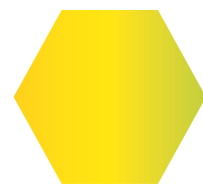


Trends in fall-related hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12



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Abbreviations

ABS	Australian Bureau of Statistics
APDC	Admitted Patients Data Collection
CI	Confidence Interval
ICD-10-AM	International Classification of Diseases, Version 10, Australian Modification
LHD	Local Health District
LOS	Length of stay
ALOS	Average length of stay
PAC	Percentage annual change
PI	Projection Interval

Executive Summary

Falls are the single most common cause of injury-related hospitalisation among people aged 65 years and older in Australia. Despite significant advances in fall injury prevention research and the development of national and state level guidelines to support the implementation of evidence-based fall prevention initiatives, the number of fall-related hospitalisations continues to increase.

Understanding which populations are at the greatest risk of the significant consequences of falls is important both in terms of targeting limited resources in the future and highlighting falls prevention successes when they occur. This report describes the epidemiology of fall-related hospitalisations in NSW over a fourteen year period from 1 July 1998 to 30 June 2012. Specifically, *Trends in fall-related hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12* reports four key indicators; 1) all fall-related hospitalisations, 2) injury hospitalisations, 3) fracture hospitalisations and 4) non-fracture injury hospitalisations. Fracture and non-fracture injury hospitalisations are further described by type and anatomical location.

To allow for identification of high risk populations, trends by quinquennial age group are reported. Trends across LHDs are also reported to inform falls prevention plans and for service planning at the local health district level. It is important to note when comparing fall-related hospitalisation rates across LHDs, that these rates can be influenced by a range of factors including admission practices, and data collection and coding practices. Providing data in this format gives LHDs the opportunity to consider why variation in rate of hospitalisation exists and offers the opportunity to explore possible factors that might contribute to this.

There were 454,701 fall-related hospitalisations over the period of the report; just under three quarters (72%, 327,709) of these were estimated to be new injury cases, and just under one in ten (9.5%, 43,132) were non-acute admissions for follow up care.

Both the numbers and rates of fall-related hospitalisations increased significantly over the report period for all four key indicators; although there were significant differences in the rate of increase between indicators. (Summary table)

Summary table: Snapshot of trends in key indicators, NSW, 1998-99 to 2011-12

	All fall-related hospitalisations	Fall-related injuries	Fall-related fractures	Fall-related non-fracture injuries
Total number of hospitalisations	454,701	327,709	203,458	124,240
Number of hospitalisations in 2011-12	47,626	31,902	17,672	14,223
Trend in number of hospitalisations	+ 117%	+ 87%	+ 44%	+ 196%
Rate per 100,000 population in 2011-12	4,189	2,787	1,553	1,234
Trend in rate	+ 3.8% per year	+ 2.5% per year	+ 0.5% per year	+ 5.9% per year
Total number of bed days	7,084,767	3,007,196	2,274,397	732,799
Number of bed days in 2011-12	658,069	272,862	194,424	78,439
Average length of stay (days) in 2011-12	14.0	8.7	11.2	5.6

Hospitalisation rates for all fall-related hospitalisations increased by an estimated 3.8% per year. The rate was consistently higher for females, and for people aged 85 years and over. Whilst females had a consistently higher hospitalisation rate than males, the increase in rate has been greater in males (4.2%) than females (3.4%).

Similarly, hospitalisation rates for fall-related injuries have increased by an estimated 2.5% per year. Whilst females had a consistently higher hospitalisation rate than males, the increase in rate has been greater in males (3.2%) than females (1.9%). The increase in rate was greatest in people 85 years and over.

Just under two thirds of the hospitalisations for fall-related injuries were for fractures. Hospitalisation rates for fall-related fractures have increased only slightly over the report period (0.5% increase per year). Hospitalisation rates have increased in males by 0.7% per year whilst there was no increase for females.

Of the fracture hospitalisations, the most common fracture type requiring hospitalisation was hip fracture (37%) followed by fracture of the forearm, wrist and hand (16%). Hospitalisation rates for hip fractures have decreased by 1.3% per year, mirroring national and international trends, fractures of forearm, wrist and hand have remained constant, whilst hospitalisation rates for other fracture types have increased by between 1.0% and 4.5% per year over the report period.

In contrast to the trends in fracture hospitalisations, the hospitalisation rate for fall-related non-fracture injuries increased by an estimated 5.9% per year. There was no difference in increase in rates between males and females.

Injuries to the head were the most common anatomical region of injury (43%) followed by injuries to the hip and thigh (12.5%). Of particular concern is the rapid increase in rate of hospitalisations for traumatic brain injury (8.6% per year).

Over a third of fall-related hospitalisations were for people aged 85 years and over, with hip fractures contributing the highest proportion of hospitalisations for people aged 85 years and older (47%). Age-specific hospitalisation rates increased markedly with age group for all indicators.

There were differences in trend by local health districts; however hospitalisation rates for Hunter New England LHD were consistently lower than the NSW average for the report period, across all four indicators.

Fall-related hospitalisations have placed considerable burden on the health care system in NSW and accounted for just over seven million (7,084,767) bed days over the fourteen years of the report. Of these 42% (n=3,007,196) were for fall-related injury. Fall-related fractures accounted for the majority of these injury-related bed days (76%, n=2,274,397) and non-fractures 24% (n=732,799).

If the rates for fall-related hospitalisations continue to increase over the next decade at the same rate as the last, it is projected that there will be almost a million bed days per year (n=961,236) attributable to a fall by 2020-21.

Introduction

Fall-related injury among older people is a major public health issue which places considerable burden on the public health care system. In Australia, approximately three quarters of all injury related hospitalisations for people aged 65 and over occur as a result of a fall,¹ and the total cost for health care in NSW alone has been recently estimated at \$558.5 million dollars annually.²

With the proportion of the older population expected to double by 2050,³ this already substantial burden on the health care system will increase significantly.

Falls in older people are common, around one in three older people living in the community are estimated to fall each year. Not all falls result in injury, and beyond the immediate upset associated with the fall event, many falls are of little consequence to an older person. However, forty percent of older people who experience a fall, fall more than once.⁴ Estimates suggest that in NSW one in ten of these falls will require admission to hospital, and a further twenty percent will require some form of medical treatment.⁴ It is these falls resulting in injury or impact on the older persons ability to function that are of the most concern both to the individual and to the health care system.

Admission to hospital following a fall can be viewed as a surrogate marker for severity and implies that the fall has led to an injury which requires medical intervention, or a change in functional status that precludes a person from returning to their usual place of residence at that particular point in time. In 2009/10 more than one in five fall-related injuries requiring hospitalisation were classified as high threat to life.⁵

In addition to the pain and disability associated with the injury itself, injurious falls can also result in an ongoing fear of falling, decreased levels of social and physical activity, raised levels of anxiety and depression, which in turn may result in loss of independence and admission to residential care. It has been estimated that about 20% of older people who were admitted to hospital with an injurious fall were subsequently discharged to residential aged care.⁶

Research has demonstrated that many falls can be prevented.⁷⁻⁹ Comprehensive falls prevention requires activity in a wide range of health care settings with both community-based and population focused initiatives.

In response, the NSW Ministry of Health has developed a comprehensive policy *Prevention of Falls and Harm from Falls among Older People 2011-2015*¹⁰ aimed at reducing falls and fall-related injury in the community, NSW Health clinical services, and State Government Residential Aged Care Facilities. This policy builds on the first NSW Health falls prevention strategy, the *Management Policy to Reduce Fall Injury Among Older People 2003-2007*.

Understanding which falls, and which populations are at risk of the significant consequences of falls, is vital for the targeting of resources in the future and for evaluating the impact of fall prevention strategies.

This report describes the epidemiology of fall-related hospitalisations in NSW from 1 July 1998 to 30 June 2012 by four key indicators; 1) all fall-related hospitalisations, 2) injury hospitalisations, 3)

fracture hospitalisations and 4) non-fracture injury hospitalisations. Fracture and non-fracture injury hospitalisations are further described by type and anatomical location.

Specifically, this report provides information on:

- Trends in incidence and rates of hospitalisations by type of injury
- Trends in hospitalisation rates by age group
- Trends in hospitalisation rates by local health district of residence
- Trends in hospital use; number of bed days, length of stay profiles and average LOS

Methods

Data sources

Estimates of the number and rates of fall-related hospitalisations were obtained from several sources. All data were accessed and analysed through the Statistical Application for Population Health Research and Intelligence (SaPHaRI). Data used in this report were accessed 23/07/2013.

Fall-related hospitalisations were identified from the NSW Admitted Patient Data Collection (APDC). The APDC is an administrative dataset which records inpatient separations from all public and private hospitals, private day procedures and public psychiatric hospitals in NSW.

The APDC includes data on episodes of care in hospital which end with the discharge, transfer, or death of the patient, or when the service category for the admitted patient changes (e.g. a change from acute care to rehabilitation for a patient during one episode of care in a single facility). Additional information collected in the APDC includes patient demographics, source of referral, diagnosis, clinical procedures and cause of injury. Data are coded using the International Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM).¹¹

Age-specific population estimates for NSW at 31 December for each of the years studied were used to calculate age standardised rates. These estimates correspond to the mid-point of each financial year of hospitalisation data, and were interpolated from the Australian Bureau of Statistics (ABS) population estimates at 30 June each year.¹²

The Australian estimated resident population at 30 June 2001, was used as the standard population.¹²

Case selection criteria

Fall-related hospitalisations for persons aged 65 years and older, resident in NSW, with a date of separation from hospital between 1 July 1998 and 30 June 2012, were identified using the following case-selection criteria:

All fall-related hospitalisations

- Principal external cause code in range W00-W19.
- Mode of admission is not a transfer from another hospital, or change in service category.

Fall-related injury hospitalisations

- Principal diagnosis code of injury in range S00-T75 or T79,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Fall-related fracture hospitalisations

- Principal diagnosis code of fracture S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Fall-related hip fracture hospitalisations

- Principal diagnosis code of hip fracture S72.0, S72.1, S72.2,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Other fall-related fracture hospitalisations (excluding hip fracture)

- Principal diagnosis code of fracture (excluding hip fracture) S02, S12, S22, S32, S42, S52, S62, S72.3, S72.4, S72.7, S72.8, S72.9, S82, S92, T02, T08, T10, T12, T14.2 ,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Fall-related non-fracture injury hospitalisations

- Principal diagnosis code of non-fracture injury, in range S00-T75 or T79 (excluding fracture codes S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2),
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Fall-related traumatic brain injury hospitalisations

- Principal diagnosis code of TBI S06,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Other fall-related non-fracture injury hospitalisations

- Principal diagnosis code of non-fracture injury, in range S00-T75 or T79 (excluding fracture codes S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2 and TBI codes S06),
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

Cases admitted to a hospital in NSW but usually residing in another state were excluded as hospitalisation rates were calculated against the NSW resident population. All NSW residents admitted to interstate hospitals are included in the APDC and were included in the analysis. Data on these interstate hospitalisations are included in the APDC until 2009-10. Numbers and rates for 2010-11 and 2011-12 include an imputed estimate of these interstate hospitalisations (n=1,279).

Statistical analysis

Analysis was performed using SAS Enterprise Guide 5.1.¹³ Direct age-standardised rates per 100,000 population were calculated along with the percentage annual change in the hospitalisation rate. Ninety-five percent confidence intervals were calculated assuming a Poisson distribution.¹⁴ To correct for over dispersion, negative binomial regression was used to examine the statistical significance of changes in trend over time.¹⁵

Differences in rates were only reported if they were statistically significant (ie. the confidence intervals around the estimate for the LHD did not cross the CIs for the NSW average). This was tested for each year; if there was a significant difference for every year then it was commented in the text that the rates were consistently higher or lower. If even one year out of the fourteen was not significantly different then no trend was commented on.

The projections are extrapolations of age-standardised rates using these binomial regression models. Prediction intervals around the estimates have been included to provide an estimate of the interval in which future observations will fall, given what has already been observed.

Length of stay calculations

Length of stay calculations used in this report are consistent with the methodology used by the Australian Institute of Health and Welfare in their recent report *Hospital separations due to injury and poisoning, Australia 2009-10*.⁵

Bed days are calculated as the number of full and partial days a patient was in hospital during the reporting period. One bed day is counted for same day patients (ie those admitted and discharged from hospital on the same day). Bed days are summed for each hospitalisation episode to provide an aggregate of length of stay (LOS). Newly admitted cases, inward transfers, changes in service type, and re-admissions are included in the calculation of LOS. Leave days have not been included in the calculation of length of stay.

The average length of stay (ALOS) is calculated as the number of days each patient stays in hospital. This is achieved by dividing the total number of bed days for the reporting period (including incident cases, inward transfers, changes in service type) by the estimated number of cases for the same period (incident cases only). This allows inclusion of ongoing episodes of care (transfers to other hospitals or changes in service type) in the calculation.

There were 169 hospitalisations where LOS was unable to be determined, as the admission date recorded was 1920. These cases were excluded from the analysis.

A small proportion of admissions were for periods exceeding a year (n=318). Examination of these records indicated that the majority were admitted to multipurpose services or regional hospitals where it is possible that they were resident for unusually long periods. As these cases contribute to the burden on the health care sector they were included in the LOS calculations.

1. All fall-related hospitalisations

Case inclusion criteria:

- **Principal external cause code in ICD-10-AM range 'W00-W19'.**
- **Mode of admission is not a transfer from another hospital, or change in service category.**

This chapter presents the number and rate of all hospitalisations attributable to a fall; that is it includes all older people who were admitted to a NSW hospital in whom a fall was documented as being the main external contributor to the need for hospitalisation. It includes people who may, or may not, have sustained an injury as a result of the fall. This indicator provides an estimate of the burden of fall-related admissions on the health care system.

The types of admissions included in this indicator are shown in Table 1.1. 'Injury' hospitalisations are new admissions to hospital for fall-related injury, and comprised just under three quarters of all fall-related admissions (72.1%). They are used to estimate the number of fall events resulting in injury requiring hospitalisation.

'Sequelae of injury' includes admissions for complications associated with an injury, for example complications arising from the use of internal orthopaedic prosthetic devices, implants and grafts and comprised only 0.1% of all fall-related hospitalisations.

'Fall-related follow up care' includes non-acute admissions such as removal of fixation devices, change of dressings and rehabilitation services provided by allied health staff. Follow up care comprised 9.5% of all fall-related hospitalisations.

The 'other' category, comprising 18.4% of all fall-related hospitalisations, includes fall-related admissions that were not for an injury or ongoing care of an injury; the most common if these being syncope and collapse, disorder of the urinary system and pneumonia.

Table 1.1: Diagnosis codes for all fall-related hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Principal diagnosis	ICD-10-AM Code	Males (%)	Females (%)	Persons (%) ^(a)
Injury	S00-T75 or T79	97,390 (66.5)	230,318 (74.7)	327,709 (72.1)
Sequelae of injury	T76-T78 or T80-T98	154 (0.1)	268 (0.1)	422 (0.1)
Fall-related follow up care	Z47, Z48, Z50 or Z75	12,437 (8.5)	30,695 (10.0)	43,132 (9.5)
Other		36,565 (25.0)	46,889 (15.2)	83,455 (18.4)

(a) Persons totals include 2 separations for which sex was not reported

There were 454,701 fall-related hospitalisations in persons aged 65 years and older over the fourteen year period of the report. Of these, over two thirds (67.8%, n=308,162) were females. There has been a 117% increase in the annual number of hospitalisations from 21,926 in 1998-99 to 47,626 in 2011-12. Appendix: Table 1 provides numbers and age and sex standardised rates with 95% confidence intervals for all fall-related hospitalisations from 1998-99 to 2011-12.

Age-standardised rates by sex

The rate of all fall-related hospitalisations for people aged 65 and older in 2011-12 was 4,189 per 100,000 population. The hospitalisation rate has increased by an estimated 3.8% per year; from 2,787 per 100,000 population in 1998-99.

