for people leaving hospital and is not necessarily provided in a RAC facility.

Weights for admissions into RAC were derived as follows, noting that a 'transfer' is defined as occurring when a person is discharged from a RAC facility or care type on one day and readmitted to a new RAC facility or care type on the same or next day.

Weights are derived as follows:

Step 1. For permanent (first and later) and respite RAC admissions identified as 'from hospital':

- Where there was a link to the current admission, the weight was the weight adjustment derived for the hospital event associated with the link.
- Where there was not a link to the current admission, but there was a link to the preceding RAC event, then the weight was the weight adjustment derived for the hospital event associated with that earlier link.
- Where there was not a link to either the current or preceding RAC event (that is, unlinked hospital leave) then a weight of 1 was assigned.

Step 2. Transfers from respite care or TCP were given a weight of 1.

Step 3. Transfers from permanent care were given a weight that adjusted for transfers via hospital; that is, the weight adjusts for cases where the client changed RAC facility on discharge from hospital following RAC hospital leave. These moves were categorised as being 'from hospital' and so were included in Step 1 above. The weights for these cases were derived within age by sex by admission type groups. The age groups used were 65–79, 80–84, 85–89 and 90+ as this provided groups of roughly equal size.

Within each age by sex by admission type (respite and later permanent admission) category:

a. The total number (unweighted) of transfer admissions from permanent RAC in the age by sex by admission type group were counted.

b. Weighted estimates of 'transfers via hospital' were derived using the weights as per Step 1 above. Note: to avoid negative weights for transfer and community admissions, outlier 'from hospital' weights were truncated at 5. This affected 63 out of 37,218 (0.2%) of admissions from hospital (Table B.15).

c. The 'weighted' estimate for 'transfers not via hospital' was derived as (a – b).

d. An unweighted count of 'transfers not via hospital' was derived as the simple count of all the records not assigned weights in Step 1 above.

e. The weight for the 'transfers not via hospital' records was then calculated as c/d (this is less than 1 as we are reducing the count).

f. The weight from e) was assigned to each record in the age by sex by admission type category, as relevant.

Step 4. Weights for the remaining 'from community' groups were derived for age by sex by admission type strata (respite, first and later permanent admission). Again the age groups used were 65–79, 80–84, 85–89 and 90+.

Within each age by sex by admission type category:

a. Weighted estimates of 'not from the community' were derived using the weights as per steps 1 to 3 above.

b. The total number (unweighted) of admissions in the age by sex by admission type was counted.

c. The 'weighted' estimate for 'from the community' was derived as (a – b).

d. An unweighted count of 'from the community' was derived as a simple count of all the records not assigned weights in steps 1 and 2 above.

e. The weight for the 'from the community' records was then calculated as c/d (this is less than 1 as we are reducing the count).

f. The weight from e) was assigned to each record in the age by sex by admission type category, as relevant.

The weights resulting from this process are summarised in Table B.17. Adjusted estimates are presented in Table B.16 for the various movement types. Table B.16 shows that, for both total permanent and respite admissions, the adjusted and unadjusted numbers of admissions are the same. This equality is a design characteristic of the weighting scheme. Note also that the small number of unmatched RAC hospital leave events seen in the 'from hospital' numbers in Table B.17 indicate the high level of matching achieved for these events.

Table B.17: Weights for movement into RAC, derived using type of RAC admission by source of admission by age group and sex

			Weights			
Type of admission	**Source**	**Number of records**	**Mean**	**Minimum**	**Maximum**	**Sum**
First permanent admission	Community	16,473	0.961	0.932	0.970	15,831
	Hospital	21,095	1.030	0.980	3.000	21,737
	Transfer	14,099	1.000	1.000	1.000	14,099
	All	**51,667**	**1**	**0.932**	**3.000**	**51,667**
Later permanent admission	Community	921	0.599	0.344	0.755	552
	Hospital	3,845	1.096	0.964	5.000	4,213
	Transfer	9,915	1.000	1.000	1.001	9,916
	All	**14,681**	**1**	**0.344**	**5.000**	**14,681**
Respite admission	Community	39,510	0.987	0.985	0.989	38,985
	Hospital	12,278	1.043	0.875	1.301	12,802
	Transfer	1,948	1.000	0.975	1.019	1,948
	All	**53,736**	**1**	**0.875**	**1.301**	**53,736**

Appendix C: Disease classification and groupings

C.1 ICD–10–AM Edition 6 chapters

Chapter 1: Certain infectious and parasitic diseases (A00–B99)

A00–A09	Intestinal infectious diseases
A15–A19	Tuberculosis
A20–A28	Certain zoonotic bacterial diseases
A30–A49	Other bacterial diseases
A50–A64	Infections with a predominantly sexual mode of transmission
A65–A69	Other spirochaetal diseases
A70–A74	Other diseases caused by chlamydiae
A75–A79	Rickettsioses
A80–A89	Viral infections of the central nervous system
A90–A99	Arthropod-borne viral fevers and viral haemorrhagic fevers
B00–B09	Viral infections characterised by skin and mucous membrane lesions
B15–B19	Viral hepatitis
B20–B24	Human immunodeficiency virus [HIV] disease
B25–B34	Other viral diseases
B35–B49	Mycoses
B50–B64	Protozoal diseases
B65–B83	Helminthiases
B85–B89	Pediculosis, acariasis and other infestations
B90–B94	Sequelae of infectious and parasitic diseases
B95–B97	Bacterial, viral and other infectious agents
B99	Other infectious diseases
Includes:	Diseases generally recognised as communicable or transmissible
Excludes:	Carrier or suspected carrier of infectious disease (Z22.-)
	Certain localised infections—see body system-related chapters
	Infectious and parasitic diseases complicating pregnancy, childbirth and the puerperium [except obstetrical tetanus and human immunodeficiency virus [HIV] disease] (O98.-)
	Infectious and parasitic diseases specific to the perinatal period [except tetanus neonatorum, congenital syphilis, perinatal gonococcal infection and perinatal human immunodeficiency virus [HIV] disease] (P35–P39)
	Influenza and other acute respiratory infections (J00–J22)

Chapter 2: Neoplasms (C00–D48)

C00–C96	Malignant neoplasms
D00–D09	In situ neoplasms
D10–D36	Benign neoplasms
D37–D48	Neoplasms of uncertain or unknown behaviour

Chapter 3: Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50–D89)

D50–D53 Nutritional anaemias
D55–D59 Haemolytic anaemias
D60–D64 Aplastic and other anaemias
D65–D69 Coagulation defects, purpura and other haemorrhagic conditions
D70–D77 Other diseases of blood and blood-forming organs
D80–D89 Certain disorders involving the immune mechanism
Excludes: Exclusion groups a, c, d, e, f, g and h (see below)
Autoimmune disease (systemic) NOS (M35.9)
Human immunodeficiency virus [HIV] disease (B20–B24)

Chapter 4: Endocrine, nutritional and metabolic diseases (E00–E89)

E00–E07 Disorders of thyroid gland
E9–E14 Impaired glucose regulation and diabetes mellitus
E15–E16 Other disorders of glucose regulation and pancreatic internal secretion
E20–E35 Disorders of other endocrine glands
E40–E46 Malnutrition
E50–E64 Other nutritional deficiencies
E65–E68 Obesity and other hyperalimentation
E70–E89 Metabolic disorders
Excludes: Exclusion groups c and h (see below)
Transitory endocrine and metabolic disorders specific to fetus and newborn (P70–P74)

Chapter 5: Mental and behavioural disorders (F00–F99)

F00–F09 Organic, including symptomatic, mental disorders
F10–F19 Mental and behavioural disorders due to psychoactive substance use
F20–F29 Schizophrenia, schizotypal and delusional disorders
F30–F39 Mood [affective] disorders
F40–F48 Neurotic, stress-related and somatoform disorders
F50–F59 Behavioural syndromes associated with physiological disturbances and physical factors
F60–F69 Disorders of adult personality and behaviour
F70–F79 Mental retardation
F80–F89 Disorders of psychological development
F90–F98 Behavioural and emotional disorders with onset usually occurring in childhood and adolescence
F99 Unspecified mental disorder
Includes: Disorders of psychological development
Excludes: Exclusion group h (see below)

Chapter 6: Diseases of the nervous system (G00–G99)

G00–G09 Inflammatory diseases of the central nervous system
G10–G13 Systemic atrophies primarily affecting the central nervous system
G20–G26 Extrapyramidal and movement disorders
G30–G32 Other degenerative diseases of the nervous system
G35–G37 Demyelinating diseases of the central nervous system
G40–G47 Episodic and paroxysmal disorders

G50–G59 Nerve, nerve root and plexus disorders
G60–G64 Polyneuropathies and other disorders of the peripheral nervous system
G70–G73 Diseases of myoneural junction and muscle
G80–G83 Cerebral palsy and other paralytic syndromes
G90–G99 Other disorders of the nervous system
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 7: Diseases of the eye and adnexa (H00–H59)
H00–H06 Disorders of eyelid, lacrimal system and orbit
H10–H13 Disorders of conjunctiva
H15–H22 Disorders of sclera, cornea, iris and ciliary body
H25–H28 Disorders of lens
H30–H36 Disorders of choroid and retina
H40–H42 Glaucoma
H43–H45 Disorders of vitreous body and globe
H46–H48 Disorders of optic nerve and visual pathways
H49–H52 Disorders of ocular muscles, binocular movement, accommodation and refraction
H53–H54 Visual disturbances and blindness
H55–H59 Other disorders of eye and adnexa
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 8: Diseases of the ear and mastoid process (H60–H95)
H60–H62 Diseases of external ear
H65–H75 Diseases of middle ear and mastoid
H80–H83 Diseases of inner ear
H90–H95 Other disorders of ear
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 9: Diseases of the circulatory system (I00–I99)
I00–I02 Acute rheumatic fever
I05–I09 Chronic rheumatic heart diseases
I10–I15 Hypertensive diseases
I20–I25 Ischaemic heart diseases
I26–I28 Pulmonary heart disease and diseases of pulmonary circulation
I30–I52 Other forms of heart disease
I60–I69 Cerebrovascular diseases
I70–I79 Diseases of arteries, arterioles and capillaries
I80–I89 Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified
I95–I99 Other and unspecified disorders of the circulatory system
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 10: Diseases of the respiratory system (J00–J99)
J00–J06 Acute upper respiratory infections
J09–J18 Influenza and pneumonia
J20–J22 Other acute lower respiratory infections
J30–J39 Other diseases of upper respiratory tract
J40–J47 Chronic lower respiratory diseases
J60–J70 Lung diseases due to external agents

J80–J84 Other respiratory diseases principally affecting the interstitium
J85–J86 Suppurative and necrotic conditions of lower respiratory tract
J90–J94 Other diseases of pleura
J95–J99 Other diseases of the respiratory system
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 11: Diseases of the digestive system (K00–K93)

K00–K14 Diseases of oral cavity, salivary glands and jaws
K20–K31 Diseases of oesophagus, stomach and duodenum
K35–K38 Diseases of appendix
K40–K46 Hernia
K50–K52 Noninfective enteritis and colitis
K55–K63 Other diseases of intestines
K65–K67 Diseases of peritoneum
K70–K77 Diseases of liver
K80–K87 Disorders of gallbladder, biliary tract and pancreas
K90–K93 Other diseases of the digestive system
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 12: Diseases of the skin and subcutaneous tissue (L00–L99)

L00–L08 Infections of the skin and subcutaneous tissue
L10–L14 Bullous disorders
L20–L30 Dermatitis and eczema
L40–L45 Papulosquamous disorders
L50–L54 Urticaria and erythema
L55–L59 Radiation-related disorders of the skin and subcutaneous tissue
L60–L75 Disorders of skin appendages
L80–L99 Other disorders of the skin and subcutaneous tissue
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)
Lipomelanotic reticulosis (I89.8)
Systemic connective tissue disorders (M30–M36)

Chapter 13: Diseases of the musculoskeletal system and connective tissue (M00–M99)

M00–M25 Arthropathies
M30–M36 Systemic connective tissue disorders
M40–M54 Dorsopathies
M60–M79 Soft tissue disorders
M80–M94 Osteopathies and chondropathies
M95–M99 Other disorders of the musculoskeletal system and connective tissue
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)
Certain disorders of the temporomandibular joint (K07.6)
Compartment syndrome (T79.6)

Chapter 14: Diseases of the genitourinary system (N00–N99)

N00–N08 Glomerular diseases
N10–N16 Renal tubulo-interstitial diseases
N17–N19 Kidney failure
N20–N23 Urolithiasis

N25–N29 Other disorders of kidney and ureter
N30–N39 Other diseases of urinary system
N40–N51 Diseases of Sex genital organs
N60–N64 Disorders of breast
N70–N77 Inflammatory diseases of Female pelvic organs
N80–N98 Noninflammatory disorders of Female genital tract
N99 Other disorders of genitourinary tract
Excludes: Exclusion groups a, b, c, d, e, f, g and h (see below)

Chapter 15: Pregnancy, childbirth and the puerperium (O00–O99)

Not applicable

Chapter 16: Certain conditions originating in the perinatal period (P00–P96)

Not applicable

Chapter 17: Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)

Q00–Q07 Congenital malformations of the nervous system
Q10–Q18 Congenital malformations of eye, ear, face and neck
Q20–Q28 Congenital malformations of the circulatory system
Q30–Q34 Congenital malformations of the respiratory system
Q35–Q37 Cleft lip and cleft palate
Q38–Q45 Other congenital malformations of the digestive system
Q50–Q56 Congenital malformations of genital organs
Q60–Q64 Congenital malformations of the urinary system
Q65–Q79 Congenital malformations and deformations of the musculoskeletal system
Q80–Q89 Other congenital malformations
Q90–Q99 Chromosomal abnormalities, not elsewhere classified
Excludes: Inborn errors of metabolism (E70–E90)

Chapter 18: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)

This chapter includes symptoms, signs, abnormal results of clinical or other investigative procedures, and ill-defined conditions regarding which no diagnosis classifiable elsewhere is recorded.

Signs and symptoms that point rather definitely to a given diagnosis have been assigned to a category in other chapters of the classification.

R00–R09 Symptoms and signs involving the circulatory and respiratory systems
R10–R19 Symptoms and signs involving the digestive system and abdomen
R20–R23 Symptoms and signs involving the skin and subcutaneous tissue
R25–R29 Symptoms and signs involving the nervous and musculoskeletal systems
R30–R39 Symptoms and signs involving the urinary system
R40–R46 Symptoms and signs involving cognition, perception, emotional state and behaviour
R47–R49 Symptoms and signs involving speech and voice
R50–R69 General symptoms and signs
R70–R79 Abnormal findings on examination of blood, without diagnosis
R80–R82 Abnormal findings on examination of urine, without diagnosis
R83–R89 Abnormal findings on examination of other body fluids, substances and tissues, without diagnosis
R90–R94 Abnormal findings on diagnostic imaging and in function studies, without diagnosis

R95–R99 Ill-defined and unknown causes of mortality

Excludes: Exclusion group a (see below)

Abnormal findings on antenatal screening of mother (O28.-)

Chapter 19: Injury, poisoning and certain other consequences of external causes (S00–T98)

S00–S09 Injuries to the head

S10–S19 Injuries to the neck

S20–S29 Injuries to the thorax

S30–S39 Injuries to the abdomen, lower back, lumbar spine and pelvis

S40–S49 Injuries to the shoulder and upper arm

S50–S59 Injuries to the elbow and forearm

S60–S69 Injuries to the wrist and hand

S70–S79 Injuries to the hip and thigh

S80–S89 Injuries to the knee and lower leg

S90–S99 Injuries to the ankle and foot

T00–T07 Injuries involving multiple body regions

T08–T14 Injuries to unspecified part of trunk, limb or body region

T15–T19 Effects of foreign body entering through natural orifice

T20–T31 Burns

T33–T35 Frostbite

T36–T50 Poisoning by drugs, medicaments and biological substances

T51–T65 Toxic effects of substances chiefly nonmedicinal as to source

T66–T78 Other and unspecified effects of external causes

T79 Certain early complications of trauma

T80–T88 Complications of surgical and medical care, not elsewhere classified

T89 Other complications of trauma not elsewhere classified

T90–T98 Sequelae of injuries, of poisoning and of other consequences of external causes

Excludes: Birth trauma (P10–P15)

Obstetric trauma (O70–O71)

Note: The chapter uses the S-section for coding different types of injuries related to single body regions and the T-section to cover injuries to multiple or unspecified body regions as well as poisoning and certain other consequences of external causes.

