AGED CARE SERIES

Length of stay in Australian nursing homes

Zhibin Liu

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Australian Institute of Health and Welfare
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Abbreviations

ABS	Australian Bureau of Statistics
ACCSIS	Aged and Community Care Strategic Information System
ACOTA	Australian Council on the Ageing
AIHW	Australian Institute of Health and Welfare
ANAO	Australian National Audit Office
CACP	Community Aged Care Package
CAM	Care Aggregated Module
DCS	(Commonwealth) Department of Community Services (later absorbed into DCSH)
DCSH	(Commonwealth) Department of Community Services and Health (from 1991, absorbed into HHCS)
HACC	Home and Community Care Program
HHCS	(Commonwealth Department of) Health, Housing and Community Services (from 1993, absorbed into HHLGCS)
HHLGCS	(Commonwealth Department of) Health, Housing, Local Government and Community Services (from 1994, absorbed into HSH)
HRSCE	House of Representatives of Standing Committee on Expenditure
HSH	(Commonwealth Department of) Human Services and Health (from 1994)
NHPS	Nursing Home Payment System
RCI	Resident Classification Instrument
SAM	Standard Aggregated Module

1 Introduction

1.1 Restructuring services for older people

Services for older people have undergone significant changes in Australia in the last decade. After the publication of a number of major reports,[1] a process of reform was implemented to restructure aged care programs in Australia (HHCS 1991a, p.1). The core elements of the strategy included the following:

- Reduce the nursing home supply to 40 beds per 1,000 people aged 70 and over from 67 in 1985 (AIHW 1993, p.208).
- Increase the hostel supply to 60 places per 1,000 people aged 70 and over from 33 in 1985 (AIHW 1993, p.208). This benchmark has been revised three times and is now 50 places per 1,000 people aged 70 and over. The resources thus saved were reallocated to Community Aged Care Packages (AIHW 1995, pp.200–203).
- Expand home and community care (with as yet no specific target being set) so that a greater number of people can be maintained at home.
- Expand the multi-disciplinary assessment teams (Aged Care Assessment Teams) to determine eligibility for all nursing home and hostel admissions.
- Introduce new funding strategies that take into account the dependency levels of individual residents based on the Resident Classification Instrument (RCI) for nursing homes (the Care Aggregated Model)[2] and Personal Care Assessment Instrument for hostels in order to provide incentives to nursing homes and hostels to care for more dependent persons.

Under the reform, many changes have been achieved in the last decade (Gibson et al. 1995; Gibson 1996). By 30 June 1993, nursing home provision had been substantially reduced, to 54 beds per 1,000 people aged 70 and over, and hostel places had been increased to 40. It was estimated that about 215,000 people used services provided in 1992–93 under the Home and Community Care program (AIHW 1995, chapter 5).

What are the consequences of these changes for nursing home residents? Recent analyses carried out by the Australian Institute of Health and Welfare have raised

1. For example: DCS 1986, p.1; Auditor-General's efficiency report on the Commonwealth administration of nursing home programs (ANAO 1981); report on accommodation and home care for the aged (in a home or at home) by the House of Representatives Standing Committee on Expenditure (1982); Senate Select Standing Committee report on private and hospital nursing home operation (1985); and the influential Nursing Homes and Hostel Review (DSC 1986).
2. Care Aggregated Model (CAM) was introduced on 1 July 1988 to cover the costs associated with providing nursing and personal care services to nursing home residents. It is based on each resident's needs as classified into five categories (ANAO 1995, p.85; HSH 1995, pp.P1–P7 to P1–P9).

several questions over the appropriateness of current and planned future levels of provision of nursing home beds. A decomposition analysis showed that the decrease in nursing home bed supply between 1988 and 1992 had a particularly marked effect on patterns of service use among women and the very old (Gibson et al. 1995). Age- and sex-specific residential care utilisation patterns (both nursing home and hostel) in 1993 were used as a baseline model for service use projections. These indicated that by the turn of the century the planned level of residential care may be inadequate and would not provide sufficient nursing home type care in the period from 2006 to 2016 (Gibson & Liu 1995).

However, those analyses focused on the level of nursing home use at one particular point in time. There is another important component of nursing home utilisation which has an important impact on accessibility to nursing homes, and that is the length of stay of residents in nursing homes. This study aims to explore the impacts of the Aged Care Reform Strategy on nursing home use by focusing on length of stay and turnover, over the period from 1989 to 1993.

1.2 Length of stay

Length of stay determines the rate of turnover of the available beds, and consequently affects the accessibility of nursing home beds in and beyond the period. Length of stay is an important measure of the utilisation of institutional care. It can provide input for policy and management decisions aimed at affecting or responding to the flow of residents through facilities (Liu & Manton 1983; Manton et al. 1984).

Traditionally, either the number of residents or the ratio of residents to the aged population as a whole has been used to measure the level of nursing home utilisation in Australia. While more detailed analyses also include some measure of length of stay, they are generally based on either separations (those who left nursing homes) or current residents. Both of these indicators, however, have significant limitations in their capacity to represent lengths of stay. (These limitations are discussed in chapter 2.)

This study employs life table techniques to analyse nursing home utilisation patterns and their changes over time by:

- measuring the length of stay of nursing home residents;
- exploring the relationship between length of stay and the characteristics of nursing homes and their residents;
- analysing length-of-stay trends over the period from 1989–90 to 1992–93;
- examining changes in turnover and in the accessibility of nursing homes;
- exploring the policy relevance of the findings, and raising further research questions.

2 Implementing a life table approach

2.1 Resident flows

This section provides the context for the life table analysis by giving an overview of nursing home use in terms of the absolute numbers of residents, admissions and separations. The resident flow chart (figure 2.1) gives the number of residents at 30 June in each year from 1988 to 1993 and at 1 January 1988 by the numbers alongside the vertical lines in the boxes. Nursing Home Payment System data are available from 1 January 1988 and therefore only the half-yearly data (1 January to 30 June 1988) could be included for the 1987-88 financial year. The numbers above the boxes are admissions in the financial year, except for 1988 when only half-yearly data were available (January to June). The numbers below the boxes are live separations and deaths in the financial year (half-year for 1988). It is evident that the data for 1988 (and almost certainly a part of 1988–89) are under-reported, and are not reliable for analysis. Figures for later years appear to be more reasonable.

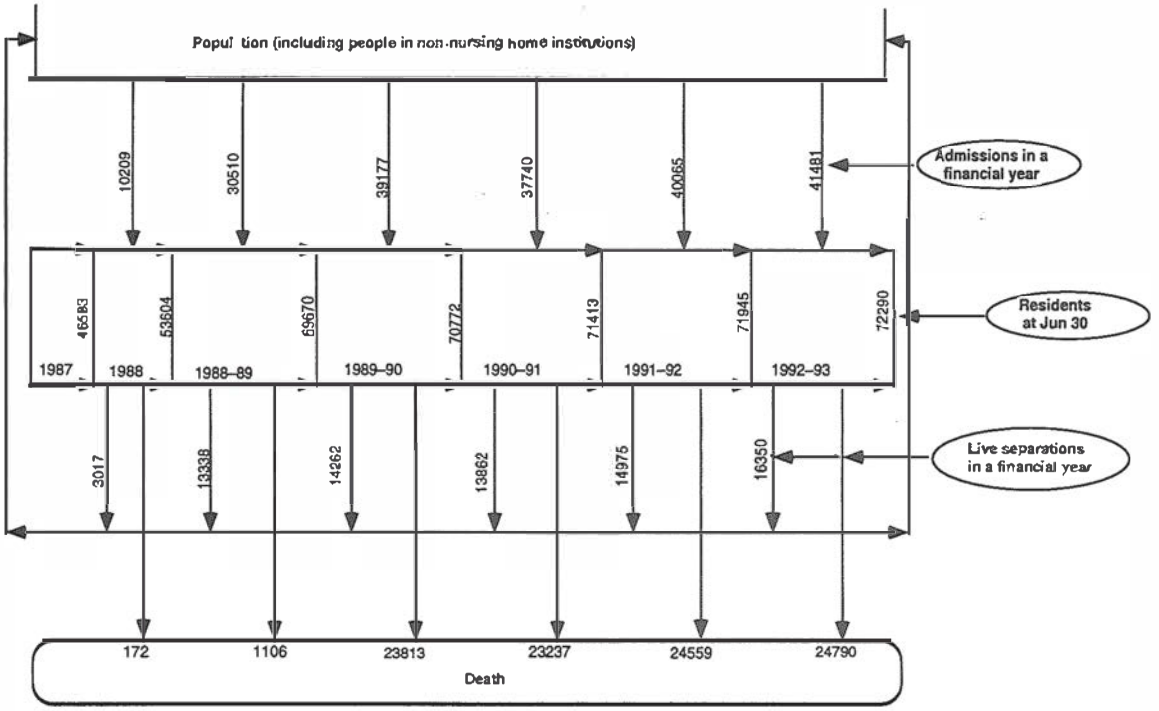
There were 72,290 residents in nursing homes in Australia at 30 June 1993, and 41,481 admissions, 16,350 live separations and 24,790 deaths were recorded in the course of that financial year. Thus about 60% of separations were due to death and 40% for other reasons such as moving back into the community, or transferring to hospitals or hostels.

There are inconsistencies between the data presented here and the data published by the Department of Human Services and Health (DCSH 1988, 1990; HHCS 1992b; HHLGCS 1993) for the early years (see table B1 in appendix B). For this reason, data for 1988–89 and 1989–90 in figure 2.1 are not used for life table analysis in this study.

2.2 The life table approach

Length of stay can be analysed in three ways (Keeler et al. 1981). First, it can be examined retrospectively, at separation. However, this length of stay measure is influenced by variations in the sizes of all past admission cohorts and their composition in terms of characteristics that influence length of stay. It necessarily over-represents short-stay residents and under-represents long-stay residents, and results in an underestimation of average length of stay for residents in general.

Secondly, length of stay can be analysed by examining a cross-section of residents (current residents): that is, the duration of stay from the date of admission to the current date (or a specified date) or, in other words, an incomplete stay. Measures based on current residents over-represent long stayers, even though their length of stay only reflects the stay to date, or a truncated stay. The remaining stay (i.e. the stay until separation) is necessarily unknown for current residents (Liu & Manton 1983).



Note: The number of deaths may be under-reported.

Sources: HHCS 1994; NHPS unpublished data.

Figure 2.1: Nursing home resident flow chart—residents, admissions and separations, Australia, 1988–1993

Table 2.1: Length-of-stay distributions of nursing home residents and separations, Australia, 1992–93

Length of stay	Separated residents 1992–93 (per cent)	Current residents 30 June 1993 (per cent)
Less than 1 month	33	4
1–3 months	14	5
3–12 months	16	19
1–2 years	11	21
2–5 years	16	31
5+ years	10	20
Total	**41,140**	**72,290**

These issues are illustrated in table 2.1, which shows the length of stay for separated residents in the 1992–93 financial year and for current residents at 30 June 1993. The figures for separated residents are heavily skewed towards the shorter stay while those for the current residents are skewed towards the longer stay. This contrast is further illustrated by the median length of stay which is 128 days for separated residents but 749 days for current residents.

The third approach is to examine the completed length of stay of admissions prospectively. An admission cohort can ideally provide an unbiased measurement for length of stay; however, it is not practical to do so directly because of the amount of time required for all members of the admission cohort to separate from the nursing home. To overcome these problems, this study adopts a life table technique to simulate the completed stay of a synthetic admission cohort.

The life table is a well known demographic model, and is particularly effective for truncated data. A nursing home resident life table can be derived from a conventional population period life table by replacing age with length of stay, and replacing death with separation. The parameters of the life table represent the utilisation history of a hypothetical nursing home admission cohort constructed on the basis of the current duration of stay-specific separation experience of nursing home residents (Halli & Rao 1992, pp.19-36; Liu & Manton 1983; Manton et al. 1984). The calculation methods for these parameters are detailed in appendix A of this publication.

A methodological caveat is relevant at this point: length of stay is an episodic measurement. Unlike birth and death, admission and separation can happen to a person more than once. For example, of the 41,481 admissions in 1992–93, 15% were readmissions. In other words, a resident may use nursing home care in several separate episodes during his or her lifetime, and hence the lifetime use may be longer than that measured here. The nursing home life tables employed here only model a single stay as defined by an admission for each resident, rather than lifetime use of nursing homes. Each admission is thus regarded as a distinct person in the life tables. It is therefore assumed that when residents separate, they do not return to the nursing home. Despite this simplification, the strategy provides a valid and useful analysis.

2.3 Terms

This section defines some core terms. Similar terms may be used by others differently, and it is important to be aware of such differences when making comparisons among various studies. For example, a person may have only one admission but many transfers in a given year. If no distinction is made between admission and transfer, the person would be regarded as having had a number of short-stay admissions in that year. This affects not only the admissions, but length of stay and turnover as well. In this study, transfers are identified as transitions from one home to another within two days, and are excluded from admission analyses.

Admission day

The first day of a person's stay in a nursing home. In the case of a person transferring between homes, where the time between leaving one home and entering another is less than two days, it is the date of the person's initial admission.

Separation day

The last day of a person's stay in a nursing home; the day on which the person leaves the nursing home. In the case of a person transferring between homes, where the time between leaving one home and entering another is less than two days, it is the date of the person's last separation.

Length of stay

The length of stay of a separated resident is the time between the date of admission and the date of separation. For a current resident, it is the time between the date of admission and a specified date (e.g. 30 June). The admission date is included, but the separation date or the specified date is excluded from the calculation of length of stay.

Bed-days

The sum of days spent in nursing homes by residents during a period. It is calculated by summing the length of stay for individual residents.

Transfer

Where a person leaves a home on one day and is admitted into another within two days.

Turnover

The ratio of the number of admissions in a period to the average number of nursing home beds during that period.

Accessibility during a period

The number of admissions during a specified period (e.g. a year) per 1,000 people aged 70 and over in the period on average.

Gross utilisation rate in a period

The sum of admissions during a specified period (e.g. a year) and residents at the beginning of the period per 1,000 people aged 70 and over in the period on average.

2.4 Data sources and limitations

The major data source for this study is a computerised nursing home resident data collection derived from the Nursing Home Payment System centrally located at the Department of Human Services and Health. This collection contains unit record data for all admissions. The data collection includes the following variables:

- sex, date of birth and marital status at admission;
- pension status, compensation and housing status at admission;
- with whom living at admission, whether in hospital at time of application;
- country of birth, preferred language;
- date of admission, date of separation;
- death indicator (separated by death);
- dependency level (RCI); and
- nursing home type, size, location.

The data obtained by the Australian Institute of Health and Welfare from the Department of Human Services and Health had been modified by the department to ensure confidentiality. For example, all identifiers had been removed, and a number of variables had been aggregated. This imposed some limitations. For example, separate data were provided for each financial year. It is therefore not possible to follow a resident from one admission to another in subsequent years.

The month, rather than the exact date of admission and separation, were provided.An accurate length of stay variable was generated by the Department of Human Services and Health, however, and added to the data file. The absence of exact admission and separation dates was therefore not a problem for this analyis. In addition, age at admission by five-year age groups was provided, rather than date of birth.

In relation to the information on States and Territories, the Australian Capital Territory and Northern Territory were incorporated into New South Wales and South Australia respectively to protect confidentiality. For the same reason, the regions in which nursing homes are located were aggregated into two broad categories. One is the metropolitan region, which includes all capital cities as well as the major urban areas. The other, the non-metropolitan region, covers the rest of Australia. Rural and remote areas cannot be identified in the data.

There are some other limitations inherited from the data system (AIHW 1994, pp.14–17, 22–25). Complete statistics are available for age, sex, nursing home location, nursing home type and size, date of admission, and date of separation. However, many other variables relating to resident characteristics have varying proportions of missing values, such as whether from hospital, housing tenure, prior living arrangement and preferred languages (table 2.2). Some of these missing values may have consequences for the relevant life tables. Moreover, these resident characteristic statistics are from a nursing home application form (NH5) which was not required for state government home residents until 1 May 1994 (AIHW 1994, p.14); therefore, they relate mainly to residents of non-government nursing homes. They are not representative of government nursing home residents, who constituted about 17% of total nursing home residents and 33% of nursing home separations in 1992–93 (calculated from table B2 in appendix B).

Table 2.2: Per cent of cases with available statistics for each variable in the nursing home data, Australia, 1992–93

Variables	Residents		Separations
	30 June 1992	30 June 1993	1992–93
	Per cent		
Month of admission	100	100	100
Month of separation	100	100	100
Length of stay	100	100	100
Age	100	100	100
Sex	100	100	100
RCI (dependency level)	94	95	96
Marital status	77	80	77
Preferred language	57	63	61
Pension status	73	75	69
Whether from hospital	54	59	56
Housing tenure	57	64	62
Prior living arrangement	57	63	62
State/Territory	100	100	100
Region (metro/non-metro)	100	100	100
Nursing home type	100	100	100
Nursing home size	100	100	100
Total number	**71,945**	**72,290**	**41,140**

Note: More information is available in table B2, appendix B.

Moreover, some information for earlier years seems to be overwritten or deleted (figure 2.1). The data for 1987–88 to 1988–89 are so incomplete that some statistics for these years have to be drawn from other sources, such as *Nursing Homes for the Aged—A Statistical Overview* published by the Department of Human Services and Health (DCSH 1988, 1990; HHCS 1992b; HHLGCS 1993),[3] or excluded from the analysis.

The death indicator, in particular, is unreliable for those earlier years. A partial explanation lies in the fact that, where residents died while away from the home in hospital, their deaths were not routinely recorded (DCSH 1988, p.13). The death indicator may have continued, to some extent, to under-report the actual proportion of death-related separations.

Finally, information on resident characteristics is updated so that they are available only for the most recent admission. This prevents time series analyses where residents have been readmitted.

All population data employed in this analysis were taken from Australian Bureau of Statistics estimated resident population data (ABS 1993b, 1994b).

3. The Department of Human Services and Health was formerly—in chronological order—Department of Community Services and Health (DCSH); Department of Health, Housing and Community Services (HHCS); and Department of Health, Housing, Local Government and Community Services (HHLGCS).

3 Current patterns of length of stay (1992–93)

This chapter uses a life table approach to simulate the length of stay of nursing home residents in Australia in 1992–93. Table 3.1 is constructed on the basis of the patterns of length of stay for separated nursing home residents and current residents in the 1992–93 financial year. The observed cross-sectional pattern of duration of stay-specific separation rates applies to an admission cohort throughout its 'life' in nursing homes (see appendix A). The first column is the duration of stay. For purposes of convenience, a standard month is 30 days and a standard year is 360 days in the life table. These standards for month and year are applied to all the life tables in this publication.

Because of the skewed nature of the data and the wide range in the length of stay of nursing home residents, after four months an increasing interval length is used in successive categories of the 'duration of stay' variable. This should be borne in mind when interpreting other columns in the life table.

Table 3.1: Life table for all nursing home residents, Australia, 1992–93

Duration of stay	l_x	$_nq_x$	e_x	F_x (%)	G_x (%)	H_x (%)
0						
(at admission)	100,000	0.32	636	0.0	0.0	0.0
Months						
1	68,060	0.14	898	31.9	4.0	0.8
2	58,390	0.09	1014	41.6	6.9	1.4
3	53,208	0.06	1081	46.8	9.6	2.0
4	49,910	0.09	1122	50.1	12.0	2.6
6	45,369	0.08	1171	54.6	16.5	3.7
8	41,884	0.11	1206	58.1	20.6	4.8
Years						
1	37,220	0.14	1230	62.8	28.1	7.0
1.5	31,940	0.13	1238	68.1	37.9	10.7
2	27,750	0.26	1231	72.2	46.3	14.9
3	20,605	0.46	1236	79.4	60.0	25.0
5	11,089	0.46	1267	88.9	77.9	46.5
7	5,959	0.61	1329	94.0	87.6	64.0
10	2,314	1.00	1491	97.7	94.6	81.5

Notes

l_x = Number of admissions who stay to the xth month (year); $_nq_x$ = Probability of separation in the next period; e_x = Expected further length of stay at a point during stay (days); F_x = Cumulative frequency of admissions separated before the xth month (year) of stay; G_x = Cumulative frequency of bed-days used by all admissions before xth month (year) of stay; H_x = Cumulative frequency of bed-days used by separations before xth month (year) of stay.

3.1 Length-of-stay distribution (l_x and F_x)

The second column (l_x) in table 3.1 is the number of members of the admission cohort who stay to the xth month (or year). Figure 3.1 illustrates the current members as well as the separated members of the admission cohort by duration of stay. If 100,000 people (a hypothetical number) are admitted to nursing homes at one point in time, by the end of the first month 68,060 of them will still be residents (or 31,940 will have separated from the nursing homes). Less than one-half will stay to the fourth month. One year later there will be 37,220 remaining. After five years 11,089 will remain, and after ten years only 2,314 will remain.

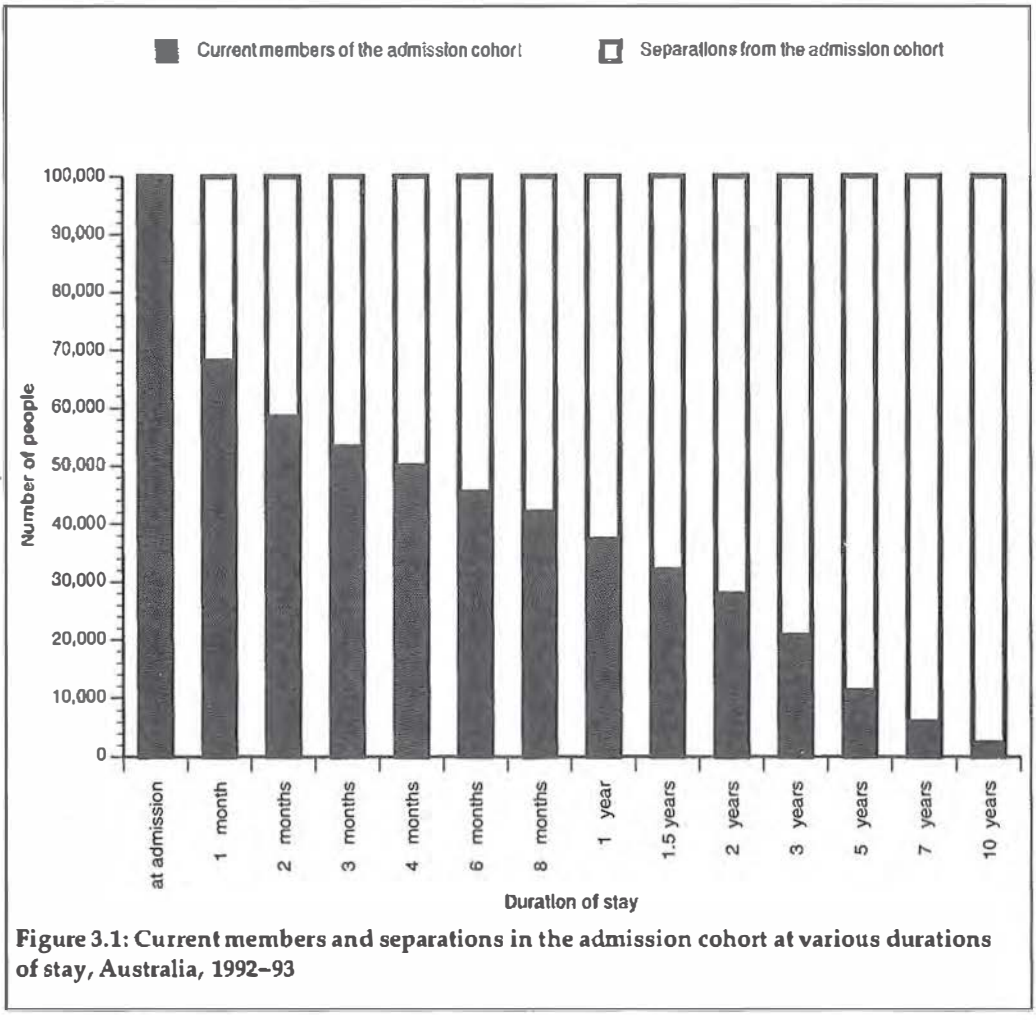


Figure 3.1: Current members and separations in the admission cohort at various durations of stay, Australia, 1992–93

The fifth column of table 3.1 (F_x) represents the cumulative length-of-stay distribution for the admission cohort, or the percentage of cohort members who will have separated before the xth month (or year). It also can be referred to as the separation ratio of the admission cohort. Its inverse ($1 - F_x$) is the survival ratio (not separated). Both ratios are

illustrated in figure 3.2. The two curves show sharp changes early in the stay, becoming flatter over time. About one-third of the admission cohort separate in the first month. Another one-third separate in the following 11 months. The remainder take more than 15 years to separate. Obviously, the median is a better measure than the mean, given such a skewed distribution. About one-half of admissions separate within the first four months; the median length of stay is about four months. The skewed nature of the length-of-stay distribution is further manifested by comparing the median with the mean, or the average length of stay (expected length of stay at admission), which is 636 days (21 months).

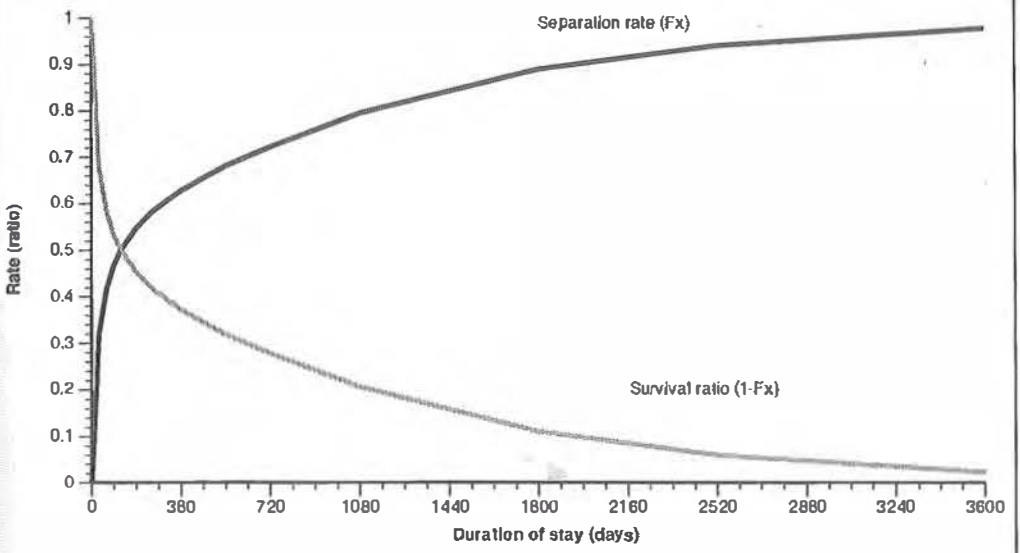


Figure 3.2: Cumulative separation rate and survival ratio, Australia, 1992–93

For interpretive convenience, the members of the admission cohort are divided into the five groups listed in box 3.1 (figure 3.3).

Box 3.1: Length of stay groupings

Group names	*Definitions*	*Per cent of admissions*
Very-short-term	*Length of stay < 1 month*	*32*
Short-term	*Length of stay ≥ 1 month but < 2 months*	*10*
Medium-term	*Length of stay ≥ 2 months but < 4 months*	*9*
Long-term	*Length of stay ≥ 4 months but < 2 years*	*22*
Very-long-term	*Length of stay ≥ 2 years*	*28*

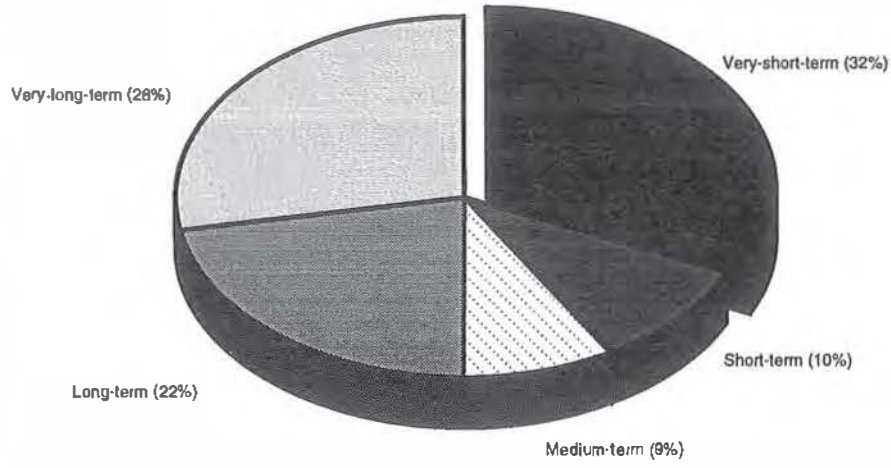


Figure 3.3: Length-of-stay distribution of the admission cohort, Australia, 1992–93

The admissions with an expected length of stay of less than one month need to be singled out because they account for a high proportion of total admissions. This group, *very-short-term* admissions, comprise 32% of all admissions.

Another 10% of admissions, categorised as *short-term*, separate in the second month. Nursing homes play a significant role in short-term care. Taken together, the *very-short-term* and *short-term* groups include virtually all respite admissions. Respite care allows people to use beds in nursing homes on a temporary basis for emergency or regular planned intervals; however, the maximum entitlement under the Benefit Respite Care Scheme is 63 days per person per nursing home in a financial year. The 63 days may be taken in one period or as an aggregate of shorter periods (HSH 1995, p.p 1–15). The majority of *very-short-term* and *short-term* stayers, however, are not respite admissions (chapter 6). They also include hospice-type care, transitional and interim care such as temporary care while waiting for a more appropriate home, and other short-term care such as early separation due to dissatisfaction with care received or changes in circumstances of the resident and/or family.

Another 9% of admissions (the *medium-term* group) stay between 60 and 120 days in nursing homes. In total, one-half of all admissions stay less than four months. The *medium-term* group are themselves comparatively short-stayers, given the expected length of stay at admission is over 21 months for all admissions.

The remaining two groups each account for about one-quarter of admissions. These are *long-term* and *very-long-term* admissions. These two groups are more representative of the common perception of the nursing home as a place where residents are admitted for long-term care and remain for the rest of their lives.