Females had a consistently higher hospitalisation rate (3,229/100,000 in 1998-99 to 4,781/100,000 in 2011-12) compared with males (2,082/100,000 in 1998-99 to 3,429/100,000 in 2011-12). However, hospitalisation rates for males have increased at a faster rate (4.2% per year) than females (3.4% per year) over the report period. (Figure 1.1)

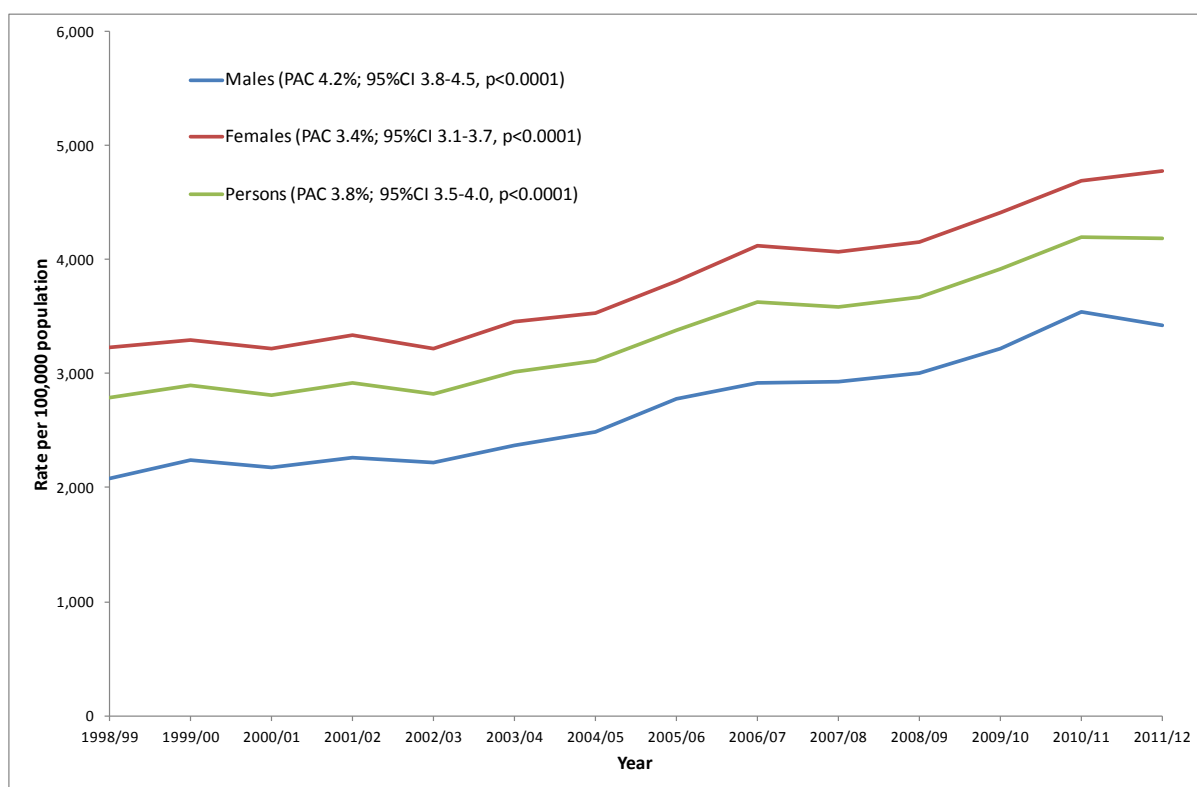


Figure 1.1: All fall-related hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of the fall-related hospitalisations, over a third (37.5%, n=170,687) were for persons aged 85 years and older. Age-specific rates of all fall-related hospitalisations increased markedly with age. In 2011-12, the hospitalisation rate for persons aged 85 years and older (13,031/100,000 population) was over nine times higher than for 65-69 year olds (1,396/100,000 population). There were no differences in trend over time by age group. (Figure 1.2)

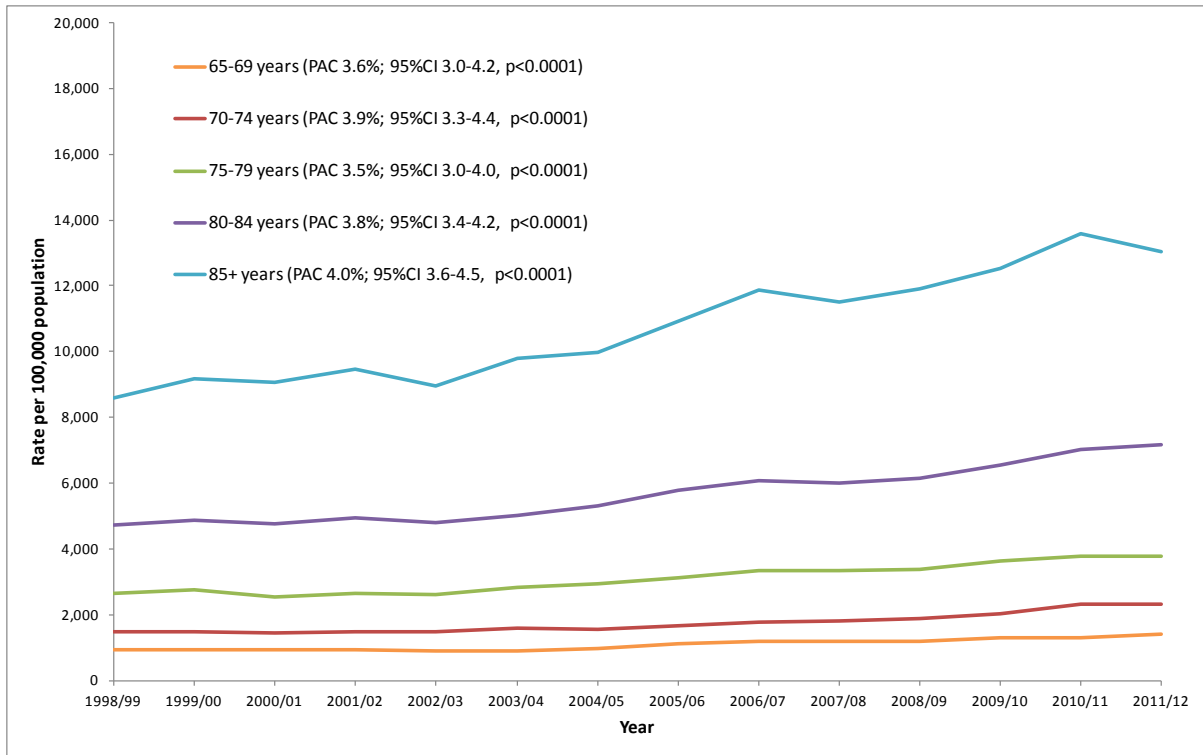


Figure 1.2: All fall-related hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health Districts

In 2011-12 the age-standardised rate of hospitalisations for all fall-related hospitalisations ranged from 3,105 per 100,000 population in Far West LHD to 5,362 per 100,000 population in Northern Sydney LHD. Hospitalisation rates in Northern Sydney and Western Sydney LHDs were consistently higher than the NSW average, whilst Hunter New England and Mid North Coast LHDs were consistently lower than the NSW average for the report period.

There were differences in trend over time by LHD; with hospitalisation rates in Northern NSW (5.8% per year), South Western Sydney (5.1% per year), South Eastern Sydney (4.8% per year), Northern Sydney (4.8% per year) and Illawarra Shoalhaven (4.7% per year) LHDs increasing at a faster rate than the NSW average (3.8% per year). Conversely, hospitalisation rates in Murrumbidgee (1.4% per year), Western NSW (1.8% per year), Central Coast (1.9% per year), Southern NSW (2.6% per year) and Mid North Coast (2.9% per year) LHDs increased at a lower rate than the NSW average. (Figures 1.3 and 1.4)

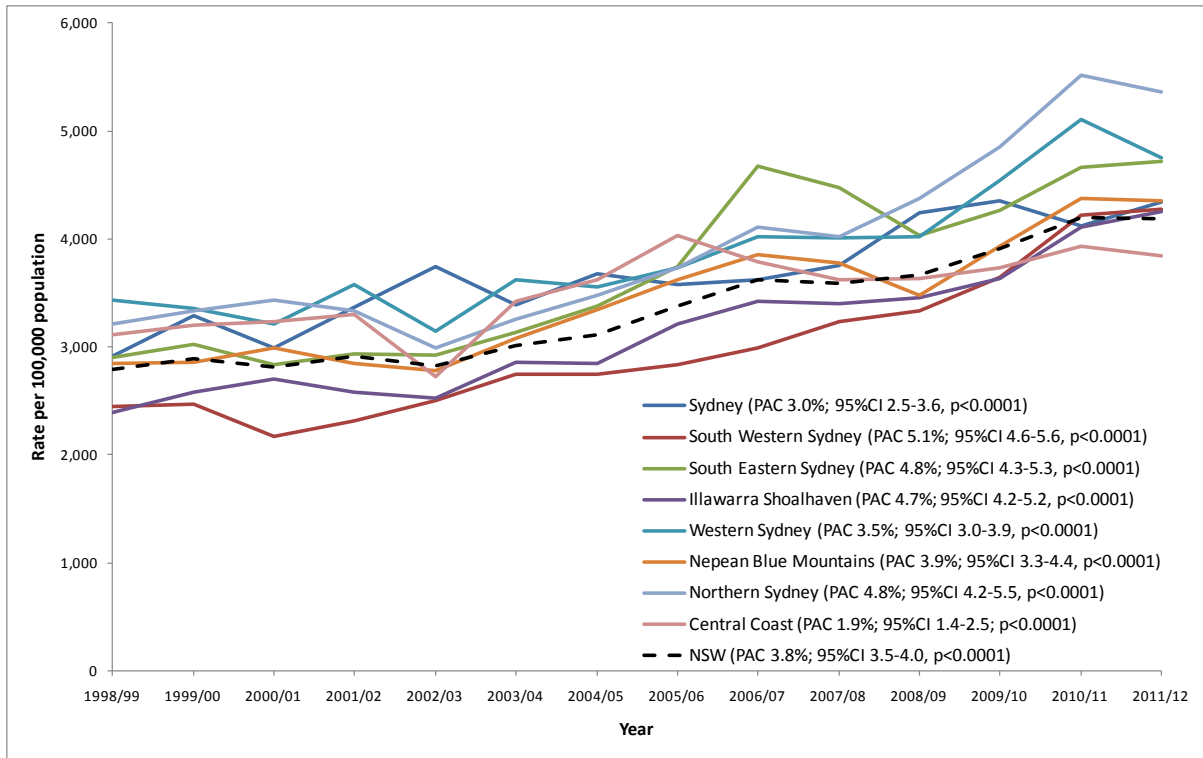


Figure 1.3: All fall-related hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

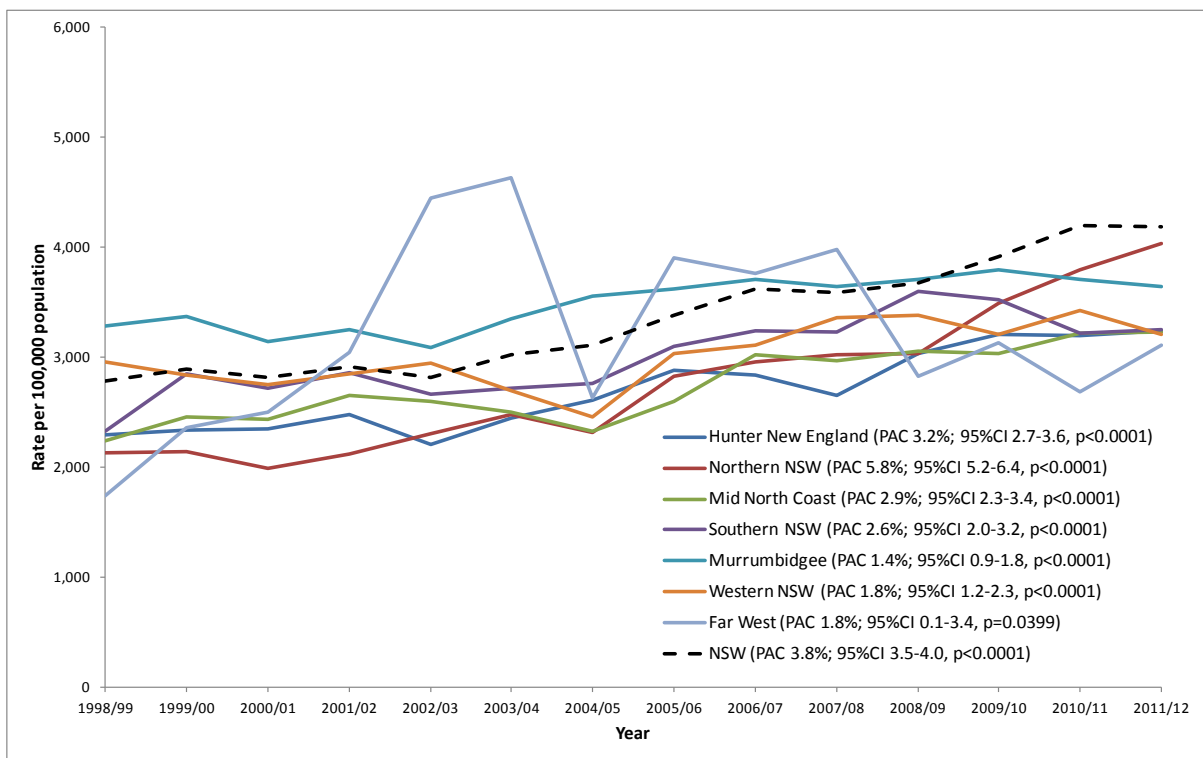


Figure 1.4: All fall-related hospitalisations by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related hospitalisations for people aged 65 years and older, accounted for just over seven million (7,084,767) bed days over the fourteen year period of the report. The annual number of bed days for fall-related hospitalisations increased from 375,391 in 1998-99 to 658,069 in 2011-12.

The length of stay for fall-related hospitalisations ranged from 1 day to 9,024 days; with the highest proportion (34%) being for greater than 11 days. (Figure 1.5) In all, 0.3% (n=1,660) of fall-related hospitalisations had a length of stay of 100 days or more.

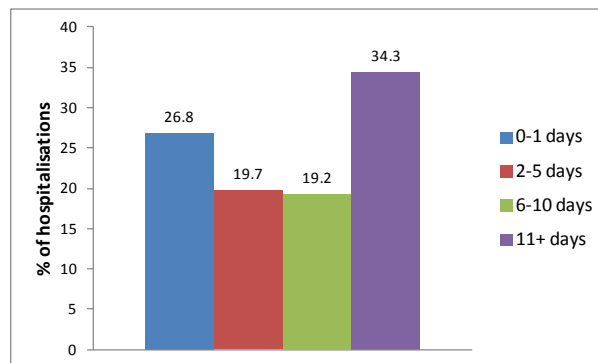


Figure 1.5: Length of stay profile for all fall-related hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for all fall-related hospitalisations over the report period was 15.6 days; with the average length of stay for males (15.4 days) being similar to that for females (15.7 days). The average length of stay for all fall-related hospitalisations increased with age for both males and females. (Figure 2.5) Males had a longer average LOS than females until age 80 years and over.