Chapter 20: External causes of morbidity and mortality (U50–Y98)

U50–U73 Activity

V00–X59 Accidents

- V00–V99 Transport accidents
- W00–X59 Other external causes of accidental injury

X60–X84 Intentional self-harm

X85–Y09 Assault

Y10–Y34 Event of undetermined intent

Y35–Y36 Legal intervention and operations of war

Y40–Y84 Complications of medical and surgical care

Y85–Y89 Sequelae of external causes of morbidity and mortality

Y90–Y98 Supplementary factors related to causes of morbidity and mortality classified elsewhere

Chapter 21: Factors influencing health status and contact with health services (Z00–Z99)

Z00–Z13 Persons encountering health services for examination and investigation

Z20–Z29 Persons with potential health hazards related to communicable diseases

Z30–Z39 Persons encountering health services in circumstances related to reproduction

Z40–Z54 Persons encountering health services for specific procedures and health care

Z55–Z65 Persons with potential health hazards related to socioeconomic and psychosocial circumstances

Z70–Z76 Persons encountering health services in other circumstances

- Z75 Problems related to medical facilities and other health care
  - Z75.1 Person awaiting admission to adequate facility elsewhere

Z80–Z99 Persons with potential health hazards related to family and personal history and certain conditions influencing health status

Chapter 22: Codes for special purposes (U00–U49)

U00–U49 Provisional assignment of new diseases of uncertain aetiology

Exclusion groups:

a. Certain conditions originating in the perinatal period (P00–P96)
b. Certain infectious and parasitic diseases (A00–B99)
c. Complications of pregnancy, childbirth and the puerperium (O00–O99)
d. Congenital malformations, deformations and chromosomal abnormalities (Q00–Q99)
e. Endocrine, nutritional and metabolic diseases (E00–E89)
f. Injury, poisoning and certain other consequences of external causes (S00–T98)
g. Neoplasms (C00–D48)
h. Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00–R99)

Source: NCCH 2008.

C.2 Disease and procedure groupings used in analysis

Table C.1: Disease groupings used in tables

ICD–10–AM Chapter name/disease description	Short name for condition group	ICD–10–AM codes
Certain infectious and parasitic diseases	Infections	A00–B99
Staphylococcus aureus	*Staphylococcus aureus*	A41.0, B95.6
Other infectious and parasitic diseases	Other infections	A00–B99, excluding A41.0 and B95.6
Neoplasms (that is, cancers and tumours)	Neoplasms	C00–D48
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	Blood-related	D50–D89
Endocrine, nutritional and metabolic diseases	Endocrine	E00–E90
Endocrine, nutritional and metabolic diseases (excluding diabetes mellitus)	Endocrine, not diabetes	E00–E07, E15–E90
Diabetes mellitus	Diabetes	E09–E14
Dementia and related disorders	Dementia	F01–F03, F05.1, G30–G31
Mental and behavioural disorders	Mental/behavioural	F01–F99
Mental and behavioural disorders excluding dementia and related disorders	Mental/behavioural, not dementia	F04–F99, excluding F01–F03, F05.1
Diseases of the nervous system	Nervous	G00–G99
Diseases of the nervous system, excluding dementia	Nervous system, not dementia	G00–G99, excluding G30–G31
Diseases of the eye and adnexa	Eye	H00–H59
Diseases of the ear and mastoid process	Ear	H60–H95
Diseases of the circulatory system	Circulatory	I00–I99
Ischaemic heart disease	IHD	I20–I25
Stroke	Stroke	I60–I64
Cerebrovascular diseases excluding stroke	CBV, not stroke	I65–I69
Diseases of the arteries, arterioles and capillaries	Arteries	I70–I79
Other diseases of the circulatory system	Other circulatory	I00–I15, I26–I52, I80–I99
Diseases of the respiratory system	Respiratory	J00–J99
Influenza and pneumonia	Influenza/pneumonia	J09–J18
Chronic obstructive pulmonary disease	COPD	J41–J44
Other diseases of the respiratory system	Other respiratory	J00–J06, J20–J40, J45–J99
Diseases of the digestive system	Digestive	K00–K93
Cirrhosis and other diseases of the liver	Liver	K70–K76
Other diseases of the digestive system	Digestive, not liver	K00–K67, K77–K93

(continued)

Table C.1 (continued): Disease groupings used in tables

ICD–10–AM Chapter name/disease description	Short name for condition group	ICD–10–AM codes
Diseases of the skin and subcutaneous tissue	Skin	L00–L99
Pressure ulcers	Pressure ulcers	L89
Other diseases of the skin and subcutaneous tissue	Other skin diseases	L00–L99, excluding L89
Diseases of the musculoskeletal system and connective tissue	Musculoskeletal	M00–M99
Diseases of the genitourinary system	Genitourinary	N00–N99
Renal failure	Kidney failure	N17–N19
Other diseases of the genitourinary system	Genitourinary, not kidney	N00–N16, N20–N99
Congenital malformations, deformations and chromosomal abnormalities	Congenital anomalies	Q00–Q99
Symptoms, signs and abnormal clinical and laboratory findings, n.e.c.	Symptoms, signs and ill-defined conditions	R00–R99
Injury, poisoning and certain other consequences of external causes	Injury and poisoning	S00–T98
Factors influencing health status and contact with health service	Health status factors	Z00–Z99
Awaiting admission elsewhere	Awaiting admission elsewhere	Z75.1
Other factors influencing health status	Health status factors, not awaiting admission elsewhere	Z00–Z99, excluding Z75.1
External causes of morbidity and mortality		
Caused by fall	Fall	W00–W19
Caused by transport accident	Transport accident	V00–V99
Caused by other accident	Other accident	W20–X59
Caused by surgical or medical complications	Complications	Y40–Y84
Caused by sequelae of external causes	Sequelae	Y85–Y98
Other causes (includes self-harm, assault, war, undetermined intent)	Other	X60–Y36

Table C.2: Procedure groupings used in tables

ICD–10–AM chapter number	ICD–10–AM chapter name	Short name	ICD–10–AM block numbers
1	Procedures on nervous system	On nervous system	0001–0086
2	Procedures on endocrine system	On endocrine system	0110–0129
3	Procedures on eye and adnexa	On eye and adnexa	0160–0256
4	Procedures on ear and mastoid process	On ear and mastoid process	0300–0333
5	Procedures on nose, mouth and pharynx	On nose, mouth and pharynx	0370–0422
6	Dental services	Dental services	0450–0490
7	Procedures on respiratory system	On respiratory system	0520–0570
8	Procedures on cardiovascular system	On cardiovascular system	0600–0777
9	Procedures on blood and blood-forming organs	On blood and blood-forming organs	0800–0817
10	Procedures on digestive system	On digestive system	0850–1011
11	Procedures on urinary system	On urinary system	1040–1129
12	Procedures on male genital organs	On male genital organs	1160–1203
13	Gynaecological procedures	Gynaecological	1240–1299
15	Procedures on musculoskeletal system	On musculoskeletal system	1360–1579
16	Dermatological and plastic procedures	Dermatological and plastic	1600–1718
17	Procedures on breast	On breast	1740–1759
18	Radiation oncology procedures	Radiation oncology	1786–1799
19, excluding block 1916	Non-invasive, cognitive and other interventions, not elsewhere classified	Non-invasive, cognitive and other interventions, n.e.c	1820–1922,not 1916
19, block 1916	Generalised Allied Health Interventions	Allied health	1916
20	Imaging services	Imaging services	1940–2016
. .	None given	None given	None given

Appendix D: Logistic regression models

As in the 2001–02 study, logistic regression models have been used to determine which personal characteristics and hospital care and diagnostic information were important in predicting entry into RAC following discharge from hospital. In particular, we were interested in modelling the probability of:

- RAC admission rather than return to the community following discharge from hospital (**Model A**), and
- permanent RAC admission rather than respite RAC admission following discharge from hospital, given that the person was admitted to RAC from hospital (**Model B**).

To identify factors associated with admission into RAC versus return to the community (Model A), the analysis included only hospital episodes that ended with the patient either returning to live in the community, being admitted into respite RAC, or in the person's first use of permanent RAC in 12 months. That is, episodes ending with the death of the patient, admission into TCP or other health care accommodation, return to permanent RAC or with readmission into permanent RAC (within 12 months of previous discharge) were excluded from the model fitting process. These last were excluded as many of these patients had been discharged from permanent RAC into hospital, and so were returning to that type of care (see note b, Table 1.2). Note that patients that were discharged from hospital while on leave from hospital or at their own risk were assumed to be returning to live in the community.

When modelling admission into permanent RAC versus respite RAC (Model B), the analysis included only hospital episodes ending with admission into respite RAC or in a person's first admission into permanent RAC within 12 months.

D.1 The logistic regression model

The logistic regression model is expressed as an equation that estimates the probability of the event of interest and is of the form:

$\text{logit}(p) = \boldsymbol{\beta}^{\mathrm{T}}\mathbf{x}$, where

- $\text{logit}(p) = \ln\left(\frac{p}{1-p}\right)$
- p = probability of observing the event of interest (entering RAC for Model A and entering permanent RAC for model B)
- $\boldsymbol{\beta}$ is the vector of m parameter coefficients (one coefficient for each level of each categorical variable, 1 for each continuous variable and 1 for the intercept, minus the number of categorical variables)
- $\mathbf{x}$ is the vector of covariates.

The regression analysis provides estimates of the effects of each of the variables included in the model while controlling for the effects of the other variables included in the model (Hosmer & Lemeshow 1989).

Covariates

Both models in the current analysis included the following explanatory variables at the beginning of the model fitting process:

a) age at 1 July 2008
b) sex
c) state/territory of hospital admission
d) remoteness of usual residence using ASGC
e) EP group, which is based on reported country of birth using the 2001 classification of countries into English proficiency groups (see Box D.1)
f) hospital sector
g) person election status (private versus public)
h) urgency of admission
i) Australian refined diagnosis-related group (AR-DRG) type (grouped into medical, surgical or other)
j) patient clinical complexity level (PCCL, as classified in AR-DRG Version 56.0)
k) care type in hospital before discharge
l) hospital admission mode
m) length of discharging hospital episode (LOE)
n) principal diagnosis (31 categories) (see Table D.1)
o) first procedure (11 categories, including none given) (see Table D.2)
p) presence of specific diseases as additional diagnoses (28 groups) (see Table D.1).
q) presence of any specific external causes of injury (not falls), (transport accident, other accident, assault, medical/surgical complications) (see Table D.1). Note: injury with a fall as first external cause is included explicitly as a principal diagnosis.

For hospital stays consisting of 2 or more episodes, all variables related to the exiting episode.

Box D.1: English Proficiency (EP) Groups

The English Proficiency (EP) Groups classification is used to indicate a migrant's level of English proficiency using an English proficiency index, the person's country of birth and the number of that country's immigrants living in Australia (DIMIA 2003). The EP index is defined as the percentage of recent immigrants (those entering in the 5 years before the Census) who speak English only or another language and good English. Good English is defined as those who reported at the Census that they spoke 'English Only' or spoke English 'Very Well' or 'Well'. The 2001 English Proficiency groups were defined such that:

EP0 = Australian born

EP1 = All countries rating 98.5% or higher with at least 10,000 residents in Australia

EP2 = Countries rating 84.5% or higher on the EP index, other than those in EP1

EP3 = Countries rating 57.5% to less than 84.5%

EP4 = Countries rating less than 57.5%.

Note that a number of variables were included in these regressions that were not available for the 2001–02 analysis: person election status (g above), urgency status (h), AR-DRG type (i), PCCL (j), first procedure (o), and presence of any specific causes of injury(p). Also, marital status was not included this time due to a very high level of missing information (marital status was not reported for 89% of records in scope for Model A).

It should be noted that there may be other factors associated with RAC admission for which we did not have information and so could not be included in the models. Further, it is not possible to infer causation from the results of the regression model; this can only be done on the basis of other knowledge.

D.2 Predicted probabilities

The predicted probability of the event occurring can be calculated for a person with a particular set of characteristics by using the parameter estimates obtained from the logistic regression model in the equation:

$$p\left[\text{Event}|\mathbf{x}=\mathbf{Z}\right]=\frac{\exp\left[\sum_{k=1}^{m}\boldsymbol{\beta}_k\mathbf{Z}_k\right]}{1+\exp\left[\sum_{k=1}^{m}\boldsymbol{\beta}_k\mathbf{Z}_k\right]}$$

where

- p = probability of observing the event of interest (that is, entering RAC for Model A and entering permanent RAC for model B)
- $\boldsymbol{\beta}$ is the vector of m parameter coefficients
- $\mathbf{Z}$ is the vector of covariate values for the person of interest.

The following example demonstrates how to calculate the predicted probability of a person entering RAC using the parameter estimates from Model A in Table D.12. Suppose we wish to calculate the predicted probability of admission into RAC from hospital for a person (Mary, say) with the following personal and hospital episode characteristics:

- 75 years old at 1 July 2008
- female
- born in Australia
- usual residence in a major city
- a public patient
- in a hospital in new south wales
- with an emergency admission
- receiving acute care
- for any diagnosis of stroke
- with a medical AR-DRG
- with PCCL =0 or 1 (none or minor)
- with the hospital episode lasting 14–27 days.

To calculate the predicted probability we use the relevant parameter estimates (as given in Table D.12 for this example) and enter them into the above equation. Note that the intercept estimate must also be included. Variables whose value is the reference group in the model fitting process have a parameter value equal to 0, and age at 1 July 2008 in years is

multiplied by the parameter estimate for age. If the parameter estimate for a variable is not significantly different to the reference group then the parameter is set to 0.

The equation above for our example then becomes

$$p(\text{Mary being admitted into RAC}) = \frac{\exp(-12.168+0.090*75+0+0+0+0+0+0+0+0.666+0+0+2.571)}{1+\exp(-12.168+0.090*75+0+0+0+0+0+0+0+0.666+0+0+2.571)}$$

$$= \frac{\exp(-2.18)}{1+\exp(-2.18)} = \frac{0.11}{1.11} = 0.10$$

Therefore, a person like Mary with the above personal and hospital episode characteristics has a 10% predicted probability of being admitted to RAC on discharge from hospital. Consequently, she has a 90% predicted probability of returning to the community. Predicted probabilities for any other set of covariate values can be calculated in a similar manner.

D.3 Odds ratios

Odds ratios (ORs) are calculated for each variable in the logistic regression model (see Table D.12 for examples). The OR is a relative measure that compares the odds of people in a particular group (for example, men) experiencing an event, for example admission into RAC, with the odds of people in another group (for example, women) experiencing the same event. The odds of an event occurring are defined as:

$$\text{Odds} = \frac{\text{Probability of an event occurring}}{\text{Probability of an event not occurring}} = \frac{p}{1-p}$$

The OR with group 1 as the reference group is then defined as:

$$\text{OR} = \frac{\text{Odds for people in group 2}}{\text{Odds for people in group 1}}$$

Returning to our example with Mary above, Mary's odds of entry into RAC are 0.11 (0.10/0.90). Also, a woman (say Glenda) with similar demographic and hospital care characteristics as Mary but also with dementia has odds of RAC entry of 1.44 (0.59/0.41). The OR for Glenda compared with Mary is 13.1 (1.44/0.11).

OR= 1 means that the odds of the event occurring are equal in both groups. If OR > 1 then the odds of the event occurring are higher for people in group 2 than in group 1. Conversely, if OR < 1 then the odds of the event occurring are less for people in group 2 than in group 1. More specifically, OR = 1.3 means that the odds for people in group 2 are 30% higher than the odds for people in group 1; and OR = 0.6 means that the odds for people in group 2 are 40% lower than the odds for people in group 1.

If the probability of the event happening is small (less than 10%), the OR is approximately equal to the relative risk (RR). That is, an OR of 1.25 can be interpreted as meaning that the probability of the event occurring for people in group 2 is 25% more than the probability of the event occurring for people in group 1.