3.2 Separation probability ($_nq_x$)

The third column of table 3.1 ($_nq_x$) shows the probability that a person who has stayed in nursing homes for x months (or years) will separate before the (x+n)th month (or year). It should be pointed out that, for comparative purposes, the values of $_nq_x$ need to be adjusted for the different lengths of the intervals of the duration of stay. Figure 3.4 displays the adjusted separation probability per month. It forms a long-tailed 'L' shape. The separation probabilities are high initially, but decline sharply with increasing length of stay. About one in three admissions separate in the first month, while the separation probability is more than halved in the second month for those remaining. For those who are one year into the duration of stay, their chance of separation in the coming month further decreases to 2%.

It seems that there is a threshold time beyond which the likelihood of remaining in the nursing home increases quite dramatically. In the United States, Keeler et al. (1981) applied an exponential statistical model to the 1973 and 1977 National Nursing Home Surveys and demonstrated that there were two distinct types of residents in an admission cohort. One group was short-stay, the other long-stay residents. Although the same technique has yet to be applied to the Australian nursing home population, the similarity of the separation patterns of nursing home residents strongly indicates that the two-group theory is likely to be applicable to Australian nursing home admissions. In fact, Preston (1987) carried out a study of nursing home resident turnover and accessibility based on the assumption that there were two groups of residents—one admitted for short-term care and the other for long-term care. There may, however, be three or even more such groups of admissions in Australia. Respite care admissions are clearly a distinct group, for example. This heterogeneity of the nursing home population is relevant to policy-makers and service-providers.

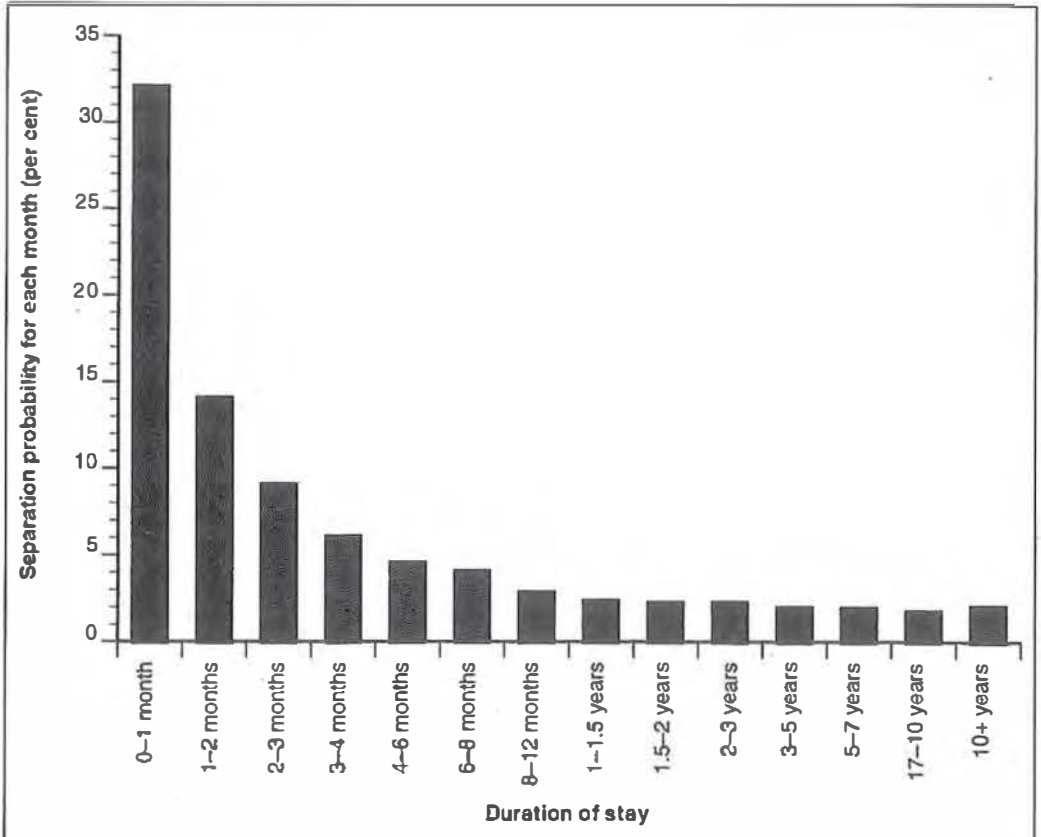
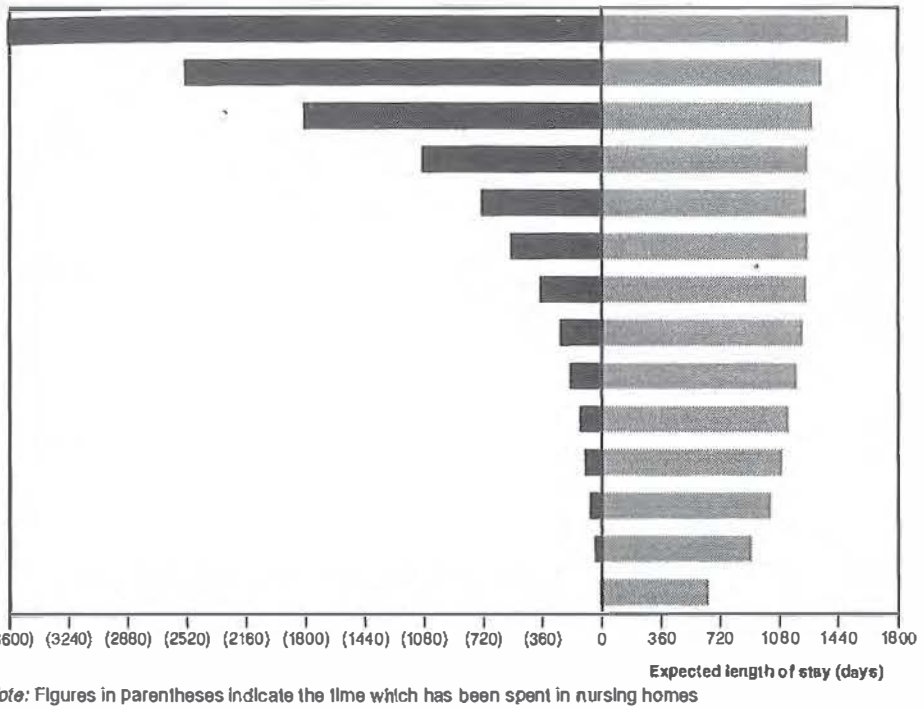


Figure 3.4: Separation probability per month by duration of stay, Australia, 1992–93

3.3 Expected length of stay (e_x)

The fourth column (e_x) of table 3.1 represents the expected further stay (days) if residents have not separated by the xth month (or year). Figure 3.5 depicts the expected length of stay against the duration of stay. The expected length of stay at admission represents the average length of stay of all admissions. A striking finding is that the longer the residents have stayed, the longer they are expected to continue to stay. The most significant increase occurs early in the stay (figure 3.6). After 1 year, the expected remaining stay is about 3 years and 5 months, nearly double that at admission. Those who have stayed for 10 years can expect to remain for a further 4 years. In other words, their total length of stay will be about 14 years.



Note: Figures in parentheses indicate the time which has been spent in nursing homes

Figure 3.5: Duration of stay and expected length of stay at each duration of stay, Australia, 1992–93

The two-group theory offers a useful description for the above pattern. After the short-stayers leave, the remaining residents can be expected to stay much longer. The current population of residents thus affects the utilisation of nursing homes for many years ahead. It is important to look at the length-of-stay pattern of current residents for planning purposes. The more current long-stay residents, the lower the separation rate will be in coming years, and, therefore, the fewer existing beds will become available for use by other people.

This finding again demonstrates the limitations inherent in length-of-stay analyses that focus on only current resident or separation statistics. The life table technique allows these difficulties to be avoided, and gives a more accurate representation of length-of-stay patterns.

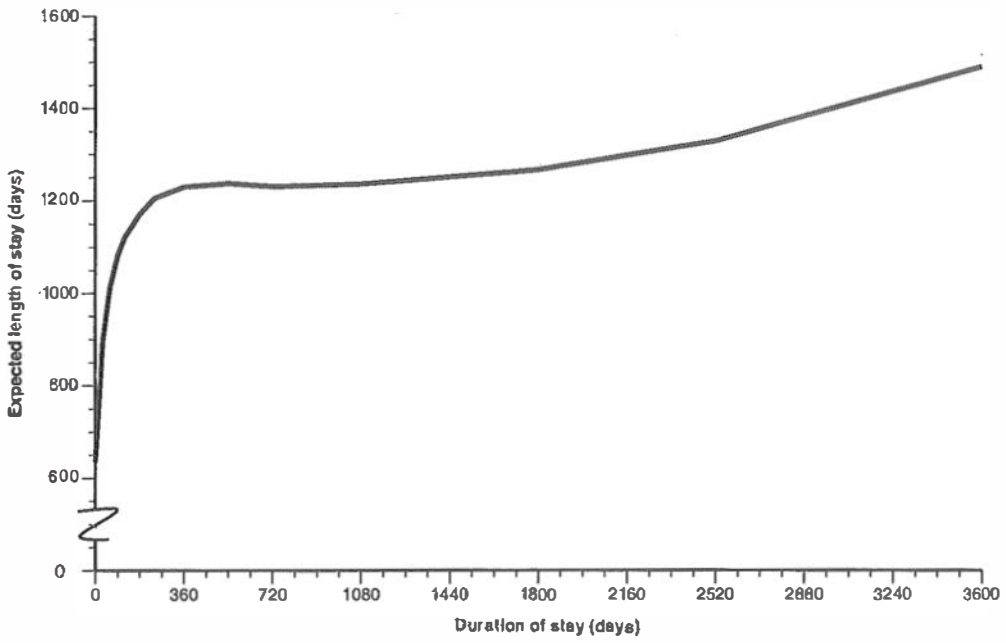


Figure 3.6: Expected length of stay v. duration of stay, Australia, 1992–93

3.4 Length of stay and bed-day use (G_x and H_x)

The sixth column (G_x) of table 3.1 is the proportion of bed-days used prior to the xth month (or year) by all members in the admission cohort. It showshow the bed-days are spread over the duration of stay of the admission cohort. This measure is particularly useful when it is compared with the length-of-stay distribution of the admission cohort (F_x). Only about 12% of total bed-days are used in the first four months, by which time one-half of the admissions have separated. The median length of stay in terms of the distribution of bed-days is 823 days compared with 119 days for length-of-stay distribution for admissions. In other words, one-half of the bed-days were used after a duration of stay of 823 days, when only one-quarter of admissions remained in the nursing home. Total bed-days are not evenly distributed amongst all residents. A small proportion of admissions (very-long-stayers) use a large proportion of the bed-days in an extended period of stay.

To directly illustrate bed-day use pattern for admissions, this study introduces an additional parameter, H_x, the last column of table 3.1. It is the proportion of total bed-days used by those cohort members separated (not all admissions as in G_x) before the xth month (or year). The *very-short-term* and the *short-term* stayers together consume only about 1% of the total bed-days. Those *very-short-term*, *short-term* and *medium-term*

groups (separations within the first four months) account for 50% of admissions but use only 3% of total bed-days. At the other extreme, about 10% of admissions stay more than five years, and use more than half of the total bed-days. These patterns are illustrated by figure 3.7. The top bar represents the proportions of admissions in the *very-short-term* to *medium-term* group, a long-stay group, and an extremely-long-stay group (F_x). The bottom bar represents the corresponding proportion of total bed-days used by each length-of-stay group (H_x).

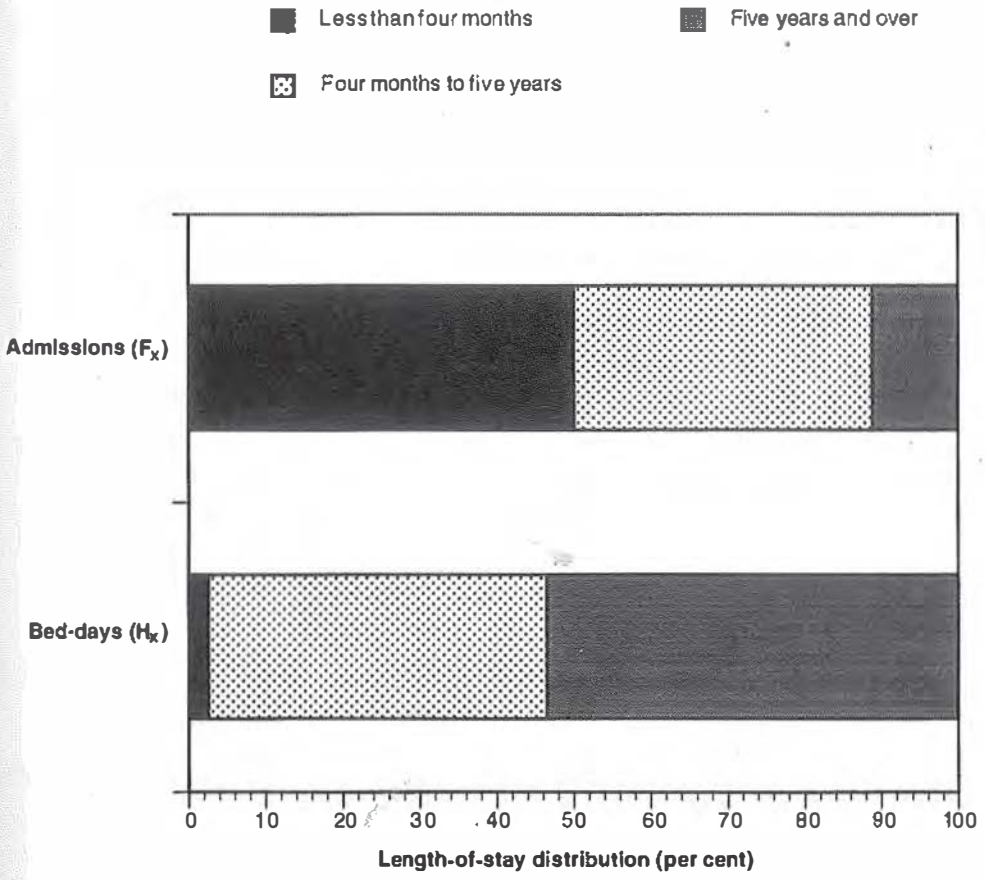


Figure 3.7: Length-of-stay distribution of the admission cohort and the proportion of bed-days used by each length-of-stay group, Australia, 1992–93

The measure G_x has other important interpretations. For instance, if all stays were reduced to no more than 720 days, less than one-quarter of the admission cohort would be affected but more than one-half of the total bed-days would be saved. Therefore, an effective way of reducing nursing home utilisation per resident is to reduce the extremely-long-stay residents or their length of stay. Such a reduction of utilisation would mean an increase in the availability of nursing home beds at a fixed level of

provision. This finding supports Preston's (1987) earlier assertion that, without an increase in bed numbers, the most effective way to increase the availability of nursing home beds is to decrease the proportion of low turnover (long-stay) admissions and increase their turnover. The question of whether this is an appropriate policy strategy for a system designed to provide care for chronically ill persons remains unanswered by this analysis, however. A profile of extremely-long-stay residents, their health conditions, demographic characteristics and the circumstances surrounding their admissions would be a useful contribution to such a debate.

G_x also represents the length-of-stay distribution for a cross-section of residents (current residents). As table 3.1 shows, the distribution of current residents is heavily skewed toward long-stay residents. In addition, G_x can be seen as a stationary population survivorship measure. Among current residents with a duration of stay of less than a month, about 73% [(6.9 – 4)/4 = 73%] will be still in the nursing home one month later. In other words, 27% of these residents will separate in the next month. As another example, the proportion of current residents with a duration of stay between six months and one year who will remain in the nursing home for another half year is 84% [(37.9 – 28.1)/(28.1 – 16.5) = 84%]; to put this another way, 16% of them will separate in the next six months.

If the length-of-stay pattern of the current residents is known, the number of currently occupied beds which will be freed up through separations in a coming period can be estimated by using this survivorship measure. For example, if there were 100,000 residents with a duration of stay of 6 months to 1 year inclusive, about 16,000 [100,000 x (1 – 84%)] of them would separate in the next 6 months; or 16,000 currently occupied beds could be expected to be available for new admissions in that period.

4 Resident characteristics and length of stay (1992–93)

In the last chapter, a life table was used to analyse the length of stay of total Australian nursing home residents in 1992–93. This chapter constructs a series of life tables for various groups of nursing home residents in 1992–93 and examines the relationships between length of stay and resident characteristics.

Chapter 3 provided a detailed account of various indicators employed in the life table. In this chapter and the following chapters, interpretation and analysis will focus on four measures:

- expected length of stay at admission, e_0 (equivalent to average length of stay);
- expected length of stay at various points in the duration of stay, e_x (i.e. how much longer residents can be expected to stay once a particular period of residence has passed);
- the median length of stay (median rather than mean, owing to the skewed nature of the data); and
- length-of-stay distribution of an admission cohort, F_x.

4.1 Sex of residents and age at admission

Sex

Table 4.1 presents the expected length of further stay after x months (or years) into the duration of stay (e_x) for both male and female admission cohorts. It is well recognised that older women are more likely to use nursing homes than their male counterparts. According to this table, female residents also stay much longer in nursing homes. The expected length of stay at admission (or average length of stay per person of total admissions) for women is 737 days, about 260 days longer than for men (475 days). The median length of stay for women (179 days) is about 2.5 times as long as that for men (72 days).

Figure 4.1 illustrates the differences between men and women in expected length of stay, given the duration of stay up to that point. The gap in expected further length of stay between men and women declines gradually as the duration of stay increases. After five years, the expected further length of stay for men is longer than that for women. By this time, only about 10% of the admission cohort remain. A small proportion of men thus have extremely long stays.

Table 4.1: Expected length of stay (e_x days) of nursing home residents by sex, Australia, 1992–93

Duration of stay	Males (M)	Females (F)	Differences (F–M)
0 (at admission)	475	737	262
Months			
1	715	999	284
2	826	1,113	287
3	898	1,174	276
4	944	1,208	264
6	994	1,254	260
8	1,035	1,283	248
Years			
1	1,071	1,297	226
1.5	1,090	1,297	207
2	1,095	1,283	188
3	1,161	1,260	99
5	1,295	1,258	–37
7	1,387	1,309	–78
10	1,709	1,427	–282

Table 4.2 examines sex difference in nursing home utilisation according to the percentage distribution of the admission cohort. Proportionately, women are more likely than men to fall into the *very-long-term* group and less likely to fall into the shorter-term groups. This pattern remains even when *very-short-term* and *short-term* admissions are excluded from the analysis (table 4.3).

Table 4.2: Length-of-stay distributions of admissions (F_x) by sex, Australia, 1992–93

Length of stay	Males (per cent)	Females (per cent)
Very-short-term	37	29
Short-term	11	9
Medium-term	9	8
Long-term	22	22
Very-long-term	21	32

Note: The terms *very-short-term, short-term, medium-term, long-term* and *very-long-term* are defined in box 3.1.

To summarise: in comparison to men, women have longer average lengths of stay (expected length of stay at admission), are more likely to be in the longer-stay groups, and are less likely to be in shorter-stay groups.

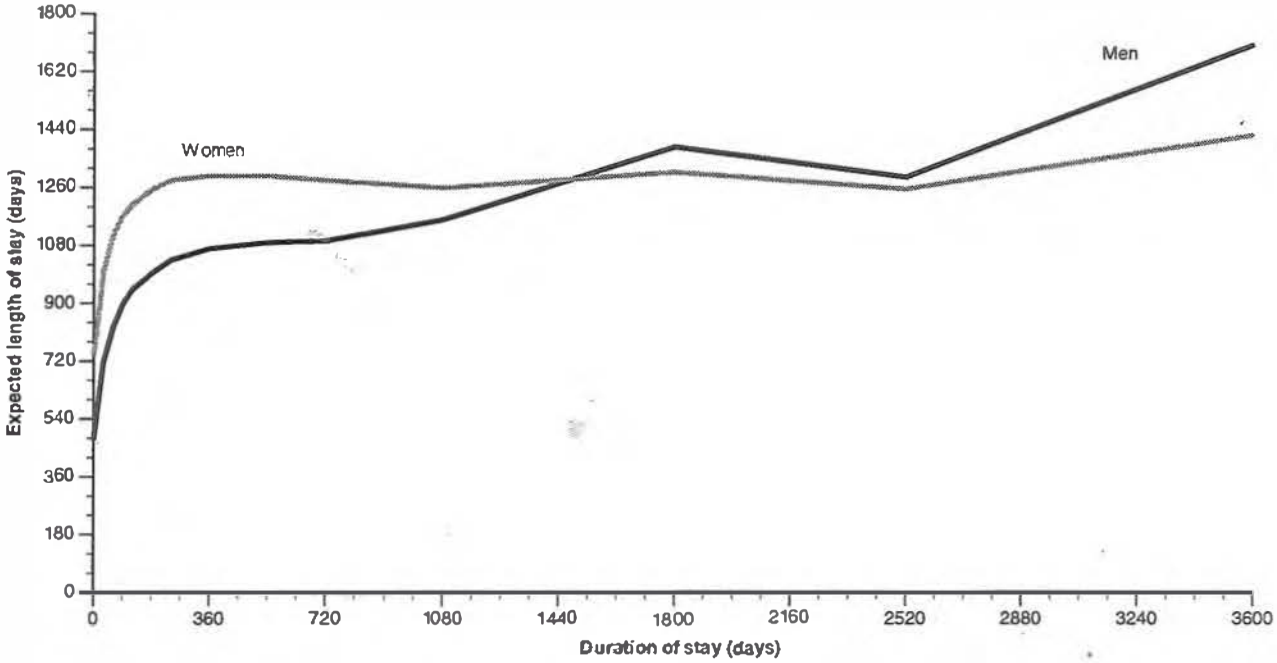


Figure 4.1: Expected length of stay v. duration of stay by sex, Australia, 1992–93

Table 4.3: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by sex, Australia, 1992–93

Length of stay	Males (per cent)	Females (per cent)
Medium-term	17	13
Long-term	42	35
Very-long-term	40	52

Note: The *very-short-term* and *short-term* admissions are excluded from this table.

Age at admission

The older population is often classified into two groups to indicate their health status and likely levels of service use. Varying cut-offs for age at admission have been used according to particular purposes of different studies (AIHW 1993; HHCS 1991a; Rowland 1992; Zopf 1986). This report uses age 60–79 for the younger admission group, and 80 and over (80+) for the older admission group. Table 4.4 and figure 4.2 show that these two groups have markedly different patterns of expected length of stay. Firstly, the 60–79 age admission group can be expected to stay longer throughout their duration of residence. The difference in expected length of stay between the two age admission groups increases sharply from 49 days at admission to about 200 days by the end of the first month, and continues to increase, reaching 535 days after about 7 years. This sharp increase suggests that differences in length of stay related to entry age are less salient among short-stayers than among long-stayers.

Secondly, the expected length of stay (e_x) for the younger admission group aged 60–79 is subject to increases in the early period of residence, then stabilises at a high level later on. For the older admission group (aged 80+), the expected length of stay increases more slowly, and declines noticeably about one and one-half years into the duration of stay. The shorter stay for those admitted at age 80+ is, at least in part, a function of their higher mortality rate.

This shorter stay for the 80+ age admission group has implications for projections of utilisation. Projections based on age-specific institutionalisation rates may overestimate the need for nursing home beds in a particular period, given that the aged population both in the community and in nursing homes is ageing (ABS 1994a). The proportion of nursing home residents aged 80 and over increased from about 64% in 1988 to 67% in 1994 (DCSH 1988, p.25; HSH 1995, ACCSIS unpublished data). Thus an increasing proportion of persons aged 80 and over among nursing home residents may well lead to a reduction in the average length of stay. A supplementary projection based on age-specific bed-day use could be useful for planning purposes.

Although the expected length of stay at admission is longer for the younger than for the older admission group, the median length of stay (80 days) for the younger admission group is less than half that of the older one (167 days). This is because there is a much larger proportion of *very-short-term* stayers in the younger than in the older admission group. For those who stayed for 30 or more days, the median length of stay is 479 days for the age 60–79 admission group and 461 days for the age 80+ admission group.

Table 4.4: Expected length of stay (e_x days) of nursing home residents by age at admission, Australia, 1992–93

23	23	Age at admission 80+ years	Differences between the two groups
0 (at admission)	654	605	49
Months			
1	1,002	796	205
2	1,145	889	256
3	1,234	940	294
4	1,290	969	321
6	1,344	1,009	335
8	1,392	1,031	361
Years			
1	1,430	1,038	392
1.5	1,439	1,032	408
2	1,448	1,002	446
3	1,433	980	453
5	1,413	945	468
7	1,429	893	535
10	1,385	922	463

Table 4.5 shows a higher proportion of *very-short-term* admissions in the age 60–79 admission group than in the age 80+ one. There are no marked differences among the rest of the length-of-stay groups. The distribution patterns for the *medium-term* to *very-long-term* admissions are also similar between the two admission groups (table 4.6).

Table 4.5: Length-of-stay distributions of admissions (F_x) by age at admission, Australia, 1992–93

Length of stay	Age at admission 60–79 years (per cent)	Age at admission 80+ years (per cent)
Very-short-term	37	27
Short-term	9	10
Medium-term	8	9
Long-term	19	25
Very-long-term	26	29

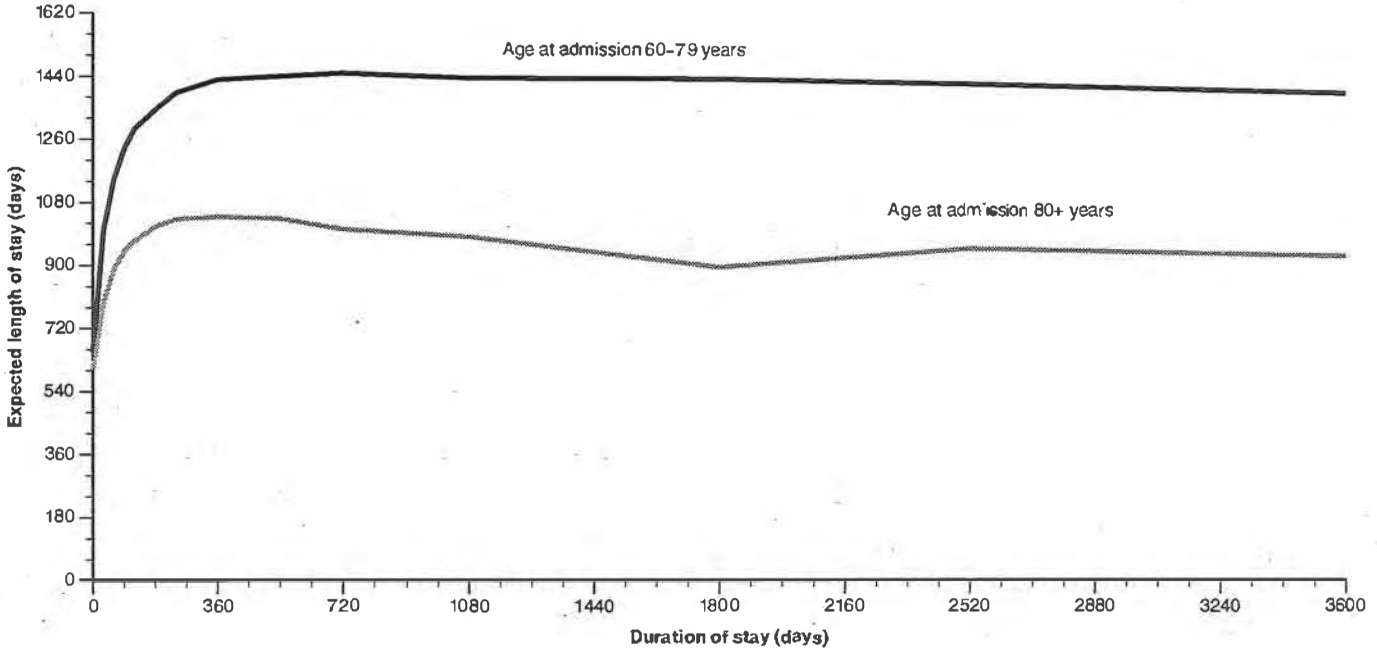


Figure 4.2: Expected length of stay v. duration of stay by age at admission group, Australia, 1992–93

Table 4.6: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by age at admission, Australia, 1992–93

Length of stay	Age at admission 60–79 years (per cent)	Age at admission 80+ years (per cent)
Medium-term	15	14
Long-term	36	40
Very-long-term	49	46

In conclusion, the members of the 80+ admission group are more likely to stay *long-term* and much less likely to stay *very-short-term*. However, their length of stay is limited by their life span; the separations for this group are more likely to be mortality-related.

Sex differences by age at admission

Both age at admission and sex have a significant effect on the length of stay and the length-of-stay distribution of the admission cohort. As the duration of stay increases, however, the effect of sex weakens while the effect of age at admission strengthens.

Tables 4.7 and 4.8 suggest that there are also sex differences by age at admission. When examined by both age at admission and sex, the variations in expected length of stay increase. Women admitted at ages 60–79 years have the longest expected stay (783 days at admission) while the men admitted at ages 80+ years have the shortest (407 days at admission) at almost all points in the duration of stay (figure 4.3). The median length of stay varies from 57 days for men admitted at age 60–79 years to 227 days for women admitted at age 80+ years. It is 95 days for men admitted at age 80+ years and 113 days for women admitted at age 60–79 years.

Table 4.7 and figure 4.3 show that the expected-length-of-stay trends converge between the two admission groups as duration of stay increases for both men and women. Early in the stay, both age at admission and sex are very salient factors, although the patterns for older women and younger men are initially very similar. However, after four months, sex-based differences begin to decrease and age at admission becomes the predominant factor. Mortality plays a significant part here, apparently more so for women than for men. A clear trend of decrease in the expected length of stay for women admitted at ages 80+ years after one year of stay is not matched by men in the same age group.