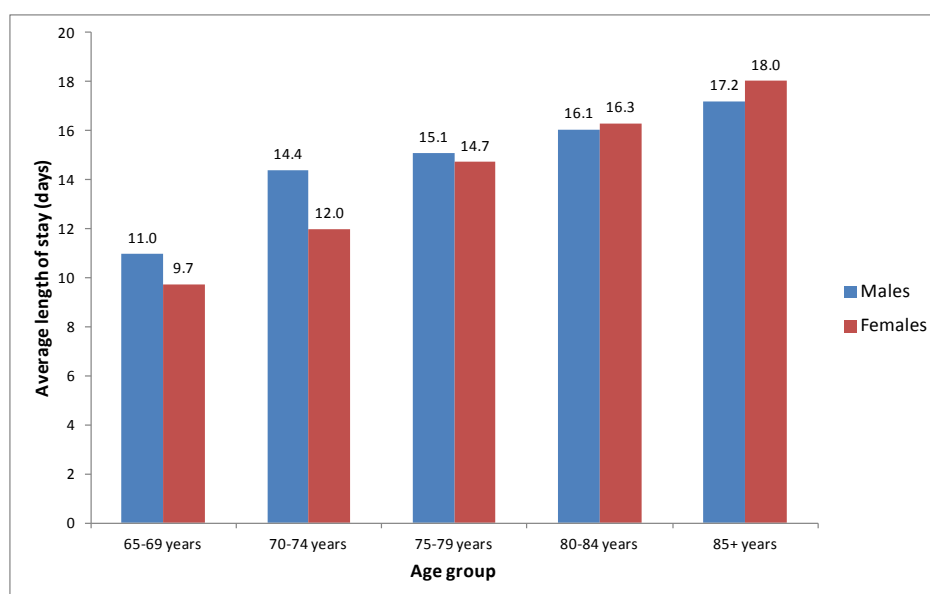


Figure 1.6: Average length of stay for all fall-related hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The ALOS has decreased over the report period for all fall-related hospitalisations, and this decrease is consistent across all age groups and between sex. (Table 1.2)

Table 1.2: Average length of stay (days) for all fall-related hospitalisations, by year, NSW, 1998-99 to 2011-12

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	18.1	16.7	17.1	10.9	14.6	16.2	18.6	19.8
1999-00	18.9	17.0	17.6	10.4	17.0	16.2	17.0	21.0
2000-01	17.7	17.2	17.4	10.7	13.2	18.1	18.3	19.8
2001-02	16.2	17.2	16.9	10.3	14.8	15.5	18.0	19.3
2002-03	16.3	16.5	16.4	10.7	13.0	15.6	17.5	18.8
2003-04	16.0	18.3	17.6	13.8	14.1	15.9	18.9	19.7
2004-05	17.0	16.6	16.7	11.7	12.8	17.2	17.8	18.2
2005-06	15.7	15.9	15.9	9.7	13.0	14.3	16.3	18.7
2006-07	14.5	15.2	15.0	9.4	11.3	13.6	15.8	17.5
2007-08	15.7	16.0	15.9	10.6	13.5	14.7	16.0	18.4
2008-09	14.6	15.0	14.9	9.8	11.3	13.9	15.4	17.2
2009-10	14.0	14.4	14.2	9.5	12.3	13.2	14.6	16.1
2010-11	13.0	14.1	13.7	9.2	11.2	13.1	13.7	15.5
2011-12	13.9	14.0	14.0	9.5	11.5	13.1	14.3	15.9

Notes:

a. Excludes 169 cases where date of admission is 1920

2. Fall-related injury hospitalisations

Case inclusion criteria:

- **Principal diagnosis code of injury in range S00-T75 or T79,**
- **First external cause code in range W00-W19, and**
- **Mode of admission is not a transfer from another hospital, or change in service category.**

This indicator reports injury-related hospitalisations resulting from a fall, and provides an estimate for the annual incidence of fall events resulting in injury and hospitalisation. However, the number of new cases of fall-related injury resulting in hospitalisation is difficult to estimate in NSW as hospitalisation data lacks a date of injury or unique patient identification number. To minimise the multiple counting of cases for the same fall incident, hospitalisations that are an inward transfer from another hospital, or a type change admission have been excluded. This procedure should correct for overestimation of cases that are due to transfers or change in service category, but will not correct for overestimation that is due to readmissions for the same injury.

There were 327,709 hospitalisations for fall-related injuries in persons 65 years and older over the fourteen year report period. Of these, over seventy per cent (70.3%, n=230,318) were for females. There has been a 87% increase in the annual number of hospitalisations from 17,098 in 1998-99 to 31,902 in 2011-12. Appendix: Table 2 provides numbers and age-standardised rates with 95% confidence intervals for fall-related injury hospitalisations from 1998-99 to 2011-12.

Age-standardised rates by sex

The age-standardised rate of fall-related injury hospitalisations for people aged 65 and older in 2011-12 was 2,787 per 100,000 population. The hospitalisation rate has increased by an estimated 2.5% per year; from 2,173 per 100,000 population in 1998-99. Females had a consistently higher hospitalisation rate (2,614/100,000 in 1998-99 to 3,245/100,000 in 2011-12) compared with males (1,471/100,000 in 1998-99 to 2,175/100,000 in 2011-12). However, hospitalisation rates for males have increased at a faster rate (3.2% per year) than females (1.9% per year) over the report period. (Figure 2.1)

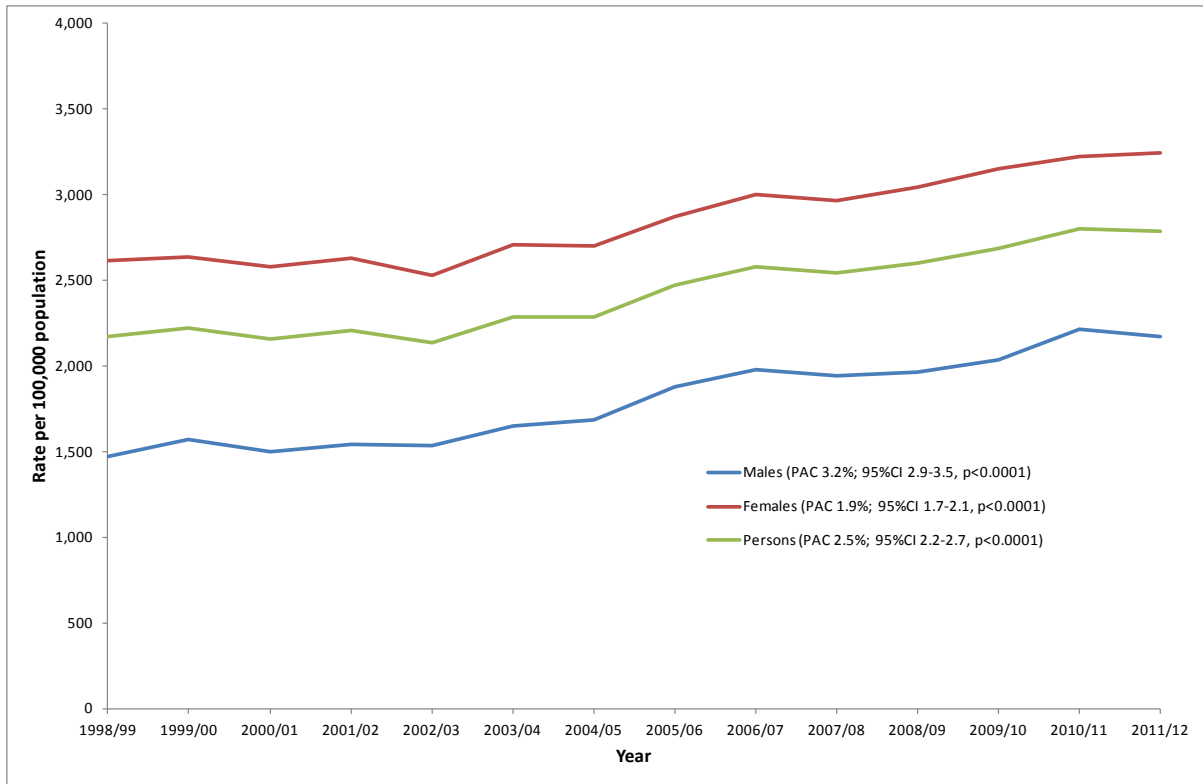


Figure 2.1: Fall-related injury hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of the fall-related injury hospitalisations, over a third (38.6%, n=126,577), were for persons aged 85 years and older. Age-specific rates of fall-related injury increased markedly with age. In 2011-12, the hospitalisation rate for persons aged 85 years and older (9,205/100,000 population) was ten times higher than for 65-69 year olds (917/100,000 population). There were differences in trend over time by age group; with hospitalisations for those aged 85 years and older increasing at a faster rate than those under 80 years. (Figure 2.2)

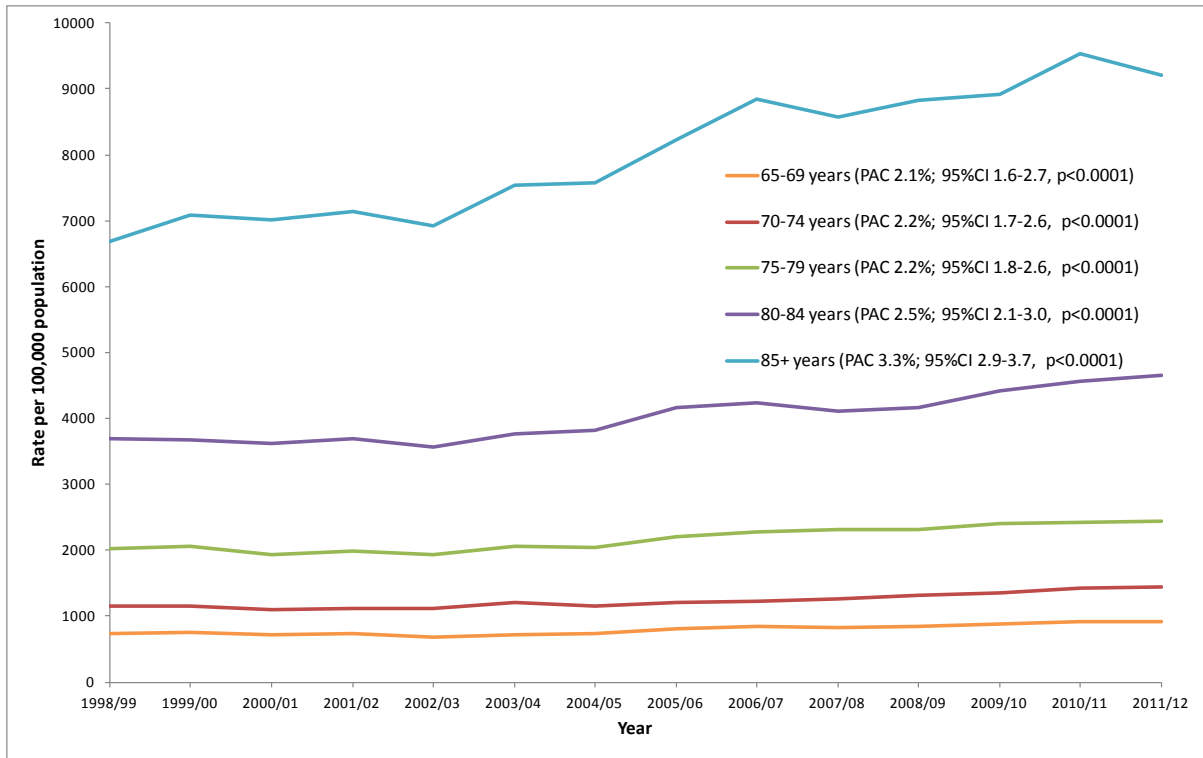


Figure 2.2: Fall-related injury hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health Districts

In 2011-12 the rate of hospitalisations for fall-related injury ranged from 1,889 per 100,000 population in Hunter New England LHD to 3,332 per 100,000 population in Nepean Blue Mountains LHD. Hospitalisation rates in Northern Sydney and Murrumbidgee LHDs were consistently higher than the NSW average over the report period. Hospitalisation rates in Hunter New England LHD were consistently lower than the NSW average for the report period.

There were differences in trend over time by LHD; with hospitalisation rates in Northern NSW (5.0% per year), South Western Sydney (4.6% per year), Illawarra Shoalhaven (4.4% per year), and Nepean Blue Mountains (3.7% per year) LHDs increasing at a faster rate than the NSW average (2.5% per year). Conversely, hospitalisation rates in Hunter New England (0.9% per year), Central Coast (1.0% per year), Northern Sydney (1.5% per year) and Sydney (1.6% per year) LHDs increased at a lower rate than the NSW average. Hospitalisation rates in Far West LHD did not increase over the report period. (Figures 2.3 and 2.4)

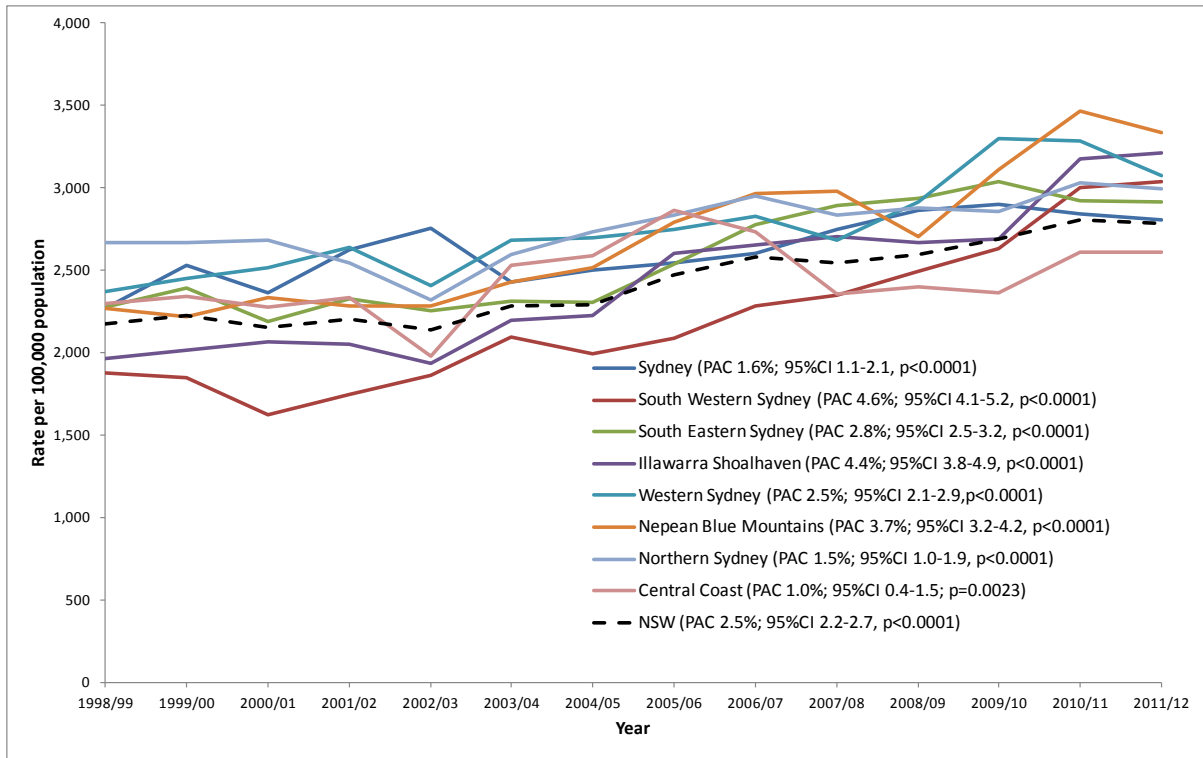


Figure 2.3: Fall-related injury hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

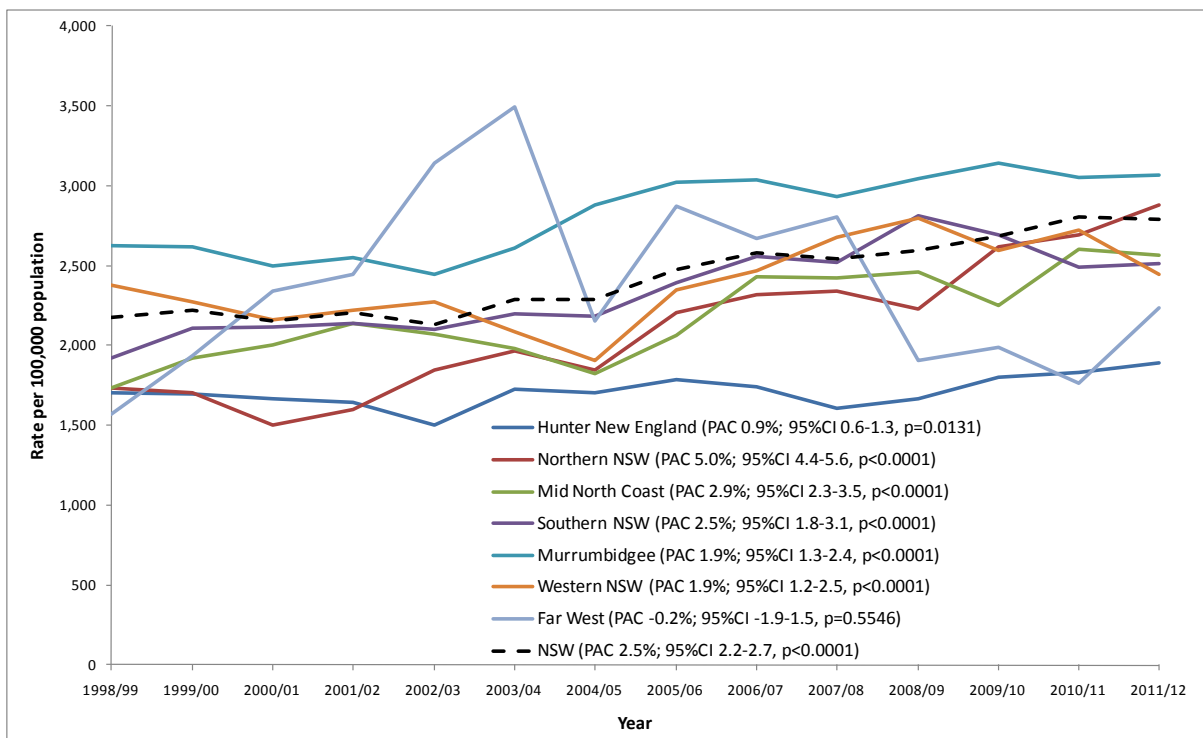


Figure 2.4: Fall-related injury hospitalisations by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related injury hospitalisations for people aged 65 year and older, accounted for 3,007,196 patient bed days over the 14 year period of the report. The annual number of bed days increased from 162,212 in 1998-99 to 272,862 in 2011-12.