In logistic regression, we obtain the OR for a variable relative to the reference category, controlling for the presence of all other variables. If, for example, men discharged from hospital have an OR of entering RAC of 0.91, this means that the odds of RAC admission for men are 9% lower than the odds for women. Since the probability of people admitted to RAC from hospital is small (2.4%), we can also say that the probability of men being admitted to RAC from hospital is around 9% lower than the probability of women being admitted to RAC.

For integer variables (for example, age) the interpretation of ORs is slightly different, with the OR comparing the odds of the event occurring for a unit increment in the variable. For example, an OR for age of 1.10 indicates that with each extra year of age, the odds of entering RAC increases by 10%.

Predicted probabilities and ORs are commonly presented results from logistic regression.

D.4 Model fitting

Models were fitted using adjusted data; that is, incorporating the weights used to derive hospital movement estimates adjusted for linkage error. As a large number of variables were available as covariates for both models A and B (around 40 not counting the principal diagnosis and procedure dummy variables separately), an overall Type I error rate of 0.1% was used to ensure significance of effects, as suggested by the Bonferroni adjustment for multiple comparisons (Anderson et al. 1994).

Principal diagnoses and procedures were included in the models via dummy variables to improve model interpretability. Exploratory models using a reduced number of variables (age, sex, hospital state/territory, patient election status, LOE and care type) and a single principal diagnosis or procedure dummy variable were run, and only those diagnoses and procedures that were statistically significant at the 5% level were included when fitting the models using all explanatory variables (see Table D.1 and Table D.2). Those diagnoses not included explicitly in the model together became, by default, the model reference category.

Again using regressions with a reduced set of variables, age and LOE effects were examined to determine whether they should be included as continuous or categorised variables. As a result, age was left as a continuous variable while LOE was grouped into six categories.

Multi-collinearity among covariates was investigated using variance inflation factors (VIFs) derived when fitting simple linear regression. Variables with a VIF greater than 2.5 indicate correlation with other explanatory variables may affect model parameter estimates (Allison 1999). Association between variables were then examined using Cramer's V coefficient to determine which variables should be excluded from the model fitting process.

Preliminary investigations into collinearity showed that a variable giving the number of diagnoses reported in the episode had a high VIF (more than 5.5) when using all 49 variables in the full data set (that is, for Model A) and so was excluded from the modelling. The next highest VIFs were around 2.5—for hospital sector, patient election status and PCCL. As hospital sector and patient election status are highly correlated, only patient election status was included in the model-fitting process. Patient election status can also be seen as a crude indicator of financial resources.

Examination of association using Cramer's V coefficient indicated that PCCL was related to a number of other variables, in particular, to some diagnoses and procedures. This is not surprising given that it is a summary measure. Models were therefore fitted with diagnoses and procedures but without PCCL, and vice versa to aid interpretation. In addition, care

type was found to be correlated with hospital admission mode (that is, from the community or a transfer/change within the hospital system), and so admission mode was excluded from the analysis as being the less informative (from a policy perspective) of the two data items.

Finally, it is known that length of stay can be affected by the need to move to RAC; for example, because of the requirement to have a current ACAT approval to use RAC and because of the time involved in identifying a suitable place in RAC. Consequently, although a long length of stay may be predictive of a move to RAC it is not an underlying reason for entry to care. Therefore, further models were fitted, but excluding LOE in the covariates.

After fitting the models, the selected covariates were retested for collinearity and again any with moderate or high association were excluded (that is, we kept 1 covariate out of a pair of associated covariates). This process was repeated a number of times until selected covariates showed low levels of association. Final models were fitted using forwards stepwise selection.

The explanatory power of the models was gauged using a maximum-rescaled R-squared value (abbreviated to R^2 below). This statistic, based on Cox and Snell's pseudo R-squared derived from log likelihood statistics, provides a measure of improvement when going from the null model to the fitted model. The Cox and Snell statistic has a maximum value less than 1. The maximum-rescaled R-squared output by SAS is Cox and Snell's pseudo R-squared re-scaled using a method proposed by Nagelkerke so that the range of possible values extends to 1 (Institute for Digital Research and Education UCLA 2011).

Cases with no diagnoses, a diagnosis relating to pregnancy or perinatal conditions, with unknown care type or unknown patient election status were excluded. Other variables had larger numbers with unknown value, and so these were included as specific categories.

Table D.1: Diagnosis and external cause groupings used in the modelling

ICD–10–AM codes	Disease/disorder group in models
A00–B99	Infection
C00–D48	Neoplasm
D50–D89	Blood and blood forming organs
E09–E14	Diabetes(B)
E00–E90, excluding diabetes	Endocrine, not diabetes
F00–F03, G30–G31	Dementia
F00–F99, excluding dementia	Mental/behavioural, not dementia(A)
G00–G98, excluding dementia	Nervous, not dementia (B)
H00–H59	Eye and adnexa
H60–H95	Ear and mastoid process(B)
I20–I25	IHD
I60–I64	Stroke
I65–I69	Other cerebrovascular(A) (B)
I70–I79	Arteries(B)
I00–I99, excluding the above	Circulatory system, not IHD/stroke/CBVD/arteries

(continued)

Table D.1 (continued): Diagnosis and external cause groupings used in the modelling

ICD–10–AM codes	Disease/disorder group in models
J09–J18	Influenza
J41–J44	COPD
J00–J99, excluding the above	Respiratory system, not influenza/COPD [(B)]
K70–K76	Liver disease[(A) (B)]
K00–K93, excluding the above	Digestive, not liver disease
L00–L99	Skin
M00–M99	Musculoskeletal
N17–N19	Kidney disease[(A)]
N00–N99, excluding the above	Genitourinary, not kidney[(A) (B)]
Q00–Q99	Congenital[(A) (B)]
R00–R99	Symptoms, signs and ill-defined conditions[(B)]
S00–T75, T79	Injury, not complications/sequelae (used in 'additional' diagnosis variable)
T78, T80–T98	Injury, complications/sequelae (used in principal and 'additional' diagnosis variable)
S00–T75, T79, first external cause W00–W19	Injury due to a fall (used in 'principal' diagnosis variable)
S00–T75, T79 and first external cause not W00–W19	Injury, not fall/complications/sequelae (used in 'principal' diagnosis variable)
Any external cause V00–V99	Transport accident (any external cause)
Any external cause W20–X59	Any accident (any external cause), not fall or transport
Any external cause X85–Y09	Assault (any external cause)
Any external cause Y40–Y84	Complications (any external cause)
Z00–Z99, not Z75.1	Factors influencing health status, not awaiting admission elsewhere[(a) (b)]
Z75.1	Awaiting admission elsewhere[(b)]

(A) Dummy variables for principal diagnosis excluded from Model A: not significant at 5% level fitting models using a reduced number of variables (age, sex, hospital state/territory, patient election status, LOE). These categories accounted for 8.0% of in-scope records.

(B) Dummy variables for principal diagnosis excluded from Model B: not significant at 5% level fitting models using a reduced number of variables (age, sex, hospital state/territory, patient election status, LOE). These categories accounted for 33.1% of in-scope records.

(a) For Model A, the diagnosis group 'Z00-Z99, not Z75.1' was later excluded due to collinearity (see discussion).

(b) For Model B, the diagnosis groups 'Z00-Z99, not Z75.1' and 'Z75.1' were later excluded due to collinearity (see discussion).

Note: The diagnoses not included explicitly in the model together become, by default, the model reference category. See Appendix C for a description of the ICD–10–AM codes.

Table D.2: Procedure groupings used in the modelling

ICD–10–AM codes	Type of procedure
0520–0570	Respiratory(B)
0600–0777	Cardiovascular
0850–1011	Digestive
1040–1129	Urinary(B)
1360–1579	Musculoskeletal
1600–1718	Skin
1820–1922, not 1916	Non-invasive, not Allied health(A)
1916	Allied health
1940–2016	Imaging(B)
Other reported procedure	Other
No procedures reported	None

(A) Dummy variables for principal diagnosis excluded from Model A: not significant at 5% level fitting models using a reduced number of variables (age, sex, hospital state/territory, patient election status, LOE). This category accounted for 6.4% of in-scope records.

(B) Dummy variables for principal diagnosis excluded from Model B: not significant at 5% level fitting models using a reduced number of variables (age, sex, hospital state/territory, patient election status, LOE). These categories accounted for 17.6% of in-scope records.

Note: The procedures not included explicitly in the model together become, by default, the model reference category. See Appendix C for a description of the ICD–10–AM codes.

D.5 Results

The results of the modelling processes are presented in this section. Tables are presented showing: covariates selected in the models; parameter estimates and odds ratios. Interpretation of these results is discussed in Section 6. All models were fitted using the hospital event linkage adjustment weights.

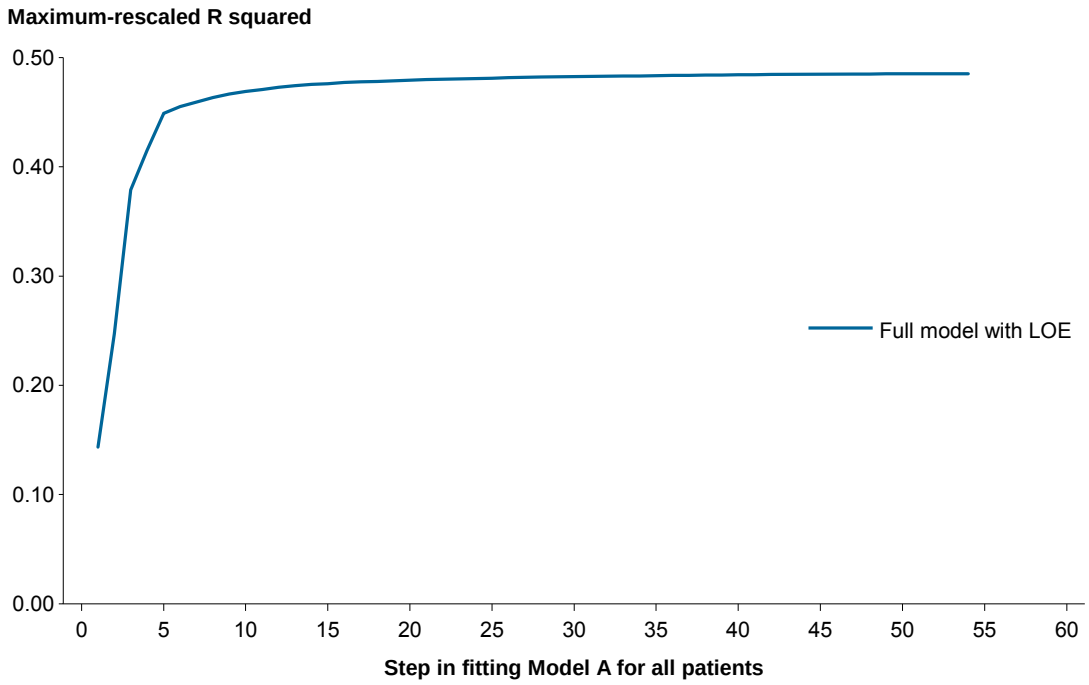
D.5.1 Model A

After excluding 1,424 records with missing or inappropriate care type, diagnosis or person election status, 940,560 records were included in the logistic regression. Of these, 907,412 were discharges to homes in the community and 33,148 were discharges ending in admission into RAC (3.5%). As a result of preliminary investigations, dummy variables for 6 principal diagnosis categories and 1 first procedure category were not explicitly included in the model-fitting process (see Table D.1and Table D.2).

All people discharged either to the community or to RAC

The model fitting process using the selected principal diagnoses and procedures resulted in 54 variables being selected for inclusion in the model (counting the diagnosis and procedure dummy variables separately). Several additional first procedure dummy variables were excluded due to collinearity (correlated with AR-DRG type), as was the principal diagnosis dummy variable for 'Factors influencing health status, not awaiting admission elsewhere' (correlated with care type). The final variables included in this model, and their order of inclusion, are shown in Table D.3. This model had an R^2 of 0.49. Note, however, that by step 14 the R^2 statistic had reached 0.48 (Figure D.1). That is, the last 40 variables added little to the model.

The model associated with Table D.3 is not very informative in terms of explaining what sort of people go to RAC. This is because two variables concerning whether or not a patient was waiting for admission elsewhere were the most significant predictors, followed by LOE. In fact, the R^2 for a model using just these three variables is 0.38. In order to gain greater insight into factors affecting movement into RAC, the population was therefore split into two groups based on whether or not the patient had any diagnosis of awaiting for admission elsewhere (ICD–10–AM code Z75.1). A model was then fitted for both groups separately. The results for Model A before splitting the population also suggested that the two dementia variables could be combined; consequently the models for the two groups used a variable which indicated whether a patient had any diagnosis of dementia (principal or additional).



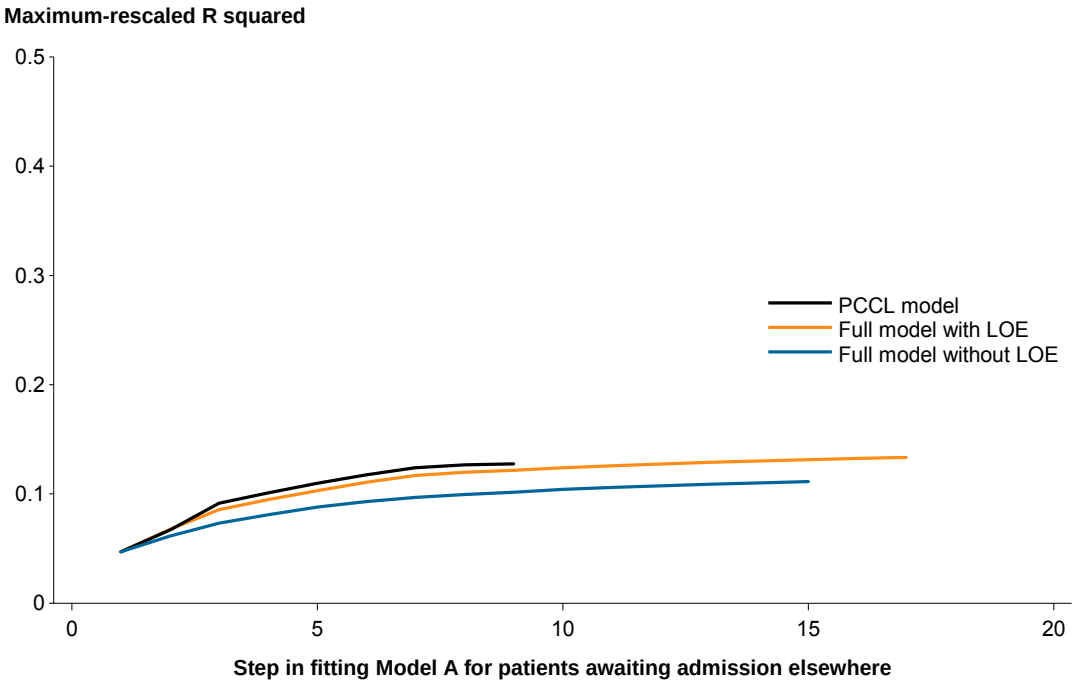
Source: Table D.3.

Figure D.1: Model A for all patients: Maximum-rescaled R-squared by step in fitting process

People reported as 'awaiting admission elsewhere'

A total of 15,111 patients in the population used to fit Model A were reported on the hospital data as awaiting admission elsewhere before discharge from hospital. On fitting a logistic regression model to this group, 17 variables were included, again using overall Type I error rate of 0.1% (see Table D.4). The resulting model had an R^2 of 0.13. Including PCCL rather than diagnosis and procedure variables led to a marginally weaker model (R^2=0.12). Notably, PCCL was not selected for inclusion in the model (Table D.6).

As expected, the full model fitted excluding LOE in the covariates was not as strong as when LOE was included (R^2 of 0.11) (Figure D.2).The variables included in this model, and their order of inclusion, are shown in Table D.5.



Source: Table D.4, Table D.5, Table D.6.