After five years of stay, women can be expected to continue to stay longer than men for both age groups, except for the 80+ admission group, at the tenth year of the residence.

Table 4.7: Expected length of stay (e_x days) for nursing home residents by age at admission and sex, Australia, 1992–93

Duration of stay	Males admitted at ages 80+ years	Males admitted at ages 60–79 years	Females admitted at ages 80+ years	Females admitted at ages 60–79 years	Range[a]
0 (at admission)	407	501	695	783	376
Months					
1	554	817	896	1,140	586
2	635	940	988	1,296	661
3	685	1,024	1,034	1,381	696
4	717	1,077	1,058	1,436	719
6	755	1,115	1,093	1,498	743
8	777	1,164	1,111	1,540	763
Years					
1	788	1,202	1,110	1,570	782
1.5	788	1,205	1,096	1,577	789
2	753	1,214	1,063	1,577	824
3	777	1,226	1,019	1,532	755
5	803	1,256	963	1,471	668
7	698	1,277	915	1,477	779
10	984	1,354	917	1,395	478

(a) The maximum variation in expected length of stay between the columns.

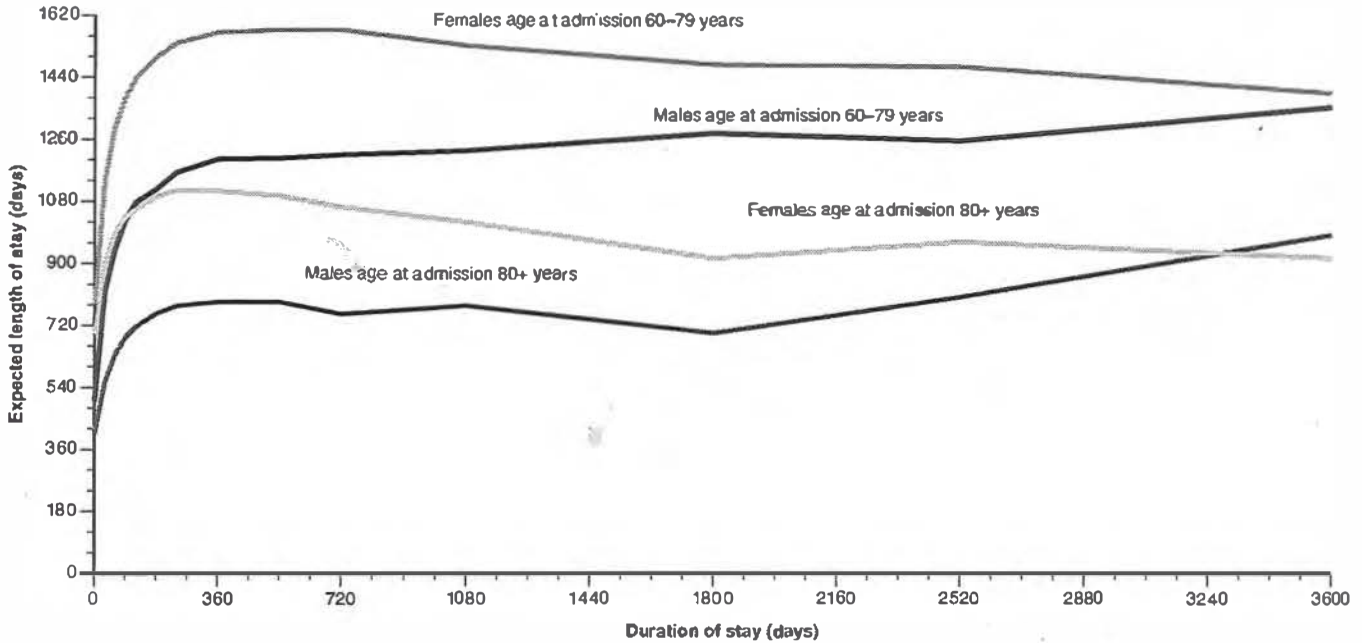


Figure 4.3: Expected length of stay v. duration of stay by age at admission group and sex, Australia, 1992–93

Table 4.8 and figure 4.4 present the percentage distributions of the admission cohorts by age and sex. They have the following features:

- The distribution pattern varies markedly among the four age and sex groups.
- In the *very-short-term* category, males admitted at age 60–79 years comprise the greater proportion and females admitted at 80+ years the least.
- Over one-half of the males admitted at age 60–79 years are in the *very-short-term* to *short-term* category compared with one-third of females admitted at age 80+ years.
- There are higher proportions of women in the *very-long-term* category for both age groups.
- For both sexes, the 60–79 years admission groups are more likely than the 80+ years admission groups to be in the *very-short-term* category.
- For both admission groups, males are more likely than females to be in the *very-short-term* category and females more likely than males be in the *very-long-term* category.

The exceptionally high proportion of *very-short-term* stayers among those men admitted at age 60–79 years partially explains the much shorter expected length of stay at admission for this group.

Table 4.8: Length-of-stay distributions of admissions (F_x) by age at admission and sex, Australia, 1992–93

Length of stay	Males admitted at ages 60–79 years (per cent)	Males admitted at ages 80+ years (per cent)	Females admitted at ages 60–79 years (per cent)	Females admitted at ages 80+ years (per cent)
Very-short-term	42	31	34	25
Short-term	9	12	10	9
Medium-term	9	11	8	8
Long-term	19	26	19	25
Very-long-term	22	20	30	33

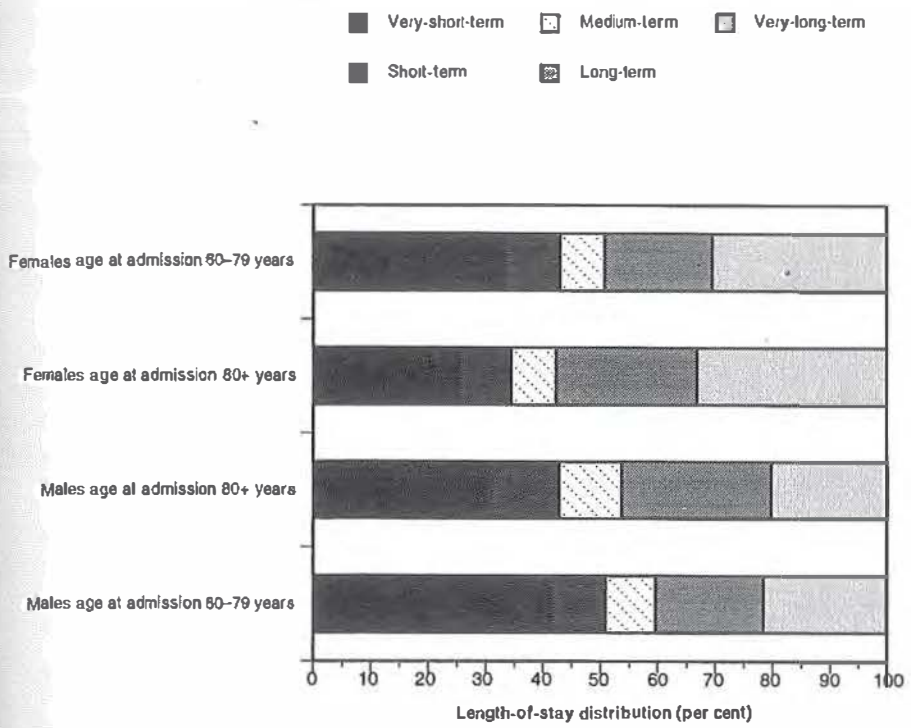


Figure 4.4: Length-of-stay distribution of the admission cohorts by age at admission group and sex, Australia, 1992–93

After excluding the *very-short-term* to *short-term* categories, the proportion in the *very-long-term* category increases dramatically for the 60–79 age admission group of both sexes so that it becomes greater than in the 80+ age admission group for both sexes (table 4.9). The *very-short-term* admissions have a significant influence on the pattern of nursing home use.

Table 4.9: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by age at admission and sex, Australia, 1992–93

Length of stay	Males admitted at ages 60–79 years (per cent)	Males admitted at ages 80+ years (per cent)	Females admitted at ages 60–79 years (per cent)	Females admitted at ages 80+ years (per cent)
Medium-term	18	19	14	12
Long-term	38	46	33	38
Very-long-term	44	35	53	50

4.2 Dependency levels (RCI)

The Resident Classification Instrument (RCI) is used to indicate the level of dependency, or the amount of care needed by a nursing home resident (HHCS 1992a). RCI 1 represents the highest level of care and RCI 5 the lowest. The RCI level of individual residents is subject to review periodically; here it refers only to the level of dependency at entry. The general finding concerning the relationship between expected length of stay and dependency level is that the higher the dependency level, the shorter the expected length of stay at admission (table 4.10).

There are great differences in the expected length of stay at admission between RCI 1, RCI 2 and RCI 3; however, the differences between RCI 3, RCI 4 and RCI 5 are insignificant. This pattern remains throughout the duration of stay (figure 4.5).

The differences in length-of-stay distributions by RCI are even more clearly shown by the medians of length of stay. They are 87, 211, 430, 485 and 390 days for RCI 1 to RCI 5 respectively. More than one-half of RCI 1 admissions separate within three months; for RCI 4 the comparable figure is over 16 months.

Table 4.11 and figure 4.6 also show that the higher dependency levels are associated with higher proportions of shorter-term admissions and lower proportions of *very-long-term* admissions. Fully 32% of RCI 1 admissions separate within the first month, compared with 13–14% of RCI 3, 4 and 5 admissions. When the *very-short-term* and *short-term* admissions are combined, 44% of RCI 1 and 31% of RCI 2 fall into these categories. Much lower proportions (21–24%) are found in RCI categories 3–5. It is unexpected to see the lower proportion of *very-short-term* and *short-term* admissions among RCI 3 category residents, given that respite care admissions automatically receive RCI 3 funding; respite care admissions are, however, eligible for higher levels of funding if they have higher care levels (HSH 1995, p. p1.15).

Table 4.10: Expected length of stay (e_x days) of nursing home residents by dependency level (RCI), Australia, 1992–93

Duration of stay	RCI 1	RCI2	RCI3	RCI4	RCI5
0 (at admission)	468	710	907	922	903
Months					
1	649	856	1,006	1,036	1,019
2	753	962	1,073	1,095	1,115
3	827	1,026	1,128	1,140	1,194
4	854	1,073	1,166	1,168	1,213
6	912	1,127	1,218	1,200	1,239
8	942	1,171	1,252	1,219	1,273
Years					
1	970	1,205	1,265	1,230	1,310
1.5	1,048	1,226	1,261	1,221	1,307
2	1,039	1,215	1,250	1,209	1,280
3	1,075	1,247	1,254	1,174	1,233

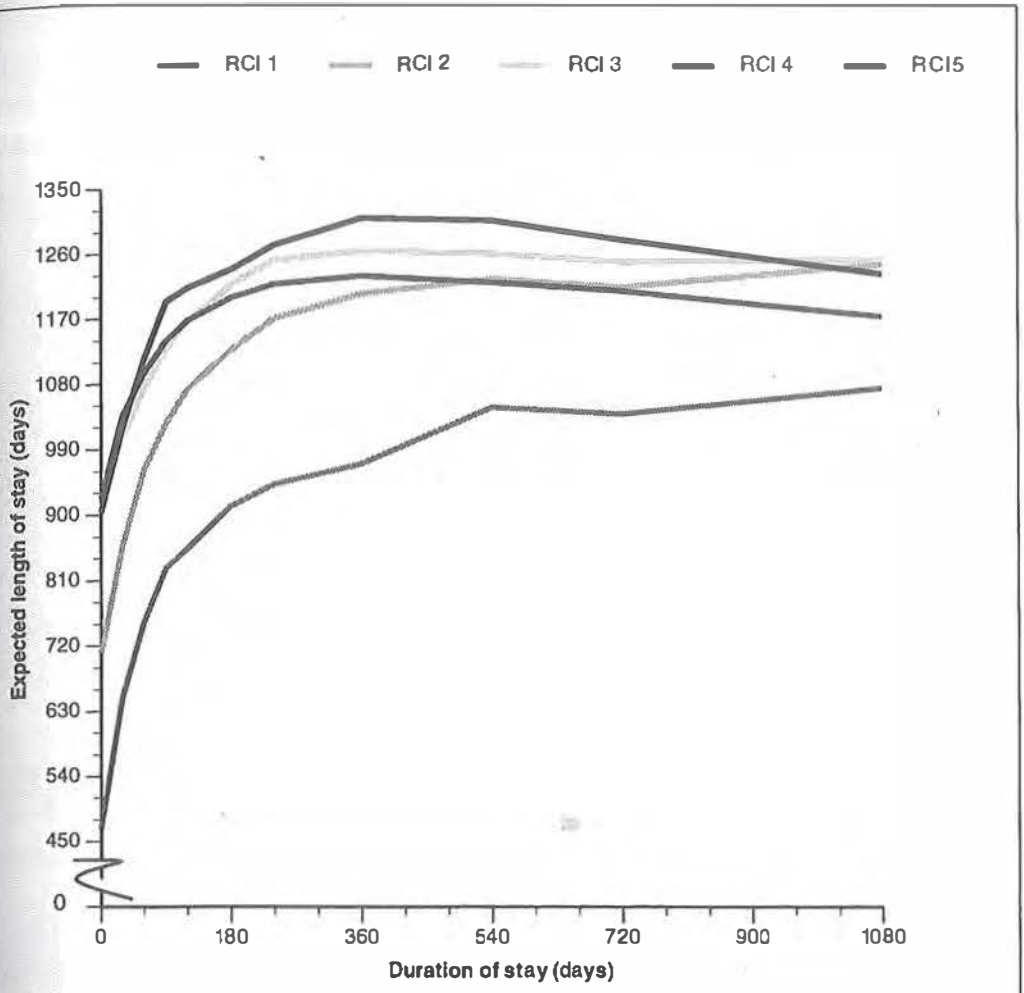


Figure 4.5: Expected length of stay v. duration of stay by dependency level (RCI), Australia, 1992–93

Table 4.11: Length-of-stay distributions of admissions (F_x) by dependency level, Australia, 1992–93

Length of stay	RCI 1 (per cent)	RCI 2 (per cent)	RCI 3 (per cent)	RCI4 (per cent)	RCI 5 (per cent)
Very-short-term	32	20	13	14	14
Short-term	12	11	8	7	10
Medium-term	10	11	10	9	10
Long-term	26	27	29	29	27
Very-long-term	21	31	40	42	40

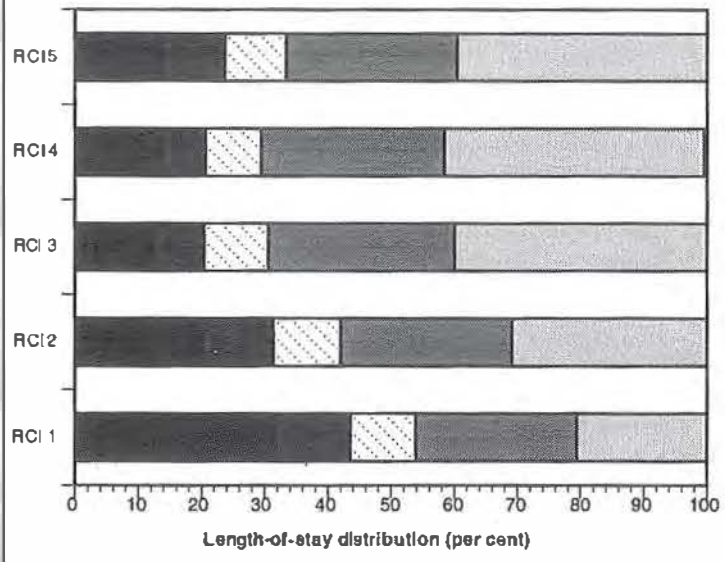


Figure 4.6: Length-of-stay distribution of the admission cohorts by dependency level (RCI), Australia, 1992–93

On the other hand, over 40% of RCI 3, 4 and 5 admissions are in the *very-long-term* category compared with 21% of RCI 1 admissions. Even when the analysis is restricted to *medium-term* and longer-term admissions only, the above pattern remains (table 4.12).

Table 4.12: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by dependency level, Australia, 1992–93

Length of stay	RCI 1 (per cent)	RCI2 (per cent)	RCI3 (per cent)	RCI4 (per cent)	RCI5 (per cent)
Medium-term	18	16	13	11	13
Long-term	46	39	37	36	35
Very-long-term	37	45	51	53	52

4.3 Marital status

Informal support is an important element in maintaining frail older people at home; the indicators of informal support in this database are marital status and prior living arrangements.

Table 4.13: Expected length of stay (e_x days) of nursing home residents by marital status, Australia, 1992–93

Duration of stay	Married/de facto	Divorced/separated/ widowed	Never married
0 (at admission)	567	739	879
Months			
1	859	927	1,056
2	971	1,018	1,144
3	1,038	1,067	1,210
4	1,084	1,093	1,254
6	1,135	1,128	1,313
8	1,171	1,154	1,344
Years			
1	1,203	1,166	1,362
1.5	1,214	1,167	1,360
2	1,209	1,145	1,353
3	1,228	1,136	1,371
5	1,288	1,106	1,411
7	1,324	1,069	1,468

Table 4.13 shows that the expected length of stay at admission increases as the potential for support from family members diminishes. Never married residents have the longest expected length of stay at admission as well as at all other durations of stay. Those residents who are married or in a de facto relationship have the shortest expected length of stay initially, but with increasing periods of residence their expected length of stay becomes longer than those who are divorced, separated or widowed (figure 4.7).

The medians of the length of stay show a pattern related to the expected length of stay at admission. They are 84 days for those who are married or in a de facto relationship, 257 days for those who were divorced, separated or widowed, and 322 days for the never married group.

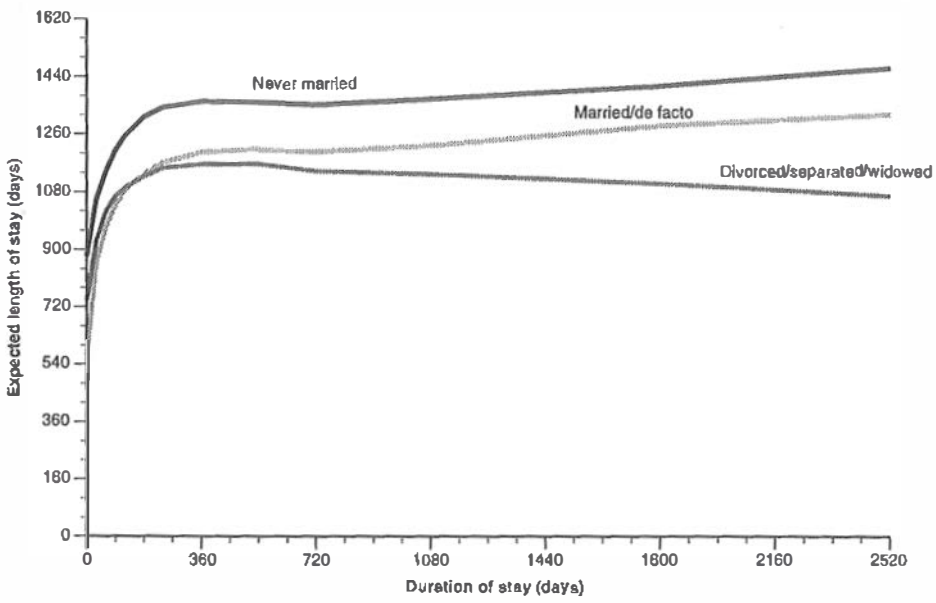


Figure 4.7: Expected length of stay v. duration of stay by marital status, Australia, 1992–93

Table 4.14 and figure 4.8 reveal that the shorter expected length of stay for the married or de facto group is related to a greater share in the *very-short-term* category and a smaller share in the *very-long-term* category. When the *medium-term* to *very-long-term* admissions only are considered (table 4.15), these differences are no longer salient.

Table 4.14: Length-of-stay distributions of admissions (F_x) by marital status, Australia, 1992–93

Length of stay	Married/de facto (per cent)	Divorced/separated/ widowed (per cent)	Never married (per cent)
Very-short-term	37	23	19
Short-term	9	9	8
Medium-term	8	8	10
Long-term	21	26	26
Very-long-term	25	34	37

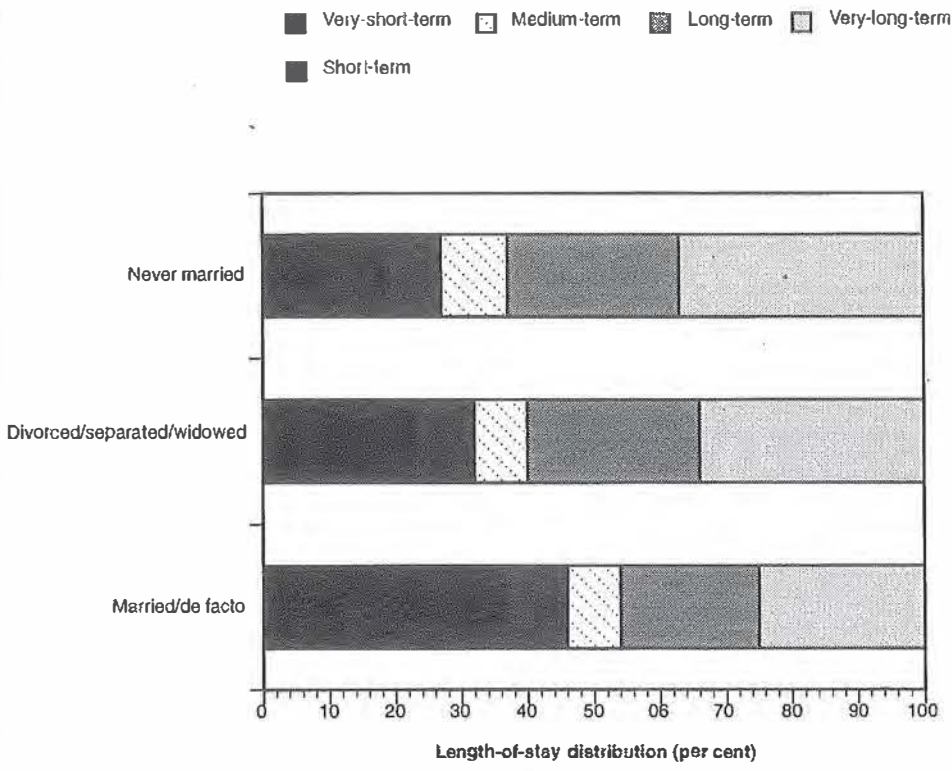


Figure 4.8: Length-of-stay distribution of the admission cohorts by marital status, Australia, 1992–93

Table 4.15: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by marital status, Australia, 1992–93

Length of stay	Married/de facto (per cent)	Divorced/separated/ widowed (per cent)	Never married (per cent)
Medium-term	15	12	14
Long-term	39	38	36
Very-long-term	46	50	51

It is commonly noted that men are more likely than women to have a surviving spouse available to care for them in old age (ABS 1984, p.10; ACOTA & DCSH 1985, pp.442–445). It is less commonly noted in gerontological literature that being married or having a de facto relationship may indicate different levels of informal support for men and for women and the impact of marriage on length of stay may thus differ between the sexes.

Table 4.16 and figure 4.9 show that married female residents have an expected stay of some 290 days longer than males. For those divorced, separated or widowed, the difference between the sexes in expected length of stay at admission is also significant (females stay 260 days longer). However, this may well be affected by other factors, including age at admission and differences in mortality rates of men and women.

Table 4.16: Expected length of stay (e_x days) of nursing home residents by marital status and sex, Australia, 1992–93

	Males			Females		
Duration of stay	Married/de facto	Divorced/ separated/ widowed	Never married	Married/de facto	Divorced/ separated/ widowed	Never married
0 (at admission)	449	535	836	739	795	912
Months						
1	703	659	1,063	1,064	1,001	1,059
2	801	736	1,167	1,185	1,093	1,138
3	863	785	1,248	1,252	1,139	1,193
4	905	809	1,304	1,295	1,164	1,231
6	957	833	1,364	1,335	1,199	1,290
8	993	857	1,406	1,360	1,222	1,315
Years						
1	1,020	880	1,446	1,389	1,228	1,322
1.5	1,033	880	1,427	1,383	1,225	1,332
2	1,030	848	1,442	1,366	1,201	1,314
3	1,068	877	1,528	1,346	1,178	1,299
5	1,190	863	1,539	1,340	1,138	1,349
7	1,275	697	1,617	1,347	1,116	1,396

The difference in the expected length of stay for the never married group is relatively small between the sexes (76 days). Men have a shorter expected length of stay than women at admission, but this pattern reverses after the first month.

As figure 4.9 shows, the divorced, separated or widowed men have the shortest expected length of stay at all times except at admission, when they are second only to the married male group. The variation in the expected length of stay over the first five years of stay is also much smaller for this group than those for the other groups. After five years, a notable decline occurs.

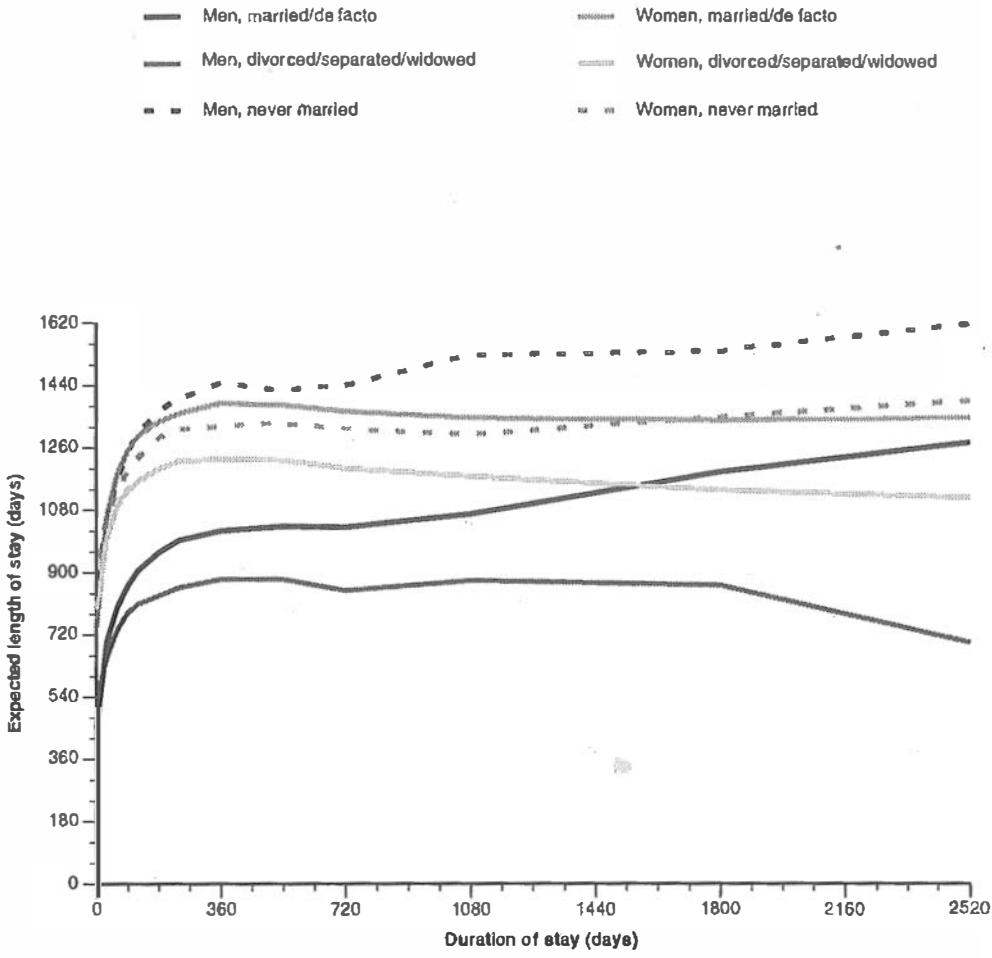


Figure 4.9: Expected length of stay v. duration of stay by sex and marital status, Australia, 1992–93

Expected length of stay varies across marital status for both sexes, but the variation is much weaker for women than for men. This supports the interpretation that marital status has a more substantial effect for men than it does for women.

Table 4.16 and figure 4.9 show that married female residents have an expected stay of some 290 days longer than males. For those divorced, separated or widowed, the difference between the sexes in expected length of stay at admission is also significant (females stay 260 days longer). However, this may well be affected by other factors, including age at admission and differences in mortality rates of men and women.