The length of stay for fall-related injury hospitalisation ranged from 1 day to 2,370 days; with the highest proportion (30.4%) being for one day or less. In all, 0.08% (n=253) of fall-related injury hospitalisations had a length of stay of 100 days or more.

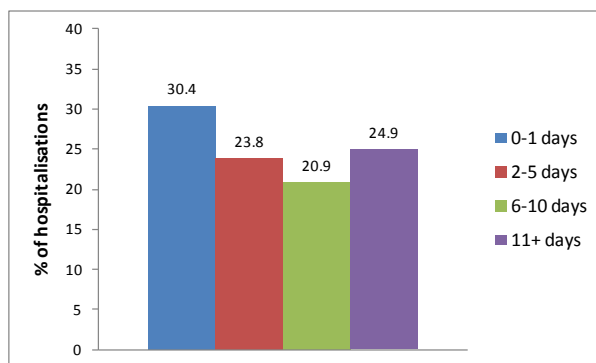


Figure 2.5: Length of stay profile for fall-related injury hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for fall-related injury hospitalisations over the report period was 9.2 days; with the average length of stay for males (9.0 days) being similar to that for females (9.3 days). The average length of stay for fall-related injury hospitalisations increased with age for both males and females. (Figure 2.5) Males had a longer average LOS than females until age 80 years and over.

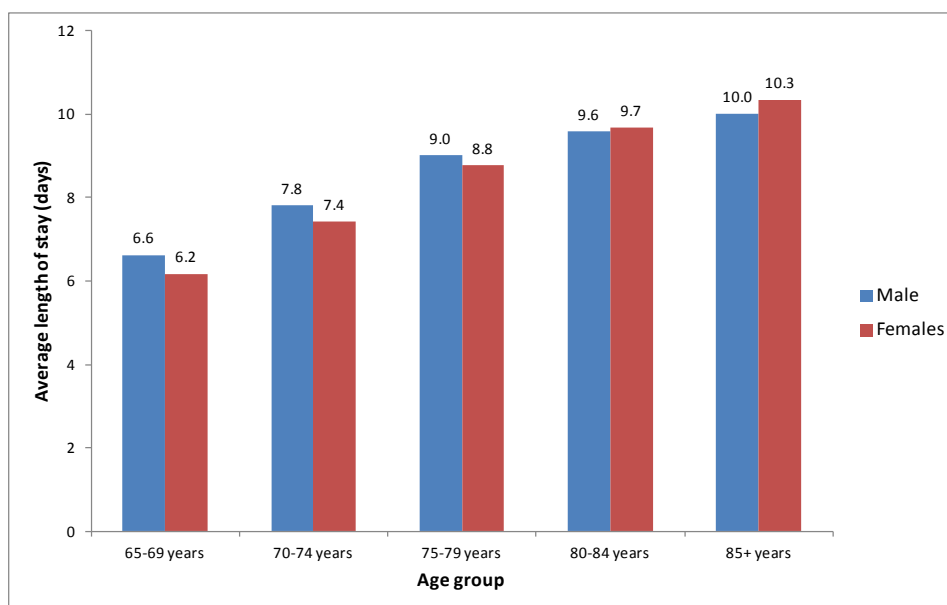


Figure 2.5: Average length of stay for fall-related injury hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for fall-related injury hospitalisations has decreased slightly over the report period from 9.5 days in 1998-99 to 8.7 days in 2011-12 and this decrease is consistent across all age groups and between sex. Table 2.1.

Table 2.1: Average length of stay (days) for fall-related injury hospitalisations, by year, NSW, 1998-99 to 2011-12

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	9.2	9.6	9.5	6.9	8.2	9.2	10.3	10.6
1999-00	9.5	9.6	9.5	6.8	8.0	9.2	9.8	11.0
2000-01	9.1	9.3	9.3	6.4	7.4	9.1	9.7	10.6
2001-02	8.9	9.5	9.3	6.2	7.5	9.0	9.9	10.6
2002-03	9.2	9.1	9.1	6.0	7.6	8.9	9.6	10.3
2003-04	9.2	9.6	9.5	6.8	7.3	9.1	10.2	10.6
2004-05	9.5	9.5	9.5	6.7	7.6	9.0	10.2	10.5
2005-06	9.1	9.5	9.4	6.2	7.9	8.6	9.6	10.7
2006-07	9.1	9.4	9.3	6.5	7.1	8.7	9.9	10.4
2007-08	9.4	9.7	9.6	6.3	7.9	9.3	10.0	10.7
2008-09	9.0	9.3	9.2	6.1	7.6	8.7	9.6	10.3
2009-10	8.8	8.8	8.8	6.0	7.3	8.6	9.0	9.8
2010-11	8.5	8.9	8.8	5.9	7.5	8.6	9.0	9.6
2011-12	8.4	8.8	8.7	6.4	7.2	8.2	9.0	9.5

^a Excludes 134 cases where date of admission is 1920

3. Fall-related fracture hospitalisations

Case inclusion criteria:

- Principal diagnosis code of fracture S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2, and
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

This indicator reports hospitalisations for a fracture resulting from a fall. There were 203,458 hospitalisations for fall-related fractures in persons 65 years and older, constituting just under two thirds (62%) of fall-related injury hospitalisations. There has been a 43.9% increase in the annual number of hospitalisations from 12,285 in 1998-99 to 17,672 in 2011-12. Three quarters (75.1% n=152,729) of these fracture-related hospitalisations were in females.

Hospitalisations for each fracture type are shown in are shown in Figure 3.1. The most common fracture type requiring hospitalisation was hip fracture (37.2%), followed by fracture of the forearm, wrist and hand (15.6%). Trends in hip fracture hospitalisations are described in detail in section 3a and other (non-hip) fracture hospitalisations in section 3b.

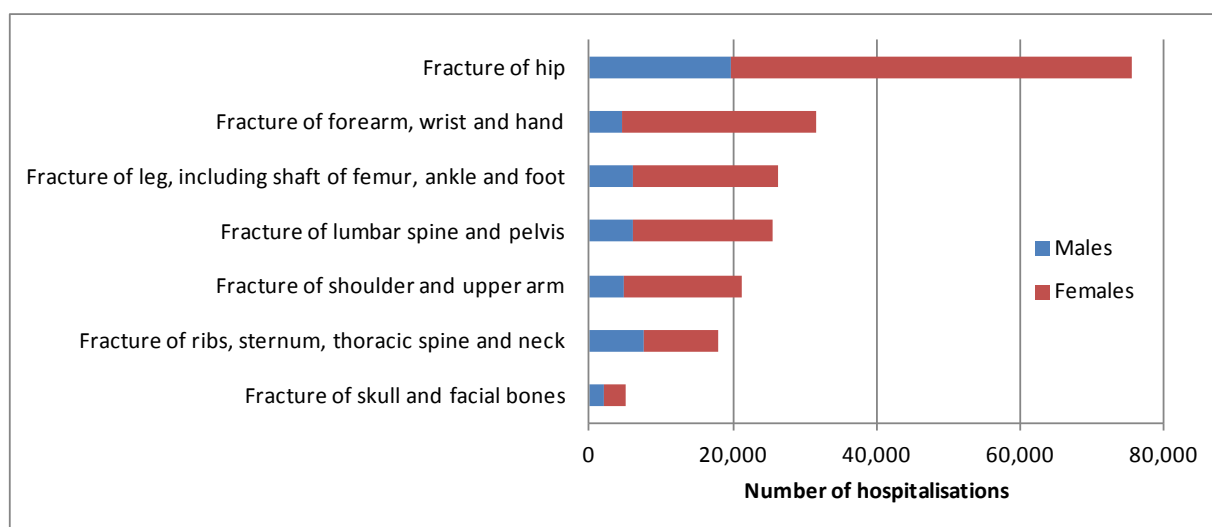


Figure 3.1: Fall-related fracture hospitalisations by anatomical location, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by sex

The age-standardised hospitalisation rate for fall-related fractures for people aged 65 and older in 2011-12 was 1,553 per 100,000 population. The hospitalisation rate has increased slightly by an estimated 0.5% per year; from 1,560 per 100,000 population in 1998-99. Females had a consistently higher hospitalisation rate (1,971/100,000 in 1998-99 to 1,979/100,000 in 2011-12) compared with males (919/100,000 in 1998-99 to 987/100,000 in 2011-12). However, there was no difference in

annual rate of increase between males and females. Appendix: Table 3 provides numbers and age standardised rates with 95% confidence intervals for fall-related fracture hospitalisations from 1998-99 to 2011-12.

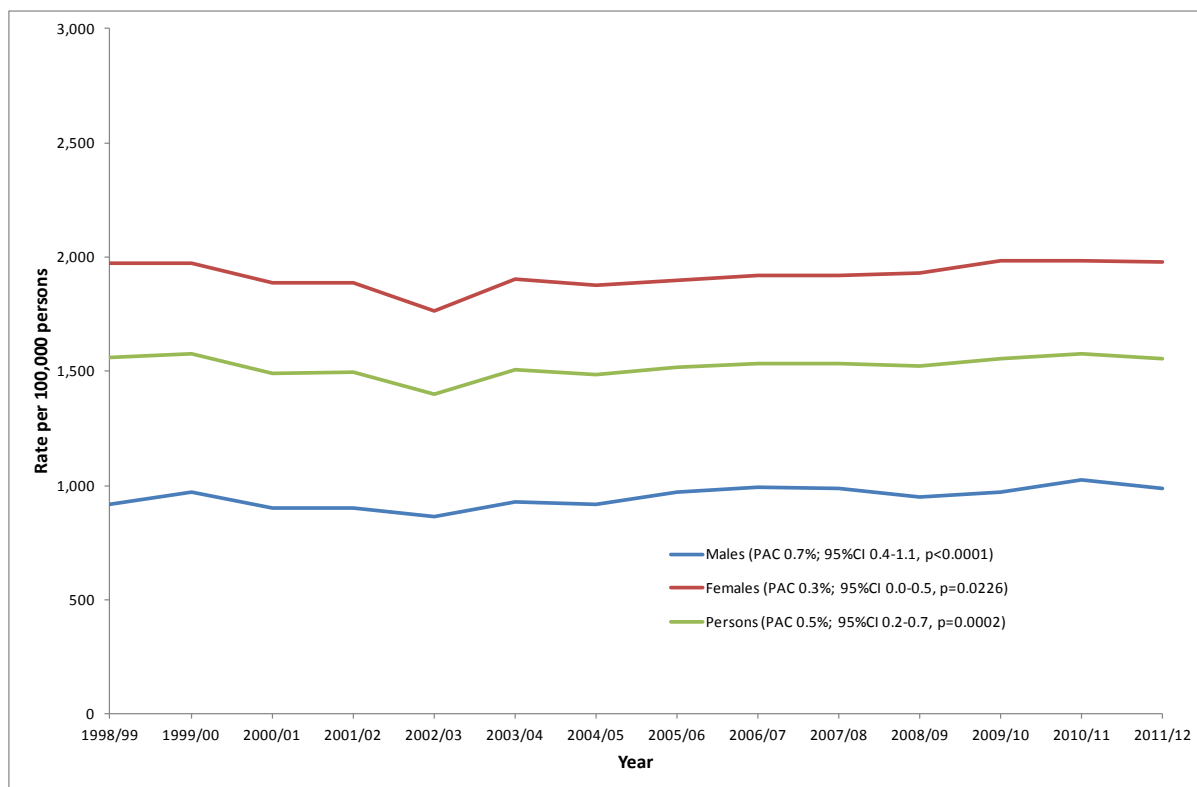


Figure 3.2: Fall-related fracture hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of the fall-related fracture hospitalisations, over a third (37.2%, n=75,726) were for persons aged 85 years and above. Age-specific hospitalisation rates of fractures increased markedly with age. In 2011-12 the hospitalisation rate for persons 85 years and older (4,864 per 100,000 population) was eight times higher than for 65-69 year olds (592 per 100,000 population). There were differences in trend over time by age group; hospitalisation rates for persons aged 65-69 years and 85 years and over have increased by an estimated 0.8% per year, whilst there have been no changes over time in other age groups.

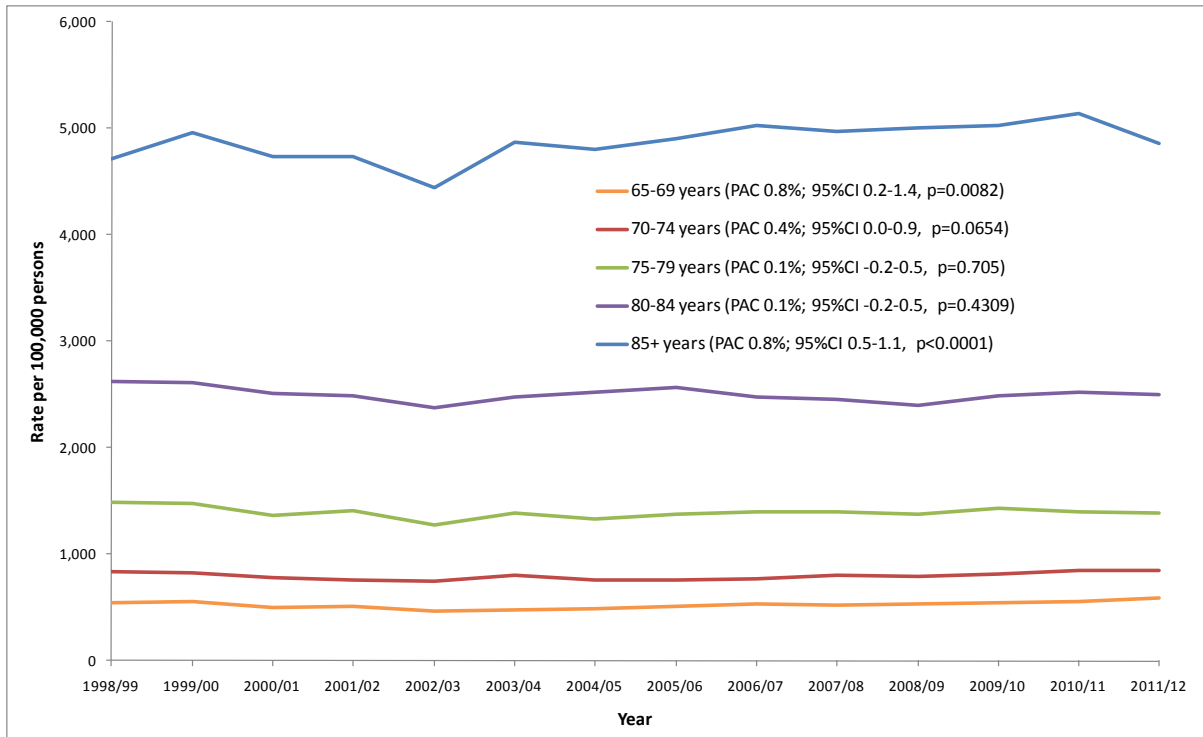


Figure 3.3: Fall-related fracture hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health District

In 2011-12 the rate of fall-related fractures ranged from 1,045 per 100,000 population in the Hunter New England LHD to 1,844 per 100,000 population in the Nepean Blue Mountains LHD. Fall-related fracture hospitalisation rates in Hunter New England LHD were consistently lower than the NSW average for the report period.