Figure D.2: Model A for patients awaiting admission elsewhere: Maximum-rescaled R-squared by step in fitting process and model type

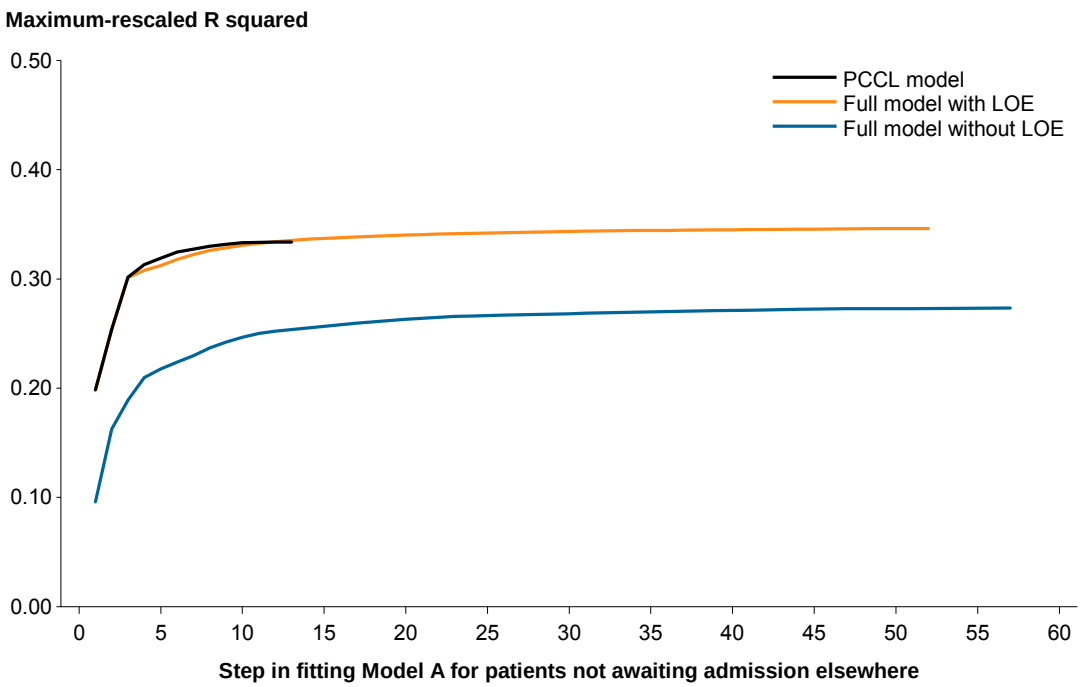
People not reported as 'awaiting admission elsewhere'

After excluding patients classified as awaiting admission elsewhere and records with missing data, 925,444 records remained for inclusion in the model fitting process. In the course of fitting the model, the AR-DRG type variable and principal diagnosis dummy variable for 'Factors influencing health status, not awaiting admission elsewhere' were excluded due to covariate associations. The variables included in this model, and their order of inclusion, are shown in Table D.8. The frequency distributions of all the covariates considered in the model fitting, including PCCL and AR-DRG type (used in the PCCL model), and the proportion within each category that ended with discharge to RAC, are given in Table D.7.

The full fitted model or this group of patients included 52 variables (Table D.8), and had an R^2 of 0.35. Note, however, that by step 19 the R^2 statistic had reached 0.34; that is, the last 33 variables added little to the explanatory power of the model (Figure D.3). Parameters and ORs for the full model (with LOE) are presented in Table D.10.

Excluding LOE from the model resulted in a model with more variables (57) but a much reduced R^2 (0.27). (Table D.9). Again, the first 20 covariates accounted for most of the explanatory power of the model.

A PCCL model was also fitted using 13 variables: PCCL and AR-DRG type were included rather than diagnosis and procedure variables, although diagnoses of dementia and stroke were retained as the importance of these conditions in relation to moving into RAC has been seen in an earlier study on movement into RAC (Karmel et al. 2012). The inclusion of the two diagnosis variables did not result in collinearity among covariates. The results for this model are presented in Table D.11 and Table D.12. All 13 variables were selected, and the model had an R^2 of 0.33 (Figure D.3).



Source: Table D.8, Table D.9, Table D.11.

Figure D.3: Model A for patients not awaiting admission elsewhere: Maximum-rescaled R-squared by step in fitting process and model type

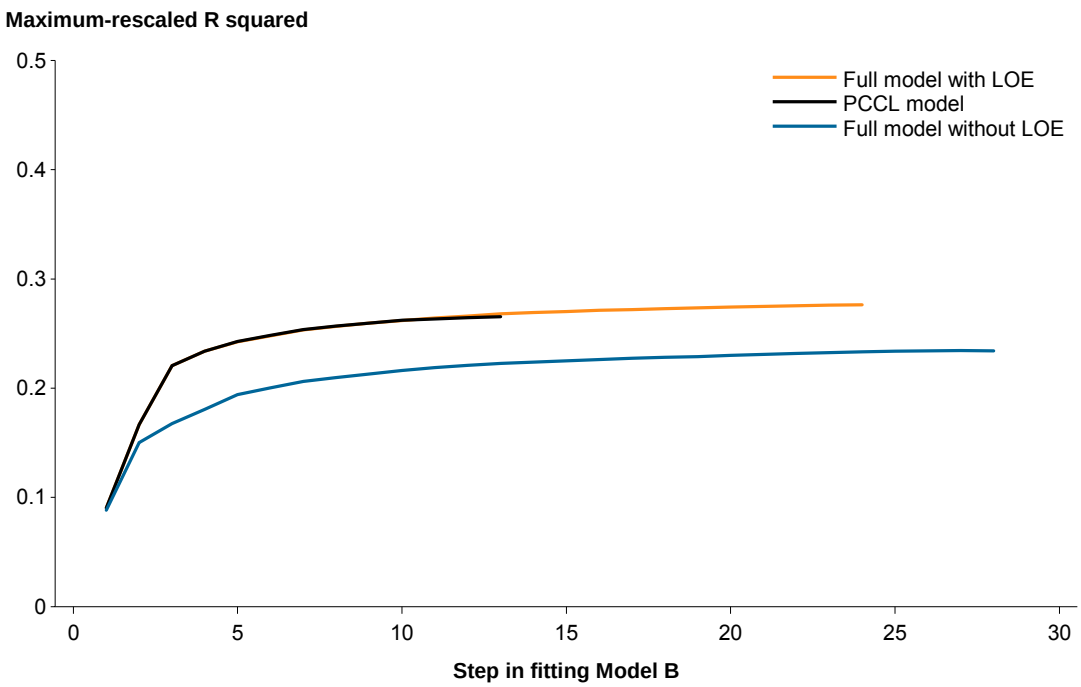
D.5.2 Model B

The logistic regression for Model B was fitted using the 33,138 'admitted to RAC' records of Model A (37% were respite admissions and 63% were permanent admissions into RAC). Preliminary investigations resulted in the exclusion of dummy variables for 10 principal diagnosis categories and 3 first procedure categories from the model-fitting process (see Table D.1 and Table D.2). Weighted frequency distributions for variables included in the model selection process are presented in Table D.13.

Using the same fitting process as that used for Model A, the two principal diagnosis variables relating to 'Factors influencing health status and contact with health services' were excluded due to association with other covariates. Twenty-four variables met the selection criteria for inclusion in the model, with the final model having an R^2 of 0.28. The R^2 measure at each step suggests that there was only minor improvement in the model after about step 5 and very little improvement after step 15 (Figure D.4). Order of variable selection is presented in Table D.14, and Table D.16 gives the estimated ORs and predicted probabilities for this model.

Again, because LOE can be seen as an intermediate outcome variable, the full model was fitted excluding length of stay. The results for this model are summarised in Table D.15. This model had an R^2 of 0.23, selecting 26 variables (Figure D.4).

A PCCL model was fitted using the same 13 variables used for Model A. The results for this model are presented in Table D.17 and Table D.18. All 13 variables were again selected, and the model had an R^2 of 0.27 (Figure D.4).



Source: Table D.14, Table D.15, Table D.17.

Figure D.4: Model B: Maximum-rescaled R-squared by step in fitting process and model type

D.5.3 Detailed results tables

Model A: discharge to RAC rather than to the community

Table D.3: Model A for all patients: Summary of stepwise selection (weighted logistic regression), 2008–09

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
1	Principal diagnosis of awaiting admission elsewhere	<.0001	0.143
2	Additional diagnosis of awaiting admission elsewhere	<.0001	0.247
3	LOE	<.0001	0.379
4	Any diagnosis of dementia	<.0001	0.415
5	Age at 1 July 2008	<.0001	0.449
6	State/territory of hospital	<.0001	0.455
7	Care type in hospital	<.0001	0.459
8	Urgency of admission of discharging episode	<.0001	0.463
9	Additional diagnosis of symptoms, signs and ill-defined conditions	<.0001	0.467
10	First procedure of allied health	<.0001	0.469
11	Additional diagnosis of nervous system, not dementia	<.0001	0.471
12	First procedure of cardiovascular	<.0001	0.473
13	First procedure of digestive	<.0001	0.474
14	EP group	<.0001	0.476
15	Additional diagnosis of mental/behavioural, not dementia	<.0001	0.476
16	Presence of any complications	<.0001	0.477
17	First procedure of other	<.0001	0.478
18	Principal diagnosis of stroke	<.0001	0.478
19	Principal diagnosis of injury due to a fall	<.0001	0.479
20	First procedure of musculoskeletal	<.0001	0.479
21	Additional diagnosis of skin	<.0001	0.480
22	Additional diagnosis of genitourinary, not kidney	<.0001	0.480
23	No procedure reported	<.0001	0.481
24	Additional diagnosis of stroke	<.0001	0.481
25	Additional diagnosis of injury, not complications/sequelae	<.0001	0.481
26	Remoteness of usual residence	<.0001	0.482
27	Principal diagnosis of nervous system, not dementia	<.0001	0.482
28	Principal diagnosis of digestive system, not liver disease	<.0001	0.482
29	Additional diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	<.0001	0.482
30	First procedure of skin	<.0001	0.483
31	Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	<.0001	0.483
32	First procedure of respiratory	<.0001	0.483
33	Additional diagnosis of neoplasm	<.0001	0.483
34	Principal diagnosis of IHD	<.0001	0.483

(continued)

Table D.3 (continued): Model A for all patients: Summary of stepwise selection (weighted logistic regression), 2008–09

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
35	First procedure of urinary	<.0001	0.484
36	Principal diagnosis of musculoskeletal	<.0001	0.484
37	Principal diagnosis of skin	<.0001	0.484
38	Principal diagnosis of COPD	<.0001	0.484
39	Principal diagnosis of influenza	<.0001	0.484
40	Principal diagnosis of certain infection	<.0001	0.484
41	Principal diagnosis of injury, complications/sequelae	<.0001	0.484
42	Hospital sector	<.0001	0.485
43	Principal diagnosis of respiratory system, not influenza/COPD	<.0001	0.485
44	Additional diagnosis of endocrine, not diabetes	<.0001	0.485
45	Additional diagnosis of IHD	<.0001	0.485
46	Principal diagnosis of ear and mastoid processes	<.0001	0.485
47	Principal diagnosis of arteries	<.0001	0.485
48	Sex	0.0001	0.485
49	Principal diagnosis of injury/poisoning, not fall/complications/sequelae	0.0003	0.485
50	Principal diagnosis of diabetes	0.0006	0.485
51	Principal diagnosis of blood and blood forming organs	0.001	0.485
52	First procedure of imaging	0.0002	0.485
53	Additional diagnosis of injury, complications/sequelae	0.0009	0.485
54	Additional diagnosis of infection	0.0003	0.485

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months.

2. A total of 72 covariates (including diagnosis and procedure dummy variables) were available for inclusion in the model.

Table D.4: Model A for patients 'awaiting admission elsewhere': summary of stepwise selection, including LOE (weighted logistic regression)

Step	Variable entered	Pr > ChiSq	Maximum-rescaled R-squared
1	State/territory of hospital	<.0001	0.0471
2	LOE	<.0001	0.0677
3	Care type in hospital	<.0001	0.0856
4	Any diagnosis of dementia	<.0001	0.0949
5	Age at 1 July 2008	<.0001	0.1030
6	Remoteness of usual residence	<.0001	0.1108
7	First procedure of musculoskeletal	<.0001	0.1168
8	First procedure of cardiovascular	<.0001	0.1197
9	First procedure of digestive	<.0001	0.1215
10	EP group	<.0001	0.1240
11	Additional diagnosis of skin	<.0001	0.1257
12	Principal diagnosis of musculoskeletal	<.0001	0.1273
13	Additional diagnosis of nervous system, not dementia	<.0001	0.1289
14	Additional diagnosis of IHD	0.0001	0.1302
15	Additional diagnosis of injury, complications/sequelae	0.0003	0.1313
16	First procedure of imaging	0.0003	0.1324
17	First procedure of other	0.0004	0.1334

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Table D.5: Model A for patients 'awaiting admission elsewhere': summary of stepwise selection, excluding LOE (weighted logistic regression) (weighted logistic regression)

Step	Variable entered	Pr > ChiSq	Maximum-rescaled R-squared
1	State/territory of hospital	<.0001	0.0471
2	Care type in hospital	<.0001	0.0614
3	Any diagnosis of dementia	<.0001	0.0732
4	Age at 1 July 2008	<.0001	0.0810
5	Remoteness of usual residence	<.0001	0.0880
6	First procedure of musculoskeletal	<.0001	0.0931
7	Additional diagnosis of skin	<.0001	0.0968
8	First procedure of cardiovascular	<.0001	0.0994
9	Additional diagnosis of symptoms, signs and ill-defined conditions	<.0001	0.1017
10	EP group	<.0001	0.1043
11	Additional diagnosis of nervous system, not dementia	<.0001	0.106
12	Principal diagnosis of musculoskeletal	<.0001	0.1074
13	Principal diagnosis of digestive system, not liver disease	<.0001	0.1089
14	Additional diagnosis of factors influencing health status, not awaiting admission elsewhere	<.0001	0.1102
15	Sex	0.0008	0.1113

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Table D.6: Model A for patients 'awaiting admission elsewhere': summary of stepwise selection, PCCL model (weighted logistic regression)

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
1	State/territory of hospital	<.0001	0.047
2	AR-DRG type (medical/surgical/other)	<.0001	0.067
3	LOE	<.0001	0.092
4	Remoteness of usual residence	<.0001	0.101
5	Care type in hospital	<.0001	0.110
6	Any diagnosis of dementia	<.0001	0.118
7	Age at 1 July 2008	<.0001	0.124
8	EP group	<.0001	0.127
9	Sex	0.0007	0.128

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Table D.7: Model A for patients not awaiting admission elsewhere: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to RAC	Total (adjusted)
Sex	Female	49.5	3.0	457,200
	Sex	50.5	2.0	466,800
State/territory of hospital	NSW	32.3	3.3	298,100
	Vic	26.1	2.3	241,600
	Qld	19.8	1.7	182,500
	WA	8.9	1.6	81,800
	SA	9.4	2.4	86,800
	Tas	2.0	2.6	18,500
	ACT	1.3	1.7	11,700
	NT	0.3	1.4	3,000
Hospital sector	Public	49.9	2.6	461,300
	Private	50.1	2.4	462,800
EP group	0	63.5	2.7	587,200
	1	12.0	2.2	110,700
	2	6.2	2.2	56,900
	3 or 4	12.5	1.9	115,100
	Unknown	5.8	2.1	54,100
Remoteness of usual residence	Major cities	64.2	2.6	593,200
	Inner regional	23.2	2.4	214,200
	Outer regional	10.5	2.1	97,400
	Remote	1.3	1.4	12,000
	Very remote	0.5	1.2	4,200
	Migratory/missing/ other	0.3	3.3	3,200
Care type in hospital	Acute care	92.1	1.9	851,400
	Rehabilitation	5.9	6.4	54,300
	Palliative care	0.5	11.7	5,000
	Other	1.4	15.6	13,300
LOE	1 to 2 days	38.4	0.4	355,200
	3 to 6 days	29.7	1.0	274,100
	7 to 13 days	19.9	2.9	183,700
	14 to 27 days	8.9	8.7	82,400
	4 to < 8 weeks	2.6	20.1	23,800
	8+ weeks	0.5	28.1	4,800
Urgency of admission of discharging episode	Emergency	49.2	2.7	455,000
	Elective	45.1	1.5	416,800
	Not assigned	5.7	7.5	52,300
Any diagnosis of dementia	Yes	2.9	22.3	27,000

(continued)