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1.5	1,033	880	1,427	1,383	1,225	1,332
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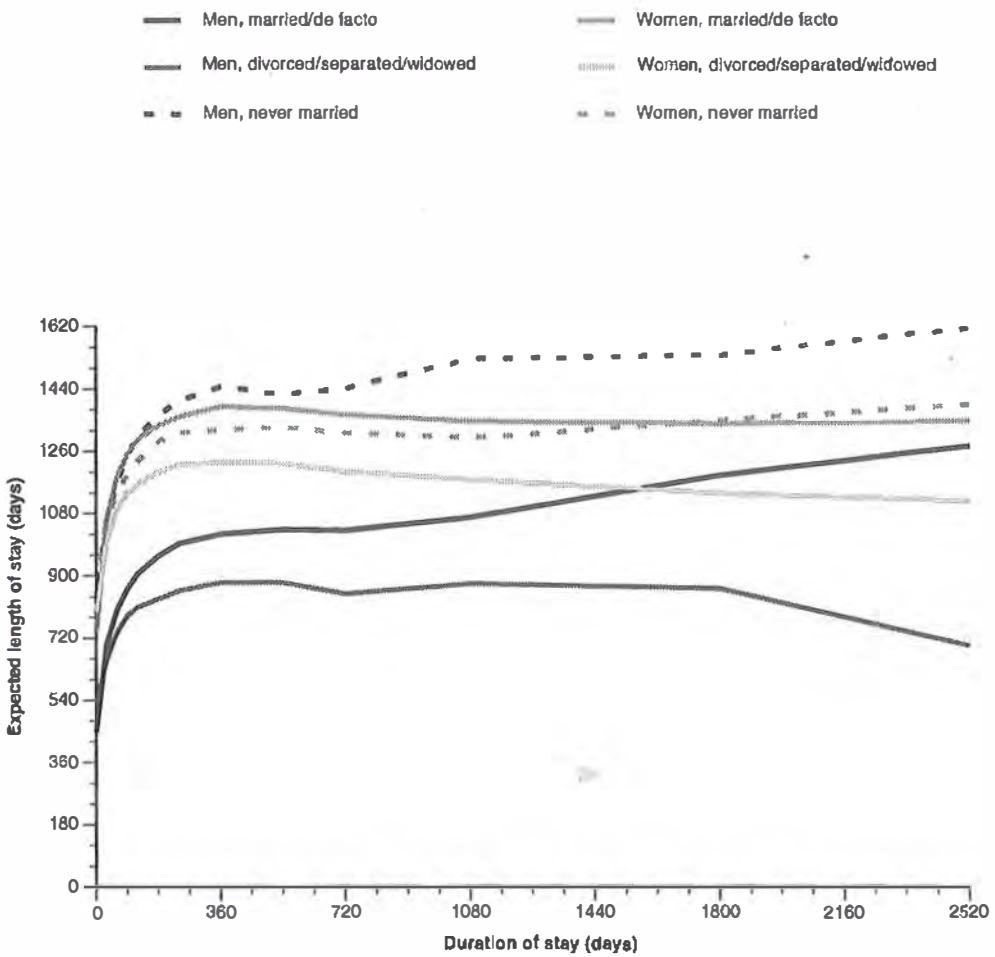

Figure 4.9: Expected length of stay v. duration of stay by sex and marital status, Australia, 1992–93

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4.4 Prior living arrangement

Living arrangement at the time of admission provides another indication of the availability of informal support. Most community-based care is provided by the informal network, and the majority of that care is provided by co-residents (ACOTA & DCSH 1985, pp.442–445; AIHW 1995). The life tables show that living with family members, particularly spouses and children, is indeed associated with a shorter length of stay in nursing homes (table 4.17 and figure 4.10).

A small group of nursing home residents lived with their parents prior to admission and they show the shortest length of stay at admission. Apart from this group, living with spouse only prior to admission predicts the shortest length of stay in nursing homes. Surprisingly, extra family members in the household other than the spouse are not associated with a further reduction in length of stay. Residents who previously lived with spouses and others have an expected length of stay at admission about 85 days longer than those who lived with their spouses only. This group also has the longest expected length of stay through the entire duration of stay, except at admission.

Living with children is associated with a shorter length of stay and this is more pronounced if the child's family is also co-resident. The expected length of stay at admission for those who lived with their children and the children's families is more than 120 days shorter than for those who lived with their children only.

Table 4.17: Expected length of stay (e_x days) of nursing homes residents by living arrangement, Australia, 1992–93

Duration of stay	Parents	Spouse only	Spouse and others	Child and child's family	Child	Other family members	Alone	Non-family members
0 (at admission)	418	564	650	540	667	772	808	882
Months								
1	878	825	1,073	844	964	1,028	959	989
2	1,016	937	1,217	941	1,069	1,140	1,062	1,052
3	1,062	1,007	1,294	986	1,149	1,211	1,128	1,079
4	1,080	1,051	1,343	1,011	1,188	1,277	1,163	1,096
6	1,129	1,102	1,404	1,047	1,212	1,317	1,206	1,130
8	1,140	1,138	1,446	1,096	1,252	1,361	1,224	1,156
Years								
1	1,163	1,158	1,491	1,105	1,257	1,379	1,243	1,175
1.5	1,154	1,162	1,539	1,094	1,321	1,372	1,244	1,170
2	1,108	1,141	1,621	1,079	1,308	1,381	1,230	1,149
3	1,149	1,139	1,570	1,066	1,359	1,339	1,231	1,179

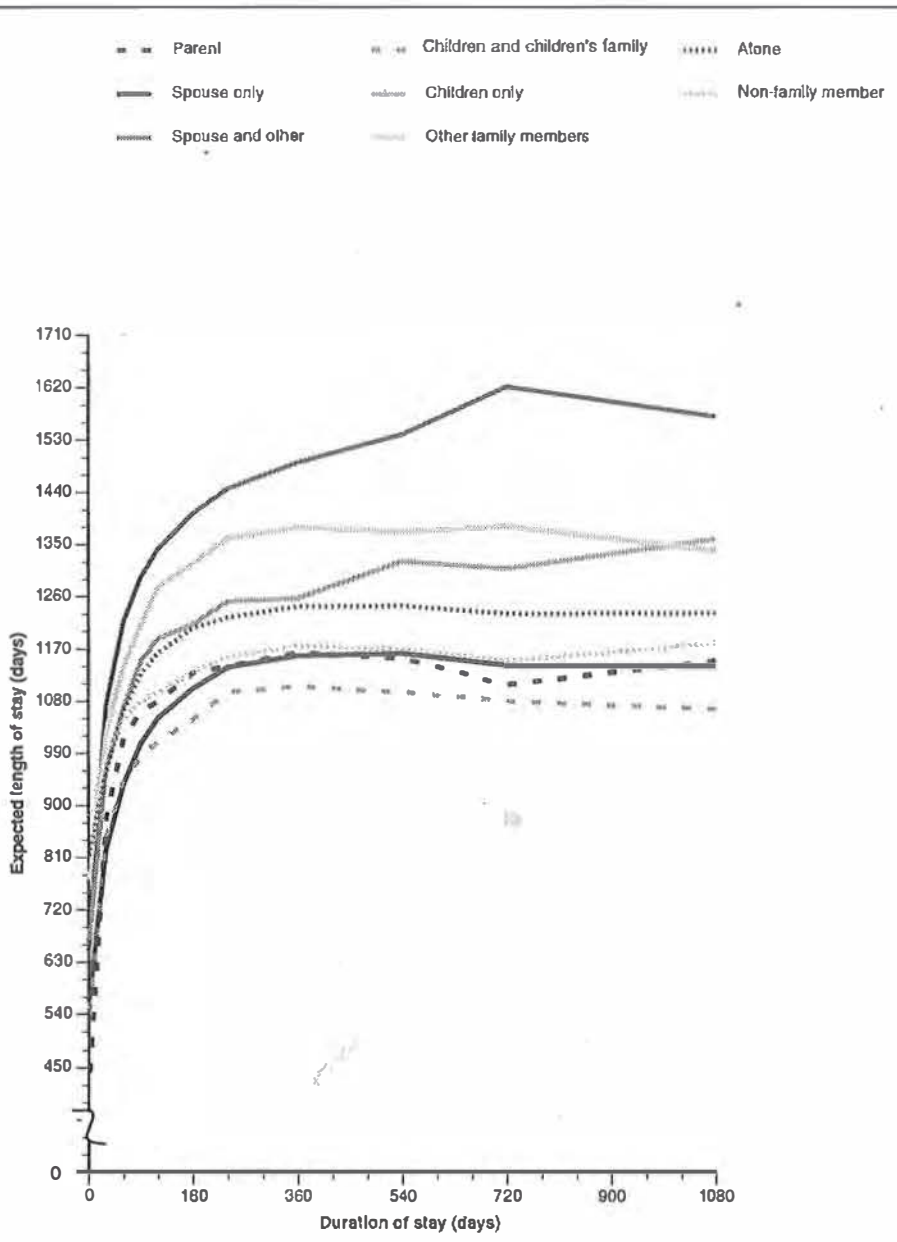

Figure 4.10: Expected length of stay v. duration of stay by prior living arrangement, Australia, 1992–93

Living alone before entering a nursing home is associated with a very long expected length of stay, about eight months longer than those who lived with a spouse only, and nine months longer than those who lived with their children's families.

Residents who previously lived with non-family members have the longest expected length of stay—fully 75 days longer than those who lived alone. This finding suggests that non-family co-residents provide relatively less support for frail aged people in the community than family members; this interpretation is consistent with the suggestion by Newcomer et al. (1995) that non-family co-residents may contribute to the admission of their frail co-residents to a nursing home.

Table 4.18: Length-of-stay distributions of admissions (F_x) by living arrangement, Australia, 1992–93

Length of stay	Parents (per cent)	Spouse only (per cent)	Spouse and others (per cent)	Child and child's family (per cent)	Child only (per cent)	Other family members (per cent)	Alone (per cent)	Non-family members (per cent)
Very-short-term	55	35	42	39	33	27	19	14
Short-term	7	10	8	8	8	9	10	8
Medium-term	4	10	7	7	9	10	10	7
Long-term	14	21	19	21	22	22	26	31
Very-long-term	19	25	24	25	28	32	36	41

Apart from those who lived with their parents prior to admission, residents who lived with their spouses and others, or with their children and children's families prior to nursing home admission, are highly likely to experience *very-short-term* periods of care (table 4.18 and figure 4.11). On the other hand, those who lived alone or with non-family members prior to admission are more likely to fall into longer-stay categories once admitted.

When only the *medium-term* to *very-long-term* admissions are considered, however, the length-of-stay distributions converge (table 4.19), indicating that these differences are predominantly those concerning the proportion of *very-short-term* admissions.

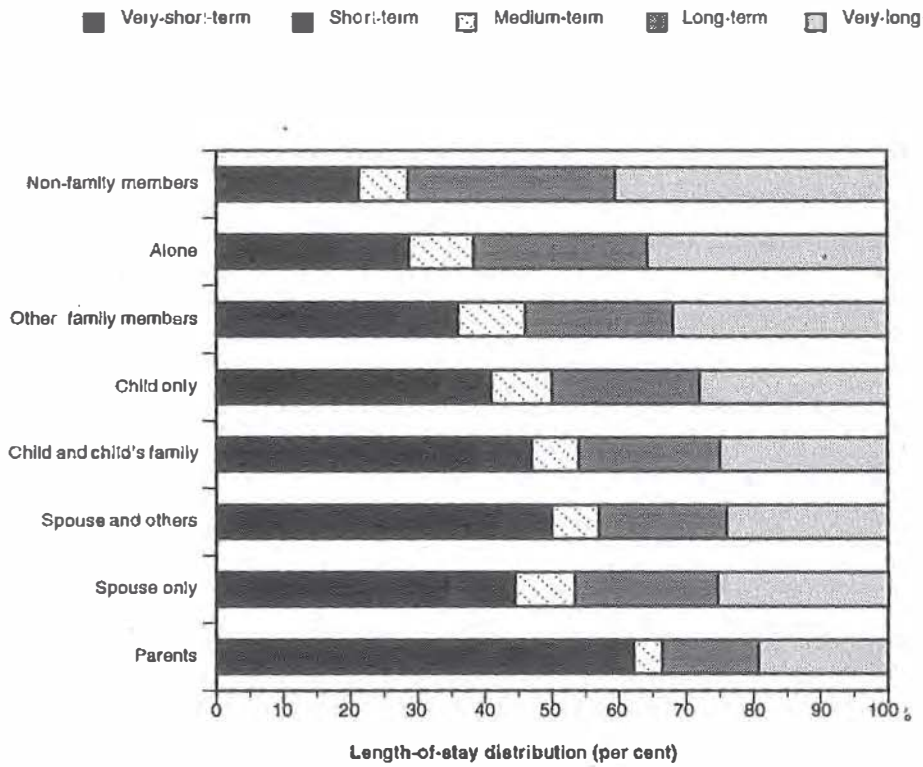

Figure 4.11: Length-of-stay distribution of the admission cohorts by prior living arrangement, Australia, 1992–93

Table 4.19: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by living arrangement, Australia, 1992–93

Length of stay	Parents (per cent)	Spouse only (per cent)	Spouse and others (per cent)	Child and child's family (per cent)	Child only (per cent)	Other family members (per cent)	Alone (per cent)	Non-family members (per cent)
Medium-term	11	18	14	13	15	16	14	9
Long-term	38	38	138	40	37	34	36	39
Very-long-term	51	45	48	47	47	50	50	52

4.5 Housing tenure

Housing tenure prior to admission provides some indication of financial status and the capacity to manage an independent lifestyle, either alone or with assistance from others. Generally speaking, older people prefer to remain in an independent living environment where possible (ACOTA & DCSH 1985, pp.92–105; Rowland 1992, pp.113–120). Therefore, housing status prior to nursing home admission may help predict length of stay.

People living in a house or flat have the shortest expected length of stay at admission (652 days—table 4.20), while those living in independent units have the second-shortest expected length of stay at admission (697 days). The residents transferred from psychiatric hospitals have the longest expected length of stay at admission (1,114 days). The expected lengths of stay at admission for those transferred from hostels or similar accommodation, and those residents from other types of accommodation including acute hospital transfers, lie in between.

There are large differences in the median length of stay for groups with different housing tenure. They are 133, 198, 469, 408 and 662 days for admissions from houses and flats, independent units, hostels or hoste-like accommodation, 'other' types of accommodation, and psychiatric hospitals respectively.

In sum, there appears to be a marked association between the expected length of stay at admission and prior housing tenure. The closer the nature of the housing tenure to that of the nursing home, the longer is the residents' subsequent stay in a nursing home. The more different the nature of the housing to that of the nursing home, (i.e. the more independent), the shorter is the residents' stay in the nursing homes.

Table 4.20: Expected length of stay (e_x days) of nursing home residents by housing tenure, Australia, 1992–93

Duration of stay	House or flat	Independent unit	Hostel or hostel-like	Others	Psychiatric hospital
0 (at admission)	652	697	861	881	1,114
Months					
1	909	871	952	1,013	1,240
2	1,018	998	1,017	1,071	1,271
3	1,087	1,056	1,049	1,091	1,278
4	1,126	1,088	1,067	1,115	1,305
6	1,173	1,136	1,098	1,150	1,309
8	1,207	1,160	1,114	1,191	1,295
Years					
1	1,223	1,205	1,127	1,231	1,311
1.5	1,232	1,198	1,110	1,242	1,334
2	1,219	1,157	1,086	1,230	1,348
3	1,225	1,175	1,086	1,277	1,288

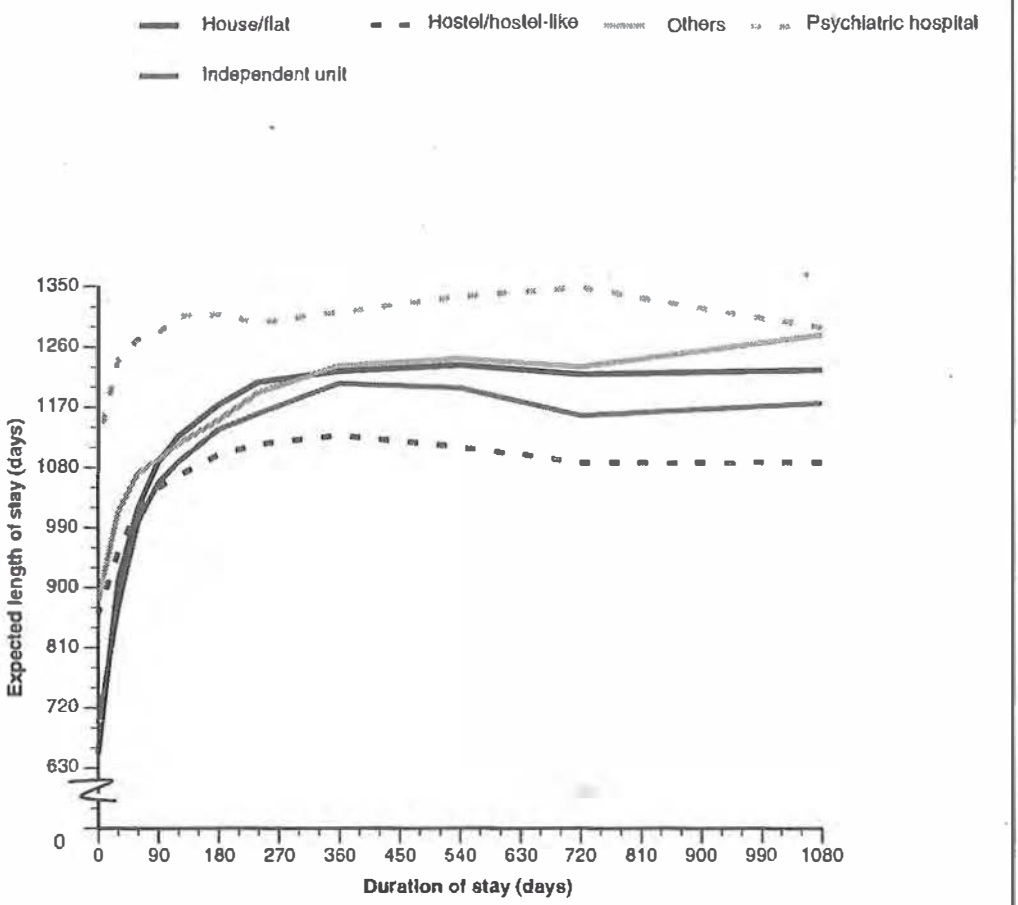

Figure 4.12: Expected length of stay v. duration of stay by housing tenure, Australia, 1992–93

Figure 4.12 also shows that the expected further length of stay for those who lived in houses or flats and independent units increases sharply in the first three months. After that, the expected further length of stay for these two groups exceeds that for those from hostels and hostel-like accommodation. For the entire duration of stay, psychiatric hospital transfers have the longest expected length of stay at all points in time.

Those residents previously living in more independent circumstances provide the highest proportions of *very-short-term* stayers (table 4.21 and figure 4.13). About one-third of admissions from houses and flats stay for less than one month, compared with only 12% of those from psychiatric hospitals. Admissions from houses and flats (40%) and independent units (35%) are more likely to be for *very-short-term* to *short-term* care than are those in the other categories (16-23%). If these two shorter-term groups are excluded from the analysis, the differences in length-of-stay distributions between housing status become smaller, but still significant (table 4.22).

Table 4.21: Length-of-stay distributions of admissions (F_x) by housing tenure, Australia, 1992–93

Length of stay	House or flat (per cent)	Independent unit (per cent)	Hostel or hostel-like (per cent)	Others (per cent)	Psychiatric hospital (per cent)
Very-short-term	31	23	13	16	12
Short-term	9	12	8	7	4
Medium-term	9	9	8	7	6
Long-term	22	25	31	31	30
Very-long-term	29	32	41	39	48

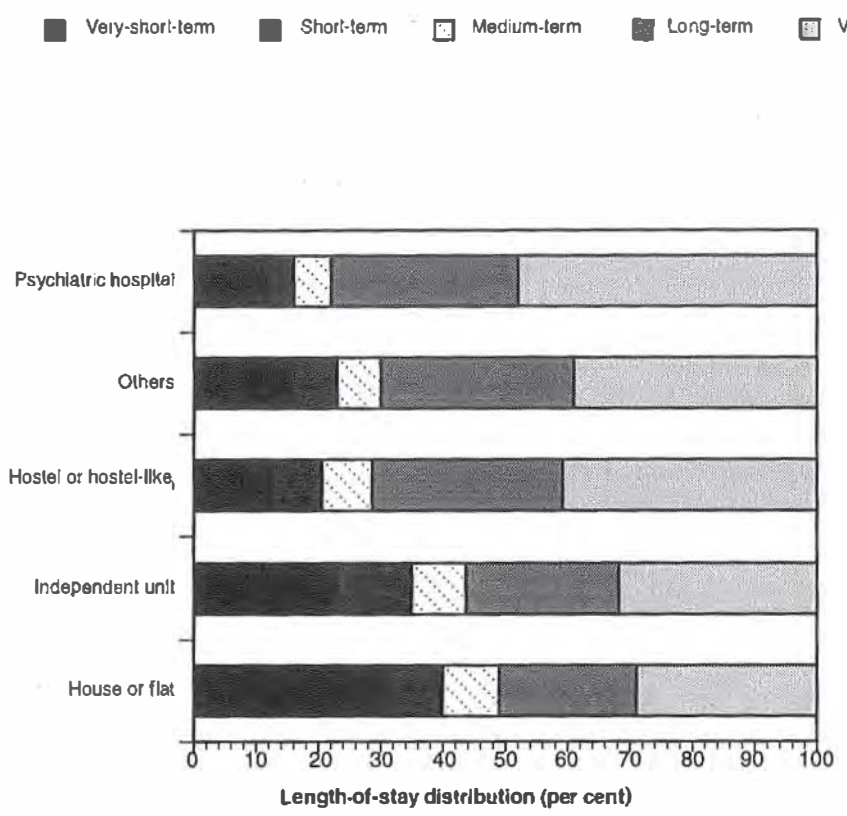

Figure 4.13: Length-of-stay distribution of the admission cohorts by housing tenure, Australia, 1992–93

Table 4.22: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by housing tenure, Australia, 1992–93

Length of stay	House or flat (per cent)	Independent unit (per cent)	Hostel or hostel-like (per cent)	Others (per cent)	Psychiatric hospital (per cent)
Medium-term	15	14	10	9	7
Long-term	37	38	39	40	36
Very-long-term	48	48	51	51	57

4.6 Whether admitted from hospital

Acute hospitals are a major source of nursing home admissions—about 60% of admissions. Those residents who were in hospital at the time of application include those with acute conditions and those who were too dependent to stay at home while waiting for admission to nursing homes. Table 4.23 and figure 4.14 show that residents admitted from hospitals can be expected to stay longer than those who were not. The difference is about 100 days at admission. The median length of stay is 281 days for hospital transfers and 148 days for non-hospital transfers.

Table 4.23: Expected length of stay (e_x days) of nursing home residents by whether from hospital, Australia, 1992–93

Duration of stay	Not from hospital	From hospital	Difference between hospital and non-hospital
0 (at admission)	666	763	97
Months			
1	967	907	–60
2	1,063	991	–72
3	1,110	1,044	–66
4	1,139	1,077	–62
6	1,169	1,128	–41
8	1,198	1,160	–38
Years			
1	1,208	1,187	–21
1.5	1,210	1,181	–29
2	1,196	1,165	–31
3	1,190	1,186	–4

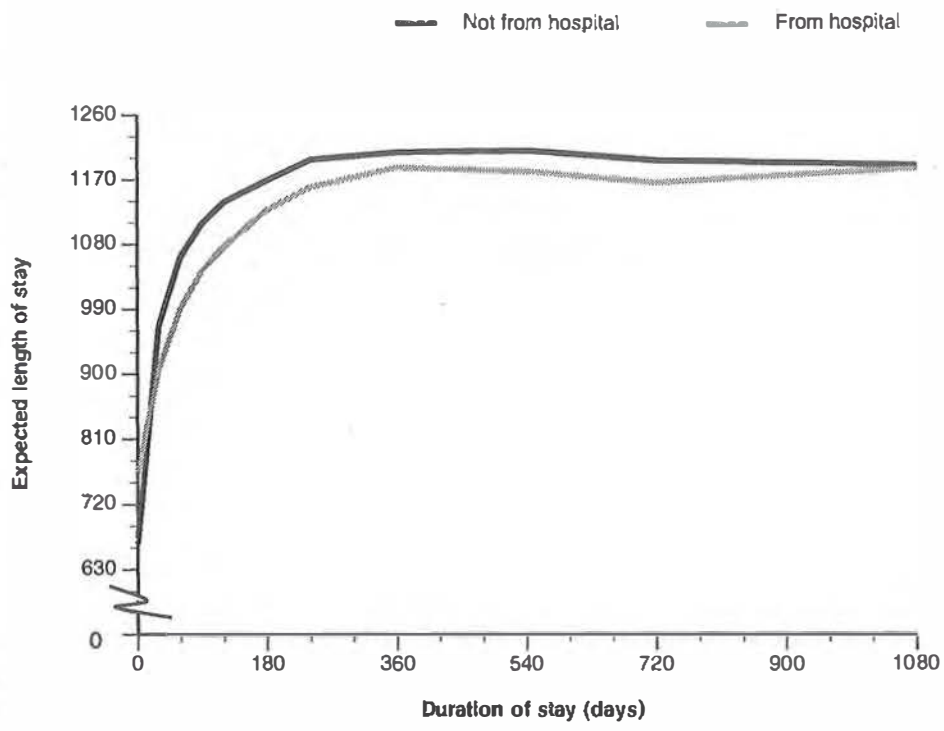

Figure 4.14: Expected length of stay v. duration of stay by whether from hospital, Australia, 1992–93

However, after the first month has elapsed, the expected length of stay is longer for non-hospital transfers. The difference in the expected length of stay at admission is largely a result of the large proportion of *very-short-term* admissions among those residents who did not transfer from a hospital (table 4.24 and figure 4.15). If the *very-short-term* category is excluded, admissions from hospitals have a shorter length of stay than those not from hospitals. This comparison is hardly surprising, given that the average length of stay at admission in hospitals is about 212 days for nursing home type patients who have been approved as eligible for nursing home care. While many of these may not transfer, if the hospital stay as a nursing home type patient was added to the nursing home stay for those who do transfer, the comparison might be reversed. The impact of diagnosis-related funding may result in earlier discharge of nursing home type patients, and this will inevitably put further pressure on nursing home availability.

Table 4.24: Length-of-stay distributions of admissions (F_x) by whether from hospital, Australia, 1992–93

Length of stay	Not from hospital (per cent)	From hospital (per cent)
Very-short-term	34	19
Short-term	8	9
Medium-term	7	10
Long-term	22	28
Very-long-term	30	34

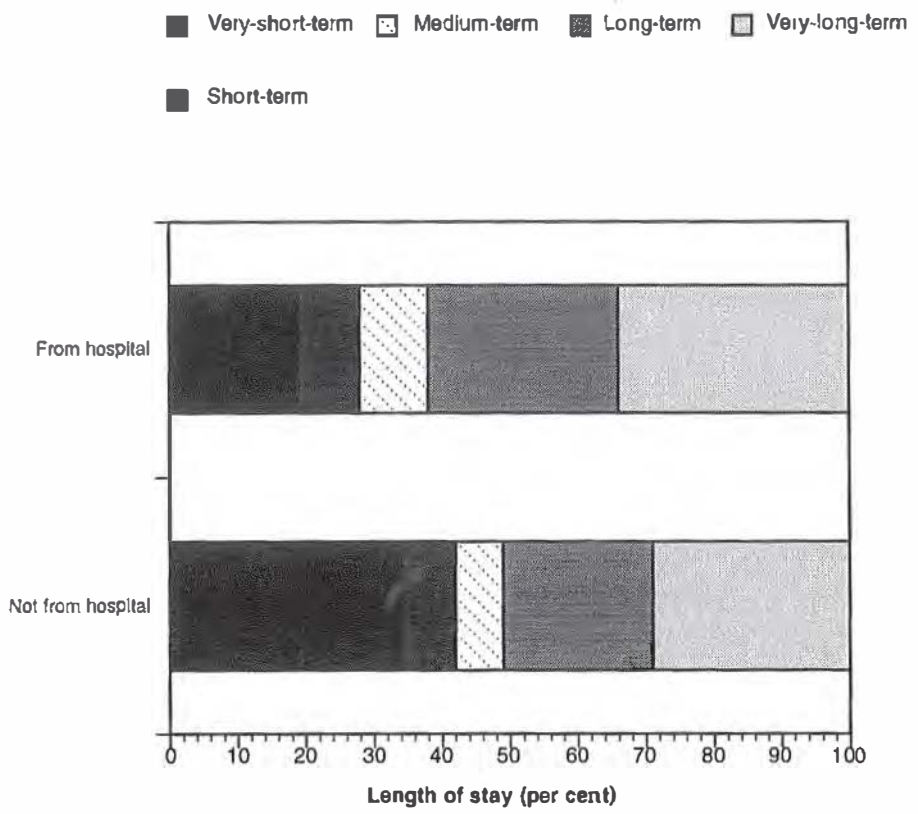

Figure 4.15: Length-of-stay distribution of the admission cohorts by whether from hospital, Australia, 1992–93

4.7 Non-English-speaking background

Ethnic communities are often held to have stronger family ties and thus be more willing to take care of their older relatives at home, rather than use residential care (Kendig 1986). Nathan and Howe (1986) further suggest that there is a perception among persons from non-English-speaking backgrounds that mainstream nursing homes are not suitable for non-English-speaking residents, because of language difficulties and cultural differences.

Tables 4.25 and 4.26 show, however, that there are only small differences in length of stay between English-speaking and non-English-speaking residents. The median length of stay is somewhat shorter for non-English-speaking admissions (163 days) than for English-speaking admissions (217 days).

Table 4.25: Expected length of stay (e_x days) of nursing home residents by preferred language, Australia, 1992–93

Duration of stay	Non-English-speaking	English-speaking	Difference between English-speaking & non-English-speaking residents
0 (at admission)	692	723	31
Months			
1	951	933	–18
2	1,038	1,032	–6
3	1,094	1,087	–7
4	1,145	1,117	–28
6	1,194	1,157	–37
8	1,214	1,187	–27
Years			
1	1,237	1,205	–32
1.5	1,262	1,207	–55
2	1,257	1,191	–66
3	1,276	1,202	–74

Table 4.26: Percentage distribution of residents (F_x) by preferred language, Australia, 1992–93

Length of stay	Non-English-speaking (per cent)	English-speaking (per cent)
Very-short-term	30	25
Short-term	8	9
Medium-term	9	8
Long-term	24	25
Very-long-term	30	32

The *very-short-term* group constitutes a slightly higher proportion (30%) among non-English-speaking residents than among English-speaking residents (25%). Care must be taken in interpreting these trends, however, given the high proportion of missing data.

4.8 Pension status

Pension status is a financial indicator, but one which offers limited discrimination, given the large proportion of residents receiving a pension and the relatively high proportion of missing data. Some trends do emerge, however, with regard to pension status (tables 4.27 and 4.28).

Residents receiving repatriation benefit have the shortest length of stay, while invalid pensioners have the longest. Invalid pensioners are under pension age and have long-term disabilities.

Apart from the invalid pensioners and repatriation pensioners, there are no significant trends among the other three groups.

In terms of median length of stay, the invalid pensioners have the shortest stay (86 days), although they also have the longest expected length of stay at admission (951 days).