There were differences in trend over time by LHD; with estimated annual hospitalisation rates for fractures in Northern NSW (2.9%), Illawarra Shoalhaven (2.1% per year), Nepean Blue Mountains (1.6% per year), and South Western Sydney (1.4% per year) LHDs increasing at a higher rate than the NSW average (0.5% per year). Hospitalisation rates in the Far West (-2.8% per year), Hunter New England (-1.1% per year) and Northern Sydney (-0.6% per year) LHDs decreased over the report period. (Figures 3.4 and 3.5)

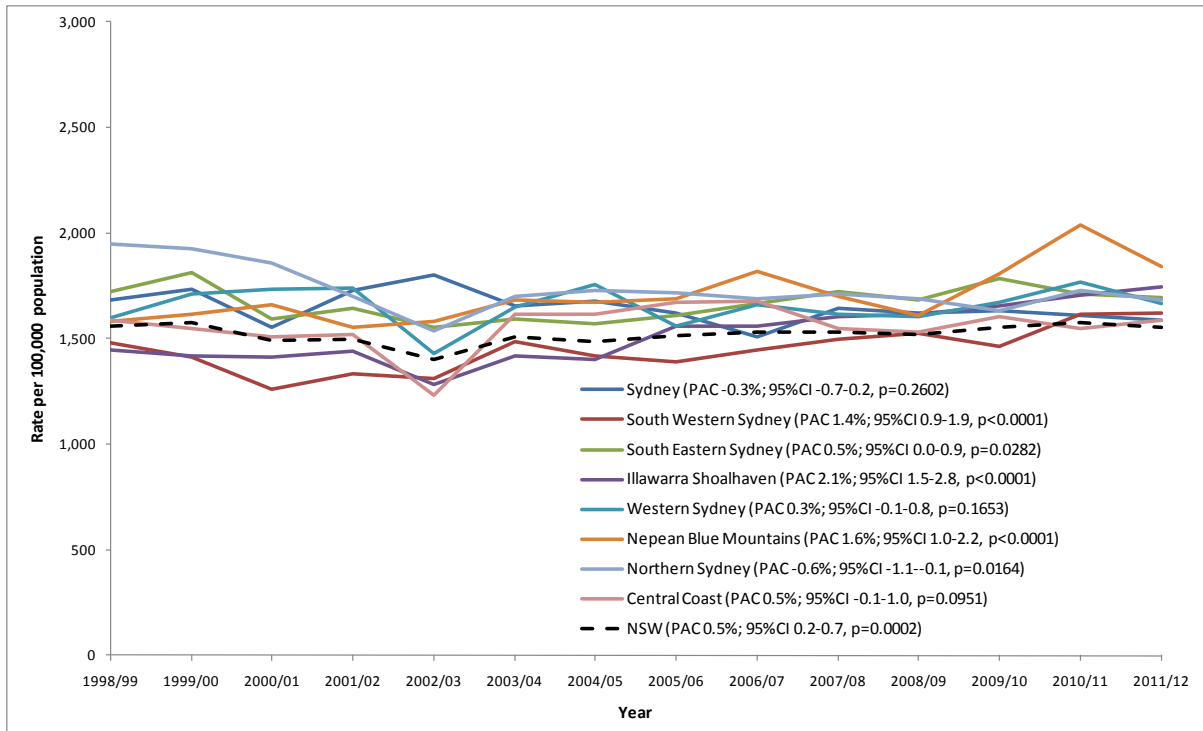


Figure 3.4: Fall-related fracture hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

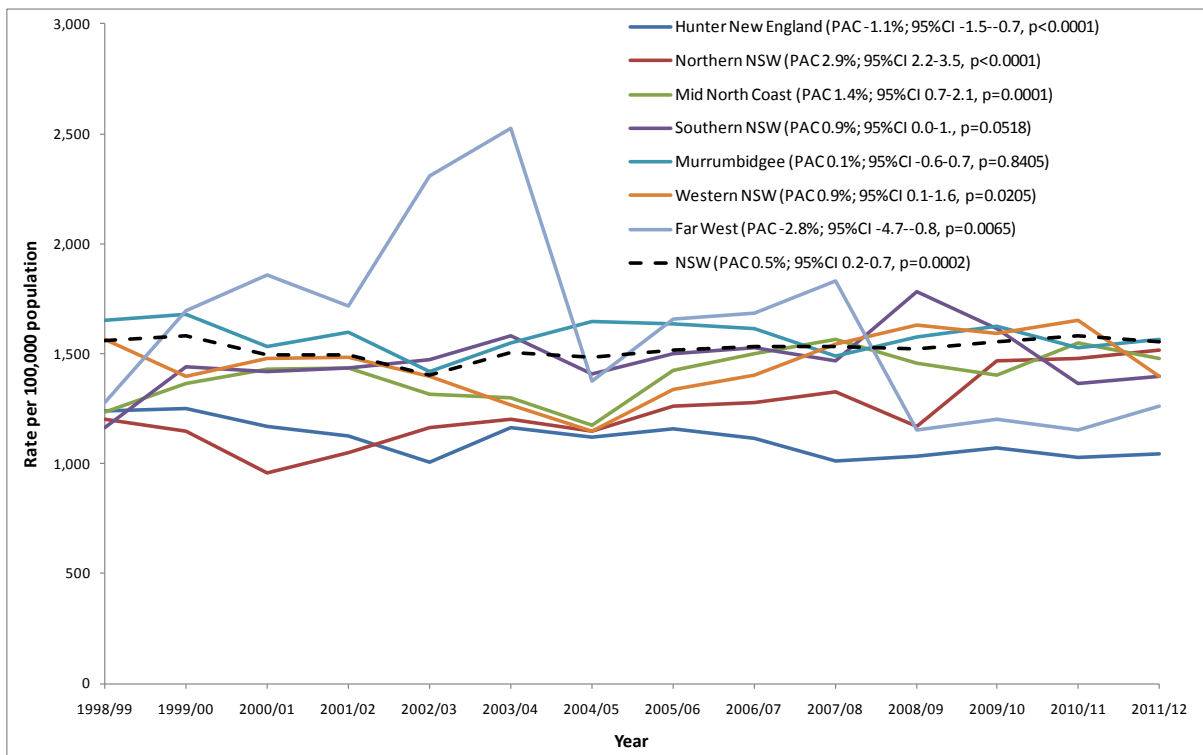


Figure 3.5: Fall-related fracture hospitalisations by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related fracture hospitalisations for people aged 65 year and older, accounted for 2,274,397 patient days over the 14 year period of the report. The annual number of bed days increased from 131,760 in 1998-1999 to 194,424 in 2011-12.

The length of stay for fracture hospitalisations ranged from 1 day to 2370 days; with the highest proportion (30.3%) being for greater than 11 days. (Figure 3.5) In all, 0.1% (n=216) of fall-related fracture hospitalisations had a length of stay of 100 days or more.

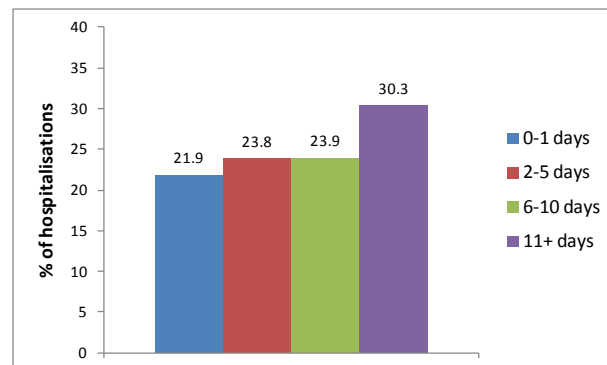


Figure 3.5: Length of stay profile for fall-related fracture hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for fall-related fracture hospitalisations over the report period was 11.2 days, with the average length of stay for males (11.8 days) being greater than that for females (11.0 days). The average length of stay for fall-related fracture hospitalisations increased with age for both males and females. (Figure 2.6) Males had longer ALOS than females across all age groups.

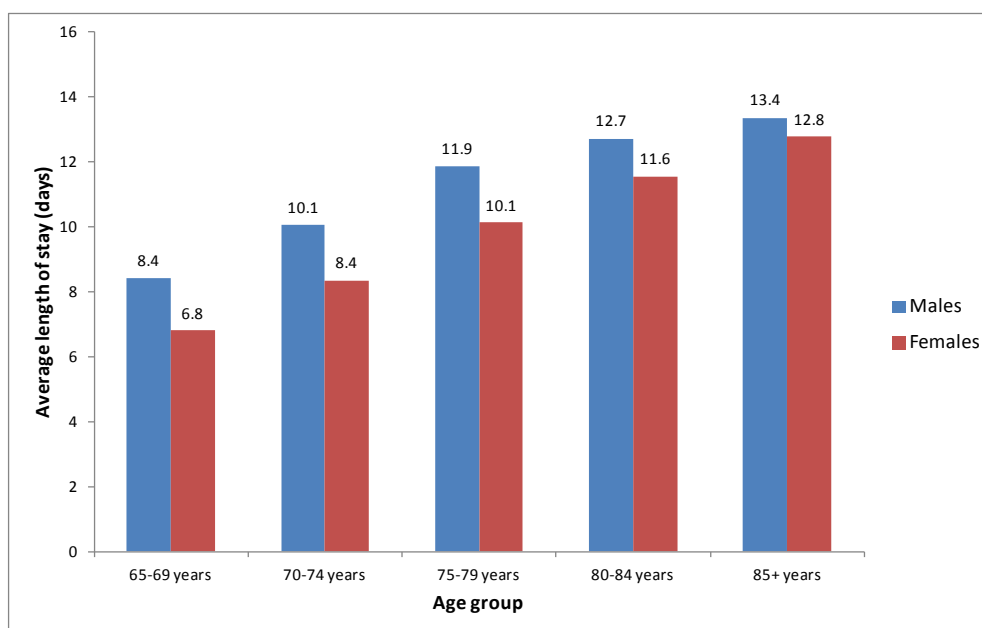


Figure 3.6: Average length of stay for fall-related fracture hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay has decreased over the report period from 10.7 days in 1998-99 to 11.2 days in 2011-12. (Table 3.1)

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	11.2	10.6	10.7	7.5	9.1	10.2	11.7	12.3
1999-00	11.3	10.6	10.8	7.4	8.9	10.4	11.1	12.6
2000-01	11.4	10.5	10.7	7.3	8.1	10.5	11.3	12.4
2001-02	11.7	10.9	11.1	7.1	8.9	10.5	11.9	12.8
2002-03	11.9	10.7	11.0	6.9	8.9	10.5	11.8	12.5
2003-04	11.8	11.2	11.3	7.8	8.5	10.8	12.1	13.0
2004-05	12.2	11.1	11.4	7.9	8.8	10.8	12.3	12.7
2005-06	12.3	11.5	11.7	7.4	9.6	10.6	12.0	13.8
2006-07	12.1	11.3	11.6	7.8	8.5	10.5	12.4	13.3
2007-08	12.3	11.6	11.8	7.4	9.0	11.2	12.3	13.6
2008-09	12.2	11.1	11.4	7.0	8.9	10.6	11.8	13.1
2009-10	11.7	10.8	11.1	7.1	8.7	10.6	11.6	12.5
2010-11	11.6	11.0	11.2	6.9	9.3	10.8	11.5	12.6
2011-12	11.6	11.0	11.2	7.4	8.8	10.4	11.8	12.8

^a Excludes 101 cases where date of admission is 1920

Table 3.1: Average length of stay (days) for fall-related fracture hospitalisations, by year, NSW, 1998-99 to 2011-12

3a. Fall-related hip fracture hospitalisations

Case inclusion criteria:

- **Principal diagnosis code of hip fracture S72.0, S72.1, S72.2, and**
- **First external cause code in range W00-W19, and**
- **Mode of admission is not a transfer from another hospital, or change in service category.**

This indicator reports hospitalisations for a hip fracture resulting from a fall. Hip fracture is one of the most serious and costly fall-related injuries suffered by older people, in terms of both morbidity and mortality. Hip fractures include fractures to neck of femur, fractures to the greater and lesser trochanter and subtrochanteric fractures.

There were 75,623 hospitalisations for fall-related hip fractures in persons 65 years and over, in the period 1998-99 to 2011-12; comprising over a third (37.2%) of all fracture-related hospitalisations. Almost three quarters of these (73.9% n=55,899) of these were for females. There has been a 21.9% increase in the annual number of hospitalisations from 4,893 in 1998-99 to 5,964 in 2011-12. Appendix: Table 4 provides numbers and age-standardised rates with 95% confidence intervals for fall-related hip fracture hospitalisations from 1998-99 to 2011-12.

Age-standardised rates by sex

Although the number of hospitalisations for hip fracture continues to increase, the rate of hospitalisation has decreased by an estimated 1.3% per year from 630 per 100,000 population in 1998-99 to 507 per 100,000 population in 2011-12. Females had a consistently higher hospitalisation rate (764/100,000 in 1998-99 to 617/100,000 in 2011-12) compared with males (402/100,000 in 1998-99 to 350/100,000 in 2011-12). There was no difference in the rate of decrease between males and females. (Figure 3a.1)

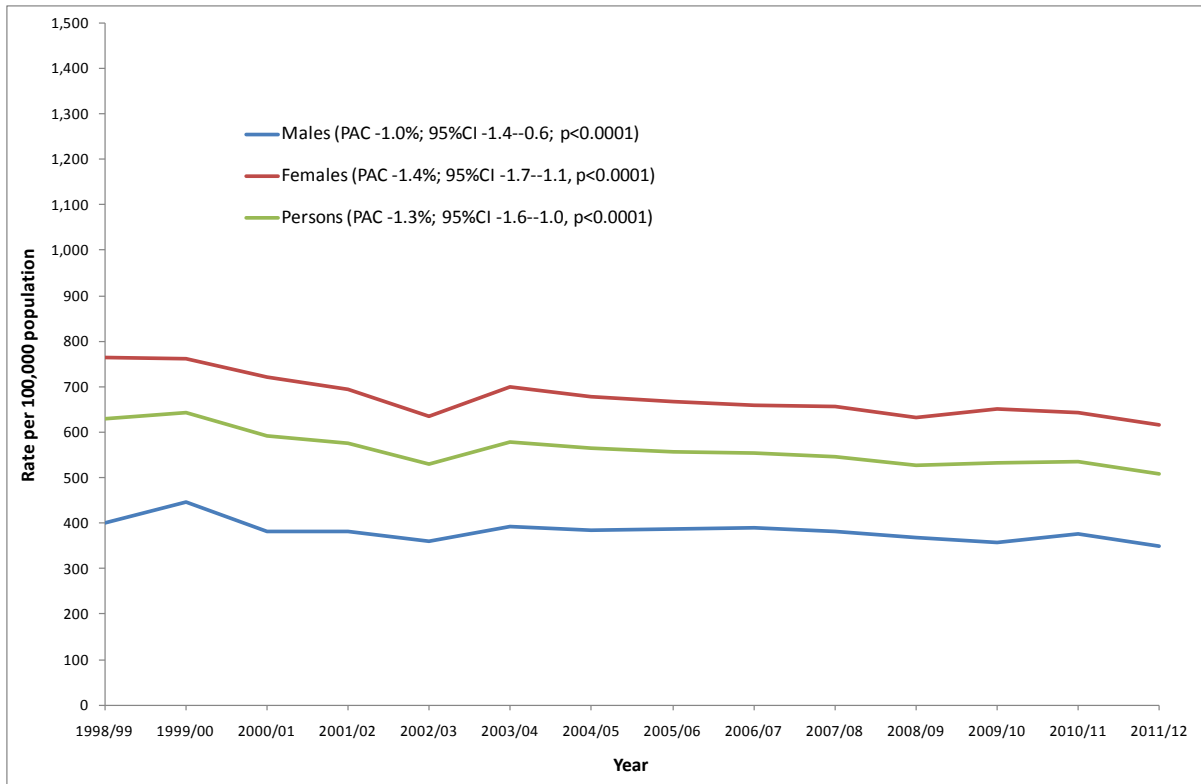


Figure 3a.1: Fall-related hip fracture hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of all fall-related hospitalisations for a hip fracture, over 46.9% (n=35,473) were for persons aged 85 years and over. Age-specific rates of hip fracture increase markedly with age. In 2011-12 the hospitalisation rate for persons 85 years and older (2,088/100,000 population) was over 24 times higher than for 65-69 year olds (88/100,000 population intervals). The estimated annual decrease was higher in 75-79 year age group (-1.9% per year) compared to the 85 and over age group (-0.8% per year). There were no other significant difference between groups.