Table D.7 (continued): Model A for patients not awaiting admission elsewhere: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to RAC	Total (adjusted)
Principal diagnosis of certain infection	Yes	1.9	2.3	17,500
Principal diagnosis of neoplasm	Yes	10.4	1.7	95,800
Principal diagnosis of blood and blood forming organs	Yes	1.5	1.4	14,200
Principal diagnosis of diabetes	Yes	1.7	2.4	15,700
Principal diagnosis of endocrine, not diabetes	Yes	1.1	3.0	9,800
Principal diagnosis of nervous system, not dementia	Yes	2.8	2.3	25,500
Principal diagnosis of ear and mastoid processes	Yes	0.5	0.5	4,500
Principal diagnosis of eye and adnexa	Yes	1.3	0.5	12,100
Principal diagnosis of IHD	Yes	5.9	0.8	54,600
Principal diagnosis of arteries	Yes	1.3	0.9	12,400
Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	Yes	8.8	1.7	81,100
Principal diagnosis of stroke	Yes	0.9	9.6	8,200
Principal diagnosis of COPD	Yes	3.4	2.0	31,600
Principal diagnosis of influenza	Yes	2.4	3.0	22,200
Principal diagnosis of respiratory system, not influenza/COPD	Yes	2.9	2.3	26,800
Principal diagnosis of digestive system, not liver disease	Yes	9.4	0.8	87,300
Principal diagnosis of skin	Yes	1.8	2.6	16,400
Principal diagnosis of musculoskeletal	Yes	8.2	1.2	75,400
Principal diagnosis of symptoms, signs and ill-defined conditions	Yes	9.3	2.0	86,200
Principal diagnosis of injury due to a fall	Yes	3.5	6.5	32,200
Principal diagnosis of injury/poisoning, not fall/complications/sequelae	Yes	1.5	2.1	14,000
Principal diagnosis of injury, complications/sequelae	Yes	2.3	0.9	21,000
Additional diagnosis of infection	Yes	9.4	6.3	86,600
Additional diagnosis of neoplasm	Yes	8.3	2.7	76,600
Additional diagnosis of blood and blood forming organs	Yes	6.9	3.6	64,000
Additional diagnosis of diabetes	Yes	10.1	3.0	93,700
Additional diagnosis of endocrine, not diabetes	Yes	13.6	4.4	125,900
Additional diagnosis of mental/behavioural, not dementia	Yes	4.3	7.9	39,600
Additional diagnosis of nervous system, not dementia	Yes	5.2	6.9	48,400
Additional diagnosis of ear and mastoid process	Yes	0.7	8.0	6,200
Additional diagnosis of eye and adnexa	Yes	2.3	6.0	20,800
Additional diagnosis of IHD	Yes	7.4	2.0	68,700
Additional diagnosis of arteries	Yes	1.9	3.2	17,300
Additional diagnosis of other CBVD	Yes	1.1	7.4	10,500
Additional diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	Yes	28.4	3.3	262,000
Additional diagnosis of stroke	Yes	0.7	13.5	6,500

(continued)

Table D.7 (continued): Model A for patients not awaiting admission elsewhere: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to RAC	Total (adjusted)
Additional diagnosis of COPD	Yes	2.6	3.9	24,300
Additional diagnosis of influenza	Yes	1.8	5.8	16,300
Additional diagnosis of respiratory system, not influenza/COPD	Yes	5.4	4.1	50,000
Additional diagnosis of liver disease	Yes	0.6	2.6	5,700
Additional diagnosis of digestive system, not liver disease	Yes	10.9	3.8	100,600
Additional diagnosis of skin	Yes	5.0	7.7	45,800
Additional diagnosis of kidney disease	Yes	6.9	3.9	64,000
Additional diagnosis of genitourinary, not kidney	Yes	8.0	5.9	74,100
Additional diagnosis of congenital	Yes	0.2	2.6	2,100
Additional diagnosis of symptoms, signs and ill-defined conditions	Yes	20.9	5.8	193,600
Additional diagnosis of injury, not complications/sequelae	Yes	5.6	7.8	51,500
Additional diagnosis of injury, complications/sequelae	Yes	3.9	2.6	36,400
Additional diagnosis of factors influencing health status, not awaiting admission elsewhere	Yes	44.2	2.6	408,700
First procedure of respiratory	Yes	1.8	1.8	16,900
First procedure of cardiovascular	Yes	8.7	0.4	80,100
First procedure of digestive	Yes	10.1	0.8	92,900
First procedure of urinary	Yes	3.5	1.1	32,700
First procedure of musculoskeletal	Yes	7.5	1.3	69,300
First procedure of skin	Yes	2.5	1.4	23,500
First procedure of allied health	Yes	20.6	5.8	190,300
First procedure of imaging	Yes	11.3	3.9	104,600
No procedure reported	Yes	18.9	1.6	174,300
First procedure of other	Yes	8.7	0.6	80,600
Assault (any external cause)	Yes	0.0	4.2	300
Accident (any external cause), not fall/transport	Yes	2.1	4.4	19,400
Transport accident (any external cause)	Yes	0.4	2.6	4,100
Complications (any external cause)	Yes	10.9	2.4	100,900
AR-DRG type	Surgical	30.7	0.6	283,300
	Medical	63.6	3.5	587,500
	Other	5.8	0.6	53,300
PCCL	No/minor	54.9	0.9	507,300
	Moderate	14.9	2.6	137,300
	Severe	18.6	3.9	172,100
	Catastrophic	11.6	7.3	107,300
Total		**100.0**	**2.5**	**924,100**

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Table D.8: Model A for patients not awaiting admission elsewhere: Summary of stepwise selection, including LOE (weighted logistic regression) 2008–09

Step	Entered	Removed	Pr > Chisq	Maximum-rescaled R-squared
1	LOE		<.0001	0.198
2	Any diagnosis of dementia		<.0001	0.254
3	Age at 1 July 2008		<.0001	0.302
4	Urgency of admission of discharging episode		<.0001	0.308
5	Care type in hospital		<.0001	0.312
6	State/territory of hospital		<.0001	0.318
7	Additional diagnosis of symptoms, signs and ill-defined conditions		<.0001	0.322
8	First procedure of allied health		<.0001	0.326
9	Additional diagnosis of nervous system, not dementia		<.0001	0.328
10	First procedure of cardiovascular		<.0001	0.331
11	First procedure of digestive		<.0001	0.333
12	EP group		<.0001	0.334
13	Additional diagnosis of mental/behavioural, not dementia		<.0001	0.335
14	Complications (any external cause)		<.0001	0.337
15	Principal diagnosis of stroke		<.0001	0.337
16	Principal diagnosis of injury due to a fall		<.0001	0.338
17	First procedure of other		<.0001	0.339
18	Additional diagnosis of genitourinary, not kidney		<.0001	0.339
19	Additional diagnosis of skin		<.0001	0.340
20	First procedure of musculoskeletal		<.0001	0.340
21	Additional diagnosis of stroke		<.0001	0.341
22	Principal diagnosis of injury, not complications of surgical and medical care		<.0001	0.341
23	No procedure reported		<.0001	0.342
24	Principal diagnosis of nervous system, not dementia		<.0001	0.342
25	Principal diagnosis of symptoms, signs and ill-defined conditions		<.0001	0.342
26	Principal diagnosis of neoplasm		<.0001	0.342
27	First procedure of skin		<.0001	0.343
28	Additional diagnosis of circulatory system, not IHD/stroke/CBVD/arteries		<.0001	0.343
29	First procedure of respiratory		<.0001	0.343
30	First procedure of urinary		<.0001	0.343
31	Remoteness of usual residence		<.0001	0.344

(continued)

Table D.8 (continued): Model A for patients not awaiting admission elsewhere: Summary of stepwise selection, including LOE (weighted logistic regression) 2008–09

Step	Entered	Removed	Pr > Chisq	Maximum-rescaled R-squared
32	Principal diagnosis of digestive system, not liver disease		<.0001	0.344
33	Sex		<.0001	0.344
34	Additional diagnosis of IHD		<.0001	0.344
35	Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries		<.0001	0.344
36	Additional diagnosis of endocrine, not diabetes		<.0001	0.345
37	Principal diagnosis of skin		<.0001	0.345
38	Principal diagnosis of musculoskeletal		<.0001	0.345
39	Principal diagnosis of IHD		<.0001	0.345
40	Principal diagnosis of COPD		<.0001	0.345
41	Principal diagnosis of certain infection		<.0001	0.345
42		Principal diagnosis of symptoms, signs and ill-defined conditions	0.0034	0.345
43	Principal diagnosis of influenza		<.0001	0.345
44	Principal diagnosis of injury, complications/sequelae		<.0001	0.346
45		Principal diagnosis of neoplasm	0.0013	0.346
46	Principal diagnosis of respiratory system, not influenza/COPD		<.0001	0.346
47	Principal diagnosis of ear and mastoid processes		<.0001	0.346
48	Additional diagnosis of neoplasm		<.0001	0.346
49	Hospital sector		<.0001	0.346
50	Principal diagnosis of arteries		0.0001	0.346
51	Principal diagnosis of diabetes		0.0002	0.346
52	Principal diagnosis of injury/poisoning, not fall/complications/sequelae		0.0004	0.346

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who did not have a diagnosis of awaiting admission elsewhere.

2. A total of 72 covariates (including diagnosis and procedure dummy variables) were available for inclusion in the model.

Table D.9: Model A for patients not awaiting admission elsewhere: Summary of stepwise selection, excluding LOE (weighted logistic regression), 2008–09

Step	Entered	Removed	Pr > Chisq	Full model without LOE
1	Any diagnosis of dementia		<.0001	0.096
2	Age at 1 July 2008		<.0001	0.163
3	Care type in hospital		<.0001	0.189
4	Additional diagnosis of symptoms, signs and ill-defined conditions		<.0001	0.210
5	Additional diagnosis of infection		<.0001	0.218
6	Additional diagnosis of mental/behavioural, not dementia		<.0001	0.224
7	Additional diagnosis of nervous system, not dementia		<.0001	0.230
8	State/territory of hospital		<.0001	0.237
9	First procedure of allied health		<.0001	0.242
10	Principal diagnosis of injury, not complications of surgical and medical care		<.0001	0.247
11	Additional diagnosis of skin		<.0001	0.250
12	First procedure of imaging		<.0001	0.252
13	Additional diagnosis of stroke		<.0001	0.254
14	Principal diagnosis of stroke		<.0001	0.255
15	Principal diagnosis of injury due to a fall		<.0001	0.257
16	EP group		<.0001	0.258
17	Urgency of admission of discharging episode		<.0001	0.260
18	Additional diagnosis of genitourinary, not kidney		<.0001	0.261
19	First procedure of cardiovascular		<.0001	0.262
20	Principal diagnosis of digestive system, not liver disease		<.0001	0.263
21	Additional diagnosis of endocrine, not diabetes		<.0001	0.264
22	Additional diagnosis of neoplasm		<.0001	0.265
23	First procedure of other		<.0001	0.266
24	Additional diagnosis of respiratory system, not influenza/COPD		<.0001	0.266
25	Additional diagnosis of digestive system, not liver disease		<.0001	0.267
26	Sex		<.0001	0.267
27	Additional diagnosis of influenza		<.0001	0.267
28	Principal diagnosis of IHD		<.0001	0.268
29	Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries		<.0001	0.268
30	First procedure of digestive		<.0001	0.268
31	First procedure of skin		<.0001	0.269
32	Principal diagnosis of symptoms, signs and ill-defined conditions		<.0001	0.269
33	Complications (any external cause)		<.0001	0.269

(continued)

Table D.9 (continued): Model A for patients not awaiting admission elsewhere: Summary of stepwise selection, excluding LOE (weighted logistic regression), 2008–09

Step	Entered	Removed	Pr > Chisq	Full model without LOE
34	Additional diagnosis of blood and blood forming organs		<.0001	0.270
35	Principal diagnosis of certain infection		<.0001	0.270
36	Remoteness of usual residence		<.0001	0.270
37	Additional diagnosis of eye and adnexa		<.0001	0.270
38	First procedure of urinary		<.0001	0.271
39	Principal diagnosis of musculoskeletal		<.0001	0.271
40	Principal diagnosis of COPD		<.0001	0.271
41	Principal diagnosis of blood and blood forming organs		<.0001	0.271
42	Principal diagnosis of respiratory system, not influenza/COPD		<.0001	0.272
43	Principal diagnosis of influenza		<.0001	0.272
44	Principal diagnosis of ear and mastoid processes		<.0001	0.272
45	Principal diagnosis of injury, complications/sequelae		<.0001	0.272
46	Principal diagnosis of skin		<.0001	0.273
47	Principal diagnosis of injury/poisoning, not fall/complications/sequelae		<.0001	0.273
48	No procedure reported		<.0001	0.273
49		First procedure of imaging	0.4205	0.273
50	Principal diagnosis of diabetes		<.0001	0.273
51		Principal diagnosis of injury due to a fall	0.0036	0.273
52	Principal diagnosis of endocrine, not diabetes		<.0001	0.273
53	Principal diagnosis of arteries		<.0001	0.273
54	Principal diagnosis of neoplasm		<.0001	0.273
55	Principal diagnosis of eye and adnexa		<.0001	0.273
56	Principal diagnosis of nervous system, not dementia		<.0001	0.273
57	Additional diagnosis of diabetes		0.0008	0.274

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who did not have a diagnosis of awaiting admission elsewhere.

2. A total of 71 covariates (including diagnosis and procedure dummy variables) were available for inclusion in the model.

Table D.10: Model A for patients not awaiting admission elsewhere: Detailed logistic regression results, including LOE, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering RAC (%)
Intercept	–12.061	. .	. .	. .
Model reference (age 65)	. .	. .	. .	0.2
Reference patient (age 75)[(a)]	. .	. .	. .	[(a)]0.9
Age at 1 July 2008	0.090	1.09	(1.09 – 1.10)	0.0
65	. .	. .	. .	0.4
75	. .	. .	. .	[(a)]0.9
85	. .	. .	. .	2.1
95	. .	. .	. .	5.0
Sex: Male vs Female	–0.080	0.92	(0.9 – 0.95)	0.8
State/territory of hospital: Vic vs NSW	–0.362	0.70	(0.67 – 0.72)	0.6
State/territory of hospital: Qld vs NSW	–0.572	0.56	(0.54 – 0.59)	0.5
State/territory of hospital: WA vs NSW	–0.771	0.46	(0.43 – 0.5)	0.4
State/territory of hospital: SA vs NSW	–0.054	0.95	(0.9 – 1.00)	0.8
State/territory of hospital: Tas vs NSW	–0.220	0.80	(0.72 – 0.89)	0.7
State/territory of hospital: ACT vs NSW	–0.345	0.71	(0.61 – 0.83)	0.6
State/territory of hospital: NT vs NSW	–0.621	0.54	(0.38 – 0.74)	0.5
Hospital sector: Private vs Public	–0.066	0.94	(0.91 – 0.97)	0.8
EP group: 1 vs 0	–0.087	0.92	(0.87 – 0.96)	0.8
EP group: 2 vs 0	–0.139	0.87	(0.81 – 0.93)	0.8
EP group: 3 and 4 vs 0	–0.388	0.68	(0.64 – 0.71)	0.6
EP group: unknown vs 0	0	1.07	(0.98 – 1.17)	[(c)]0.9
Remoteness of usual residence: Inner regional vs Major cities	0.104	1.11	(1.07 – 1.15)	1.0
Remoteness of usual residence: Outer regional vs Major cities	0	0.98	(0.93 – 1.04)	[(c)]0.9
Remoteness of usual residence: Remote vs Major cities	–0.393	0.68	(0.57 – 0.80)	0.6
Remoteness of usual residence: Very remote vs Major cities	–0.374	0.69	(0.5 – 0.92)	0.6
Remoteness of usual residence: Migratory/missing/other vs Major cities	0	1.19	(0.94 – 1.48)	[(c)]0.9

(continued)