Table 4.27: Expected length of stay (e_x days) of nursing home residents by pension status, Australia, 1992–93

Duration of stay	Repatriation pension	Aged pension	Other pension	No pension	Invalid pension
0 (at admission)	420	708	728	775	951
Months					
1	582	914	935	989	1,555
2	642	1,010	1,048	1,063	1,697
3	675	1,062	1,120	1,116	1,811
4	689	1,095	1,145	1,147	1,865
6	708	1,134	1,172	1,169	1,962
8	705	1,164	1,218	1,187	2,032
Years					
1	694	1,178	1,253	1,216	2,099
1.5	636	1,174	1,258	1,222	2,112
2	541	1,149	1,303	1,199	2,184
3	318	1,143	1,387	1,222	2,248

Repatriation pensioners have the second-shortest median length of stay (118 days), followed by aged pensioners and other pensioners (210 days). Non-pensioners have the longest median length of stay (287 days).

Invalid pensioners have the highest proportion of *very-short-term* admissions (40%) despite having the longest expected length of stay at admission. The repatriation pensioners also have a higher proportion of *very-short-term* admissions.

Apart from the *very-short-term* category, there are no significant differences among the other groups in terms of both length of stay and distribution.

Table 4.28: Length-of-stay distributions of admissions (F_x) by pension status, Australia, 1992–93

Length of stay	Repatriation pension (per cent)	Aged pension (per cent)	Other pension (per cent)	No pension (per cent)	Invalid pension (per cent)
Very-short-term	32	25	25	24	40
Short-term	9	9	10	7	6
Medium-term	9	8	9	8	6
Long-term	25	25	26	25	17
Very-long-term	25	32	31	35	30

5 Nursing home characteristics and length of stay

The previous chapter examined length-of-stay patterns in relation to individual characteristics. This chapter focuses on characteristics of institutions, in order to explore the associations between length of stay and nursing home characteristics at the aggregate level. The characteristics explored in this chapter are state, region, nursing home type and nursing home size.

5.1 State

Demographic characteristics and population health status are quite similar across the States and Territories. To the extent that the length-of-stay patterns are determined by those factors, therefore, the patterns should be similar across States and Territories. There are, however, significant variations among the States and Territories in terms of the level of supply of nursing home beds, and other variations in service provision (availability of hostel places, special accommodation houses in Victoria, and the availability and accessibility of community care, particularly at the more intensive levels); these could lead to differences in the patterns of nursing home utilisation across the States and Territories.

Life tables confirm the existence of such variations with regard to length-of-stay patterns. As table 5.1 and figure 5.1 show, the expected length of stay at admission ranges from 519 days in Tasmania to 848 days in Queensland. The expected lengths of stay at admission for Victoria, and South Australia and the Northern Territory are close to the national average (636 days) while those for Western Australia, and New South Wales and the Australian Capital Territory are higher.

The median length of stay also varies among the States. It is clearly associated with the expected length of stay at admission, but is not always consistent. Tasmania, South Australia and the Northern Territory, and Victoria are characterised by shorter median lengths of stay (79, 80 and 73 days respectively), while Queensland has the longest (318 days). The medians for New South Wales and the Australian Capital Territory, and Western Australia lie in between (125 and 170 days).

There is no evidence to suggest a consistent relationship between provision level and the expected length of stay at admission, however (figure 5.1). For example, there were 57.1 beds per 1,000 people aged 70 and over in Tasmania in 1993 and the expected

length of stay at admission was about 519 days. In Victoria in 1993, the bed provision ratio was much lower (47.9 beds per 1,000 people aged 70 and over) and the expected length of stay at admission was slightly longer (535 days). Queensland's bed provision was in between (52.8 beds per 1,000 people aged 70 and over) in the same year but Queensland had the longest expected length of stay at admission (848 days).

The variation in expected length of stay among States increases at longer durations of stay. Figure 5.2 illustrates the relationship between expected further length of stay and duration of stay, showing a clearly diverging pattern among the States. Although there is an initial decline in the variation from 329 days at admission to 169 days after one year, a marked increase in the variation occurs thereafter. Ten years into the duration of stay, the variation among States has increased to 987 days (table 5.1).

Table 5.1: Expected length of stay (e_x days) of nursing home residents by State and Territory, Australia, 1992–93

Duration of stay	Tas.	SA & NT	Vic.	WA	NSW & ACT	Qld	Australia	Range[a]
0 (at admission)	519	535	535	668	672	848	636	329
Months								
1	801	783	842	917	918	1,048	898	265
2	902	926	951	1,005	1,044	1,138	1,014	236
3	955	987	1,011	1,053	1,126	1,201	1,081	246
4	998	1,027	1,047	1,080	1,177	1,229	1,122	231
6	1,063	1,094	1,086	1,133	1,235	1,260	1,171	197
8	1,112	1,129	1,119	1,157	1,270	1,298	1,206	186
Years								
1	1,143	1,134	1,147	1,180	1,303	1,303	1,230	169
1.5	1,164	1,130	1,164	1,176	1,301	1,331	1,238	201
2	1,114	1,105	1,171	1,199	1,289	1,324	1,231	219
3	1,101	1,113	1,162	1,214	1,298	1,340	1,236,	239
5	1,050	1,052	1,189	1,339	1,342	1,394	1267	344
7	919	980	1,265	1,461	1,450	1,449	1,329	542
10	850	1,082	1,337	1,837	1,723	1,495	1,491	987

(a) Range is the maximum variation in the length of stay between the columns.

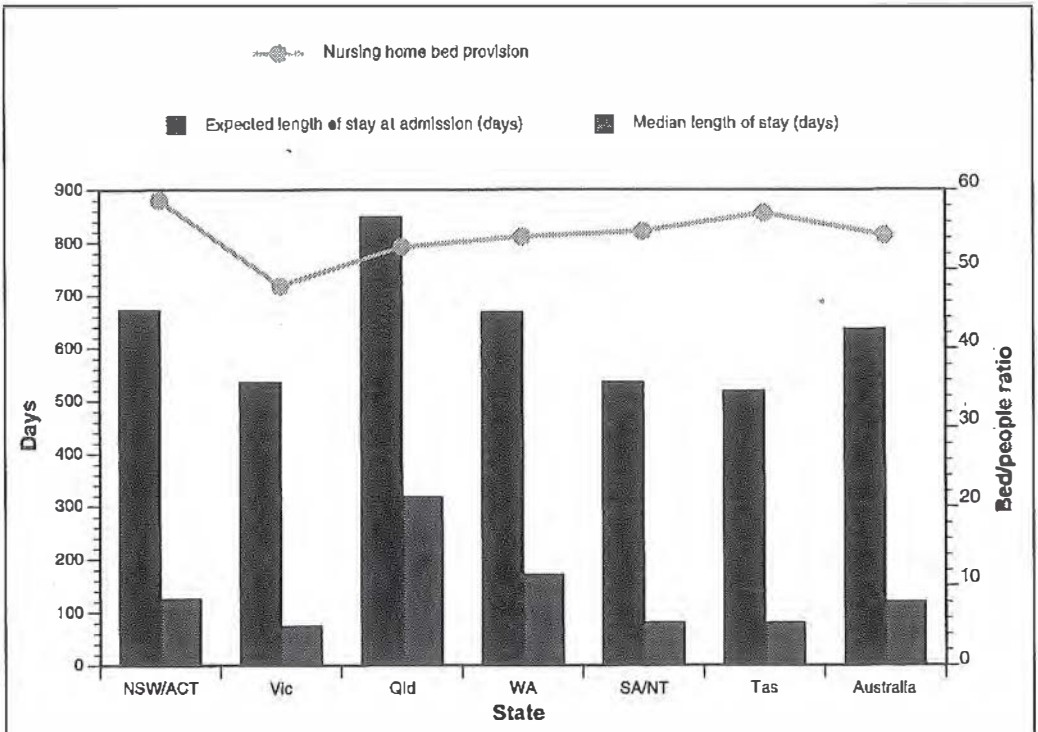

Figure 5.1: Expected length of stay at admission and median length of stay by State and Territory, Australia, 1992–93

At all stages after admission, the expected lengths of stay for Tasmania, Victoria, and South Australia and the Northern Territory are also lower than the national average; those for New South Wales and the Australian Capital Territory, and Queensland are higher. For Western Australia, the expected length of stay varies around the national average.

The expected further length of stay increases with the duration of stay for all States and Territories except Tasmania, and South Australia and the Northern Territory, where not only is the expected length of stay relatively low at admission but it decreases further with the duration of stay, after an initial increase in the first 1.5 years.

The length-of-stay distributions of admission cohorts also vary significantly across States. The most profound variations occur in the two extreme categories, *very-short-term* and *very-long-term*. Those States and Territories which have longer expected lengths of stay at admission also have lower proportions of *very-short-term* admissions and higher proportions of *very-long-term* admissions. Table 5.2 and figure 5.3 (when compared with table 5.1 and figure 5.1) show that in those States and Territories where the expected length of stay at admission is longer than the national average, the proportion of *very-short-term* admissions tends to be lower than the national average (32%) and the proportion of *very-long-term* admissions tends to be higher than the national average (28%).

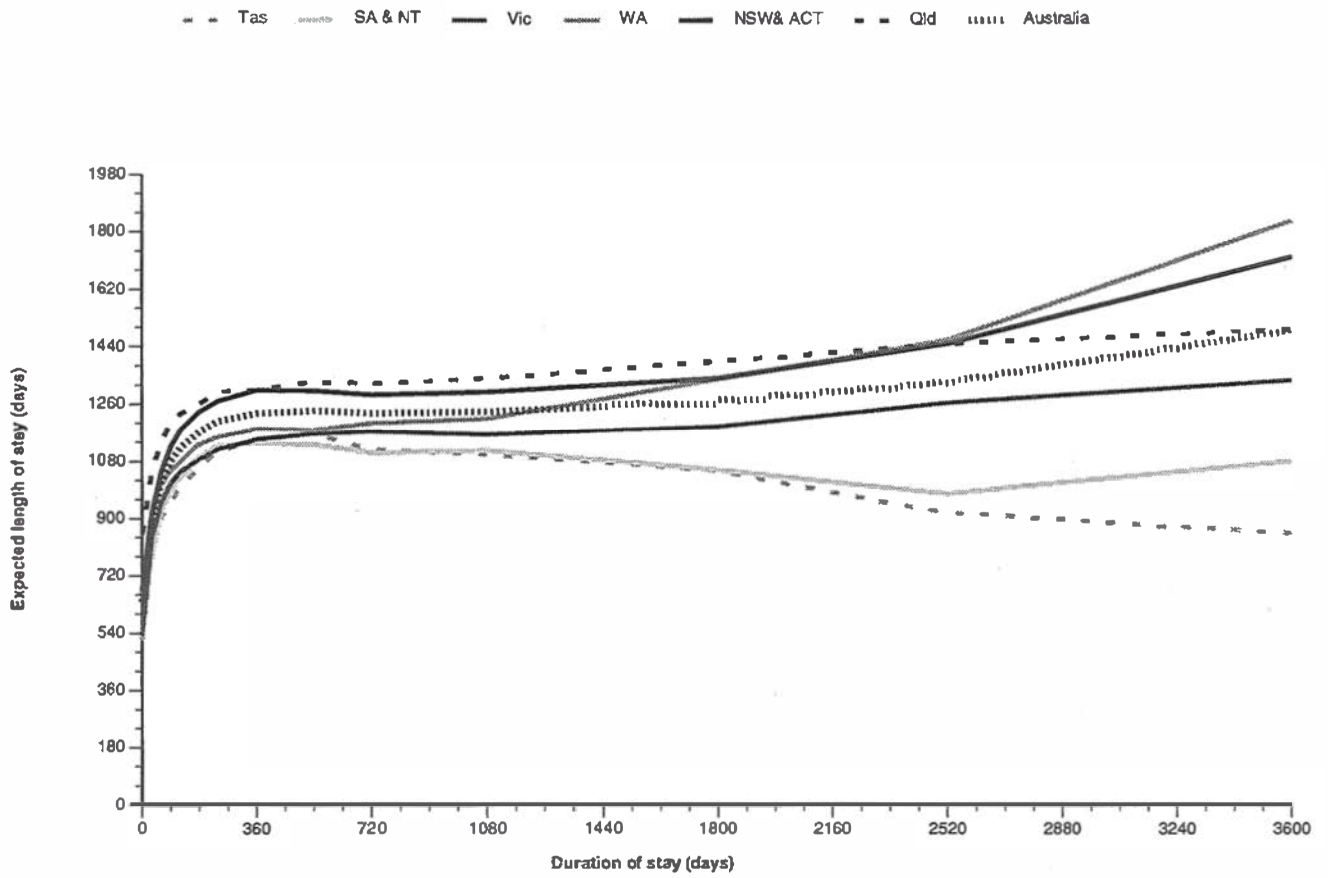

Figure 5.2: Expected length of stay v. duration of stay by State, Australia, 1992–93

Table 5.2: Length-of-stay distributions of admissions (F_x) by State and Territory, Australia, 1992–93

Length of stay	Tas. (per cent)	SA & NT (per cent)	Vic. (per cent)	WA (per cent)	NSW & ACT (per cent)	Qld (per cent)	Australia (per cent)
Very-short-term	38	35	39	30	30	22	32
Short-term	9	12	9	8	10	8	10
Medium-term	8	8	8	8	10	8	9
Long-term	21	20	21	25	21	26	22
Very-long-term	24	25	23	29	29	36	28

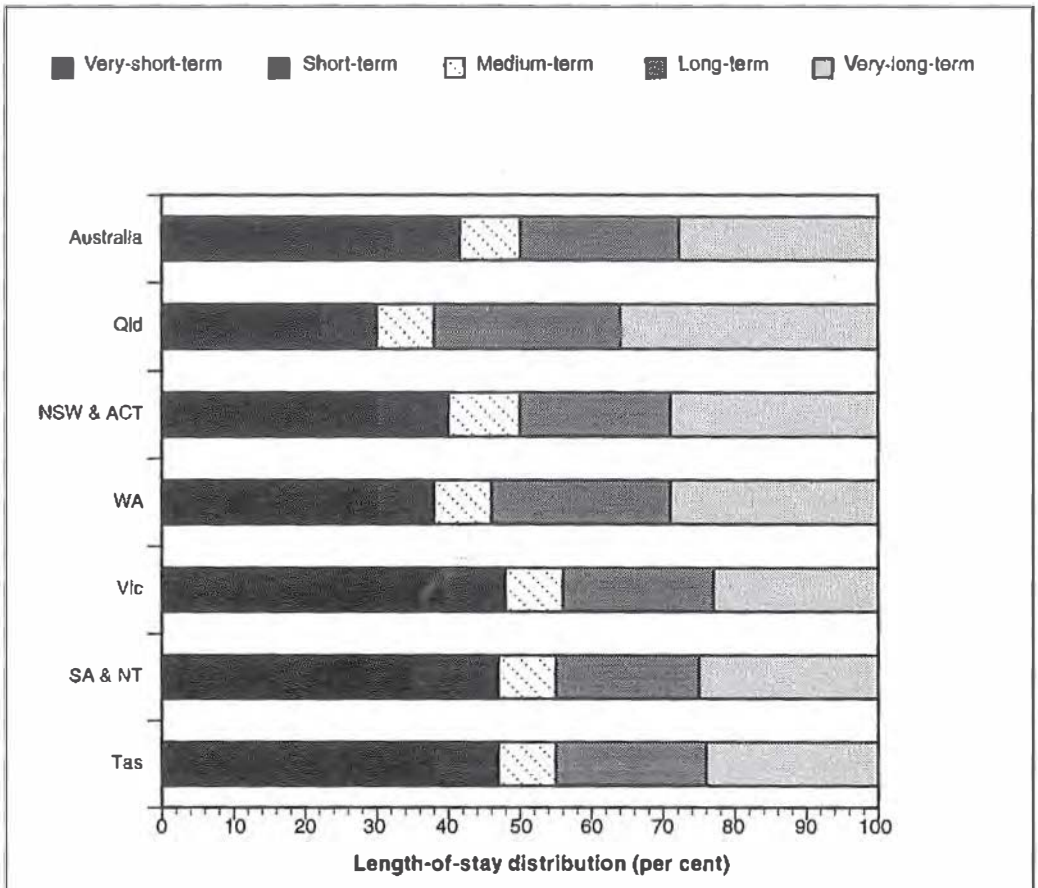

Figure 5.3: Length-of-stay distribution of the admission cohorts by State and Territory, Australia, 1992–93

Among the *medium-term* to *very-long-term* admissions only, Queensland shows a higher proportion in the *very-long-term* category (table 5.3). In general, however, the differences in length-of-stay distributions between the States and Territories diminish when the *very-short-term* and *short-term* admissions are excluded from the analysis.

Table 5.3: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by State and Territory, 1992–93

Length of stay	Tas. (per cent)	SA & NT (per cent)	Vic. (per cent)	WA (per cent)	NSW & ACT (per cent)	Qld (per cent)	Australia (per cent)
Medium-term	15	15	15	13	17	11	15
Long-term	40	38	40	40	35	37	37
Very-long-term	45	47	44	47	48	51	47

To sum up, nursing home utilisation patterns vary substantially across States and Territories in terms of both length of stay and distribution of admissions according to length of stay. The most profound differences are found in the *very-short-term* and *very-long-term* admission categories. This suggests that nursing homes are catering for somewhat different populations in different States. This may be associated with assessment criteria, or variations in the availability of other services. It does not appear to relate, at least in direct terms, to the level of supply of nursing home beds.

5.2 Region

Information on two broad regional categories (metropolitan and non-metropolitan areas) in relation to nursing home location was included in the database used for this study. The metropolitan area includes all capital cities plus 11 other major urban areas (e.g. Newcastle, Wollongong). The rest of Australia is categorised as non-metropolitan, and this includes all rural and remote areas as well as other urban areas. A more detailed regional classification which distinguishes the urban, rural and remote areas would be desirable for future analyses.

Nevertheless, in line with the differences in population density and geographic distribution, aged care services do vary between metropolitan and non-metropolitan areas in terms of their availability. Length-of-stay patterns for nursing homes might be expected to differ between these two broad regional types; however, remarkably little difference was found.

The life table analysis shows virtually no difference in the expected length of stay at admission between the metropolitan (636 days) and non-metropolitan (635 days) regions (table 5.4 and figure 5.4). The median length of stay is 116 days for metropolitan and 134 days for non-metropolitan nursing homes.

Table 5.4: Expected length of stay (e_x days) of nursing home residents by nursing home location (metro/non-metro), Australia, 1992–93

Duration of stay	Metropolitan	Non-metropolitan	Difference between metro & non-metro
0 (at admission)	636	635	1
Months			
1	896	902	–6
2	1,016	1,004	12
3	1,087	1,061	26
4	1,129	1,097	32
6	1,184	1,128	56
8	1,222	1,154	68
Years			
1	1,244	1,183	61
1.5	1,251	1,195	56
2	1,242	1,195	47
3	1,241	1,217	24
5	1,267	1,263	4
7	1,326	1,325	1
10	1,504	1,429	75

Table 5.5 presents the length-of-stay distributions of the admission cohorts by the two regions. Again there are no marked differences.

Table 5.5: Length-of-stay distributions of admissions (F_x) by nursing home location (metro/non-metro), Australia, 1993

Length of stay	Metropolitan F_x (per cent)	Non-metropolitan F_x (per cent)
Very-short-term	32	32
Short-term	10	9
Medium-term	9	8
Long-term	22	26
Very-long-term	28	28

Many older people in non-metropolitan regions, particularly rural and remote areas, stay in acute hospitals for an extended period of time as nursing home type patients. This is not necessarily an inappropriate use of hospital beds, as they would otherwise be empty (Renwick et al. 1992; AIHW 1995, pp.3–47).

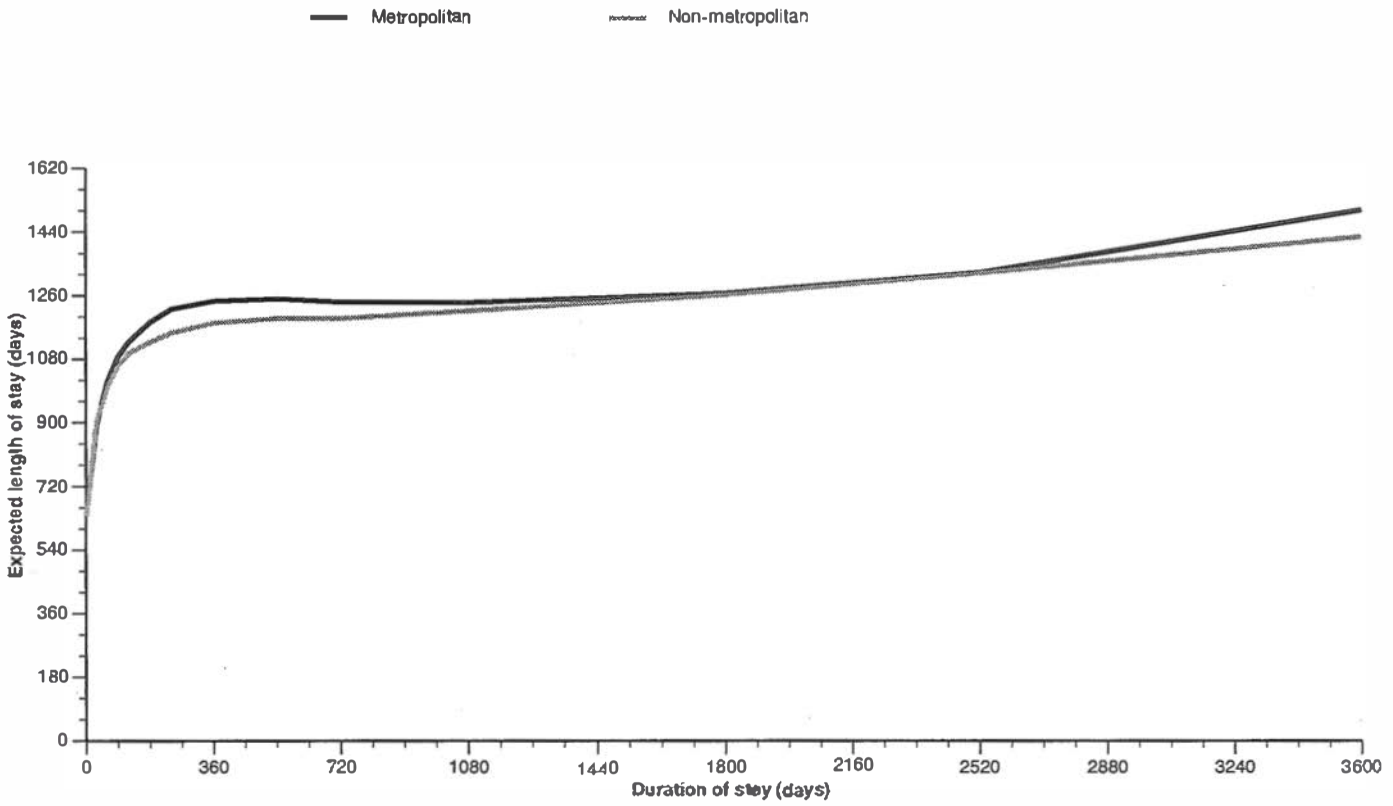

Figure 5.4: Expected length of stay v. duration of stay by region, Australia, 1992–93

According to the Department of Human Services and Health, there were about 9,497 nursing home type patients in acute hospitals in Australia in 1993-94. The expected length of stay at admission for them was about 139 days. Among these nursing home type patients, 2,799 people (or 29%) had approved NH5 forms, meaning that they had been approved by an aged care assessment teams as eligible for nursing home care. On average, this group stayed for 212 days in acute hospitals. They were either waiting for a nursing home bed or using an acute hospital for long-term care purposes.
The implementation of both diagnosis-related funding in acute hospitals and multi-purpose centres (HHCS 1991a, p.131) is likely to impact on the utilisation patterns of older people in rural areas.

5.3 Nursing home type

Nursing home type represents nursing home ownership, and distinguishes between homes owned and operated by the private-for-profit sector, the private-not-for-profit sector and the government sector.

Table 5.6 and figure 5.5 illustrate that there is a strong association between nursing home type and expected length of stay at admission for nursing home residents. Generally, the residents in private-for-profit nursing homes stay longer than those in private-not-for-profit homes, while those in state government homes stay a shorter time than those in either private-for-profit or private-not-for-profit nursing homes. The expected length of stay at admission in government nursing homes is 524 days shorter than that in private-for-profit homes, and about 418 days shorter than that in private-not-for-profit homes.

The median length of stay shows even greater discrepancies between the three types of nursing homes. It is 24 days for government nursing homes compared with 315 and 234 days for private-for-profit and private-not-for-profit homes respectively.

Residents in private-for-profit nursing homes have the highest expected length of stay almost throughout their period of residence (figure 5.6). The lowest expected length of stay is found in government nursing homes in the first three months but private-not-for-profit nursing homes have the longest expected length of stay thereafter.

Table 5.6: Expected length of stay (e_x days) of nursing home residents by nursing home type, Australia, 1992–93

Duration of stay	Government nursing homes	Private-not-for-profit nursing homes	Private-for-profit nursing homes	Range[(a)]
0 (at admission)	306	724	631	524
Months				
1	772	916	949	177
2	970	1,006	1,043	73
3	1,065	1,060	1,107	47
4	1,116	1,069	1,151	82
6	1,174	1,123	1,209	86
6	1,211	1,156	1,245	89
Years				
1	1,233	1,179	1,270	91
1.5	1,249	1,165	1,276	93
2	1,276	1,173	1,266	93
3	1,312	1,162	1,274	112
5	1,296	1,174	1,336	164
7	1,323	1,229	1,417	166
10	1,303	1,260	1,762	462

(a) Range is the maximum variation in expected length of stay between the columns.

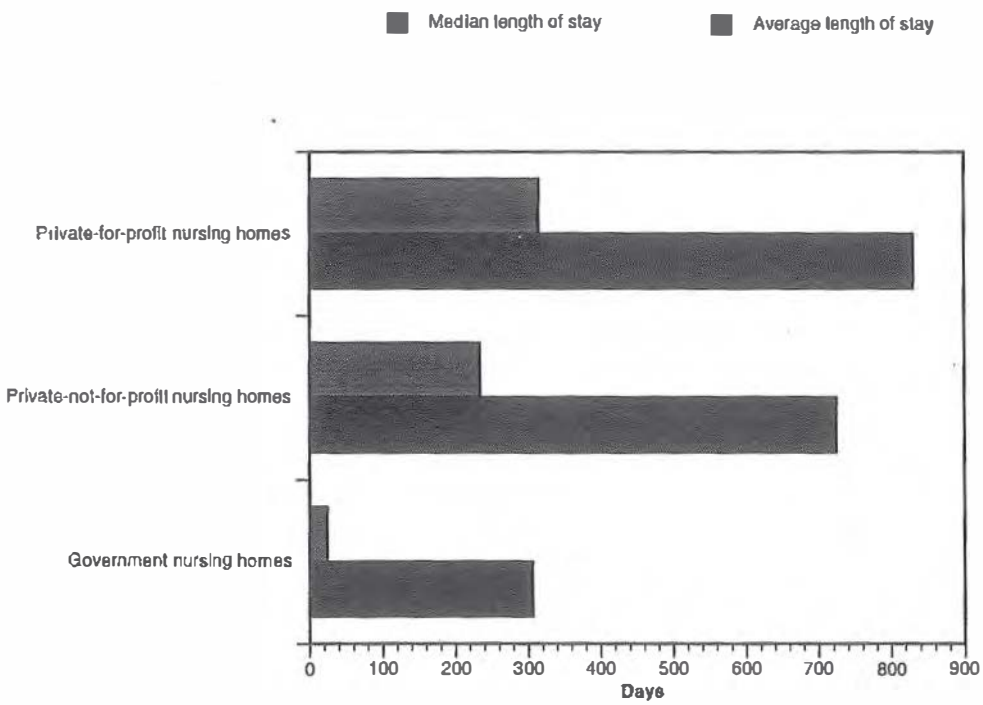

Figure 5.5: Expected length of stay at admission and median length of stay by nursing home type, Australia, 1992–93

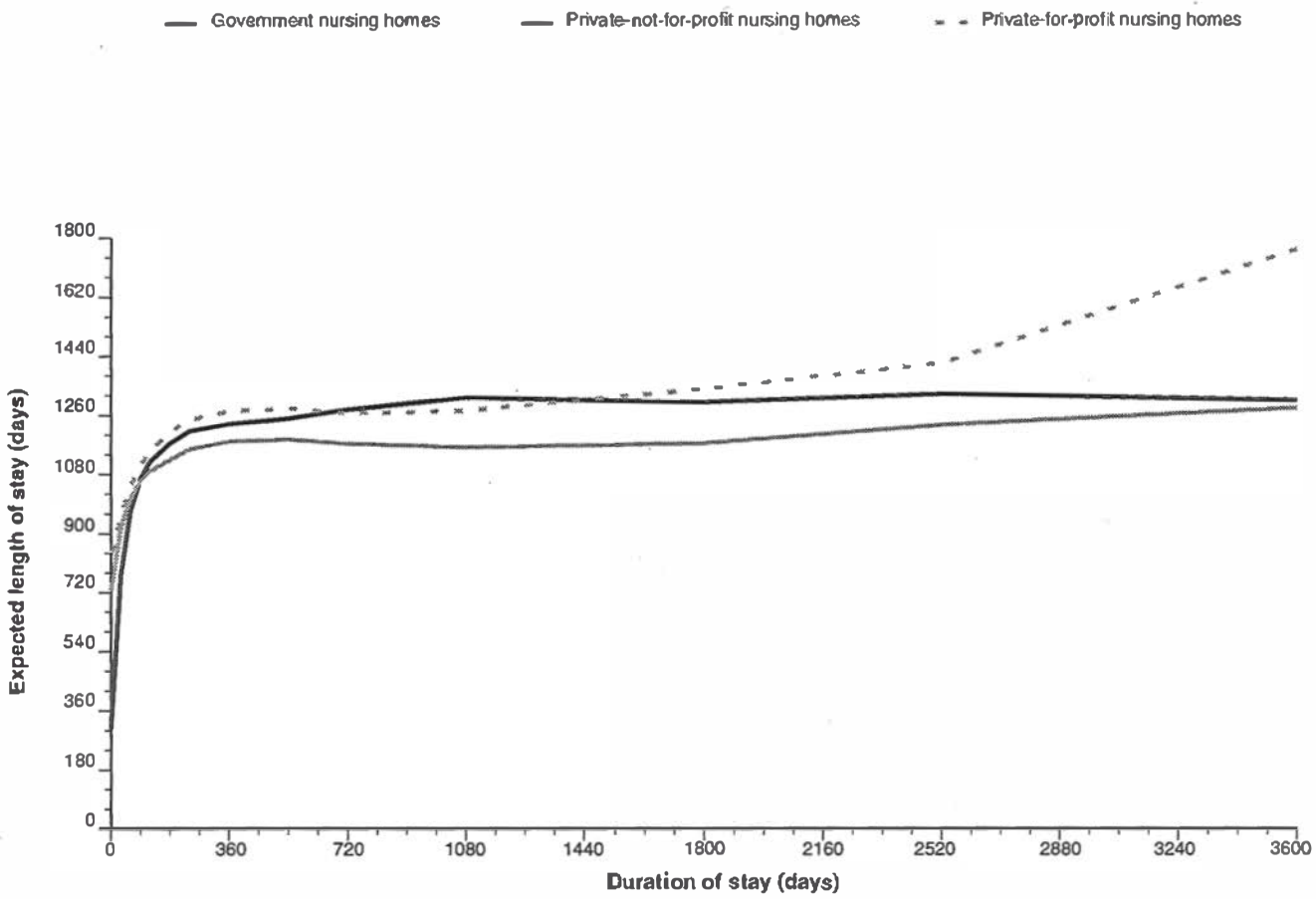

Figure 5.6: Expected length of stay v. duration of stay by nursing home type, Australia, 1992–93

The length-of-stay distributions of the admission cohorts also display considerable differences (table 5.7 and figure 5.7). About 63% of admissions in government nursing homes are *very-short-term* stayers compared with only 15% in private-for-profit homes. On the other hand, 33% of private-not-for-profit nursing home admissions and 36% of private-for-profit nursing home admissions are *very-long-term* stayers compared with only 12% of government nursing home admissions. Government nursing homes primarily provide *very-short-term* and *short-term* care. These two categories account for about 72% of total admissions in government nursing homes compared with 33% in private-not-for-profit and 25% in private-for-profit homes.