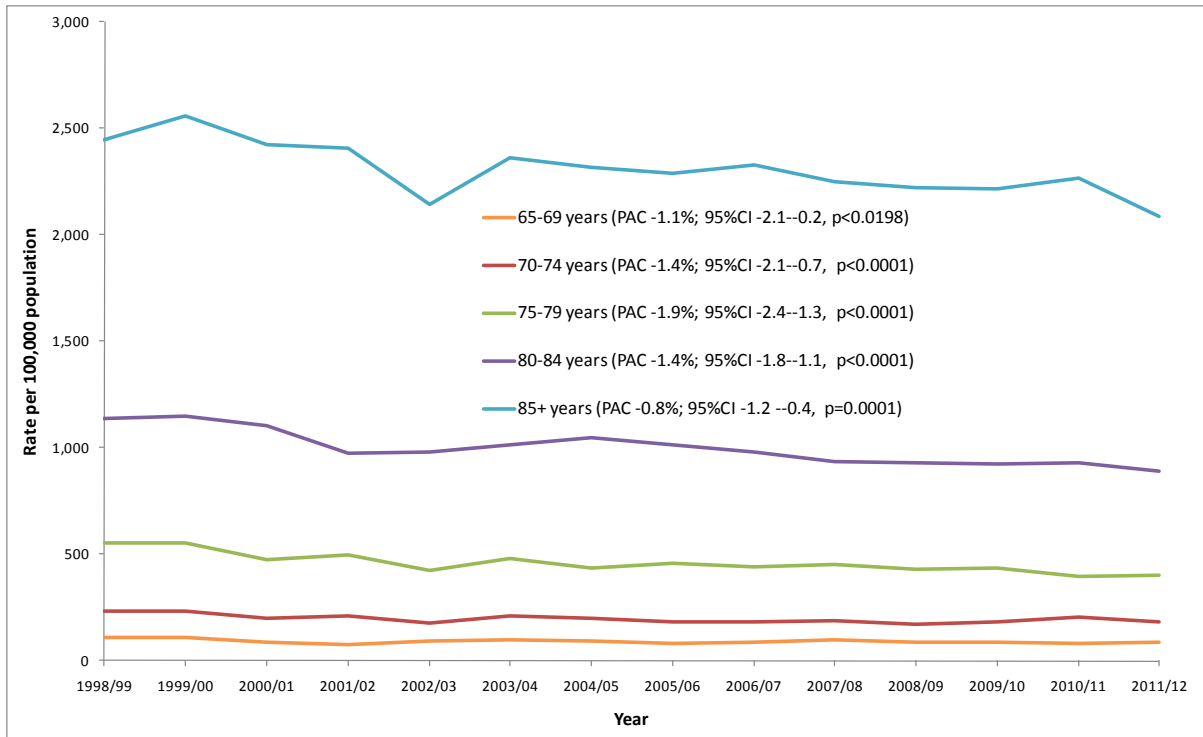


Figure 3a.2: Fall-related hip fracture hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health Districts

In 2010-11 the rate of hospitalisations for fall-related hip fracture ranged from 380 per 100,000 population in the Hunter New England LHD to 643 per 100,000 population in the Nepean Blue Mountains LHD. Hospitalisation rates in Hunter New England LHD were consistently lower than the NSW average for the study period.

There were differences in trend over time by LHD; with hospitalisation rates in Sydney and South Eastern Sydney (-2.5% per year) LHDs decreasing at a faster rate than the NSW average (-1.3% per year). Rates of hospitalisation increased in Northern NSW LHD (2.7% per year). (Figures 3a.3 and 3a.4)

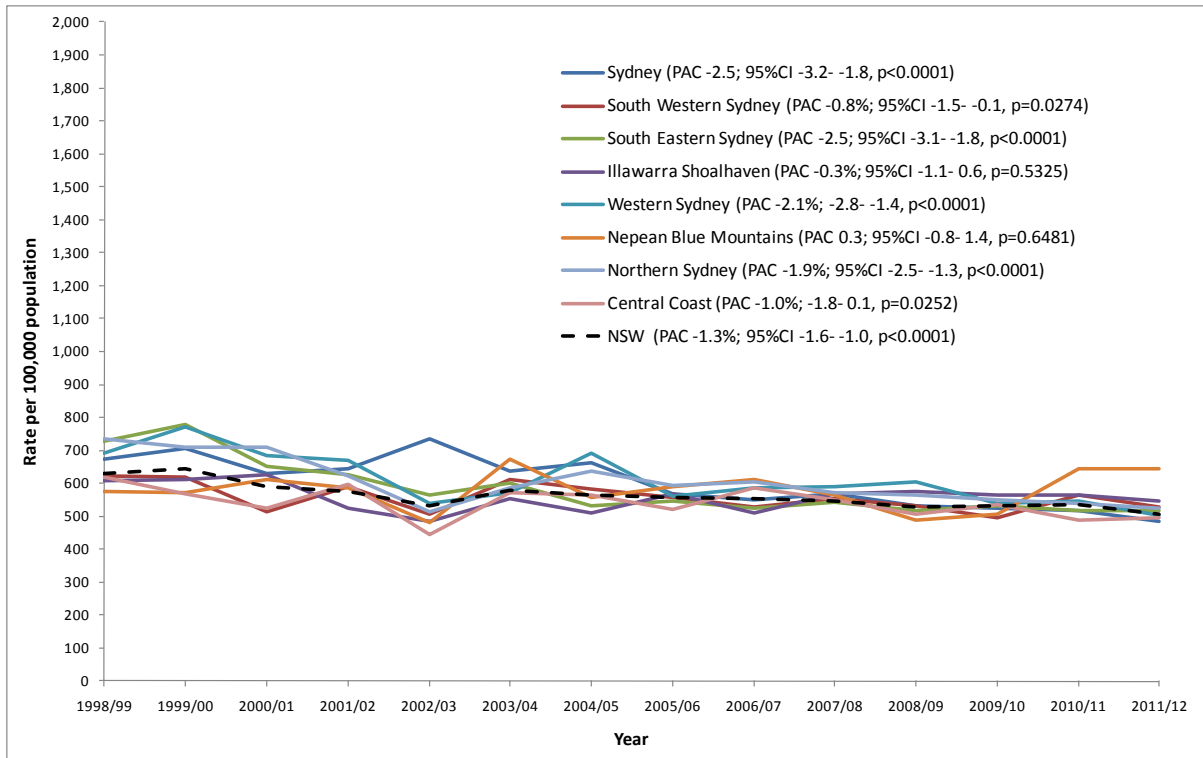


Figure 3a.3: Fall-related hip fracture hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

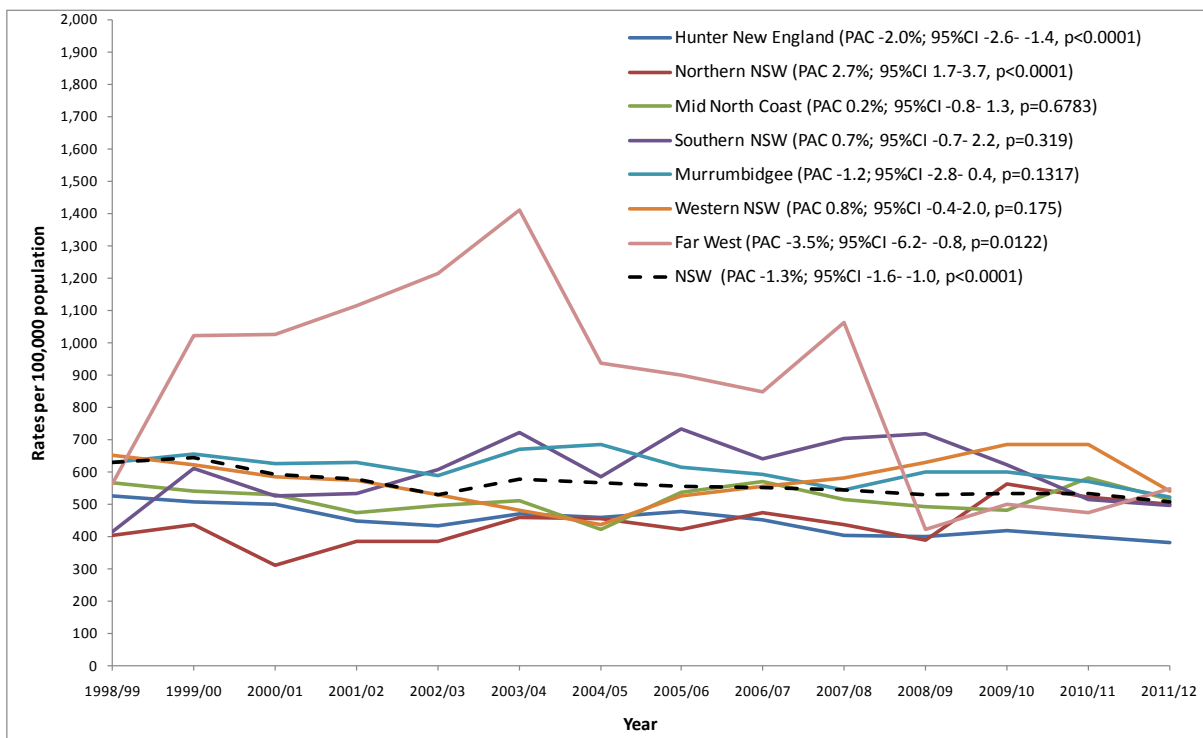


Figure 3a.4: Fall-related hip fracture hospitalisations by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related hip fracture hospitalisations for people aged 65 year and older, accounted for 995,616 patient days over the 14 year period of the report. The annual number of bed days for fall-related hip fracture hospitalisations increased from 61,702 in 1998-99 to 78,570 in 2011-12.

The length of stay per hip fracture hospitalisation ranged from 1 day to six and a half years (2,370 days); with the highest proportion (37.1%) being for greater than 11 days. In all, 0.1% (n=98) of fall-related hip fracture hospitalisations had a length of stay of 100 days or more.

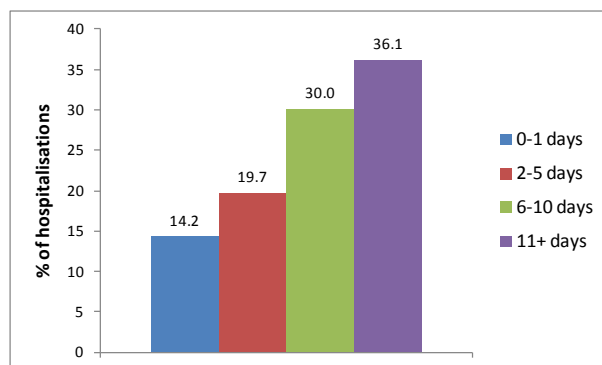


Figure 3a.5: Length of stay profile for fall-related hip fracture hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for all fall-related hip fracture hospitalisations over the report period was 13.2 days, with the average length of stay for males (14.1 days) being greater than that for females (12.9 days). Males had longer average LOS than females in all age groups. (Figure 3a.6). Average LOS for males increased until 75 to 79 years then decreased in the older age groups, whilst for females average LOS increased consistently with age group.

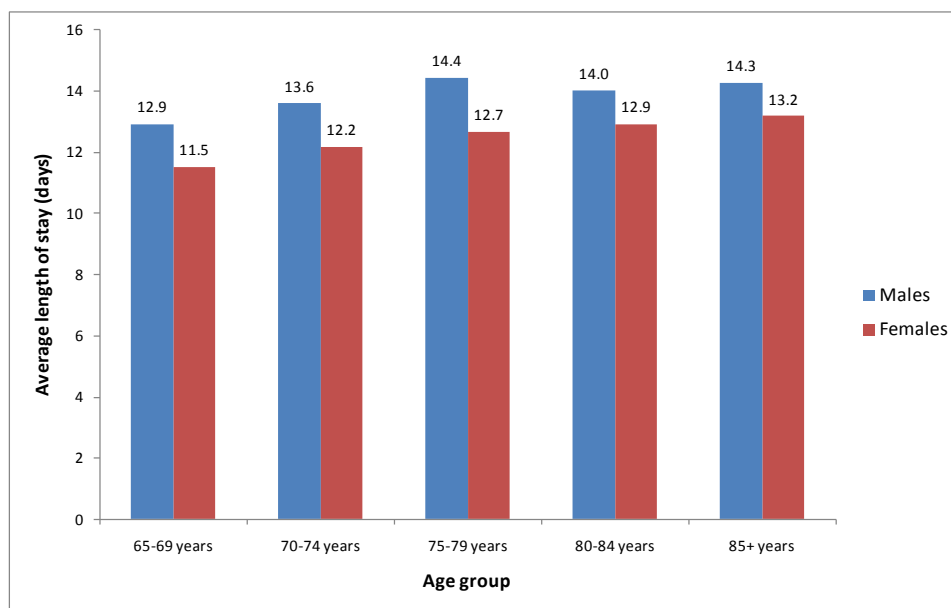


Figure 3a.6: Average length of stay for fall-related hip fracture hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for hip fracture related hospitalisations has decreased over the report period from 12.6 days in 1998-99 to 13.6 days in 2011-12, and this decrease is consistent across all age groups and between sex. Table 3a.1.

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	13.4	12.4	12.6	12.5	12.8	12.3	12.9	12.5
1999-00	13.4	12.5	12.7	12.7	12.1	12.7	12.4	13.1
2000-01	13.2	12.2	12.4	12.8	11.2	12.9	12.2	12.6
2001-02	13.7	13.1	13.2	12.9	12.2	13.5	13.9	13.0
2002-03	13.6	12.3	12.7	11.2	13.0	12.9	12.6	12.7
2003-04	13.9	13.1	13.3	12.8	12.2	13.6	13.6	13.3
2004-05	14.6	13.3	13.6	11.9	12.8	14.3	14.2	13.3
2005-06	14.8	13.2	13.6	12.2	13.5	12.5	13.2	14.4
2006-07	14.0	13.2	13.4	11.5	11.7	13.1	13.6	13.8
2007-08	14.5	13.5	13.8	12.3	13.1	13.5	13.5	14.2
2008-09	14.3	12.9	13.3	11.8	13.8	13.1	13.1	13.5
2009-10	14.0	12.5	12.9	10.5	13.4	13.0	12.6	13.2
2010-11	14.3	13.4	13.6	12.0	13.1	14.4	13.4	13.8
2011-12	14.8	12.9	13.4	11.6	12.6	13.4	13.7	13.6

^a Excludes 48 cases where date of admission is 1920

Table 3a.1: Average length of stay (days) for fall-related hip fracture hospitalisations, by year, NSW, 1998-99 to 2011-12

3b. Other fall-related fracture hospitalisations

Case inclusion criteria:

- Principal diagnosis code of fracture (excluding hip fracture) S02, S12, S22, S32, S42, S52, S62, S72.3, S72.4, S72.7, S72.8, S72.9, S82, S92, T02, T08, T10, T12, T14.2 ,
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

There were 127,833 hospitalisations for fall-related (non-hip) fractures in persons 65 years and over in the period 1998-99 to 2011-2012, comprising almost two thirds (62.8%) of all fall-related fracture hospitalisations. Of these, the most common fracture type requiring hospitalisation was fracture of the forearm, wrist and hand (15.6%) followed by leg, ankle and foot (12.9%) and lumbar spine and pelvis (12.5%). (Table 3b.1)

Table 3b.1: Fall-related (non-hip) fracture hospitalisations by anatomical location, persons aged 65 years and over, NSW, 1998-99-2011-12

	Males (%)	Females (%)	Persons ^a	% of fractures
Fracture of forearm, wrist and hand	4,486 (14.1)	27,254 (85.9)	31,740	15.6
Fracture of leg, including shaft of femur, ankle and foot	6,150 (23.5)	20,041 (76.5)	26,191	12.9
Fracture of lumbar spine and pelvis	5,976 (23.4)	19,516 (76.6)	25,495	12.5
Fracture of shoulder and upper arm	4,837 (22.6)	16,522 (77.4)	21,359	10.5
Fracture of thoracic spine, ribs, sternum, and neck	7,613 (42.7)	10,235 (57.3)	17,848	8.8
Fracture of skull and facial bones	1,921 (37.5)	3,206 (62.5)	5,127	2.5
Multiple/Unspecified body region ^b	21 (27.6)	55 (72.4)	76	<0.0
Total	31,004	96,829	127,833	62.8

^a Persons total include hospitalisations for which sex was not reported (n=1)

^b Includes: Fractures of spine, level unspecified (n=52), Fracture of upper limb, level unspecified (n=1), Fracture of lower limb, level unspecified (n=1), Fracture of unspecified body region (n=13), Fracture involving multiple body regions (n=9).