Table D.10 (continued): Model A for patients not awaiting admission elsewhere: Detailed logistic regression results, including LOE, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering RAC (%)
Care type in hospital: Rehabilitation vs Acute	–0.947	0.39	(0.37 – 0.41)	0.3
Care type in hospital: Palliative vs Acute	0.809	2.25	(2.02 – 2.5)	2.0
Care type in hospital: Other vs Acute	0	1.03	(0.96 – 1.11)	[(c)]0.9
LOE: 3 to 6 days vs 1 to 2 days	0.689	1.99	(1.86 – 2.13)	1.7
LOE: 7 to 13 days vs 1 to 2 days	1.595	4.93	(4.62 – 5.26)	4.2
LOE: 14 to 27 days vs 1 to 2 days	2.582	13.23	(12.39 – 14.14)	10.5
LOE: 4 to < 8 weeks vs 1 to 2 days	3.473	32.23	(29.99 – 34.65)	22.2
LOE: 8+ weeks vs 1 to 2 days	3.934	51.12	(46.38 – 56.35)	31.2
Urgency of admission of discharging episode: elective vs emergency	–0.332	0.72	(0.69 – 0.75)	0.6
Urgency of admission of discharging episode: not assigned vs emergency	0.221	1.25	(1.18 – 1.32)	1.1
Principal diagnosis of infection: Yes vs No	–0.444	0.64	(0.57 – 0.71)	0.4
Principal diagnosis of diabetes: Yes vs No	–0.230	0.79	(0.71 – 0.89)	0.5
Principal diagnosis of nervous system, not dementia: Yes vs No	0.174	1.19	(1.08 – 1.31)	0.7
Principal diagnosis of ear and mastoid processes: Yes vs No	–1.099	0.33	(0.21 – 0.51)	0.2
Principal diagnosis of IHD: Yes vs No	–0.474	0.62	(0.56 – 0.69)	0.4
Principal diagnosis of arteries: Yes vs No	–0.421	0.66	(0.53 – 0.80)	0.4
Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries: Yes vs No	–0.405	0.67	(0.63 – 0.71)	0.4
Principal diagnosis of stroke: Yes vs No	0.441	1.55	(1.41 – 1.71)	[(a)]0.9
Principal diagnosis of COPD: Yes vs No	–0.392	0.68	(0.62 – 0.74)	0.4
Principal diagnosis of influenza: Yes vs No	–0.375	0.69	(0.63 – 0.75)	0.4
Principal diagnosis of respiratory system, not influenza/COPD: Yes vs No	–0.299	0.74	(0.68 – 0.81)	0.4
Principal diagnosis of digestive system, not liver disease: Yes vs No	–0.526	0.59	(0.54 – 0.65)	0.3
Principal diagnosis of skin: Yes vs No	–0.484	0.62	(0.55 – 0.69)	0.4
Principal diagnosis of musculoskeletal: Yes vs No	–0.395	0.67	(0.62 – 0.73)	0.4
Principal diagnosis of injury due to a fall: Yes vs No	0.132	1.14	(1.07 – 1.21)	0.6
Principal diagnosis of injury/poisoning, not fall/complications/sequelae: Yes vs No	–0.238	0.79	(0.69 – 0.90)	0.4

(continued)

Table D.10 (continued): Model A for patients not awaiting admission elsewhere: Detailed logistic regression results, including LOE, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering RAC (%)
Principal diagnosis of injury, complications/sequelae: Yes vs No	–0.516	0.60	(0.51 – 0.70)	0.3
Any diagnosis of dementia: Yes vs No	1.577	4.84	(4.66 – 5.03)	4.1
Additional diagnosis of neoplasm: Yes vs No	0.123	1.13	(1.07 – 1.19)	1.0
Additional diagnosis of endocrine, not diabetes: Yes vs No	0.092	1.10	(1.06 – 1.14)	1.0
Additional diagnosis of mental/behavioural, not dementia: Yes vs No	0.349	1.42	(1.35 – 1.49)	1.2
Additional diagnosis of nervous system, not dementia: Yes vs No	0.395	1.48	(1.42 – 1.56)	1.3
Additional diagnosis of IHD: Yes vs No	–0.153	0.86	(0.81 – 0.91)	0.8
Additional diagnosis of circulatory system, not IHD/stroke/CBVD/arteries: Yes vs No	–0.091	0.91	(0.88 – 0.94)	0.8
Additional diagnosis of stroke: Yes vs No	0.505	1.66	(1.52 – 1.81)	1.4
Additional diagnosis of skin: Yes vs No	0.284	1.33	(1.27 – 1.39)	1.2
Additional diagnosis of genitourinary, not kidney: Yes vs No	0.212	1.24	(1.19 – 1.29)	1.1
Additional diagnosis of symptoms, signs and ill-defined conditions: Yes vs No	0.382	1.47	(1.42 – 1.51)	1.3
Principal diagnosis of injury, not complications of surgical and medical care: Yes vs No	0.203	1.23	(1.17 – 1.28)	1.1
First procedure of respiratory: Yes vs No	–0.421	0.66	(0.58 – 0.74)	0.5
First procedure of cardiovascular: Yes vs No	–0.935	0.39	(0.35 – 0.44)	0.3
First procedure of digestive: Yes vs No	–0.656	0.52	(0.48 – 0.57)	0.4
First procedure of urinary: Yes vs No	–0.434	0.65	(0.58 – 0.73)	0.5
First procedure of musculoskeletal: Yes vs No	–0.323	0.72	(0.66 – 0.79)	0.5
First procedure of skin: Yes vs No	–0.496	0.61	(0.54 – 0.69)	0.4
First procedure of allied health: Yes vs No	0.320	1.38	(1.32 – 1.43)	1.0
No procedure reported: Yes vs No	0.183	1.20	(1.14 – 1.27)	0.9
First procedure of other: Yes vs No	–0.733	0.48	(0.43 – 0.53)	0.4
Complications (any external cause): Yes vs No	–0.317	0.73	(0.69 – 0.77)	0.6

(a) Reference patient = model reference (that is, with values equal to all the reference categories used when fitting the model) with the exception that the principal diagnosis is specified as 'stroke' and the patient was provided with no procedures, and age is 75.

(b) The predicted probabilities relate to a patient with the same characteristics as the reference patient except for the difference in the single characteristic whose effect is being considered.

(c) Parameter estimate is not significantly different from the variable's reference group. Parameter has been set to 0 with an odds ratio of 1; consequently the predicted probability is the same as the reference patient's.

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Table D.11: Model A for patients not awaiting admission elsewhere: Summary of stepwise selection, PCCL model (weighted logistic regression) 2008–09

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
With LOE			
1	LOE	<.0001	0.198
2	Any diagnosis of dementia	<.0001	0.254
3	Age at 1 July 2008	<.0001	0.302
4	AR-DRG type (medical/surgical/other)	<.0001	0.313
5	State/territory of hospital	<.0001	0.319
6	Care type in hospital	<.0001	0.325
7	Any diagnosis of stroke	<.0001	0.327
8	Urgency of admission of discharging episode	<.0001	0.330
9	PCCL	<.0001	0.332
10	EP group	<.0001	0.333
11	Sex	<.0001	0.334
12	Remoteness of usual residence	<.0001	0.334
13	Hospital sector	0.0005	0.334
Without LOE			
1	Any diagnosis of dementia	<.0001	0.096
2	Age at 1 July 2008	<.0001	0.163
3	PCCL	<.0001	0.201
4	Care type in hospital	<.0001	0.218
5	AR-DRG type (medical/surgical/other)	<.0001	0.229
6	State/territory of hospital	<.0001	0.236
7	Any diagnosis of stroke	<.0001	0.239
8	EP group	<.0001	0.241
9	Urgency of admission of discharging episode	<.0001	0.242
10	Sex	<.0001	0.243
11	Remoteness of usual residence	<.0001	0.243

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.
2. A total of 13 covariates were available for inclusion in the model.

Table D.12: Model A for patients not awaiting admission elsewhere: Detailed logistic regression results, PCCL model, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering RAC (%)
Intercept	–12.168	. .	. .	. .
Model reference (age 65)	. .	. .	. .	0.2
Reference patient (age 75)[(a)]	. .	. .	. .	[(a)]0.9
Age at 1 July 2008	0.090	1.095	(1.09 – 1.1)	. .
65	. .	. .	. .	0.4
75	. .	. .	. .	[(a)]0.9
85	. .	. .	. .	2.1
95	. .	. .	. .	5.1
Sex: Male vs Female	–0.121	0.89	(0.86 – 0.91)	0.8
State/territory of hospital: Vic vs NSW	–0.347	0.71	(0.68 – 0.74)	0.6
State/territory of hospital: Qld vs NSW	–0.589	0.56	(0.53 – 0.58)	0.5
State/territory of hospital: WA vs NSW	–0.766	0.47	(0.43 – 0.51)	0.4
State/territory of hospital: SA vs NSW	0	1	(0.91 – 1.01)	[(c)]0.9
State/territory of hospital: Tas vs NSW	–0.220	0.80	(0.72 – 0.89)	0.7
State/territory of hospital: ACT vs NSW	–0.403	0.67	(0.57 – 0.78)	0.6
State/territory of hospital: NT vs NSW	–0.639	0.53	(0.37 – 0.73)	0.5
Hospital sector: Private vs Public	–0.057	0.95	(0.92 – 0.98)	0.8
EP group: 1 vs 0	–0.094	0.91	(0.87 – 0.96)	0.8
EP group: 2 vs 0	–0.155	0.86	(0.8 – 0.91)	0.8
EP group: 3 and 4 vs 0	–0.418	0.66	(0.63 – 0.69)	0.6
EP group: unknown vs 0	0.000	1.00	(0.98 – 1.17)	[(c)]0.9
Remoteness of usual residence: Inner regional vs Major cities	0	1	(1.07 – 1.15)	1.0
Remoteness of usual residence: Outer regional vs Major cities	0.000	1.00	(0.93 – 1.04)	[(c)]0.9
Remoteness of usual residence: Remote vs Major cities	–0.382	0.68	(0.58 – 0.8)	0.6
Remoteness of usual residence: Very Remote vs Major cities	–0.402	0.67	(0.49 – 0.89)	0.6
Remoteness of usual residence: Migratory/missing/other vs Major cities	0	1	(0.96 – 1.5)	[(c)]0.9
Care type in hospital: Rehabilitation vs Acute	–0.614	0.54	(0.51 – 0.57)	0.5
Care type in hospital: Palliative vs Acute	1.025	2.79	(2.51 – 3.08)	2.4
Care type in hospital: Other vs Acute	0.275	1.32	(1.23 – 1.41)	1.1

(continued)

Table D.12 (continued): Model A for patients not awaiting admission elsewhere: Detailed logistic regression results, PCCL model, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering RAC (%)
LOE: 3 to 6 days vs 1 to 2 days	0.631	1.88	(1.76 – 2.01)	1.6
LOE: 7 to 13 days vs 1 to 2 days	1.542	4.68	(4.39 – 4.98)	4.0
LOE: 14 to 27 days vs 1 to 2 days	2.571	13.08	(12.27 – 13.95)	10.4
LOE: 4 to < 8 weeks vs 1 to 2 days	3.528	34.06	(31.76 – 36.54)	23.1
LOE: 8+ weeks vs 1 to 2 days	4.073	58.75	(53.43 – 64.60)	34.2
Urgency of admission of discharging episode: Elective vs Emergency	–0.234	0.79	(0.76 – 0.82)	0.7
Urgency of admission of discharging episode: Not assigned vs Emergency	0.279	1.32	(1.25 – 1.39)	1.2
Diagnosis-related group type: Surgical vs Medical	–1.019	0.36	(0.34 – 0.38)	0.3
Diagnosis-related group type: Other vs Medical	–1.065	0.35	(0.31 – 0.39)	0.3
PCCL: Moderate vs No/minor	0.243	1.28	(1.22 – 1.34)	1.1
PCCL: Severe vs No/minor	0.319	1.38	(1.32 – 1.44)	1.2
PCCL: Catastrophic vs No/minor	0.441	1.55	(1.49 – 1.63)	1.4
Any diagnosis of dementia: Yes vs No	1.658	5.25	(5.05 – 5.45)	4.4
Any diagnosis of stroke: Yes vs No	0.666	1.95	(1.83 – 2.07)	[(a)]0.9

(a) Reference patient = model reference (that is, with values equal to all the reference categories used when fitting the model) with the exception that the person had a diagnosis of stroke (any), and age is 75.

(b) The predicted probabilities relate to a patient with the same characteristics as the reference patient except for the difference in the single characteristic whose effect is being considered.

(c) Parameter estimate is not significantly different from the variable's reference group. Parameter has been set to 0 with an odds ratio of 1; consequently the predicted probability is the same as the reference patient's.

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with the patient going to the community or with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months and who had a diagnosis of awaiting admission elsewhere.

Model B: admission into permanent rather than respite RAC

Table D.13: Model B: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to permanent RAC	Total (adjusted)
Sex	Female	58.8	61.3	20,200
	Sex	41.2	65.6	14,100
State/territory of hospital	NSW	41.0	51.6	14,000
	Vic	21.5	72.4	7,400
	Qld	17.0	80.2	5,800
	WA	5.4	67.5	1,800
	SA	11.6	54.9	4,000
	Tas	2.3	88.2	800
	ACT	1.1	55.4	400
	NT	0.2	50.8	100
Hospital sector	Public	57.3	66.0	19,600
	Private	42.7	59.1	14,700
EP group	0	68.9	62.5	23,600
	1	11.1	64.4	3,800
	2	5.4	67.4	1,900
	3 or 4	9.8	61.7	3,300
	Unknown	4.8	65.6	1,600
Remoteness of usual residence	Major cities	65.9	64.9	22,600
	Inner regional	23.5	63.3	8,100
	Outer regional	9.2	51.4	3,200
	Remote/very remote	0.9	47.1	300
	Migratory/missing/other	0.4	46.0	100
Care type in hospital	Acute	58.6	55.4	20,100
	Rehabilitation	11.4	56.8	3,900
	Palliative	2.1	76.2	700
	Other	27.9	80.7	9,600
LOE	1 to 2 days	5.4	37.2	1,900
	3 to 6 days	12.4	47.3	4,200
	7 to 13 days	23.1	55.6	7,900
	14 to 27 days	31.0	65.8	10,600
	4 to < 8 weeks	20.6	75.2	7,100
	8+ weeks	7.5	86.1	2,600
Urgency of admission of discharging episode	Emergency	44.3	55.6	15,200
	Elective	23.0	62.9	7,900
	Not assigned	32.7	73.3	11,200

(continued)

Table D.13 (continued): Model B: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to permanent RAC	Total (adjusted)
AR-DRG type	Surgical	5.9	51.3	2,000
	Medical	93.1	63.9	31,900
	Other	1.1	50.4	400
Any diagnosis of dementia	Yes	29.3	69.9	10,000
Principal diagnosis of certain infection	Yes	1.4	53.6	500
Principal diagnosis of neoplasm	Yes	5.7	66.5	2,000
Principal diagnosis of blood and blood forming organs	Yes	0.6	43.7	200
Principal diagnosis of endocrine, not diabetes	Yes	1.1	55.8	400
Principal diagnosis of mental/behavioural, not dementia	Yes	3.0	56.6	1,000
Principal diagnosis of eye and adnexa	Yes	0.2	24.7	100
Principal diagnosis of IHD	Yes	1.4	51.7	500
Principal diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	Yes	5.0	54.6	1,700
Principal diagnosis of stroke	Yes	2.9	79.6	1,000
Principal diagnosis of COPD	Yes	2.3	52.0	800
Principal diagnosis of influenza	Yes	2.2	58.5	800
Principal diagnosis of digestive system, not liver disease	Yes	2.3	49.6	800
Principal diagnosis of skin	Yes	1.5	57.1	500
Principal diagnosis of musculoskeletal	Yes	3.2	51.6	1,100
Principal diagnosis of kidney disease	Yes	0.7	59.0	200
Principal diagnosis of injury due to a fall	Yes	7.4	55.4	2,500
Principal diagnosis of injury/poisoning, not fall/complications/sequelae	Yes	1.0	48.5	300
Principal diagnosis of injury, complications/sequelae	Yes	0.6	49.5	200
Additional diagnosis of infection	Yes	23.1	67.7	7,900
Additional diagnosis of neoplasm	Yes	8.9	70.3	3,100

(continued)