Table 5.7: Length-of-stay distributions (F_x) of admissions by nursing home type, Australia, 1992–93

Length of stay	Government nursing homes (per cent)	Private-not-for-profit nursing homes (per cent)	Private-for-profit nursing homes (per cent)
Very-short-term	63	24	15
Short-term	9	9	10
Medium-term	5	9	11
Long-term	11	26	28
Very-long-term	12	33	36

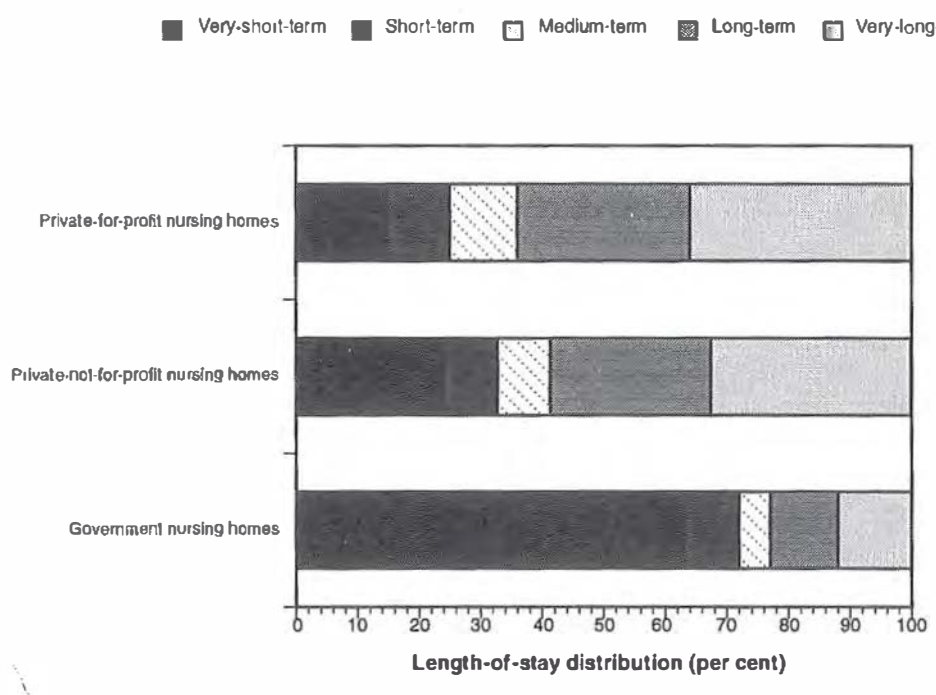

Figure 5.7: Length-of-stay distribution of the admission cohorts by nursing home type, Australia, 1992–93

After excluding the *very-short-term* and *short-term* admissions from the analysis, the distribution patterns are much the same for the three types of nursing homes (table 5.8).

Table 5.8: Length-of-stay distributions (F_x) of the *medium-term* to *very-long-term* admissions by nursing home type, Australia, 1992–93

Length of stay	Government nursing homes (per cent)	Private-not-for-profit nursing homes (per cent)	Private-for-profit nursing homes (per cent)
Medium-term	18	13	15
Long-term	39	38	37
Very-long-term	43	49	48

In conclusion, admissions into government homes have the shortest expected length of stay at admission and are more likely to fall into the *very-short-term* category. It is possible that residents in the government nursing homes move on to private nursing homes or other facilities. The destinations of residents leaving government nursing homes within one month of admission and their reasons for separation are important topics for further investigation.

This pattern may be a consequence, at least in part, of selective admission procedures by private-not-for-profit and private-for-profit homes in particular. If higher turnover is associated with higher administrative costs and longer periods of bed vacancy, then high resident turnover is likely to be financially unattractive. Research in the United States has indicated that profit margins affect resident selection priority (Nyman & Connor 1994).

Up to 1993, most government homes were not funded through the Care Aggregated Model (CAM)/Standard Aggregated Model (SAM) for private homes. As they gradually move towards a similar funding model, other patterns may emerge. However, it is unlikely that financial incentives will impact as strongly on government homes as they do on the private sector.

5.4 Nursing home size

Australian nursing homes vary greatly in terms of number of beds. It is possible that larger nursing homes operate differently from smaller ones, and that these differences are reflected in the utilisation patterns of their residents.

Table 5.9 and figure 5.8 show that the expected length of stay does vary markedly by nursing home size, particularly at admission (a 342 day difference) but also throughout the duration of stay.

Nursing homes with fewer than 20 beds exhibit an exceptional use pattern. Residents in these homes are likely to have extremely short stays compared with residents in any other size of home, a difference which continues throughout the period of nursing home residence.

Table 5.9: Expected length of stay (e_x days) of nursing home residents by nursing home size, Australia, 1992–93

Duration of stay	Under 20 beds	20–39 beds	40–59 beds	60–79 beds	80 or more beds	Range[a]
0 (at admission)	394	736	648	676	582	342
Months						
1	753	940	886	901	892	187
2	854	1,030	998	1,004	1,036	182
3	947	1,085	1,066	1,061	1,114	167
4	963	1,119	1,114	1,101	1,157	194
6	1,007	1,171	1,154	1,147	1,213	206
8	1,063	1,194	1,183	1,185	1,257	194
Years						
1	1,122	1,209	1,208	1,213	1,280	158
1.5	1,144	1,220	1,211	1,223	1,288	144
2	1,108	1,205	1,196	1,228	1,290	182
3	1,085	1,210	1,198	1,235	1,295	210
5	1,067	1,250	1,237	1,293	1,305	238
7	1,268	1,357	1,372	1,332	1,298	104

(a) Range = maximum – minimum

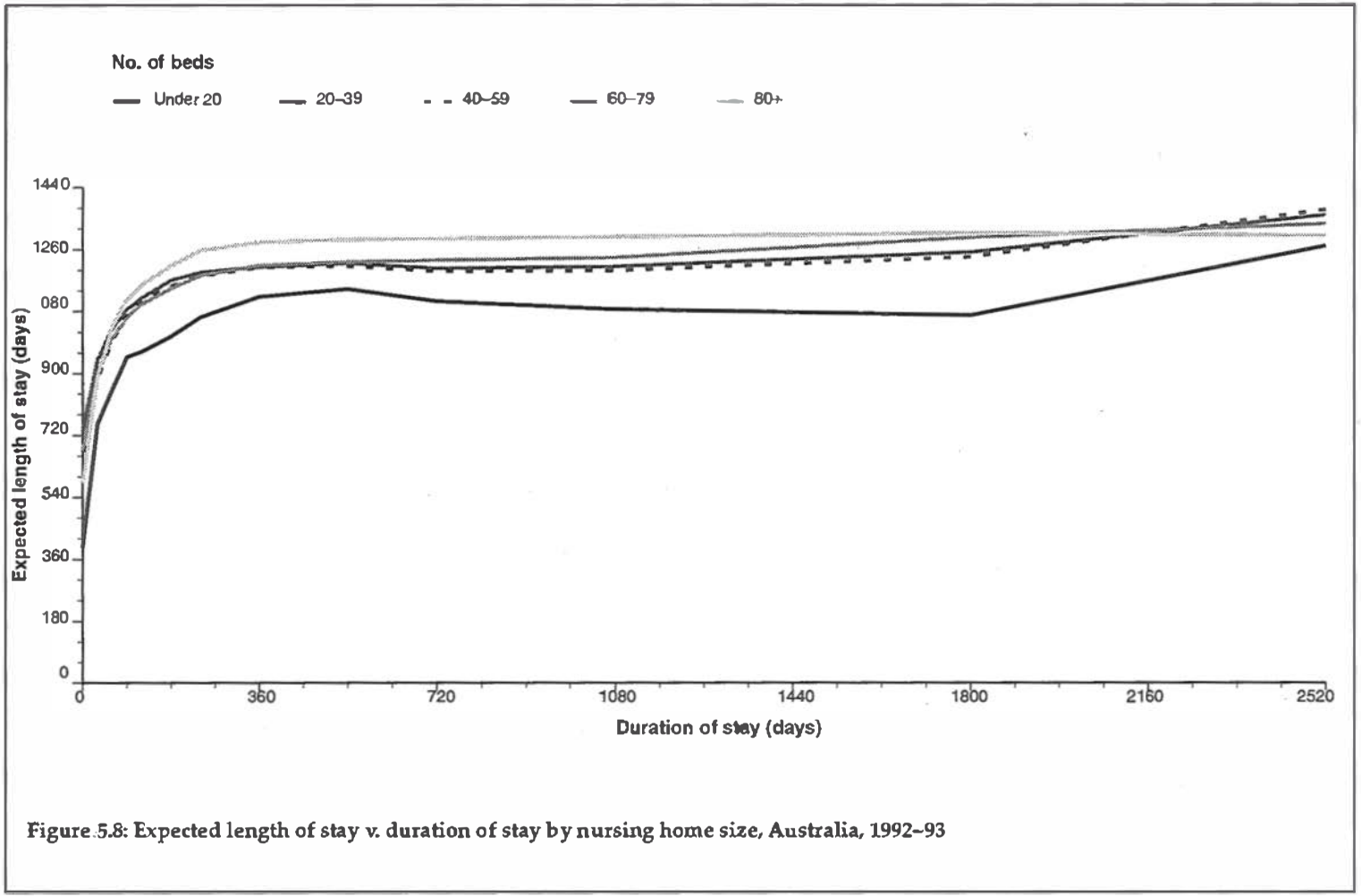

Figure 5.8: Expected length of stay v. duration of stay by nursing home size, Australia, 1992–93

Among those nursing homes with 20 or more beds, table 5.7 and figure 5.8 show a descending trend in the expected stay at admission as nursing home size increases. Residents in nursing homes with 20–39 beds can be expected to stay for 736 days at admission. This figure drops to 582 days for the residents in nursing homes with 80 or more beds.

Between the second month and the fifth year, however, the longest expected length of stay shifts to nursing homes with 80 or more beds. The shorter expected stay at the beginning for residents in the larger homes, like those in the very small homes (less than 20 beds) can be attributed to the higher proportion of *very-short-term* admissions in these homes. Table 5.10 and figure 5.9 show that the *very-short-term* category accounts for 51% of admissions in the homes with less than 20 beds, and 38% of admissions in the homes with 80 beds or more, compared with 24–30% in the remaining homes.

The median length of stay shows a trend similar to the expected length of stay at admission. In ascending order of home sizes, the corresponding medians are 30, 226, 135, 170 and 73 days.

Table 5.10 and figure 5.9 reveal the distinctive pattern for the smallest homes, and also the somewhat different resident distribution pattern in the largest homes. The effect of size on length-of-stay patterns may require further investigation.

Table 5.10: Length-of-stay distributions of admissions (F_x) by nursing home size, Australia, 1992–93

Length of stay	Under 20 beds (per cent)	20–39 beds (per cent)	40–59 beds (per cent)	60–79 beds (per cent)	80 beds or more (per cent)
Very-short-term	51	24	30	28	38
Short-term	7	9	10	9	10
Medium-term	7	9	9	9	8
Long-term	17	25	22	25	19
Very-long-term	18	33	29	29	25

When only the *medium-term* to *very-long-term* admissions are studied, the length-of-stay distribution converges among the different sized nursing homes (table 5.11). The differences in distributions as discussed above are chiefly attributed to *very-short-term* admissions.

Table 5.11: Length-of-stay distributions of the *medium-term* to *very-long-term* admissions (F_x) by nursing home size, Australia, 1992–93

Length of stay	Under 20 beds (per cent)	20–39 beds (per cent)	40–59 beds (per cent)	60–79 beds (per cent)	80 or more beds (per cent)
Medium-term	17	13	15	14	15
Long-term	40	37	37	40	37
Very-long-term	43	49	48	46	48

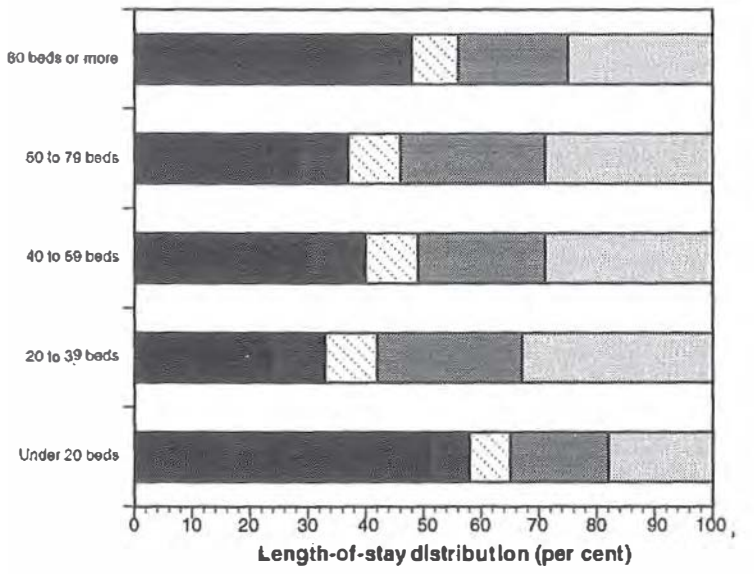

Figure 5.9: Length-of-stay distribution of the admission cohorts by nursing home size, Australia, 1992–93

6 Changing patterns of length of stay (1989–90 to 1992–93)

The previous chapters explored length-of-stay patterns for nursing home residents at both the individual and aggregated levels in 1992–93. This chapter analyses changes in use patterns over the period for which reliable data are available, from 1989–90 to 1992–93.

6.1 Expected length of stay

Table 6.1 indicates the expected length of stay from the life tables based on the virtual experience of nursing home residents in 1989–90 to 1992–93. Figure 6.1 illustrates the trends in expected length of stay at admission (average length of stay) and the median length of stay. The expected length of stay at admission fell by about a month (or 5%), from 670 days in 1989–90 to 636 days in 1992–93 after a rise in 1990–91. A relative increase in the *very-long-term* category (two years and more) is responsible for this rise in 1990–91 (table 6.2). Data for 1988–89 (DCSH 1990) show a further decrease of 22 days (or 3%) between 1988–89 and 1989–90. In total there was a decrease of about two months (or 8%) in the expected length of stay at admission between 1988–89 and 1992–93.

The median length of stay showed an even more marked decline (about 24% or 38 days) from 157 days in 1989–90 to 119 days in 1992–93. There was only a three day (or 2%) difference between 1988–89 and 1989–90.

This trend, of decreasing expected length of stay at admission, is in line with policy expectations. Restrictions on nursing home supply, more stringent assessment of eligibility for nursing homes, and the expansion of hostels and the Home and Community Care Program are all aimed at preventing inappropriate nursing home admissions, or delaying entry, by encouraging the use of less expensive care alternatives. If entry is delayed, then length of stay can be expected to decline.

Table 6.1: Expected length of stay (e_x days) for residents by length of stay, Australia, 1989–90 to 1992–93 (life table methodology)

Duration of stay	1989–90	1990–91	1991–92	1992–93
0 (at admission)	670	710	664	636
Months				
1	900	971	925	898
2	1,005	1,073	1,034	1,014
3	1,070	1,135	1,093	1,081
4	1,111	1,176	1,134	1,122
6	1,164	1,220	1,184	1,171
8	1,201	1,254	1,219	1,206
Years				
1	1,213	1,259	1,249	1,230
1.5	1,227	1,288	1268	1,238
2	1,219	1,279	1,253	1,231
3	1,254	1,327	1,295	1,236
5	1,256	1,378	1,350	1,267
7	1,290	1,443	1,420	1,329
10	1,489	1,629	1,580	1,491

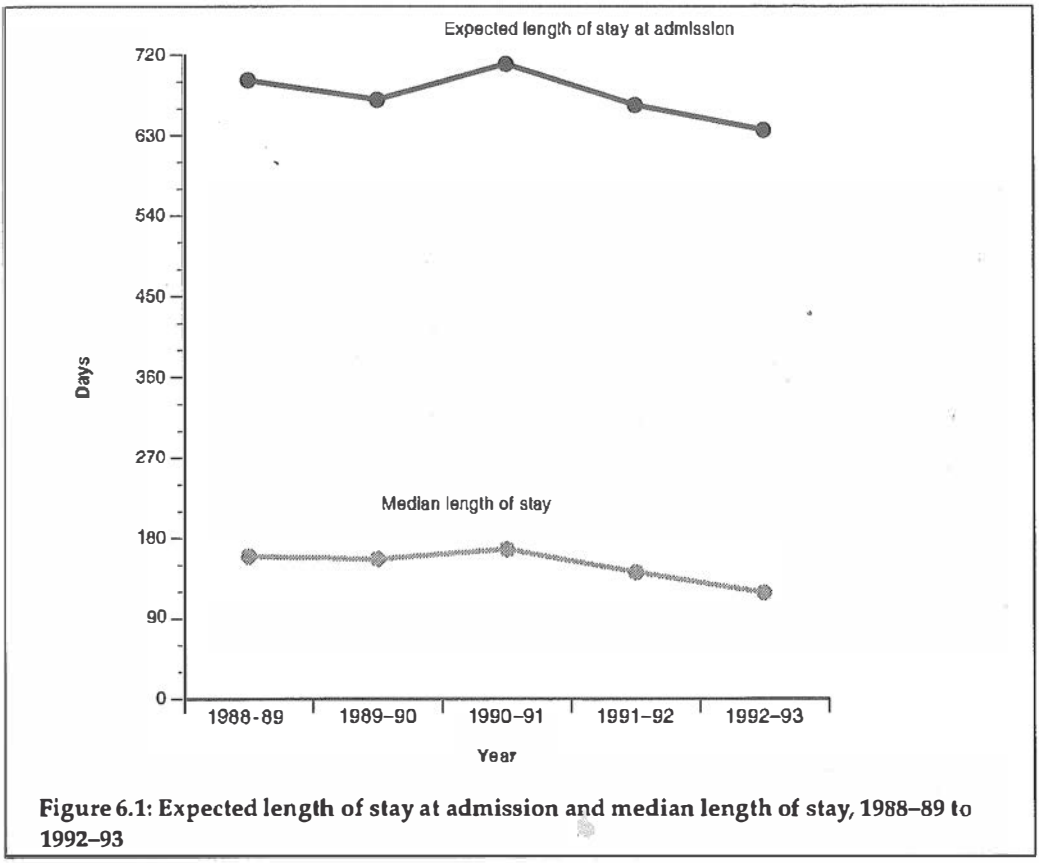

Figure 6.1: Expected length of stay at admission and median length of stay, 1988–89 to 1992–93

However, there was no evidence of a decline in the expected length of stay after the first month of residence during the period of 1989–90 to 1992–93 (figure 6.2). On the contrary, there were some increases. Thus, not all residents contribute to the fall in expected length of stay at admission; the fall is mainly associated with the proportion of *very-short-term* stayers (less than one month of stay) among the new admissions.

This pattern suggests that the fall in expected length of stay at admission is a result of an increase in the *very-short-term* category among new admissions (including an increasing number of respite care admissions). This is supported by tables 6.2 and 6.3. The ratio of *very-short-term* admissions to total admissions has increased but there has been little effect on the length of stay for long-stay residents. This is particularly the case for those admitted to nursing homes before the implementation of the Aged Care Reform Strategy. It is possible that with the separation of this group the expected length of stay at admission may fall further.

Table 6.2 presents the length-of-stay distributions of hypothetical admission cohorts. It shows little change over the period from 1989–90 to 1992–93 except for the four percentage points increase in the *very-short-term* category. Possibly a greater change would be seen if data for earlier years were available. While this is not possible, a clearer indication of the impact of Aged Care Reform Strategy may be obtained by focusing only on those residents admitted in each of the years for which data are available.

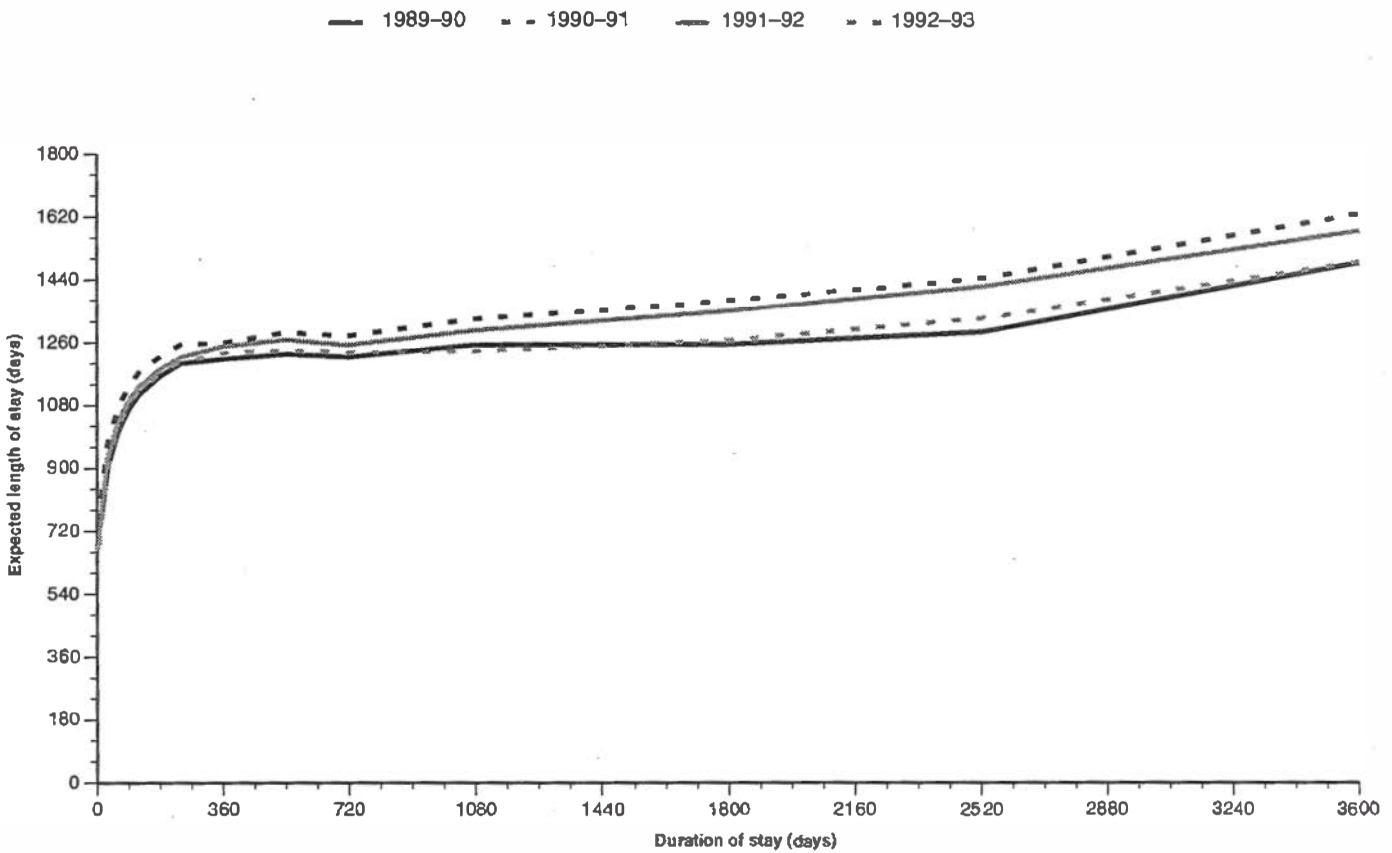

Figure 6.2: Expected length of stay v. duration of stay, Australia, 1989–90 to 1992–93

Table 6.3 shows the cumulative percentage of bed-days used by residents who separated within a specified period. Despite the changes in the length-of-stay patterns, the pattern of bed-days used at different lengths of stay remained virtually unchanged. Increases in the proportion of *very-short-term* and *short-term* admissions brought little change to the overall utilisation pattern in nursing homes.

Table 6.2: Length-of-stay distributions of all members of the admission cohort (F_x), 1989–90 to 1992–93 (life table methodology)

Length of stay	1989–90 (per cent)	1990–91 (per cent)	1991–92 (per cent)	1992–93 (per cent)	Difference between 1993 and 1990 (per cent)
Very-short-term	28	30	31	32	4
Short-term	10	9	9	10	0
Medium-term	9	8	8	9	0
Long-term	24	23	23	22	–2
Very-long-term	29	31	29	28	–1

Note: Due to rounding errors, the sum of the column percentages may not equal 100%. The last column of the table may also differ from direct calculations according to the face values in the table.

Table 6.3: Percentage of bed-days used by separations before the xth month or year of stay (H_x), Australia, 1989–90 to 1992–93 (life table methodology)

Duration of stay	1989–90 (per cent)	1990–91 (per cent)	1991–92 (per cent)	1992–93 (per cent)
0 (at admission)	0	0	0	0
Months				
1	1	1	1	1
2	1	1	1	1
3	2	2	2	2
4	2	2	2	3
6	4	3	4	4
8	5	4	5	5
Years				
1	7	6	7	7
1.5	11	10	11	11
2	15	14	15	15
3	26	24	25	25
5	46	44	46	47
7	64	61	62	64
10	82	79	79	82

Note: Due to rounding errors, the sum of the column percentages may not equal 100%. The last column of the table may also differ from direct calculations according to the face values in the table.

6.2 Length-of-stay distribution for recent annual admissions

The main strategies adopted by the government to reduce the use of nursing homes and change the balance of care are to restrict supply of nursing homes and to control admissions to nursing homes. Therefore, the changes, if any, should be most clearly evident in the admissions that have occurred since the implementation of the reform strategy. Table 6.4 presents the length-of-stay distribution of the annual admissions for the period between 1988–89 and 1992–93. The data were extracted from the Department of Human Services and Health database in early 1994 when all admissions in the 1992–93 financial year had either separated or stayed for at least half a year; six months is therefore used as the cut-off for this comparison of length-of-stay patterns. Figure 6.3 provides a further illustration of these trends.

Table 6.4: Length-of-stay distribution of annual admissions, Australia, 1988-89 to 1992–93

Length of stay	1988–89 (per cent)	1989-90 (per cent)	1990–91 (per cent)	1991–92 (per cent)	1992–93 (per cent)	Changes from 1988–90 to 1992–93 (per cent)
Less than a month	27	29	30	32	32	6
1–2 months	7	9	9	9	9	2
2–3 months	4	5	5	5	5	1
3–6 months	6	8	8	8	8	1
6 months and more	56	49	49	47	46	–10

Note: Due to rounding errors, the sum of the column percentages may not equal 100%. The last column of the table may also differ from direct calculations according to the face values in the table.

The proportion of those who stayed for less than one month increased while the proportion of those who stayed for six months and more decreased noticeably between 1988–89 to 1992–93. However, the trend is weakening. This analysis reinforces the earlier finding, from the life table analysis, that the reduction in length of stay is a result of an increase in the short-stay component among admissions.

For purposes of comparison, table 6.5 presents the length-of-stay distribution for all residents (current residents and separations during the year) in the financial years from 1988-89 to 1992–93. A trend similar to that for admissions is found in the table but, as would be expected, the dimensions of the changes are much smaller.