Age-standardised rates by type

Unlike fall-related hip fractures which have decreased over the report period, the rates of all other fracture types have increased, with the exception of forearm wrist and hand fractures which have not changed significantly over the report period. Fractures of the skull and facial bones have increased at a significantly faster rate (4.5% per year) than other fracture types. (Figure 3b.1)

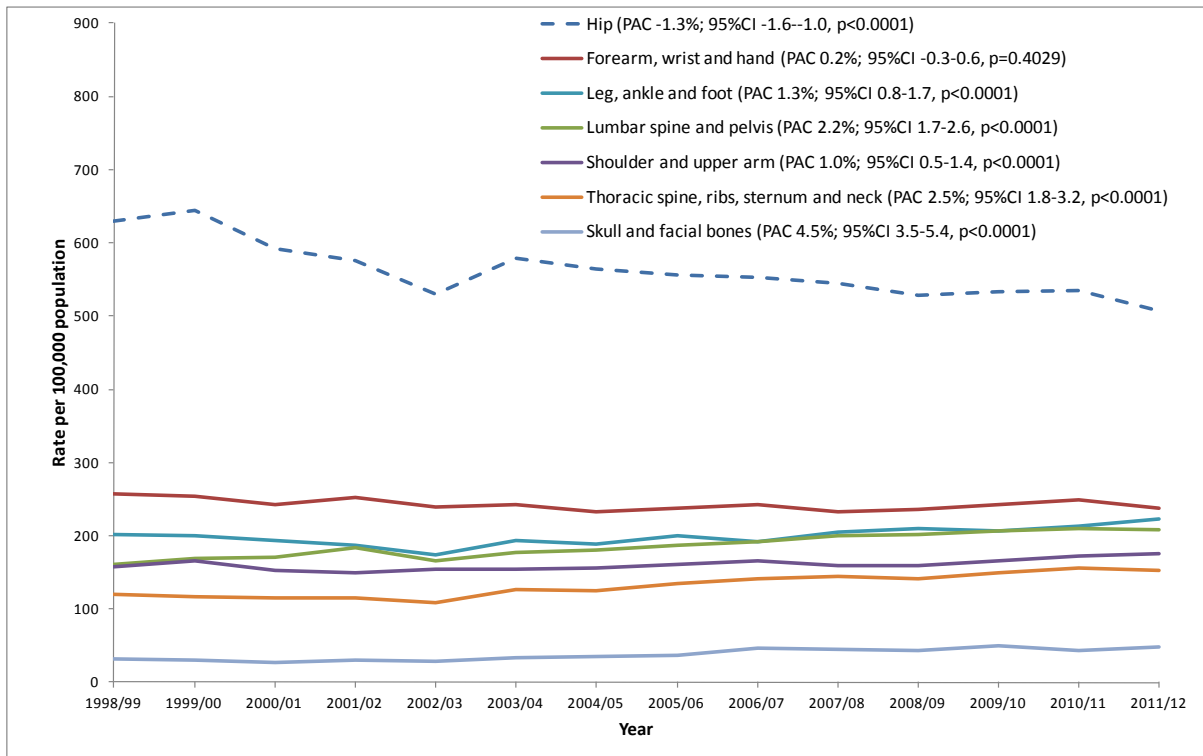


Figure 3b.1: Fall-related fracture hospitalisations by fracture type, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related fractures of the lumbar spine and pelvis had the longest average LOS over the period of the report (14.2 days), followed by fractures of the lower limb (13.3 days). The average LOS for fractures of the thoracic cage/neck and shoulder/upper arm were 10.6 and 9.8 days respectively. Although the most common fracture type (after hip fracture), fractures of the forearm, wrist and hand had the shortest average LOS (4.5 days), followed by fractures of the skull and facial bones (5.6 days). The average LOS by fracture type and sex is shown in Figure 3b.2.

The average length of stay has remained fairly constant over the report period. (Table 3b.2)

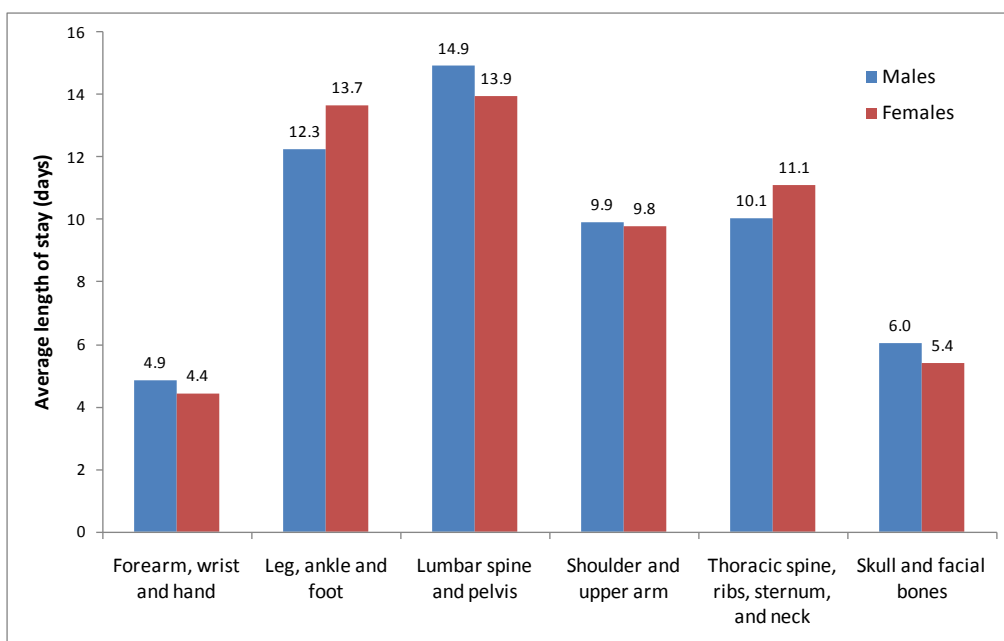


Figure 3b.2: Average length of stay for fall-related (non-hip) fracture hospitalisations, by fracture type and sex, NSW, 1998-99 to 2011-12

Table 3b.2: Average length of stay (days) for fall-related (non-hip) fracture hospitalisations, by fracture type and year, NSW, 1998-99 to 2011-12

Year ^a	Forearm, wrist and hand	Leg, ankle and foot	Lumbar spine and pelvis	Shoulder and upper arm	Thoracic spine, ribs, sternum and neck	Skull and facial bones
1998-99	4.2	12.3	14.5	9.7	10.1	6.1
1999-00	4.0	12.4	14.2	9.1	10.7	6.7
2000-01	4.3	12.1	14.2	9.2	10.5	6.4
2001-02	4.1	12.5	15.0	9.4	10.7	6.2
2002-03	4.3	12.4	14.9	10.2	10.9	6.9
2003-04	4.7	13.0	14.2	10.4	10.9	6.1
2004-05	4.4	13.5	14.2	9.9	9.8	5.7
2005-06	4.7	14.9	14.4	10.3	11.0	5.5
2006-07	4.8	14.0	14.6	10.3	11.2	6.1
2007-08	5.0	13.3	14.8	10.3	11.6	5.2
2008-09	4.9	13.3	14.3	9.8	11.0	4.9
2009-10	4.6	14.0	13.6	9.6	10.3	4.9
2010-11	4.2	14.3	12.8	9.5	10.0	5.2
2011-12	4.6	13.5	13.4	9.9	10.3	5.2

^a Excludes 53 cases where date of admission is 1920

4. Fall-related non-fracture injury hospitalisations

Case inclusion criteria:

- Principal diagnosis code of non-fracture injury, in range S00-T75 or T79 (excluding fracture codes S02, S12, S22, S32, S42, S52, S62, S72, S82, S92, T02, T08, T10, T12, T14.2),
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

This indicator reports non-fracture injury hospitalisations resulting from a fall. Non-fracture injuries are the most common self-reported injuries resulting from a fall,⁴ although fewer of these injuries require hospital admission compared with fractures. Non-fracture injuries include superficial cuts and abrasions, open wounds, and dislocations, sprains and strains of joints.

There were 124,240 hospitalisations for fall-related non-fracture injuries in persons 65 years and older over the fourteen year report period. Of these (62.4%, n=77,582) were for females. There has been a 195.5% increase in the annual number of hospitalisations from 4,813 in 1998-99 to 14,223 in 2011-12. Appendix: Table 5 provides numbers and age-standardised rates with 95% confidence intervals for fall-related non-fracture injury hospitalisations from 1998-99 to 2011-12.

The number of hospitalisations by anatomical location is shown in Figure 4.1. Injuries to the head accounted for the largest proportion of the hospitalisations (43.0%), followed by injuries to the hip and thigh (12.5%). Of the head injuries, traumatic brain injury (TBI) is the most serious and is described in detail in section 4a. Section 4b provides details of number of admissions and trends in the other (non-TBI) non-fracture injuries.

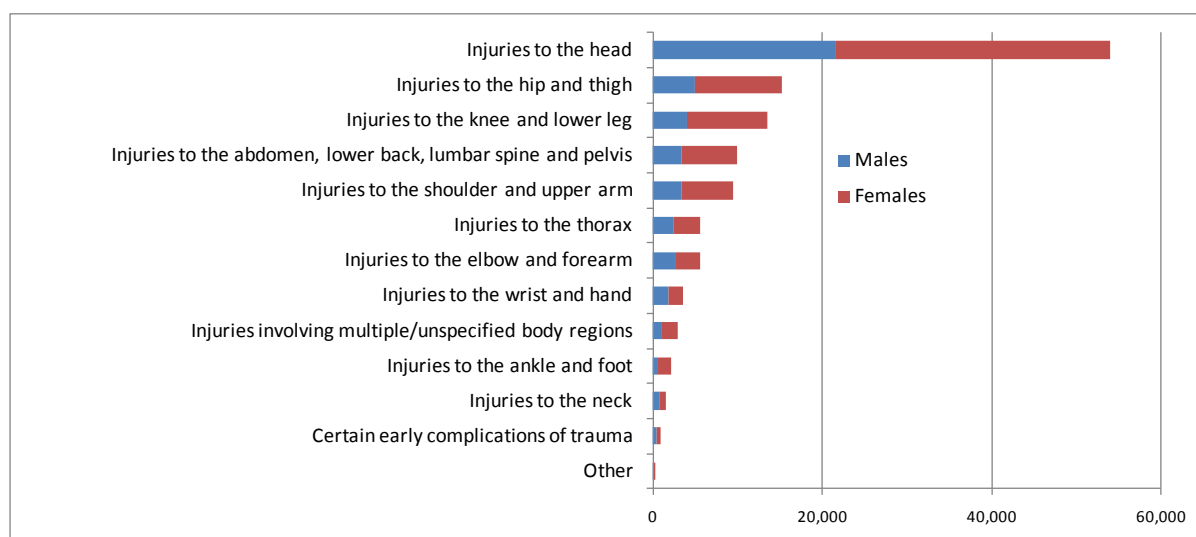


Figure 4.1: Fall-related non-fracture injury hospitalisations by anatomical location and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by sex

The age-standardised rate of fall-related non-fracture injury hospitalisations for people aged 65 years and older in 2011-12 was 1,234 per 100,000 population. The hospitalisation rate has increased by an estimated 5.9% per year; from 613 per 100,000 in 1998-99. Females had a consistently higher rate (643/100,000 in 1998-99 to 1,265/100,000 in 2011-12) compared with males (552/100,000 in 1998-99 to 1,188 in 2011-12) over the report period. There was no difference in the increase in rates between males and females. (Figure 4.2)

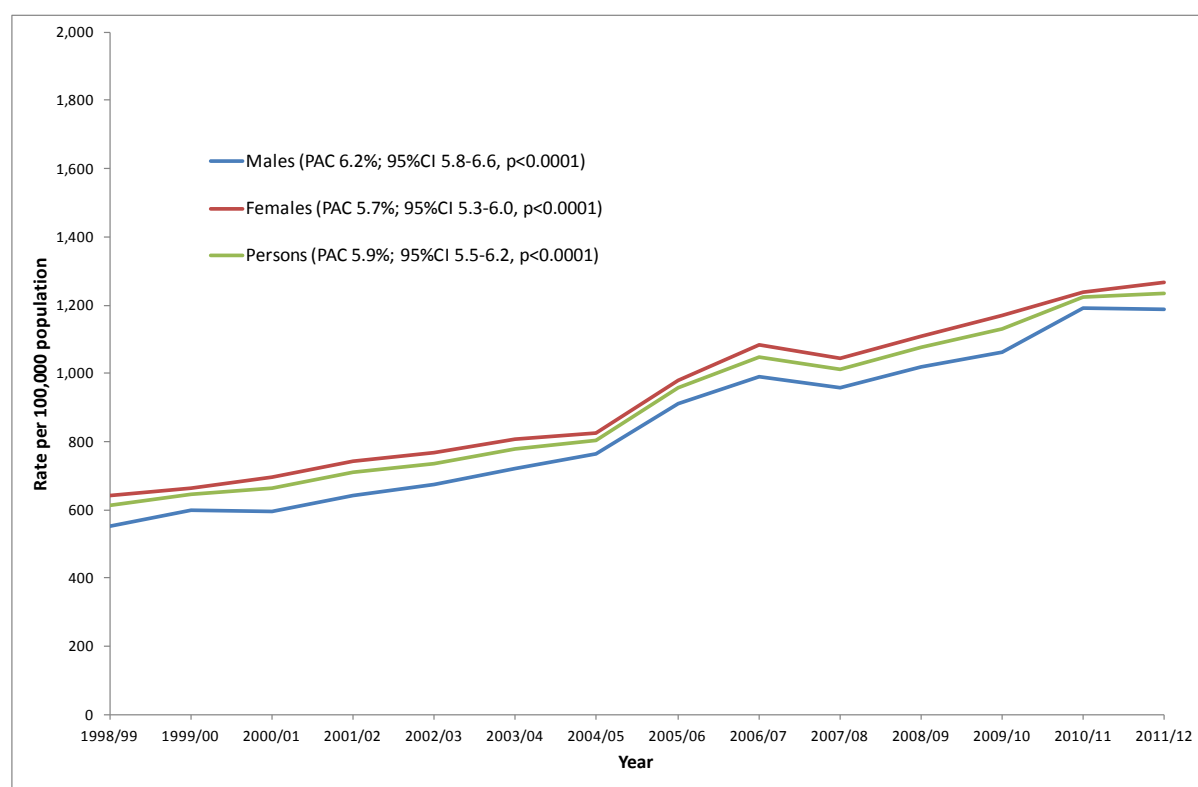


Figure 4.2: Fall-related non-fracture injury hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of the fall-related non-fracture injury hospitalisations, 40.9% (n=50,844) were for persons aged 85 years and older. Age-specific rates of fall-related non-fracture injury hospitalisations increased markedly with age. In 2011-12 the hospitalisation rate for persons aged 85 years and over (4,339 per 100,000 population) was thirteen times higher than for 65-69 year olds (325 per 100,000 population). There were differences in trend over time by age group; with hospitalisation rates for persons aged 85 years and over increasing at a faster rate than those aged 75-79 years and younger. (Figure 4.3).