Table D.13 (continued): Model B: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to permanent RAC	Total (adjusted)
Additional diagnosis of blood and blood forming organs	Yes	9.3	66.0	3,200
Additional diagnosis of diabetes	Yes	12.3	66.3	4,200
Additional diagnosis of endocrine, not diabetes	Yes	23.4	67.2	8,000
Additional diagnosis of mental/behavioural, not dementia	Yes	14.2	67.0	4,900
Additional diagnosis of nervous system, not dementia	Yes	15.8	72.9	5,400
Additional diagnosis of ear and mastoid process	Yes	2.5	70.6	900
Additional diagnosis of eye and adnexa	Yes	6.0	69.7	2,100
Additional diagnosis of IHD	Yes	6.0	63.0	2,000
Additional diagnosis of arteries	Yes	2.5	70.8	900
Additional diagnosis of other CBVD	Yes	3.9	70.6	1,300
Additional diagnosis of circulatory system, not IHD/stroke/CBVD/arteries	Yes	37.2	65.8	12,800
Additional diagnosis of stroke	Yes	4.6	81.9	1,600
Additional diagnosis of COPD	Yes	4.6	65.2	1,600
Additional diagnosis of influenza	Yes	4.0	69.0	1,400
Additional diagnosis of respiratory system, not influenza/COPD	Yes	8.6	68.2	2,900
Additional diagnosis of liver disease	Yes	0.7	70.3	200
Additional diagnosis of digestive system, not liver disease	Yes	16.2	67.4	5,600
Additional diagnosis of skin	Yes	16.3	70.4	5,600
Additional diagnosis of kidney disease	Yes	10.6	67.8	3,600
Additional diagnosis of genitourinary, not kidney	Yes	18.9	68.4	6,500
Additional diagnosis of congenital	Yes	0.2	63.7	100
Additional diagnosis of symptoms, signs and ill-defined conditions	Yes	50.7	68.7	17,400
Additional diagnosis of injury, not complications/sequelae	Yes	17.2	63.0	5,900

(continued)

Table D.13 (continued): Model B: Frequency distribution of categorical variables used in model selection (adjusted)

Variable	Category	% in pop.	% going to permanent RAC	Total (adjusted)
Additional diagnosis of injury, complications/sequelae	Yes	3.8	64.8	1,300
Additional diagnosis of awaiting admission elsewhere	Yes	14.4	73.1	4,900
Additional diagnosis of factors influencing health status, not awaiting admission elsewhere	Yes	47.7	63.0	16,400
First procedure of cardiovascular	Yes	1.1	49.6	400
First procedure of digestive	Yes	2.6	59.5	900
First procedure of musculoskeletal	Yes	3.1	56.4	1,100
First procedure of skin	Yes	1.2	53.2	400
First procedure of non-invasive and not allied health	Yes	6.1	63.1	2,100
First procedure of allied health	Yes	52.3	64.7	17,900
No procedure reported	Yes	14.5	61.8	5,000
First procedure of other	Yes	1.6	52.0	500
Assault (any external cause)	Yes	0.1	60.0	<50
Accident (any external cause), not fall/transport	Yes	3.6	66.5	1,200
Transport accident (any external cause)	Yes	0.4	56.7	100
Complications (any external cause)	Yes	9.4	62.7	3,200
PCCL	No/minor	20.0	52.7	6,900
	Moderate	13.8	55.0	4,700
	Severe	29.8	62.8	10,200
	Catastrophic	36.4	72.0	12,500
All	**. .**	**100.0**	**63.1**	**34,300**

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months.

Table D.14: Model B: Summary of stepwise selection, including LOE (weighted logistic regression) 2008–09

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
1	LOE	<.0001	0.091
2	Care type in hospital	<.0001	0.167
3	State/territory of hospital	<.0001	0.221
4	Remoteness of usual residence	<.0001	0.234
5	Additional diagnosis of awaiting admission elsewhere	<.0001	0.243
6	Additional diagnosis of stroke	<.0001	0.248
7	Any diagnosis of dementia	<.0001	0.253
8	Principal diagnosis of stroke	<.0001	0.257
9	Hospital sector	<.0001	0.259
10	Additional diagnosis of symptoms, signs and ill-defined conditions	<.0001	0.262
11	Urgency of admission of discharging episode	<.0001	0.264
12	Additional diagnosis of neoplasm	<.0001	0.266
13	AR-DRG type (medical/surgical/other)	<.0001	0.268
14	Principal diagnosis of mental/behavioural, not dementia	<.0001	0.269
15	Sex	<.0001	0.270
16	EP group	<.0001	0.271
17	Additional diagnosis of nervous system, not dementia	<.0001	0.272
18	Age at 1 July 2008	<.0001	0.273
19	No procedure reported	<.0001	0.274
20	Principal diagnosis of neoplasm	<.0001	0.274
21	Additional diagnosis of skin	<.0001	0.275
22	Additional diagnosis of arteries	<.0001	0.275
23	Additional diagnosis of factors influencing health status, not awaiting admission elsewhere	<.0001	0.276
24	Additional diagnosis of endocrine, not diabetes	0.0003	0.276

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months
2. A total of 69 covariates (including diagnosis and procedure dummy variables) were available for inclusion in the model.

Table D.15: Model B: Summary of stepwise selection, excluding LOE (weighted logistic regression) 2008–09

Step	Effect entered	Effect removed	Pr > ChiSq	Maximum-rescaled R-squared
1	State/territory of hospital		<.0001	0.088
2	Care type in hospital		<.0001	0.150
3	Additional diagnosis of symptoms, signs and ill-defined conditions		<.0001	0.168
4	Remoteness of usual residence		<.0001	0.181
5	Additional diagnosis of awaiting admission elsewhere		<.0001	0.194
6	Any diagnosis of dementia		<.0001	0.200
7	Additional diagnosis of nervous system, not dementia		<.0001	0.206
8	Additional diagnosis of stroke		<.0001	0.210
9	Principal diagnosis of stroke		<.0001	0.213
10	Additional diagnosis of neoplasm		<.0001	0.216
11	Additional diagnosis of skin		<.0001	0.219
12	Hospital sector		<.0001	0.221
13	Additional diagnosis of infection		<.0001	0.223
14	Urgency of admission of discharging episode		<.0001	0.224
15	Additional diagnosis of endocrine, not diabetes		<.0001	0.225
16	AR-DRG type (medical/surgical/other)		<.0001	0.226
17	Additional diagnosis of respiratory system, not influenza/COPD		<.0001	0.227
18	Additional diagnosis of arteries		<.0001	0.228
19	Principal diagnosis of neoplasm		<.0001	0.229
20	EP group		<.0001	0.230
21	Sex		<.0001	0.231
22	Additional diagnosis of digestive system, not liver disease		<.0001	0.232
23	First procedure of musculoskeletal		<.0001	0.233
24	Additional diagnosis of factors influencing health status, not awaiting admission elsewhere		<.0001	0.233

(continued)

Table D.15 (continued): Model B: Summary of stepwise selection, excluding LOE (weighted logistic regression) 2008–09

Step	Effect entered	Effect removed	Pr > ChiSq	Maximum-rescaled R-squared
25	Additional diagnosis of kidney disease		<.0001	0.234
26	Age at 1 July 2008		0.0004	0.234
27	Principal diagnosis of blood and blood forming organs		0.001	0.235
28		Principal diagnosis of blood and blood forming organs	0.0011	0.234

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months.
2. A total of 68 covariates (including diagnosis and procedure dummy variables) were available for inclusion in the model.

Table D.16: Model B: Detailed logistic regression results, including LOE, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering permanent RAC (%)
Intercept	–0.971	. .	. .	. .
Model reference (age 65)	. .	. .	. .	41.6
Reference patient (age 85)[(a)]	. .	. .	. .	[(a)]67.2
Age at 1 July 2008	0.010	1.01	(1.01 – 1.01)	. .
65	. .	. .	. .	62.8
75	. .	. .	. .	65.0
85	. .	. .	. .	[(a)]67.2
95	. .	. .	. .	69.3
Sex: Male vs Female	0.156	1.17	(1.11 – 1.23)	70.6
State/territory of hospital: Vic vs NSW	0.922	2.51	(2.34 – 2.70)	83.8
State/territory of hospital: Qld vs NSW	1.276	3.58	(3.31 – 3.88)	88.0
State/territory of hospital: WA vs NSW	0.853	2.35	(2.03 – 2.71)	82.8
State/territory of hospital: SA vs NSW	0.242	1.27	(1.18 – 1.38)	72.3
State/territory of hospital: Tas vs NSW	2.351	10.50	(8.34 – 13.35)	95.6
State/territory of hospital: ACT vs NSW	0	1	(0.64 – 1.03)	[(c)] 67.2
State/territory of hospital: NT vs NSW	0.640	1.90	(1.15 – 3.15)	79.5
Hospital sector: Private vs Public	–0.269	0.76	(0.72 – 0.81)	61.0
EP group: 1 vs 0	0	1	(0.85 – 1.00)	[(c)] 67.2
EP group: 2 vs 0	0	1	(0.92 – 1.15)	[(c)] 67.2
EP group: 3 and 4 vs 0	–0.259	0.77	(0.71 – 0.84)	61.3
EP group: Unknown vs 0	0	1	(0.79 – 1.07)	[(c)] 67.2
Remoteness of usual residence: Inner regional vs Major cities	–0.247	0.78	(0.73 – 0.83)	61.6
Remoteness of usual residence: Outer regional vs Major cities	–0.974	0.38	(0.35 – 0.41)	43.6
Remoteness of usual residence: Remote/Very remote vs Major Cities	–1.027	0.36	(0.28 – 0.47)	42.3
Remoteness of usual residence: Migratory/missing/other vs Major Cities	–0.497	0.61	(0.43 – 0.87)	55.5
Care type in hospital: Rehabilitation vs Acute	–0.391	0.68	(0.62 – 0.74)	58.1
Care type in hospital: Palliative vs Acute	0.445	1.56	(1.27 – 1.92)	76.2
Care type in hospital: Other vs Acute	0.852	2.34	(2.14 – 2.57)	82.8
LOE: 1 to 2 days vs 14 to 27 days	–1.242	0.29	(0.26 – 0.32)	37.2
LOE: 3 to 6 days vs 14 to 27 days	–0.869	0.42	(0.39 – 0.46)	46.2
LOE: 7 to 13 days vs 14 to 27 days	–0.466	0.63	(0.59 – 0.67)	56.3
LOE: 4 to < 8 weeks vs 14 to 27 days	0.357	1.43	(1.33 – 1.54)	74.6

(continued)

Table D.16 (continued): Model B: Detailed logistic regression results, including LOE, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering permanent RAC (%)
LOE: 8+ weeks vs 14 to 27 days	0.835	2.31	(2.03 – 2.62)	82.5
Urgency of admission of discharging episode: Elective vs Emergency	0	1	(0.92 – 1.06)	[(c)] 67.2
Urgency of admission of discharging episode: Not assigned vs Emergency	0.303	1.35	(1.24 – 1.48)	73.5
Diagnosis-related group type: Surgical vs Medical	–0.431	0.65	(0.59 – 0.72)	57.1
Diagnosis-related group type: Other vs Medical	–0.304	0.74	(0.59 – 0.93)	60.2
Any diagnosis of dementia: Yes vs No	0.393	1.48	(1.4 – 1.57)	75.2
Principal diagnosis of neoplasm: Yes vs No	0.303	1.35	(1.19 – 1.54)	58.8
Principal diagnosis of mental/behavioural, not dementia: Yes vs No	–0.376	0.69	(0.6 – 0.79)	41.9
Principal diagnosis of stroke: Yes vs No	0.667	1.95	(1.64 – 2.32)	[(a)]67.2
Additional diagnosis of neoplasm: Yes vs No	0.293	1.34	(1.22 – 1.48)	73.3
Additional diagnosis of endocrine, not diabetes: Yes vs No	0.113	1.12	(1.05 – 1.19)	69.6
Additional diagnosis of nervous system, not dementia: Yes vs No	0.220	1.25	(1.15 – 1.35)	71.9
Additional diagnosis of arteries: Yes vs No	0.340	1.41	(1.19 – 1.66)	74.2
Additional diagnosis of stroke: Yes vs No	0.750	2.12	(1.83 – 2.46)	81.3
Additional diagnosis of skin: Yes vs No	0.145	1.16	(1.08 – 1.24)	70.3
Additional diagnosis of symptoms, signs and ill-defined conditions: Yes vs No	0.200	1.22	(1.16 – 1.29)	71.5
Additional diagnosis of awaiting admission elsewhere: Yes vs No	0.495	1.64	(1.52 – 1.77)	77.1
Additional diagnosis of factors influencing health status, not awaiting admission elsewhere: Yes vs No	–0.112	0.89	(0.85 – 0.94)	64.7
No procedure reported: Yes vs No	0.195	1.22	(1.12 – 1.32)	67.2

(a) Reference patient = model reference (that is, with values equal to all the reference categories used when fitting the model) with the exception that the principal diagnosis is specified as 'stroke', and age is 85.

(b) The predicted probabilities relate to a patient with the same characteristics as the reference patient except for the difference in the single characteristic whose effect is being considered.

(c) Parameter estimate is not significantly different from the variable's reference group. Parameter has been set to 0 with an odds ratio of 1; consequently the predicted probability is the same as the reference patient's.

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months.

Table D.17: Model B: Summary of stepwise selection, PCCL model (weighted logistic regression) 2008–09

Step	Effect	Pr > ChiSq	Maximum-rescaled R-squared
With LOE			
1	LOE	<.0001	0.091
2	Care type in hospital	<.0001	0.167
3	State/territory of hospital	<.0001	0.221
4	Remoteness of usual residence	<.0001	0.234
5	PCCL	<.0001	0.243
6	Any diagnosis of stroke	<.0001	0.248
7	Any diagnosis of dementia	<.0001	0.254
8	AR-DRG type (medical/surgical/other)	<.0001	0.257
9	Hospital sector	<.0001	0.260
10	Urgency of admission of discharging episode	<.0001	0.262
11	Sex	<.0001	0.263
12	EP group	<.0001	0.265
13	Age at 1 July 2008	<.0001	0.265
Without LOE			
1	State/territory of hospital	<.0001	0.088
2	Care type in hospital	<.0001	0.150
3	PCCL	<.0001	0.180
4	Remoteness of usual residence	<.0001	0.192
5	Any diagnosis of stroke	<.0001	0.199
6	Any diagnosis of dementia	<.0001	0.205
7	AR-DRG type (medical/surgical/other)	<.0001	0.207
8	Hospital sector	<.0001	0.209
9	Urgency of admission of discharging episode	<.0001	0.211
10	Sex	<.0001	0.212
11	EP group	<.0001	0.214

Notes

1. Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC which was the person's first use of permanent RAC in 12 months.
2. A total of 13 covariates were available for inclusion in the model.