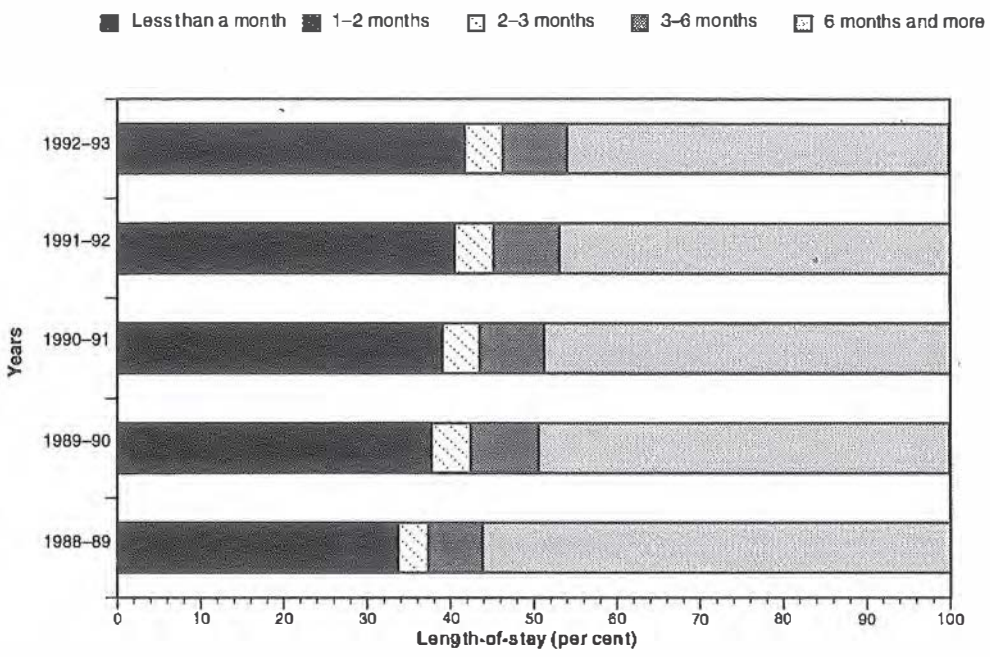

Figure 6.3: Length-of-stay distribution of recent admissions, Australia, 1988–89 to 1992–93

Table 6.5: Length-of-stay distribution of all residents, Australia, 1988–89 to 1992–93

Length of stay	1988–89 (per cent)	1989–90 (per cent)	1990–91 (per cent)	1991–92 (per cent)	1992–93 (per cent)	Changes from 1989–90 t0 1992–93 (per cent)
Less than a month	10	11	11	12	12	2
1–2 months	3	4	3	4	4	1
2–3 months	1	2	2	2	2	1
3 –6 months	3	4	4	4	4	1
6 months and more	83	80	80	79	78	–5

Notes

1. Due to rounding errors, the sum of the column percentages may not equal 100%. The last column of the table may also differ from direct calculations according to the face values in the table.

2. Readmission counts as a new resident.

6.3 *Very-short-term* and *short-term* admissions

So far, it has been clear that the changes occurring in the study period mainly relate to residents who stayed less than two months (*short-term*), and in particular to those who stayed less than one month (*very-short-term*). These categories are examined in more detail in the sections that follow. Generally, the residents in these categories are expected to be either respite care admissions or persons who died soon after admission.

Table 6.6: Nursing home separations for short-stayers, Australia, 1989–90 to 1992–93

	1989–90	1990–91	1991–92	1992–93
Number of separations in the very-short-term category	11,158	11,328	12,550	13,455
Number of separations in the short-term category	3,470	3,206	3,491	3,730
Per cent separations in the very-short-term category among all separations	29.3	30.5	31.7	32.7
Per cent separations in the short-term category among all separations	9.1	8.6	8.8	9.1
Death rate (%) among the very-short-term stayers[a]	25.5	24.3	24.0	22.7
Death rate (%) among the short-term stayers[a]	45.6	47.0	46.3	44.9
Ratio (%): respite admissions to the very-short-term stayers[a,b]	15.2	18.0	26.4	32.4
Ratio (%): respite admissions to the very-short-term and short-term separations[a,b]	11.6	14.0	20.6	25.4

(a) Both the death and respite indicators may underestimate actual trends due to the incomplete information on these two variables in the data set.

(b) Respite care admissions for all lengths of stay are used.

Table 6.6 presents separation statistics on the *very-short-term* and *short-term* categories and the death rate for these categories. It also contains information on respite admissions.

There were 11,158 separations in the *very-short-term* category in 1989–90; this increased by 21% to 13,455 in 1992–93. Separations in the *short-term* category increased by 7% to 3,730 in 1992–93. In total, these two categories increased by 17% from 14,628 in 1989–90 to 17,185 in 1992–93 (table 6.6).

Like the length-of-stay distribution for recent admissions (table 6.4), *short-term* separations, and in particular *very-short-term*, also increased as a proportion of all separations (figure 6.4). In 1989–90, about 38% were *very-short-term* and *short-term* separations, increasing to 42% by 1992–93.

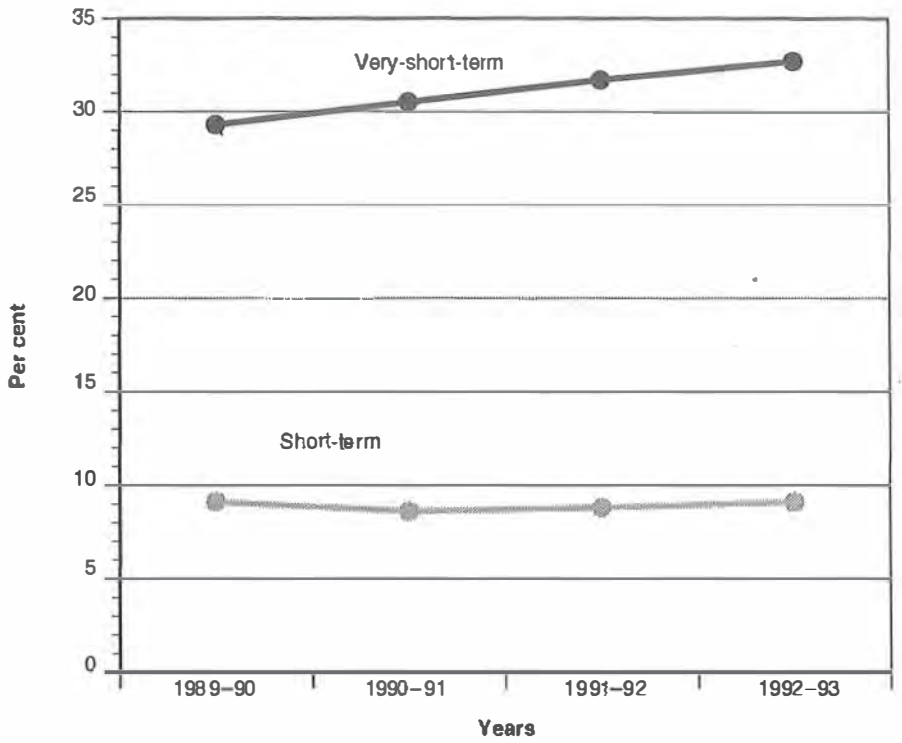

Figure 6.4: Per cent of *very-short-term* and *short-term* stayers among total separations, Australia, 1989–90 to 1992–93

There was no increase in the proportion of short-stay residents who died, at least on the available data. Only 25% of *very-short-term* separations were reported as deaths. The *short-term* separations had a higher mortality rate (around 46%).

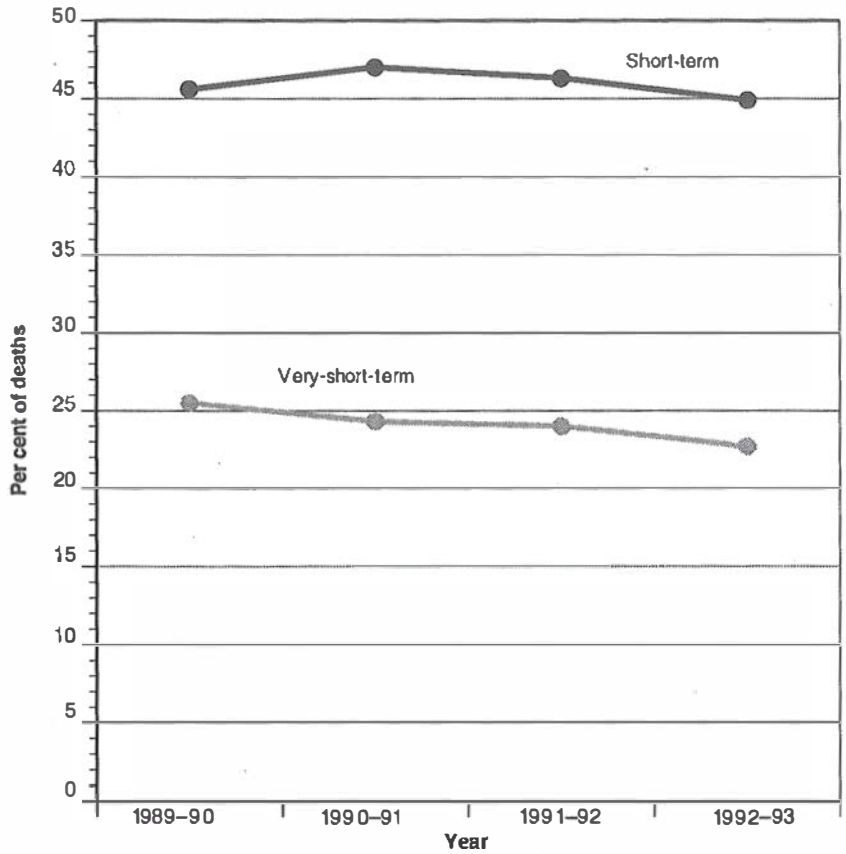

Figure 6.5: Per cent of those who were recorded as deaths among the *very-short-term* and *short-term* stay separations, Australia, 1989–90 to 1992–93

In relative terms, respite care admissions increased markedly (figure 6.6). The ratios of respite admissions to separations in both the *very-short-term* category, and the *very-short-term* and *short-term* combined category were more than doubled over the 4-year period. Thus it appears that the increase in the proportion of *very-short-term* stayers in that period can be attributed to the increase in respite care admissions. This is an important sign of integration or interaction between aged care programs, with nursing homes playing an increasingly complementary role to community-based care through their respite care provisions.

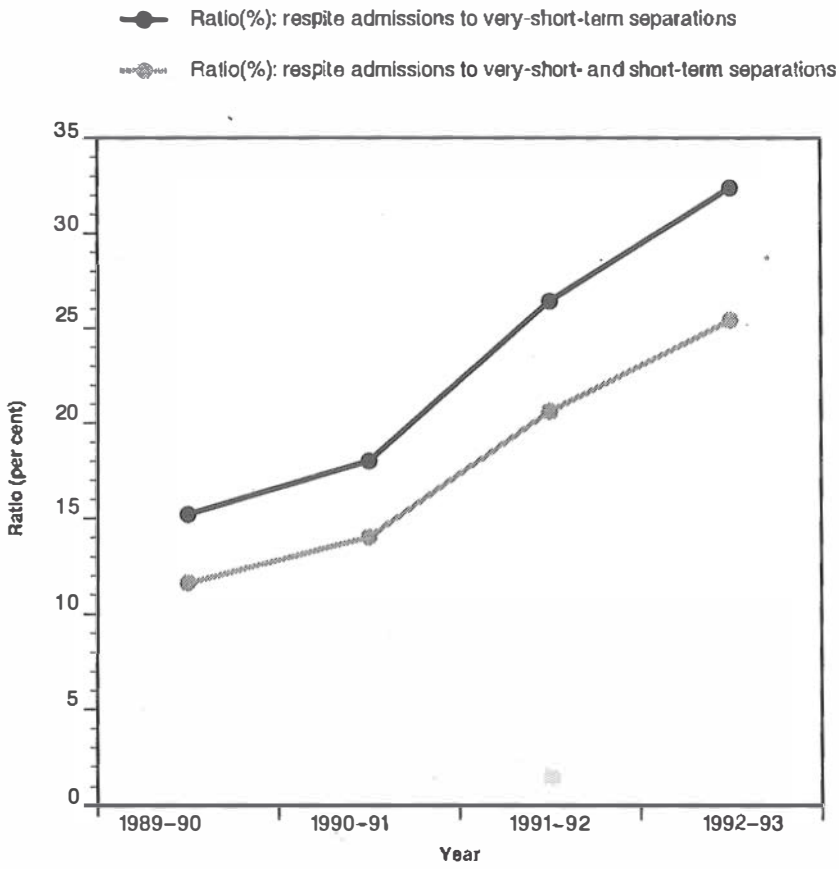

Figure 6.6: Ratios of respite care admissions to *very-short-term* and *short-term* separation groups, Australia, 1989–90 to 1992–93

Nevertheless the sum of the proportion of deaths (23%) and that of the respite care (32%) amounted to about 55% of *very-short-term* separations in 1992–93. This percentage, however, contains some double-counting because respite care admissions included some deaths, and a number of respite residents will have stayed for more than one month. Thus it appears that at least one-half of the separations who stayed less than a month cannot be explained as either respite or terminal care. Data quality issues such as missing values on the death indicator and the respite care indicator may provide a partial explanation. Another explanation may lie in the scarcity of nursing home beds, with people securing a place in any nursing home as it becomes available, and then moving on to a more appropriate one at a subsequent date (after two or more days of separation). As defined in chapter 2, if a person leaves one home and subsequently goes into another after two days or more, a separation and a new admission are counted. It may be that some permanent admissions went to other less intensive services or back into the community after a short period of stay; others would have gone to acute hospitals or hospices. Unfortunately data on the destination of these separations are not available.

7 Turnover and accessibility

The accessibility of nursing home beds is basically determined by the number of beds provided and the movement of resident flow through the system (or turnover). The number of nursing home beds per 1,000 people aged 70 and over has been reduced in the last decade (AIHW 1993, p.223; AIHW 1995, pp.208–209), and there has been a declining trend in expected length of stay. This chapter examines the impact on accessibility of these two trends.

7.1 Turnover

Turnover measures the dynamics of nursing home use by residents. Higher turnover means that more people are using nursing home care at a given level of bed supply. Turnover is closely related to average length of stay: higher turnover is a result of shorter lengths of stay. The reciprocal of the average length of stay in years (expected length of stay at admission) is an proxy indicator for turnover. Based on this measurement, turnover rates were 0.53, 0.55, 0.51, 0.55, and 0.57 for the period from 1988–89 to 1992–93 respectively.

A more accurate measure of turnover is the ratio of admissions in a financial year to the average number of beds available during the year. In 1992–93, the turnover rate was about 0.56 (table 7.1). This is broadly equivalent to saying that, on average, 56% of nursing home beds were used by new admissions in that year, or 56% of beds were used by more than one person in the year. The turnover rate increased by 0.02 from 1989–90 to 1992–93, consistent with the findings emerging from the life table technique employed in this study.

Table 7.1 and figure 7.1 also include measures of turnover based on both respite and non-respite admissions. Of 41,481 admissions in 1992–93, over 10% were for respite care, compared with 4% in 1989–90 (table B3 in appendix B). The proportion of respite care admissions among the *very-short-term* and *short-term* stayers was higher—25% in 1992–93. During the period between 1989–90 and 1992–93, the turnover for non-respite care slightly decreased while the turnover for respite care, although still at a low level, trebled. Therefore, the increase in the overall turnover is entirely attributable to the increase of respite admissions. Changes in overall turnover rates could be somewhat misleading if due attention were not given to the components of this change.

Table 7.1: Nursing home admissions and turnover, Australia, 1989–90 to 1992–93

	1989–90	1990–91	1991–92	1992–93
Turnover (admissions/beds) (A)	0.54	0.52	0.54	0.56
Turnover for respite admissions (respite admissions/beds) (B)	0.02	0.03	0.04	0.06
Turnover for non-respite admissions (A – B)	0.52	0.49	0.50	0.50
Readmissions/no. of admissions (%)	12.8	13.1	13.6	14.7
Turnover for readmissions (readmissions/beds) (C)	0.07	0.07	0.07	0.08
Net turnover (A – C)	0.47	0.45	0.47	0.48
Transfers/beds	0.08	0.09	0.09	0.14

Notes

1. Based on published data, the turnover rates were 0.52, 0.56, 0.54 and 0.54 for 1988–89 to 1991–92 respectively, (DCSH 1988, 1990; HHCS 1992b; HHLGCS 1993).
2. More information is available from table B3 in appendix B.

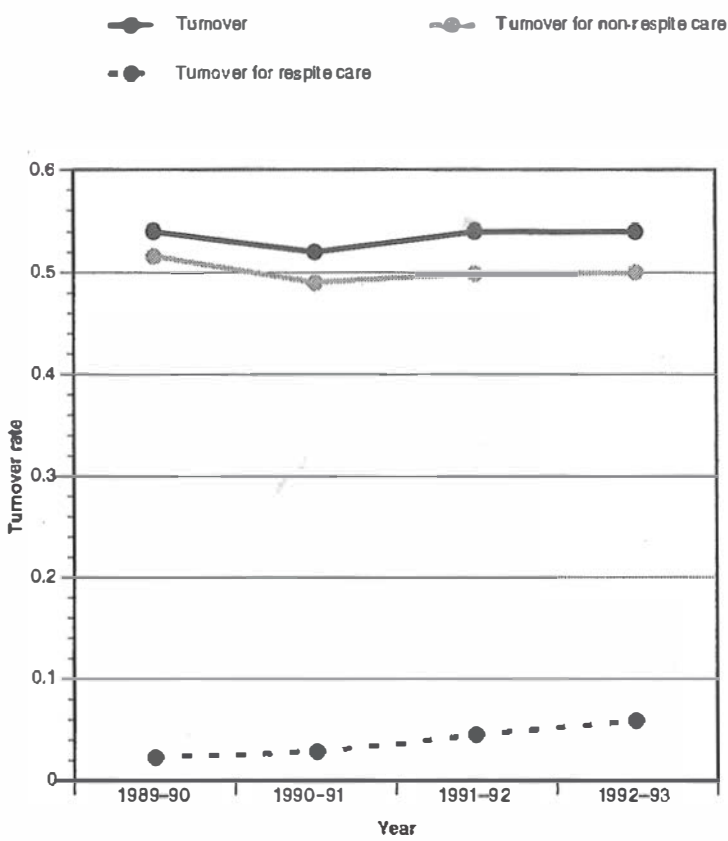

Figure 7.1: Turnover for respite care, non-respite care and total admissions, Australia, 1989–90 to 1992–93

In addition, many people are admitted to nursing homes more than once in a year. In 1992–93, there were more than 6,000 such readmissions, accounting for 15% of total admissions. This may partly be older people using respite care more than once in one year. The readmission ratio (readmissions as a percentage of admissions) increased by 2 percentage points during 1989–90 to 1992–93. If readmissions are excluded, the turnover of residents is 8 percentage points lower than that based on total admissions in 1992–93. This net turnover, defined as turnover of all admissions minus readmissions, remained virtually unchanged from 1989–90 to 1992–93 (figure 7.2). The increases in turnover were thus also associated with an increase in multiple admissions; rather than the increase in the number of individuals admitted into nursing homes.

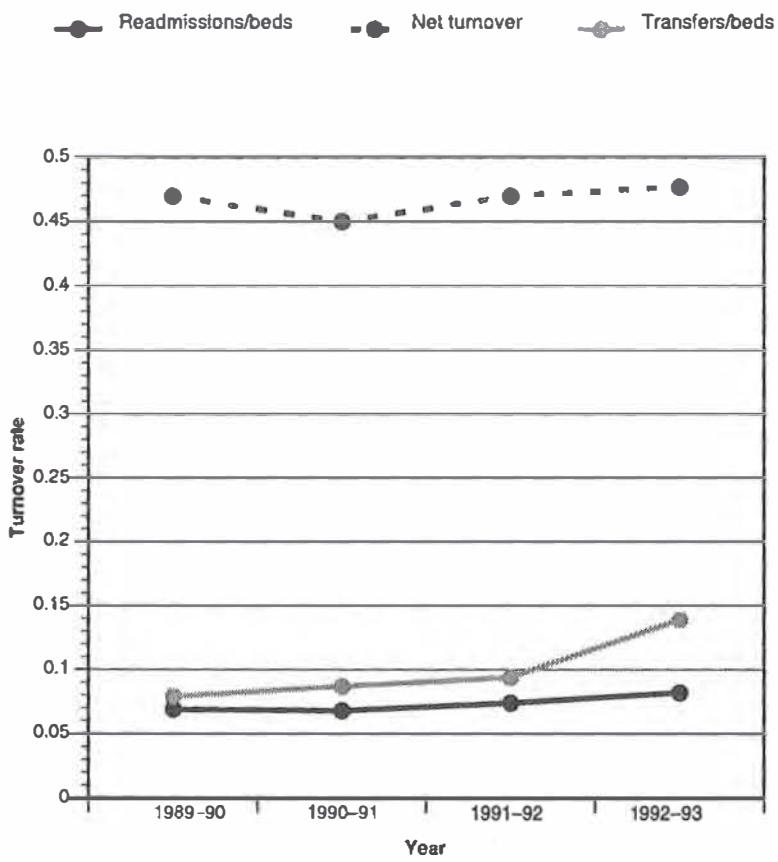

Figure 7.2: Ratio of readmissions and transfers to beds, and net turnover, Australia, 1989–90 to 1992–93

In this study, readmission does not include transfers between nursing homes where the time between the date of separation and the date of the next entry is less than two days; the second entry is defined as a transfer rather than a new admission. There were more than 10,000 such transfers in 1992–93 (table B3 in appendix B), which could add 14 percentage points to the turnover in 1992–93 if transfers were included as admissions.

7.2 Accessibility

There are many ways to measure the accessibility of nursing home care. Conventionally, the number of beds per 1,000 older people is often used as an indicator of accessibility. Over the period from 1989 to 1993, the number of nursing home beds decreased from 60.8 to 54.3 per 1,000 people aged 70 and over.

This study uses two additional indicators of accessibility. The first of these is admissions per 1,000 people aged 70 and over. Table 7.2 and figure 7.3 show that on this measure there was only a marginal decrease over the 4-year period. This suggests that the increase in turnover almost balanced out the effects of the reduction in bed supply. However, if multiple admissions are excluded, a net indicator of accessibility shows a slight decline over the period (second row of table 7.2).

Table 7.2: Accessibility and gross utilisation of nursing homes (per 1,000 persons aged 70+), Australia, 1989–90 to 1992–93

	1989–90	1990–91	1991–92	1992–93
Admissions/persons aged 70+	32.3	30.1	30.7	30.7
Net admissions/ persons aged 70+	28.1	26.1	26.5	26.2
Respite care admissions/persons aged 70+	1.4	1.6	2.5	3.2
Non-respite care accessibility (admissions/person aged 70+)	30.9	28.4	28.2	27.5
Gross utilisation	108,847	108,512	111,478	113,426
Gross utilisation rate (persons 70+)	89.7	86.5	85.5	84.0
Net utilisation rate	85.5	82.5	81.3	79.5

Notes

1. Some of the figures in this table are recalculated in table B4 of appendix B from published data for purposes of comparison.
2. Average population in a financial year is used for calculating the accessibility and utilisation rates.
3. More information is available in tables B3 and B4 in appendix B.
4. Net = excluding readmissions.

This indicator of accessibility (admissions per 1,000 persons aged 70+) can also be divided into respite and non-respite care admissions. There were about 3 respite and 28 non-respite care admissions per 1,000 people aged 70 and over in 1992–93. This is a significant increase in accessibility for respite care from 1989–90 when the corresponding figures were 1 for respite care and 31 for non-respite care; however, accessibility for non-respite care decreased during this period. This finding once again demonstrates the increasing role of nursing homes in providing respite care.

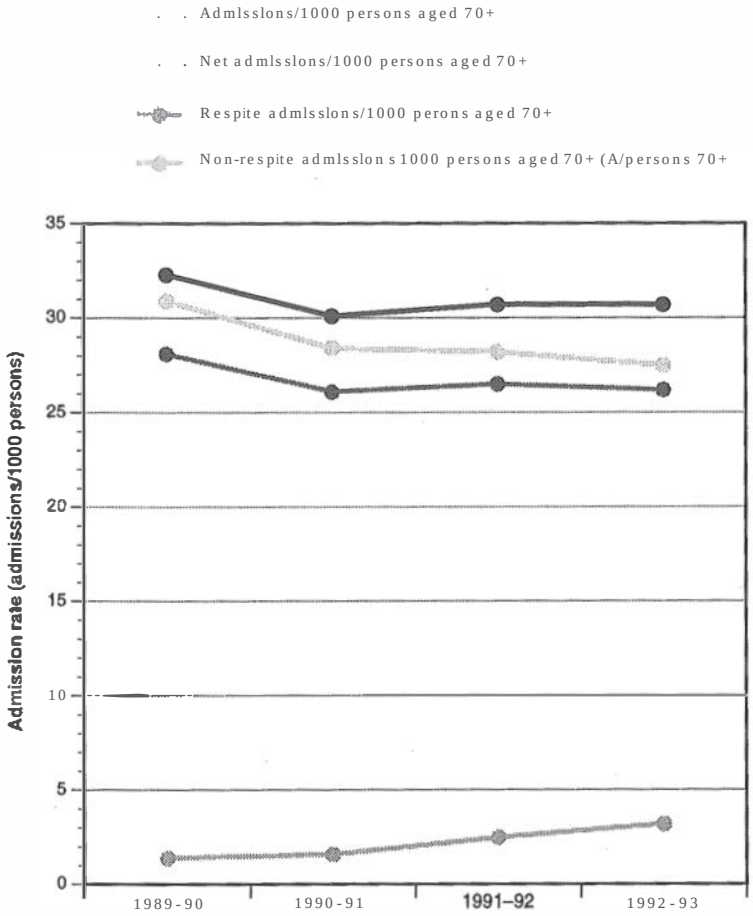

Figure 7.3: Admission rates, Australia, 1989–90 to 1992–93

The other, more holistic measure of accessibility relates the sum of existing residents at the beginning of the financial year and new admissions to the population who are potentially in need of nursing home care. This is defined as the gross utilisation rate, and is the sum of residents at the beginning of the year and admissions during the year per 1,000 persons aged 70 and over. The gross utilisation rate measures overall accessibility. As table 7.2 and figure 7.4 show, the gross utilisation rate decreased between 1989–90 and 1992–93. The increase in turnover moderated but did not offset the effect of reductions in the bed supply; there was a decline in overall accessibility.

Again, if multiple admissions are excluded, the net utilisation rate can be calculated. An even greater reduction is then evident, further pointing to a reduction in accessibility for older people (last row of table 7.2). The net accessibility rate and net utilisation rate are more comprehensive indicators of accessibility than those based on bed supply per 1,000 older persons, or those measures which do not exclude multiple admissions.

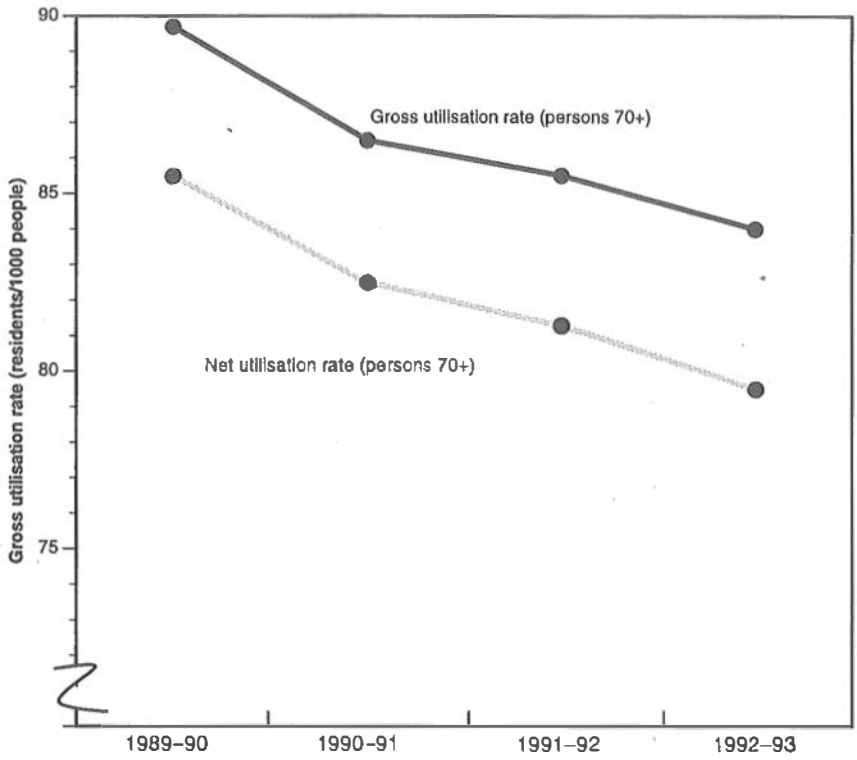

Figure 7.4: Gross utilisation and net utilisation rates, Australia, 1989–90 to 1992–93

8 Summary and conclusions

This study has used a life table technique to simulate nursing home utilisation in Australia. This approach is useful because information on the complete stay of nursing home residents is not available prospectively. A life table for nursing home resident population was constructed to analyse the current length-of-stay pattern. A series of life tables for subgroups of resident populations were used to compare their length-of-stay patterns. The changes in length of stay between 1989–90 to 1992–93 were also examined.

As they are closely related measures, data on turnover and accessibility were also included in this study. These were examined using several different indicators in order to gain a more comprehensive understanding of the trends over time.

The statistical indicators generated from the life tables expand our knowledge of nursing home utilisation in Australia. The findings are relevant for future policy formulation, but in many ways this is an exploratory study. Many additional questions emerge as a result of the analyses presented here. The purpose of this chapter is to:

- summarise the main findings of the study
- discuss the implications of the findings
- identify further research problems.

8.1 Overall pattern

Based on the 1992–93 life table, the expected length of stay of nursing home residents at admission is 636 days compared with the median length of stay of 119 days. The skewed nature of the length-of-stay distribution is apparent. The average length of stay is severely biased towards a small proportion of very long-stay residents and hence it is a poor representation of the length-of-stay distribution. The median is a better overall measure.

An interesting finding emerging from the life table analysis is that the longer a resident has been in a nursing home, the longer he or she is likely to continue to be there.

The life table also displays the heterogeneity of nursing home residents. Some are admitted for short-term care and others for long-term care. The heterogeneity is clearly reflected in changes in the probability of separation which is high at the beginning of the residence but declines markedly with increasing length of stay. About a third of admissions are in the *very-short-term* category as defined in this study.

This observed heterogeneity in the length-of-stay pattern of nursing home residents has important policy implications. Shorter lengths of stay and higher turnover rate are

associated with higher administrative costs, longer period of bed vacancy and lower occupancy rates. While supplementary funding is provided to offset the additional administrative costs for respite care residents, such provisions are not available for non-respite short-stayers (the majority of the admissions and separations with a length of stay less than two months). This group is also growing. There is the potential for persons who appear likely to have a short length of stay to suffer reduced access, particularly where there are waiting lists. American evidence suggests that, under a casemix adjusted nursing home funding system, different types of patients represent different profit margins. As a result, they experience different selection preferences for nursing home admission (Nyman & Connor 1994).

Finally, nursing home bed-days are unevenly allocated among the residents. A large group of short-stay residents use only a small proportion of bed-days, whereas a small group of long-stay residents consume a large proportion of bed-days. Relatively small reductions in extremely long-stay admissions thus result in quite significant increases in available bed-days.

8.2 Resident characteristics and length of stay

Age at admission and sex

Gender is clearly related to length of stay in nursing homes. The life tables show that women not only stay longer than men but are more likely to fall into the *very-long-term* category. Given that cross-sectional data have traditionally revealed that there are more women than men in nursing homes at any point in time, this analysis shows that the female predominance in nursing home use is even more profound than it previously appeared.

Men are more likely than women to be in *very-short-term* and *short-term* categories: 48% of males compared with 38% of females separated within two months in 1992–93.

Age at admission to nursing home is another demographic factor affecting length of stay in nursing homes. The expected length of stay for those admitted at ages 80 years and over is shorter than that for those admitted at ages 60–79 years, and the discrepancy widens as the duration of stay increases. Limited life expectancy and the greater severity of disabilities combine to impose limits on the length of stay for those admitted at an older age. Their expected length of stay decreases as the duration of stay increases beyond the first year.

There is, however, a much higher proportion of admissions who stay for less than two months among the group admitted at ages 60–79 years than among the 80+ group.

When the residents are analysed separately by both age at admission and sex, the variations in length of stay become even more marked. Men admitted at ages 80 and over have the shortest expected length of stay while women admitted at ages 60–79 years have the longest expected length of stay. The differences between these two groups range from 376 to 824 days.

The expected length of stay is initially longer for women admitted at ages 80 and over than that for men admitted at ages 60–79 years, but the trend reverses after four months.

Men admitted at a younger age include an exceptionally high proportion (51%) of *very-short-term* and *short-term* admissions, while women admitted at an older age have the lowest proportion (34%).

Dependency levels

Resident dependency level is strongly associated with expected length of stay of residents. As expected, the higher the dependency level, the shorter the expected length of stay. In other words, higher dependency is related to higher turnover.

The most dependent admissions (RCI 1), in particular, have the shortest expected length of stay (468 days) at admission and median (87 days) length of stay. For the other RCI admissions, the expected length of stay at admission varies from 710 to 922 days, and the median from 211 to 485 days. Some 44% of RCI 1 admissions fall into the *very-short-term* and *short-term* categories compared with 21–31% in the other dependency categories. As RCI 1 admissions are a potential short-stay group, their admissions often incur extra administrative cost because of their frailty and the higher turnover. While RCI 1 residents attract higher CAM funding, the higher funding is to meet the higher level of need for care; it may not provide for the costs incurred by increased turnover.

Since the inception of the RCI in 1987, both the current RCI 1 residents and RCI 1 admissions have decreased significantly in relative terms while RCI 2 and RCI 3 have increased significantly (Liu & Choi 1995). This trend runs counter to the policy intention to increasingly target nursing home care towards higher-dependency residents.

Informal support

The findings of the study, relating to both marital status and prior living arrangement, support the general perception that informal support can help older people stay at home or in the community. Being married or having a de facto relationship is associated with a shorter length of stay. Never-married residents have the longest expected length of stay. Those married or in a de facto relationship also make up a substantially higher proportion of the *very-short-term* group and a lower proportion of the *very-long-term* group.

Being married has a greater impact on length of stay for men than for women. While it is often assumed that it is the absence of a male spouse, as a result of widowhood, which predisposes women to nursing home care, it has not been recognised that women with husbands are also more likely to stay longer in a nursing home than do men with wives. It may suggest that older women are more likely than older men to take care of a frail partner at home for a longer period of time.

Living arrangement prior to admission is another indicator of informal support. Living alone is associated with a longer expected length of stay in nursing homes; living with one's family is associated with a shorter stay. Living with non-family members is also associated with a somewhat longer length of stay.

Among family members, spouses appear to play the most important role in reducing the length of stay. Having cohabiting family members in addition to a spouse is not associated with a further reduction in length of stay. Living with children, and particularly with the children's family, is the second most important predictor of a reduced length of stay in nursing homes.

Living with family members prior to admission is also associated with higher proportions of *very-short-term* stayers and lower proportions of *very-long-term* stayers. The high proportions of very-short-stayers among those who lived with their spouses and others, and with their children and children's family, prior to admissions may be indicative of a high level of use of respite care, or the use of nursing homes as a last resort when the older person has become highly dependent.

Housing tenure

Housing tenure prior to admission is closely associated with the expected length of stay in nursing homes. The more independent the prior living environment, the shorter is a resident's length of stay in the nursing home. The expected length of stay in nursing homes increases in the following order: house or flat, independent unit, hostel and hostel-like accommodation, psychiatric hospital. This finding suggests that aged care programs need to be viewed in a wider context, including housing programs.

Whether from hospital

Residents from hospitals have a longer expected length of stay at admission than those from other sources. Those hospital transfers are also less likely to be admitted to nursing homes for *very-short-term* care. When the *very-short-term* admissions are excluded from the analysis, the hospital transfers have a slightly shorter stay. In those instances where residents have previously been classified as nursing home type patients in acute care hospitals, if their length of stay as a nursing home type patient were added to the calculation, the average length of stay for hospital transfers would be even longer, and the comparison of expected lengths of stay after the first month of residence may alter.

Acute hospital care affects nursing home utilisation not only through supplying about 60% of nursing home admissions, but also by holding a number of potential nursing home residents for an extended period as nursing home type patients, or sometimes intentionally providing nursing home care, particularly in rural and remote areas. Changes to the acute hospital system, such as the introduction of casemix funding, thus has the potential to affect nursing home care.

Preferred language

The study did not find any significant difference in the length-of-stay patterns between English-speaking and non-English-speaking admissions.

Pension status

Apart from the two special groups—repatriation pensioners and invalid pensioners—no significant differences were found between other groups, including non-pensioners. This may be a reflection of the uniform charging system for all nursing home residents regardless of their financial status. Age and sex may also have a compounding effect. In addition, the vast majority of nursing home residents for whom data are available are pensioners; furthermore, there is a substantial proportion of missing data.

8.3 Nursing home characteristics and length of stay

State/Territory

The nursing home length-of-stay pattern differs from State to State in Australia. The expected length of stay at admission varies from 519 days in Tasmania to 848 days in Queensland. The expected length of stay at other points in the duration of stay varies from 783 to 1,837 days.

Those States and Territories which have shorter expected length of stay at admission also have higher proportions of *very-short-term* admissions. Not surprisingly, Queensland has the highest proportion of *very-long-term* admissions. It appears possible that different States have consistently different patterns in terms of the types of residents being admitted to nursing homes.

Region

The length-of-stay patterns show no apparent difference between metropolitan and non-metropolitan regions. Regions classified as non-metropolitan are, however, mixed and a more detailed regional classification which distinguishes urban and rural areas is desirable for future study.

Nursing home type

Residents in different types of nursing homes have considerably different length-of-stay patterns. Government nursing home residents have much shorter stays than non-government nursing home residents. Residents in private-not-for-profit homes stay for shorter periods of time than those in private-for-profit homes. The difference in utilisation pattern between government and non-government nursing homes is further illustrated by the distribution according to length of stay of each admission cohort. Government homes have an extremely high proportion of *very-short-term* admissions (63%), and a lower proportion of *very-long-term* admissions (12%).

The above patterns raise questions about the operations of different types of nursing homes in terms of their roles, resident selection criteria and procedures, separation policies, and so on. These patterns may, at least partially, be a consequence of selective admission procedures by private-not-for-profit and in particular private-for-profit homes.

Nursing home size

Nursing home size also appears to be related to the length of stay. Residents in nursing homes with less than 20 beds have the shortest length of stay. Among those homes with 20 and more beds, the expected length of stay of the residents at admission decreases roughly in proportion to the increase of number of beds. Most of this difference is associated with the *very-short-term* stayers; however, after a month, the expected further length of stay does not significantly differ among residents in homes with 20 and more beds.

The *very-short-term* group accounts for more than half of the admissions in the smallest homes, compared with only 24–30% in homes with 20–79 beds. A relatively high proportion of *very-short-term* stayers appearing again in the largest homes explains the shorter expected length of stay at admission in those homes.

These data suggest that the smallest homes may be playing a different role from other homes, perhaps with an emphasis on respite, terminal and/or transitional care.

8.4 Changing patterns of length of stay

Expected length of stay

The expected length of stay at admission shortened by about two months between 1988–89 and 1992–93: by one month between 1988–89 and 1989–90 and by another month between 1989–90 and 1992–93. The decline of the expected length of stay at admission can mainly be attributed to an increase in the proportion of the *very-short-term* stayers among the new admissions.

The expected length of stay, after the first month had elapsed, remained more or less unchanged during the period between 1989–90 and 1992–93.

Admission cohorts and bed-days

The length-of-stay analyses in both the life table model and the recent actual admission cohorts revealed that admission patterns have been shifting towards shorter-stayers, particularly the *very-short-term* stayers, during the study period. Changes for the total resident population, as expected, were more modest.

The length-of-stay pattern for bed-day use remained unchanged between 1989–90 and 1992–93.

Very-short-term and *short-term* residents

Among the separations in 1992–93, about 33% stayed for less than 30 days (*very-short-term*) compared with 29% in 1989–90. The proportion of those who stayed 30-59 days (*short-term*) remained constant at about 9% during the period.

Among the *very-short-term* stay separations, about 26% of them were separated through death in 1989–90. The death rate dropped by 2 percentage points by 1992–93. The death

rate was higher among the *short-term* stay separations (45%) and remained virtually unchanged during the period.

The ratio of respite care admissions to *very-short-term* stay separations was surprisingly low: it was 15% in 1989–90 and doubled by 1992–93. When compared with both the *very-short-term* and *short-term* stay separations, the ratio was even lower (12% in 1989–90 and 25% in 1992–93).

Among those separations with a length of stay less than 60 days, one-half or more neither died nor were respite admissions. This group requires further investigation in order to explore the reasons for separation and the destinations. Factors such as missing values on the death indicator may provide a partial explanation. Another explanation may lie in the scarcity of nursing home beds in some regions, with people securing a place in any nursing home as it becomes available, and then moving on to more appropriate one at a subsequent date. Unfortunately, data on the destination of separations were not available.

8.5 Turnover

Nursing home bed turnover increased by about 2 percentage points from 1989–90 to 1992–93. However, this increase can be totally attributed to the increase of respite care admissions. After the respite care admissions are excluded, the turnover decreased slightly in the period.

The ratio of respite care admissions to total admissions was more than doubled between 1989–90 and 1992–93. Such an increase indicates the increasing importance of respite care nursing homes under the Aged Care Reform Strategy. With an increased proportion of highly dependent older people remaining at home with community-based support, there is likely to be an increased demand for respite care. This increasing trend toward nursing home respite care may continue for some time as the balance of aged care continues to shift towards home and community care. This may have significant consequences for the availability of nursing home beds for those seeking permanent (non-respite) care. Respite care needs deserve more attention in nursing home policy and planning processes.

The significant increase in transfers as well as in respite admissions, and the slight increase in readmissions, all suggest that nursing home care is becoming less dominated by long-term permanent admissions and more dynamic. This changing nature of nursing home care will have to be incorporated into future planning strategies.

8.6 Accessibility

The reduction of nursing home bed supply under the Aged Care Reform Strategy has meant a decrease in accessibility of nursing home beds for older people. On the other hand, the reform has produced higher turnover, mitigating the effects on accessibility. Thus overall turnover (admissions per 1,000 persons aged 70 and over) remained more or less the same between 1989–90 to 1992–93.

When admissions are divided into respite care and non-respite care admissions, however, it becomes evident that while respite care accessibility was more than doubled during the period from 1989–90 to 1992–93, non-respite care accessibility dropped by 3 admissions per 1,000 people aged 70 and over (or 11%) in that period.

The more holistic measure reveals an actual decline in nursing home accessibility. Gross utilisation, which takes both bed stock and its dynamics into account, records an overall reduction from 92 in 1989–90 to 84 in 1992–93.

8.7 Reconstructing the image of nursing homes

The stereotypes of nursing homes as long-term stay institutions and the last home of older people are challenged by the findings in this study. The nursing home resident population is a heterogeneous group. Nursing homes play a significant role in providing short-term care, including respite care. Half of all admissions are for *very-short-term* to *medium-term* care and a third are for *very-short-term* care. The *very-short-term* group accounts for an even greater proportion in government homes (63%) and those homes with less than 20 beds (51%).

The nursing home population is also a dynamic one and becoming increasingly so. The high proportions of *very-short-term* and *short-term* stayers separating from nursing homes alive, the significant proportions of respite admissions, transfers and readmissions, the decreasing expected length of stay at admission (or average length of stay) and the increasing turnover all demonstrate the frequent flow of residents from within as well as outside the system. The long-term care rubric is becoming less relevant to the nursing home, as residents are brought into greater contact and interaction with the rest of the community.

It is thus decreasingly appropriate to call nursing homes long-term care institutions. The image of the nursing home should be modified, with potential benefits in improving community attitudes and reducing the negative images associated with the use of nursing home care.

8.8 Methodological developments

The changing face of nursing home care, and the versatility and dynamics of the nursing home population, require new and more sophisticated methods or models to measure utilisation. This study demonstrates the usefulness and importance of life table techniques for simulating the length of stay of nursing home residents. It also employs some useful additional measurements or indicators for nursing home utilisation.

A new measure employed in this study is the parameter H_x in the life table. It directly displays how the nursing home bed-days are used by residents, or how the nursing home bed-days are allocated among different length-of-stay groups. In 1992–93, about 3% of total bed-days were used by those who stayed in nursing homes for less than 4 months but these account for half of the total admissions. On the other hand, about 10% of admissions who stayed in nursing homes for 5 years and over consumed more than

one-half of the total bed-days. The number of residents and the total bed-days are not of themselves adequate indicators of nursing home utilisation; H_x is a useful supplementary indicator. This indicator also shows that the more effective way to reduce the nursing home utilisation is to target the very-long-stay group. By restricting the maximum length of stay to 10 years, about 20% of bed-days could be saved while only about 2% of residents would be affected. If the maximum stay were further limited to 5 years, over half of the bed-days could be saved and only about 10% of residents would be affected. Considerations of truncating or limiting length of stay in this way are, of course, hypothetical. However, the figures serve to illustrate the importance of the very-long-stay group in terms of total nursing home usage, and highlight the need to further investigate why and how people come to experience these extended periods of stay in Australian nursing homes.

The measurement of turnover and accessibility of nursing homes beds is traditionally based on total admissions in a year. As already discussed, these measures ignore the heterogeneity of the nursing home resident population and are no longer adequate. Separate measurements for respite and non-respite care are needed.

The conventional indicator for accessibility measures resident flow, but does not include current residents. This study employs a holistic approach—gross utilisation rate—which takes both resident flow and current residents into account.

This study supports the appropriateness and importance of those new indicators, which are recommended for future use in policy evaluation and utilisation studies.

8.9 Further research

This study also identifies some important issues for further research. Firstly, it reveals the heterogeneity of the nursing home resident population. The questions of who are the long-stayers and who are the short-stayers remain unresolved. Both the resident and nursing home characteristics are analysed in relation to length of stay, and some indicative associations are found. The associations provide useful guidance for further studies on the matter; however, they cannot be used to predict directly and accurately the length of stay for an admission. Statistical models, such as regression techniques, are needed to establish a quantitative relationship.

The great variation in the length-of-stay patterns across the States and Territories, and across the nursing home types and sizes, cannot be fully explained by the current study. Further work is required to explore the reasons behind the differences.

Finally, to fully understand nursing home use patterns it is necessary to examine linkages with other aged care programs, hospitals and the housing sector.

8.10 Data development

Nursing homes probably have the most sophisticated and complete data collection of all aged care programs. Both quality and coverage have been improved substantially since 1987–88. Nevertheless, the study identifies some areas where further

improvements are needed. The resident characteristics data are important for utilisation and other analyses. Information relating to characteristics such as marital status, preferred language, housing tenure, prior living arrangement, whether from hospital, and pension status are not recorded for all residents because they are not mandatory fields. As a result, there is a high proportion of records with missing values for resident characteristics in the current data collection, making the relevant analyses less decisive.

There were also missing values relating to resident dependency level (RCI), due to the fact that this information was not required for government homes. This, however, has changed, and as government homes progressively convert to the new system, data will become available on RCI categories.

The information on where residents go at separation is crucial to the study of resident flow. However, the information is not collected. Information on separation mode should ideally be added to the data collection, with distinctions made between hospital, hostel, other nursing homes, other institutions, and the community.

Appendix A: Notes on methodology

Duration-of-stay-specific life table for nursing home resident population

The life table is a powerful technique for studies related to duration of exposure; it is particularly useful for truncated data. If an admission is treated as the birth of a resident and separation as the death, and the duration of stay as the age of the resident, an ordinary population period life table becomes the duration-of-stay-specific life table of nursing home residents. Thus, the life table can simulate the dynamics of a synthetic admission cohort based on duration-of-stay-specific rates observed in a single year. The assumption for this model is that duration-of-stay-specific separation rates do not change with time. This study adapts the computing method developed by Manton et al. (1984) for use with nursing home resident data.

The data used for constructing the life table are the number of separations with length of stay from x to x+n days (${}_ndy_x$) during a year (financial year used here, and 'dy' is the number of separations during the year) and the number of residents (${}_nR_x$) at the mid-point of the year by duration of stay.

The following steps are used to construct the life table.

1. ${}_nD_x$—the average daily number of separations during the interval x to x+n days

$$ {}_nD_x = {}_ndy_x / 365.25 $$

2. ${}_nm_x$—separation rate

$$ {}_nm_x = {}_nD_x / {}_nR_x $$

3. ${}_nq_x$—separation probability

$$ {}_nq_x = (n)\,({}_nm_x)/[1+(n/2)\,({}_nm_x)] $$

4. l_x—the number of the original cohort surviving at the xth day of the duration of stay or not separated by x days into the duration of stay. l_0 is the initial size of the cohort and is arbitrarily set at 100,000.

5. ${}_nd_x$—number of separations during the interval x to x+n

$$ {}_nd_0 = (l0)\,({}_nq_0), \quad {}_nd_x = (l_x)\,({}_nq_x), \quad l_{x+n} = l_{x\,-\,ndx} $$

6. ${}_nL_x$—number of person-days spent in the nursing homes by the members of the admission cohort in the interval x to x+n

$$ {}_nL_x = (n/2)\,(l_x + l_{x+n}) $$

For the last interval, it is assumed that the separation rate is constant. So if ${}_{\infty}d_w$ and ${}_{\infty}m_w$ are the number of persons staying to the beginning of the last interval and the separation rate for the last interval, then the number of person-days lived in a nursing home in the last interval (${}_{\infty}L_w$) is

$$ {}_{\infty}L_x = {}_{\infty}d_w / {}_{\infty}m_w $$

7. T_x—total number of person-days spent in the nursing homes by the members of the cohort after x days into the duration of stay

$$ T_x = \text{sum of } {}_nL_x \text{ to } {}_{\infty}L_w $$

8. e_x—the number of days that a nursing home resident is expected to stay in the nursing home at the xth day of the duration of stay

$$ e_x = T_x / l_x $$

9. F_x—cumulative separation probability for an admission cohort by duration of stay

$$ F_x = 1 - (l_x / l_0) $$

10. G_x—cumulative separation probability for current resident populations by duration of stay

$$ G_x = 1 - (T_x / T_0) $$

11. H_x—proportion of total bed-days used by the members of the admission cohort who have separated by the xth day of the duration of stay

$$ H_x = 1 - (Th_x / T_0) $$

Th_x—total number of bed-days used by the members of cohort who stayed for x days and more

$$ Th_x = \text{sum of } {}_nLh_x \text{ to } {}_{\infty}Lh_w $$

and

Lh_x—number of bed-days used by the members of the admission cohort who separated during the interval x to x+n

$$ Lh_x = ({}_nd_x)\,(x+(n/2)), \quad {}_{\infty}Lh_w = {}_{\infty}L_w + w\,({}_nd_w) $$

Note: H_x is an additional parameter initiated by this study.

Appendix B: Supplementary statistics

Table B1: Current residents, admissions, live separations and deaths, Australian nursing homes, 1988 and 1988–89 to 1992–93

	1988	1988–89	1989–90	1990–91	1991–92	1992–93
Data provided to AIHW by the Department of Human Services and Health						
Current residents	53,604	69,670	70,772	71,413	71,945	72,290
Admissions	10,209	30,510	39,177	37,740	40,065	41,481
Live separations	3,017	13,338	14,262	13,862	14,975	16,350
Deaths	172	1,106	23,813	23,237	24,559	24,790
Data published by the Department of Human Services and Health						
Current residents	70,442	70,885	709,87	71,440	72,062	n.a.
Admissions	16,455	37,818	40,498	39,608	39,579	n.a.
Live separations	5,367	12,362	12,808	12,607	13,104	n.a.
Deaths	10,784	24,371	26,068	24,649	25,652	n.a.

Notes

1. The current residents refer to 30 June for 1988 and the end of the financial year for the other years.
2. n.a. = not available.

Sources: DCSH 1988, pp.24, 39, 45, 52; DCSH 1990, pp.13,18, 21, 26; HSH 1994; NHPS unpublished data; HHCS 1991b, pp.13, 18, 22, 26; 1992b, pp.13, 18, 22, 26; HHLGCS 1993, pp.13, 20, 26, 33.

Table B2 : Current residents and separations by characteristics, Australia, 1992 and 1993

	Current residents		Separations
	30 Jun 1992	30 Jun 1993	1992–93
Total	**71,945**	**72,290**	**41,140**
Age at admission 60–79	29,492	29,268	16,084
Age at admission 80+	38,385	39,141	23,421
Males	20,004	20,427	15,713
Females	51,941	51,863	25,427
Males admitted at age 60–79	10,209	10,341	7,381
Males admitted at age 80+	7,823	8,219	7,396
Females admitted at age 60–79	19,283	18,927	8,703
Males admitted at age 80+	30,562	30,922	16,025
Resident dependency levels (RCI)			
RCI 1	1,879	1,568	1,046
RCI 2	10,638	11,608	6,198
RCI 3	18,845	23,076	9,655
RCI 4	10,713	11,271	4,385
RCI 5	3,807	3,532	1,380
Marital status			
Divorce/separate/widow	32,844	34,013	16,930
Married/de facto	15,907	16,872	11,711
Single	6,741	6,846	2,875
Other	16,453	14,559	9,624
Marital status and sex			
Divorce/separate/widow/males	5,220	5,534	3,818
Married/de facto/males	7,647	8,181	7,127
Single/males	2,421	2,539	1,139
Divorce/separate/widow/females	27,624	28,479	13,112
Married/de facto/females	8,260	8,691	4,584
Single/females	4,320	4,307	1,736
Preferred languages			
English	38,039	42,321	23,122
Non-English	2,821	3243	1,907

(continued)

Table B2 (continued): Current residents and separations by characteristics, Australia, 1992 and 1993

	Current residents		Separations
	30 Jun 1992	30 Jun 1993	1992–93
Pension status			
Aged pension	40,192	41,553	21,749
Invalid pension	2,238	2,282	940
Other pension	3,214	2,958	1,364
Repatriation pension	4,001	4,233	2,770
Non-pension	2,816	3,179	1,688
Whether admitted from acute hospitals			
From hospital	23,283	25,767	13,196
Not from hospital	15,784	16,762	10,046
House/flat	25,312	28,382	17,504
Housing tenure			
Hostel/hostel like	10,549	12,159	5,241
Psychiatric hospital	599	630	208
Other	2,790	2,716	1,244
Independent unit	1,998	2,204	1,247
Prior living arrangements			
Alone	13,601	15,206	7,256
Spouse only	7,829	8,925	6,580
Spouse and other	1,035	1,226	858
Other family	1,144	1,445	815
Child only	1,799	2,019	1,258
Child and child's family	3,734	3,948	2,784
Parent	783	670	405
Non-family members	10,992	12,195	5,349
States and Territories			
NSW/ACT	28,382	28,610	15,735
Qld	11,834	11,964	5,098
Vic	16,784	16,887	11,213
WA	5,885	5,852	3,113
SA/NT	6,993	6,876	4,497
Tas	2,067	2,101	1,484
Nursing home type			
Government homes	12,759	12,153	13,511
PFP homes*	34,626	34,944	15,332
PNFP homes**	24,560	25,193	12,297

(continued)

Table B2 (continued): Current residents and separations by characteristics, Australia, 1992 and 1993

	Current residents		Separations
	30 Jun 1992	30 Jun 1993	1992–93
Metro homes	54,965	55,121	31,285
Non-metro homes	16,973	17,162	9,855
Nursing home sizes			
Less than 20 beds	2,121	1,904	1,637
20–39 beds	14,875	15,295	7,543
40–59 beds	17,123	17,270	9,542
60–79 beds	13,171	13,420	7,236
80 and over beds	24,648	24,394	15,182

* *Private-for-profit.*

** *Private-not-for-profit.*

Source: HSH 1995, NHPS unpublished data.

Table B3: Nursing homes, admissions, readmissions, respite admissions and transfers, Australia, 1988–89 to 1992–93

	1988–89	1989–90	1990–91	1991–92	1992–93
No. of admissions		39,177	37,740	40,065	41,481
	(37,818)	*(40,498)*	*(39,608)*	*(39,579)*	
No. of transfers	4,089	5,749	6,308	6,894	10,314
No. of readmissions	4,070	5,026	4,945	5,457	6,095
Readmissions/no. of admissions (%)	13.3	12.8	13.1	13.6	14.7
No. of respite admissions	131	1,697	2,035	3,307	4,364
Respite admissions/ admissions (%)	0.3	4.3	5.4	8.3	10.5

Note: Italicised figures are from the sources Indicted by * below.

Sources: AIHW 1993, p.223; DCSH 1988, p.21'; DCSH 1990, pp.10,18'; HSH 1995; NHPS unpublished data; ACCSIS unpublished data 1995; HHCS 1991b, p.18'; HHCS 1992b, p.18'; HHLGCS 1993, p.20'.

Table B4: Availability and utilisation of nursing homes (per 1,000 persons aged 70+), Australia, 1988–89 to 1992–93

	1988–89	1989–90	1990–91	1991–92	1992–93
Admissions/persons aged 70+		32.3	30.1	30.7	30.7
	(32.0)	*(33.4)*	*(31.6)*	*(30.4)*	
Net admissions/persons aged 70+	*(28.5)*	28.1	26.1	26.5	26.2
Respite care admissions/persons aged 70+	0.1	1.4	1.6	2.5	3.2
Non-respite care admissions/ persons 70+	*(31.9)*	30.9	28.4	28.2	27.5
Gross utilisation		108,847	108,512	111,478	113,426
	(108,263)	*(111,383)*	*(110,595)*	*(111,019)*	
Gross utilisation rate (persons 70+)		89.7	86.5	85.5	84.0
	(91.5)	*(91.8)*	*(88.1)*	*(85.2)*	
Net utilisation rate	*(88.1)*	85.5	82.5	81.3	79.5

Notes

1. Italicised figures are from the sources indicated by * below.
2. Average population in a financial year is used for calculating the accessibility and utilisation rates.
3. Net = excluding readmissions.

Sources: AIHW 1993, p.223; DCSH 1988, p.21*; DCSH 1990, pp.10,18*; HSH 1995; NHPS unpublished data; ACCSIS unpublished data 1995; HHCS 1991b, p.18*; HHCS 1992b, p.18*; HHLGCS 1993, p.20*.

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Aged Care Series

The Aged Care Series is a product of the Welfare Division of the Australian Institute of Health and Welfare. At the present time, the division's Aged Care program focuses on the Balance of Care project. The project takes as its central question the balance of care between and among the different sectors of service delivery pertinent to care of the frail aged—particularly home and community care, nursing home care and hostel care, but also the potential linkages with acute hospital care and housing.

Related publications

The following publications containing aged care specific information have been issued by the Australian Institute of Health and Welfare.

Changing patterns of residential care 1985 to 1993: supply and utilisation. Welfare Division Working Paper no. 3. Canberra: Australian Institute of Health and Welfare (30pp). Gibson D, Liu Z, Choi C 1993 (free of charge).

Dependency in the aged: measurement and client profiles for aged care. Welfare Division Working Paper no. 5. Canberra: Australian Institute of Health and Welfare (45pp). Rickwood D 1994 (free of charge).

Planning ratios and population growth: will there be a shortfall in residential aged care by 2021? Welfare Division Working Paper no. 6. Canberra: Australian Institute of Health and Welfare (21pp). Gibson D, Liu Z 1994 (free of charge).

Australia's welfare 1993: services and assistance. Canberra: AGPS (393pp). 1993 ($29.95).

Australia's welfare 1995: services and assistance. Canberra: AGPS (414pp). 1995 ($35.00).

Comparing the ICIDH with disability measures in national data collections for Australian aged care services. In: Measurement of disability: workshop proceedings. Canberra: AGPS. Rickwood D 1994.

Aged care service use by Aboriginal and Torres Strait Islander peoples. In: Aboriginal and Torres Strait Islander Health Information Bulletin no. 21. Canberra: Australian Institute of Health and Welfare. Jenkins A (forthcoming).

AGED CARE SERIES

Length of stay in Australian nursing homes

Length of Stay in Australian Nursing Homes uses life table techniques to examine nursing home use in Australia with particular reference to the period 1989–90 to 1992–93. The report measures the length-of-stay patterns for nursing home residents, the relationship between length of stay and the characteristics of nursing homes and residents, and changes in turnover and accessibility of nursing homes.

Length of Stay in Australian Nursing Homes is the first in the Aged Care Series produced by the Australian Institute of Health and Welfare. The second report in the series will provide a detailed review of State and Territory differences in the balance of aged care services.