Table D.18: Model B: Detailed logistic regression results, PCCL model, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering permanent RAC (%)
Intercept	–0.825	. .	. .	. .
Model reference (age 65)	. .	. .	. .	43.6
Reference patient (age 85)[(a)]	. .	. .	. .	[(a)]65.8
Age at 1 July 2008	0.009	1.01	(1.01 – 1.01)	. .
65	. .	. .	. .	61.8
75	. .	. .	. .	63.8
85	. .	. .	. .	[(a)]65.8
95	. .	. .	. .	67.7
Sex: Male vs Female	0.177	1.19	(1.13 – 1.26)	69.7
State/territory of hospital: Vic vs NSW	0.946	2.58	(2.4 – 2.76)	83.2
State/territory of hospital: Qld vs NSW	1.280	3.60	(3.32 – 3.89)	87.4
State/territory of hospital: WA vs NSW	0.856	2.35	(2.04 – 2.72)	81.9
State/territory of hospital: SA vs NSW	0.317	1.37	(1.27 – 1.49)	72.5
State/territory of hospital: Tas vs NSW	2.335	10.33	(8.22 – 13.13)	95.2
State/territory of hospital: ACT vs NSW	0	1	(0.68 – 1.08)	[(c)]65.8
State/territory of hospital: NT vs NSW	0.608	1.84	(1.12 – 3.04)	77.9
Hospital sector: Private vs Public	–0.278	0.76	(0.72 – 0.80)	59.3
EP group: 1 vs 0	0.000	1.00	(0.85 – 1.00)	[(c)]65.8
EP group: 2 vs 0	0.000	1.00	(0.91 – 1.14)	[(c)]65.8
EP group: 3 and 4 vs 0	–0.266	0.77	(0.7 – 0.84)	59.6
EP group: Unknown vs 0	0	1	(0.79 – 1.06)	[(c)]65.8
Remoteness of usual residence: Inner regional vs Major cities	–0.199	0.82	(0.77 – 0.87)	61.2
Remoteness of usual residence: Outer regional vs Major cities	–0.904	0.41	(0.37 – 0.44)	43.8
Remoteness of usual residence: Remote/Very remote vs Major Cities	–0.962	0.38	(0.29 – 0.50)	42.4
Remoteness of usual residence: Migratory/missing/other vs Major Cities	–0.539	0.58	(0.41 – 0.83)	52.9
Care type in hospital: Rehabilitation vs Acute Care	–0.500	0.61	(0.55 – 0.67)	53.8
Care type in hospital: Palliative care vs Acute Care	0.677	1.97	(1.63 – 2.38)	79.1
Care type in hospital: Other vs Acute Care	0.769	2.16	(1.97 – 2.36)	80.6

(continued)

Table D.18 (continued): Model B: Detailed logistic regression results, PCCL model, 2008–09

Variable	Parameter	Odds ratio	Odds ratio confidence interval (95%)	[(b)]Predicted probability of entering permanent RAC (%)
LOE: 1 to 2 days vs 14 to 27 days	–1.242	0.29	(0.26 – 0.32)	35.7
LOE: 3 to 6 days vs 14 to 27 days	–0.888	0.41	(0.38 – 0.45)	44.2
LOE: 7 to 13 days vs 14 to 27 days	–0.481	0.62	(0.58 – 0.66)	54.3
LOE: 4 to < 8 weeks vs 14 to 27 days	0.360	1.43	(1.33 – 1.54)	73.4
LOE 8+ weeks vs 14 to 27 days	0.826	2.28	(2.01 – 2.60)	81.5
Urgency of admission of discharging episode: Elective vs Emergency	0	1	(0.96 – 1.10)	[(c)]65.8
Urgency of admission of discharging episode: Not assigned vs Emergency	0.359	1.43	(1.32 – 1.56)	73.4
Diagnosis-related group type: Surgical vs Medical	–0.466	0.63	(0.57 – 0.70)	54.7
Diagnosis-related group type: Other vs Medical	–0.365	0.69	(0.55 – 0.87)	57.2
PCCL: Moderate vs No/minor	0	1	(0.96 – 1.14)	[(c)]65.8
PCCL: Severe vs No/minor	0.147	1.16	(1.08 – 1.25)	69.0
PCCL: Catastrophic vs No/minor	0.392	1.48	(1.37 – 1.59)	74.0
Any diagnosis of dementia: Yes vs No	0.347	1.41	(1.34 – 1.50)	[(d)]73.1
Any diagnosis of stroke: Yes vs No	0.737	2.09	(1.87 – 2.34)	[(a)]65.8

(a) Reference patient = model reference (that is, with values equal to all the reference categories used when fitting the model) with the exception that the person had a diagnosis of stroke (any), and age is 85.

(b) The predicted probabilities relate to a patient with the same characteristics as the reference patient except for the difference in the single characteristic whose effect is being considered.

(c) Parameter estimate is not significantly different from the variable's reference group. Parameter has been set to 0 with an odds ratio of 1; consequently the predicted probability is the same as the reference patient's.

(d) Reference patient with both a stroke and dementia diagnosis.

Note: Analysis is for people aged 65 and over as at 1 July 2008, and includes only hospital episodes that ended with admission into respite RAC or in an admission into permanent RAC that was the person's first use of permanent RAC in 12 months.

Glossary

Item	Sector	Definition
ACAT approval	RAC	On completion of an ACAT assessment, an ACAT may provide approval to use one or more government-subsidised aged care services. A current ACAT approval is required to access permanent and respite RAC (high-level care or low-level care) and TCP. (See *ACAT assessment* and *Aged Care Assessment Team*).
ACAT assessment	RAC	An assessment undertaken by an ACAT to evaluate the care needs of a person. The ACAT assessment and approval of care includes a decision about which level of care (low or high) an individual requires. (See *ACAT approval* and *Aged Care Assessment Team*).
Activity when injured	Hospital	The type of activity being undertaken by a person at the time of injury. METeOR[(a)] identifier: 333849
Acute	Hospital	Having a short and relatively severe course.
Additional diagnosis	Hospital	Conditions or complaints either coexisting with the principal diagnosis or arising during the episode of care. METeOR[(a)] identifier: 333832
Admission	Hospital	The beginning of a hospital episode or stay.
Admission	RAC	Admission into a RAC facility (includes transfer from another RAC facility).
Admitted patient	Hospital	A patient who undergoes a hospital's formal admission process to receive treatment and/or care. This treatment and/or care is provided over a period of time and can occur in hospital and/or in the person's home (for hospital-in-the-home patients). METeOR[(a)] identifier: 268957
Aged Care Assessment Team (ACAT)	RAC	Aged Care Assessment Teams assess and approve older people for Australian Government subsidised aged care services, including RAC and TCP.
Aged Care Funding Instrument (ACFI)	RAC	Aged Care Assessment ACATs for Australian Government subsidised aged care services, including RAC and TCP. (See *Aged Care Assessment Team*).
Age–sex standardisation	. .	A set of techniques used to remove, as far as possible, the effects of differences in age and sex when comparing two or more populations.

Item	Sector	Definition
Australian Refined Diagnosis Related Groups (AR-DRGs)	Hospital	An Australian system of diagnosis related groups (DRGs). DRGs provide a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital services. (See *Diagnosis Related Group*). METeOR[a] identifier: 374151
Care type	Hospital	The care type defines the overall nature of a clinical service provided to an admitted patient during an episode of care (admitted care), or the type of service provided by the hospital for boarders or posthumous organ procurement (other care). Admitted patient care consists of the following categories: Acute care Rehabilitation care Palliative care Geriatric evaluation and management Psychogeriatric care Maintenance care Newborn care Other admitted patient care Other admitted patient care is where the principal clinical intent does not meet the criteria for any of the above. Other care includes the following: Posthumous organ procurement Hospital boarder In the current analysis, Geriatric evaluation and management, Psychogeriatric care and Maintenance care are grouped into Geriatric care. METeOR[a] identifier: 270174
Clinical urgency	Hospital	A clinical assessment of the urgency with which a patient requires elective hospital care. METeOR[a] identifier: 270008
Collinearity	. .	A statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated.

Item	Sector	Definition
Contrast patient	. .	A theoretical example of an admitted hospital patient with personal and hospital care characteristics that differ from those of the reference patient in at least 1 characteristic. The characteristics are used in conjunction with a fitted logistic regression model to predict the probability of an event occurring for this patient. (See *Reference patient*)
Diagnosis related group (DRG)	Hospital	A widely used casemix classification system used to classify admissions into groups with similar clinical conditions (related diagnoses) and similar resource usage. This allows the activity and performance of hospitals to be compared on a common basis. In Australian acute hospitals, *Australian Refined DRGs* are used. METeOR[a] identifier: 270195
Discharge	Hospital	The exit of the admitted patient from the hospital sector.
Discharge destination	Hospital	The patient's destination on leaving hospital, determined through data linkage with RAC data.
Episode of care	Hospital	The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only 1 care type (See *Care type* and *Separation*). METeOR[a] identifier: 270174 (Care type) METeOR identifier: 268956 (Episode of admitted patient care)
External cause	Hospital	The environmental event, circumstance or condition as the cause of injury, poisoning and other adverse effect. METeOR[a] identifier: 333853
High care	RAC	High care in RAC includes the following services along with the assistance received for low care: nursing care, equipment to assist with physical comfort and mobility, some basic medications and dressings, continence aids and therapy services. For permanent residents, care needs are determined using the ACFI. For respite residents, care level is specified in the ACAT approval. (See *ACAT approval*, *Aged Care Funding Instrument*, *Low care* and *Residential aged care*)
Hospital	Hospital	A health-care facility established under Commonwealth, state or territory legislation as a hospital or a free-standing day procedure unit and authorised to provide treatment and/or care to patients. METeOR[a] identifier: 268971

Item	Sector	Definition
Hospital leave	RAC	Days of leave taken by a permanent RAC resident for the purpose of receiving hospital treatment. Hospital leave is provided for hospital stays lasting at least 1 night. Extended hospital leave is where a resident has hospital leave for a continuous period of 30 days or more. (See *Residential aged care).*
Hospital stay	Hospital	The period of admitted patient care between admission into the hospital sector and discharge from the hospital sector or death. A hospital stay can comprise a single hospital episode or a number of contiguous episodes of care.
Hospitalisation	Hospital	The admission of a patient into the hospital sector. The terms 'hospitalisation' and 'hospital stay' are used interchangeably.
International Classification of Diseases (ICD)	Hospital	The World Health Organization's internationally accepted classification of diseases and related health conditions. The 10th revision, Australian modification (ICD-10-AM) is currently in use in Australian hospitals for admitted patients.
Length of episode (LOE)	Hospital	The length of episode of 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. A same-day episode is allocated a length of 1 day. METeOR[(a)] identifier: 269982
Low care	RAC	Low care in RAC includes basic accommodation-related services, laundry, toiletry goods, meals, personal care, assistance with mobility and communication, support for people with dementia, and social activities. For permanent residents, care needs are determined using the ACFI. For respite residents, care level is specified in the ACAT approval. (See *ACAT approval, Aged Care Funding Instrument* and *Residential aged care).*
Maximum-rescaled R-squared	. .	A statistic used when fitting logistic regressions, which provides a measure of improvement when going from the null model to the fitted model. It is based on Cox and Snell's pseudo R-squared derived from log likelihood statistics.
Mode of admission	Hospital	The mechanism by which a person begins an episode of admitted patient care. METeOR[(a)] identifier: 269976

Item	Sector	Definition
Mode of separation	Hospital	Status (as reported in the NHMD) at separation of person (discharge/transfer/death) and place to which person is released (where applicable). METeOR[a] identifier: 270094
Multi-episode stay	Hospital	A hospital stay consisting of 2 or more episodes of care for an admitted patient, and so involving at least a change in care type or transfer between hospitals. (See *Episode of care* and *Hospital stay*).
Odds	. .	The ratio of the probability of an event occurring with the probability of that event not occurring.
Odds ratio (OR)	. .	A relative measure that compares the odds of people in a particular group experiencing an event with the odds of people in another group experiencing the same event. (See *Odds*).
Overnight-stay patient	Hospital	A patient who, following a clinical decision, receives hospital treatment for a minimum of 1 night (that is, who is admitted to and separated from the hospital on different dates).
Patient clinical complexity level (PCCL)		A measure of the cumulative effect of a patient's clinical complexities (CCs); it is calculated for each episode of admitted patient care. The calculation is complex and has been designed to prevent similar conditions from being counted more than once. A PCCL value of 0 = no CC; 1 = minor CC; 2 = moderate CC; 3 = severe CC; and 4 = catastrophic CC. To attract a PCCL of 4, an episode must have at least 2 CCs regardless of whether it is assigned to a surgical, medical or other DRG. (DoHA 2003)
Patient days	Hospital	The total number of days for patients who were admitted for an episode of care and who separated during a specified reference period. For an overnight episode it is calculated by subtracting the date the patient is admitted from the date of separation and deducting any days the patient was on leave. METeOR[a] identifier: 270045

Item	Sector	Definition
Patient election status	Hospital	Accommodation chargeable status elected by patient on admission. The categories are: Public: A patient admitted to a hospital who has agreed to be treated by doctors of the hospital's choice and to accept shared accommodation. This means the patient is not charged. Private: A patient admitted to a hospital who decides to choose the doctor(s) who will treat them and/or to have private ward accommodation. They are charged for medical services, food and accommodation. METeOR[a] identifier: 326619
Percentile	Hospital	Any one of 99 values that divide the range of probability distribution or sample into 100 intervals of equal probability or frequency.
Permanent care	RAC	RAC provided on a permanent basis to people who can no longer remain in their own homes. . (See *Residential aged care).*
Pre-hospital origin	Hospital	The patient's location before hospitalisation, determined through data linkage with RAC data.
Principal diagnosis	Hospital	The diagnosis established after study to be chiefly responsible for occasioning an episode of admitted patient care. METeOR[a] identifier: 361034
Private hospital	Hospital	A privately owned and operated institution, catering for patients who are treated by a doctor of their own choice. Patients are charged fees for accommodation and other services provided by the hospital and relevant medical and paramedical practitioners. Acute care and psychiatric hospitals are included, as are private free-standing day hospital facilities.
Procedure	Hospital	A clinical intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, requires specialised training and/or requires special facilities or equipment available only in the acute care setting. METeOR[a] identifier: 361687
Public hospital	Hospital	A hospital controlled by a state or territory health authority. Public hospitals offer free diagnostic services, treatment, care and accommodation to all eligible patients.

Item	Sector	Definition
Reference patient	. .	A theoretical example of an admitted hospital patient with a given set of personal and hospital care characteristics. These characteristics are used in conjunction with a fitted logistic regression model to predict the probability of an event occurring for this patient.
Relative risk (RR)	. .	The ratio of the probability of the event occurring in group 1 and the probability of the event occurring in group 2.
Remoteness area	Hospital/ RAC	A classification of the remoteness of a location using the Australian Standard Geographical Classification Remoteness Structure (2006), based on the Accessibility /Remoteness Index of Australia (ARIA) which measures the remoteness of a point based on the physical road distance to the nearest urban centre. The categories are: Major cities Inner regional Outer regional Remote Very remote Migratory.
Residential aged care (RAC)	RAC	Residential aged care is subsidised by the Australian Government and provides a live-in setting for older Australians whose care needs are such that they can no longer remain in their own homes. There are two levels of care available—high and low. Care is provided on either a permanent or respite basis. To access RAC, an ACAT approval is required. (See *ACAT approval*).
Residential respite care	RAC	RAC provided for short-term care for people with short-term care needs, or to provide a break for carers. Care may be planned or on an emergency basis. (See *Residential aged care*).
Same-day patient	Hospital	An admitted patient who is admitted and separates on the same date.
Separation	Hospital	The process by which an admitted patient completes an episode of care either by being discharged, dying, transferring to another hospital or changing type of care. (See *Care type* and *Episode of care*)
Single-episode stay	Hospital	A hospital stay consisting of 1 episode of care for an admitted patient. (See *Episode of care* and *Hospital stay*).

Item	Sector	Definition
Source of admission	RAC	Care received by RAC client before admission into the RAC facility, determined by data linkage with NHMD data. Categories include hospital, RAC and TCP. People not identified as receiving one of these are assumed to have come from living in the community. (See *Residential aged care*).
Transfer	RAC	Movement between RAC facilities with a zero or 1 day gap. (See *Residential aged care*).
Transition care	RAC	Care provided under the Transition Care Program (TCP). TCP provides short-term care to older people directly after discharge from hospital, and includes at least low-intensity therapy and either nursing support or personal care. This program aims to improve recipients' independence and functioning to an optimal level and to delay entry to residential care. Care may be provided in a home-like facility (or part of a facility) or at home. To access TCP, an initial ACAT approval given in hospital is required, and the person must enter transition care directly from hospital.

(a) Where relevant, definitions for hospital sector data items contain an identification number from the Metadata Online Registry (METeOR). METeOR is Australia's central repository for health, community services and housing assistance metadata, or 'data about data'. It provides definitions for data for health and community services-related topics, and specifications for related national minimum data sets, such as the NHMD. METeOR can be viewed on the AIHW website at <www.aihw.gov.au>.

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Related publications

Other AIHW publications with information on the data linkage methods used in this publication:

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.

AIHW 2011. Pathways in Aged Care: program use after assessment. Data linkage series no. 10. Cat. no. CSI 10. Canberra: AIHW.

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

Other AIHW publications on movement between hospital and residential aged care:

AIHW: Karmel R, Lloyd J & Anderson P 2008. Movement from hospital to residential aged care. Data linkage series no. 6. Cat. no. CSI 6. Canberra: AIHW.

AIHW 2012. People with dementia in hospitals in New South Wales 2006-07. AIHW bulletin no. 110. Cat. no. AUS 165. Canberra: AIHW.

This report examines movements between hospital and residential aged care by people aged 65 and over in 2008–09. Overall, almost 10% of 1.1 million hospitalisations for older people were for people already living in residential aged care. A further 3% of hospitalisations for older people ended with the patient being newly admitted into residential care. This report also describes the characteristics of people moving between the two sectors, and short-term outcomes for people going into residential care.