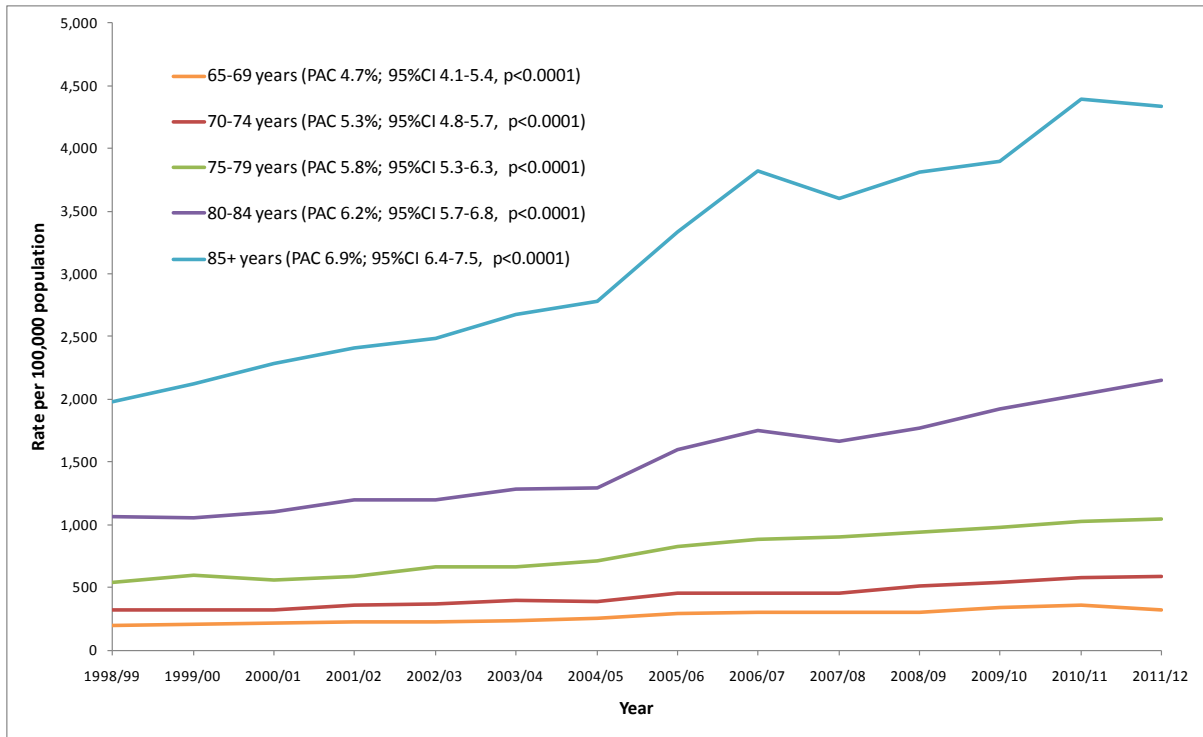


Figure 4.3: Fall-related non-fracture injury hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health Districts

In 2011-12 the rate of hospitalisations for fall-related non-fracture injuries ranged from 844 per 100,000 population in Hunter New England LHD to 1,498 per 100,000 population in Murrumbidgee LHD. Hospitalisation rates in Murrumbidgee LHD were consistently higher than the NSW average for the report period. Hospitalisation rates in Hunter New England LHD were consistently lower than the NSW average for the report period.

There were differences in trend over time by LHD; with hospitalisation rates in South Western Sydney (11.4% per year), Illawarra Shoalhaven and Northern NSW (8.1% per year), and South Eastern Sydney and Nepean (7.4% per year) LHDs increasing at a higher rate than the NSW average (5.9% per year). Conversely, the hospitalisation rates in Central Coast (1.9% per year), Western NSW and Murrumbidgee (3.3% per year) and Hunter New England (4.7% per year) increased at a lower rate than the NSW average.

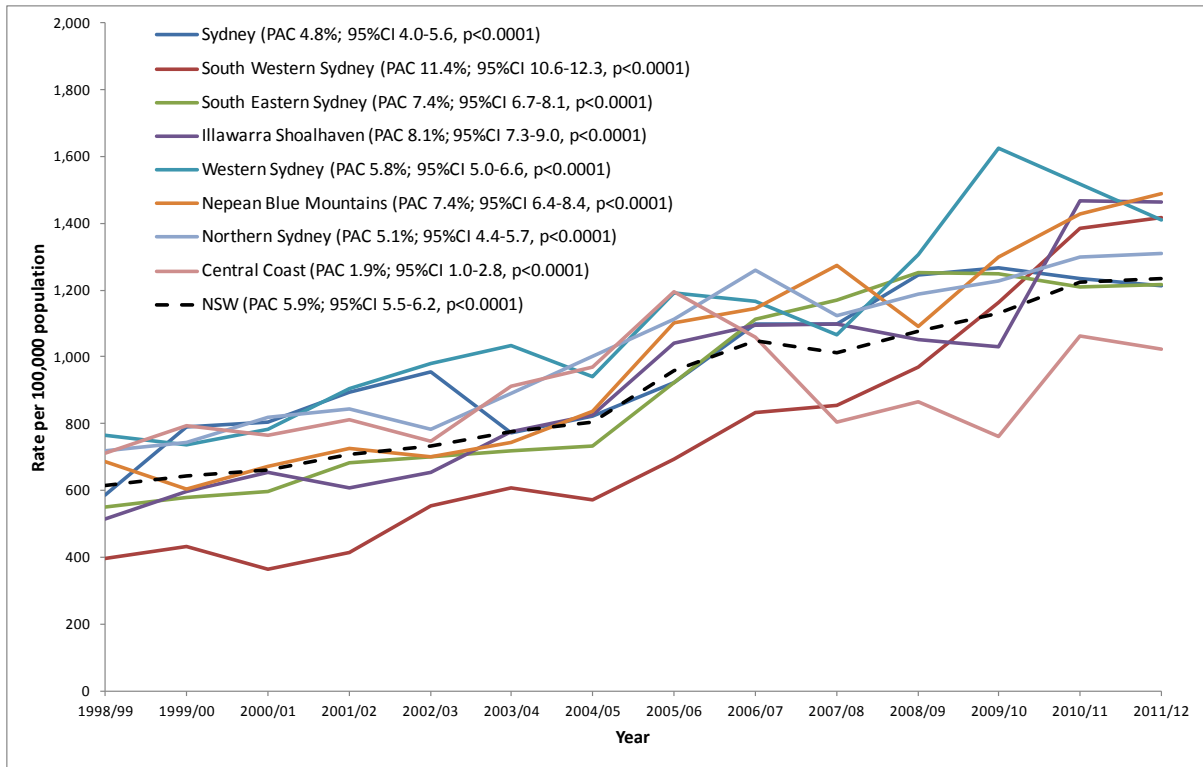


Figure 4.4: Fall-related non-fracture injury hospitalisation rates by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

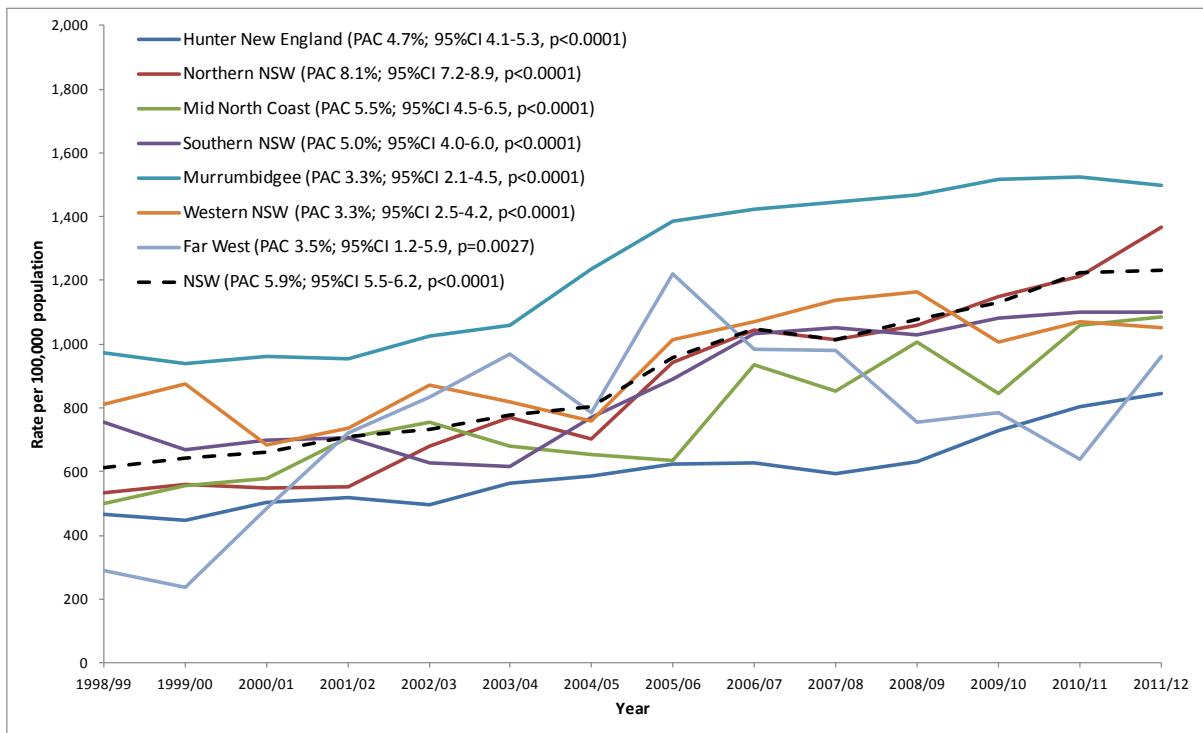


Figure 4.5: Fall-related non-fracture injury hospitalisation rates by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related non-fracture injury hospitalisations for people aged 65 year and older, accounted for 732,799 patient bed days over the 14 year period of the report. The annual number of bed days increased from 30,452 in 1998-99 to 78,438 in 2011-12.

The length of stay per non-fracture injury hospitalisation ranged from 1 day to 518 days; with almost half (46%) of all fall-related non-fracture injury admissions being for 1 day or less. In all, 0.03% (n=37) of fall-related non-fracture injury hospitalisations had a length of stay of 100 days or more.

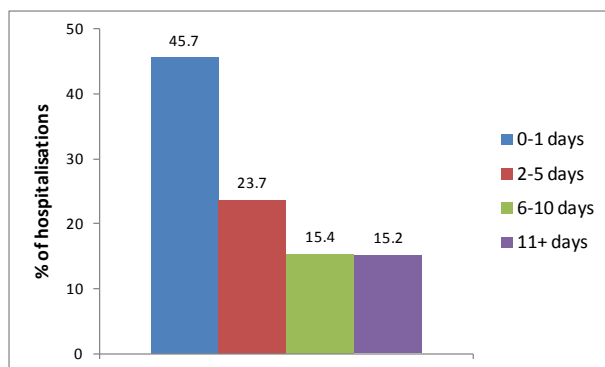


Figure 4.6: Length of stay profile for fall-related non-fracture injury hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for all fall-related non-fracture injury hospitalisations was 5.9 days. There was no difference in ALOS between males and females. The average length of stay increased with age for both males and females. (Figure 6.7).

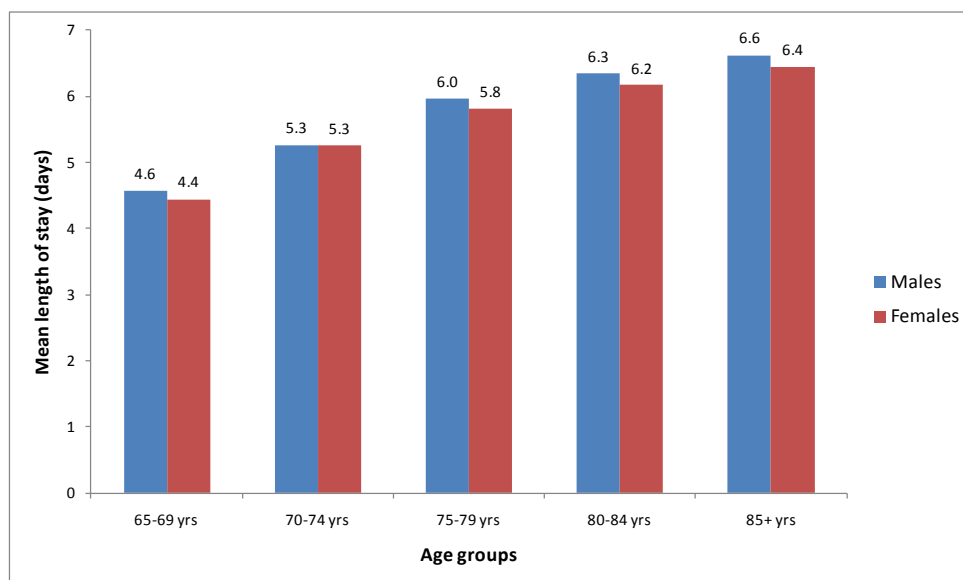


Figure 4.7: Average length of stay for fall-related non-fracture injury hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay has decreased over the report period from 6.3 days in 1998-99 to 5.6 days in 2011-12, and this decrease is consistent across all age groups and between sex. (Table 4.1)

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	5.8	6.6	6.3	5.1	5.8	6.4	6.9	6.5
1999-00	6.5	6.5	6.5	5.0	5.7	6.3	6.6	7.2
2000-01	5.5	6.3	6.0	4.3	5.6	5.9	5.9	6.7
2001-02	5.1	5.8	5.5	4.3	4.5	5.3	5.8	6.1
2002-03	5.7	5.7	5.7	4.2	5.0	5.8	5.4	6.4
2003-04	5.9	5.9	5.9	4.8	5.0	5.7	6.4	6.2
2004-05	6.2	5.9	6.0	4.6	5.2	5.8	6.2	6.6
2005-06	5.7	5.6	5.6	4.1	5.0	5.3	5.8	6.2
2006-07	6.0	6.0	6.0	4.1	4.7	5.9	6.3	6.5
2007-08	6.4	6.3	6.4	4.6	5.9	6.3	6.7	6.7
2008-09	6.1	6.3	6.2	4.6	5.4	5.9	6.6	6.6
2009-10	6.1	5.6	5.7	4.3	5.2	5.6	5.7	6.2
2010-11	5.8	5.8	5.8	4.4	4.9	5.7	5.9	6.2
2011-12	5.8	5.4	5.6	4.7	5.1	5.2	5.8	5.8

^aexcludes 33 cases where date of admission is 1920

Table 4.1: Average length of stay (days) for fall-related non-fracture injury hospitalisations, by year, NSW, 1998-99 to 2011-12

4a. Fall-related traumatic brain injury hospitalisations

Case inclusion criteria:

- **Principal diagnosis code of TBI S06,**
- **First external cause code in range W00-W19, and**
- **Mode of admission is not a transfer from another hospital, or change in service category.**

This indicator reports fall-related traumatic brain injury hospitalisations. Traumatic brain injury is of particular concern in the older population as functional recovery following an acute insult to the brain is often limited, and can precipitate the need for residential care.

There were 12,133 hospitalisations for fall-related TBI in persons 65 years and older over the fourteen year report period. Of these, females slightly outnumbered males (51.6% n=6,263). There has been a 303% increase in annual number of TBI hospitalisations, from 386 in 1998-99 to 1,554 in 2011-12. Appendix: Table 6 provides numbers and age-standardised rates with 95% confidence intervals for fall-related TBI hospitalisations from 1998-99 to 2011-12.

Age-standardised rates by sex

The age-standardised rate of fall-related TBI hospitalisations for people aged 65 and older in 2011-12 was 138 per 100,000 population. Unlike other fall-related injuries, males had a consistently higher hospitalisation rate (60/100,00 in 1998-99 to 157/100,000 in 2010-11) compared with females (39/100,000 in 1998-99 to 123/100,000) over the report period. The hospitalisation rate has increased by an estimated 8.6% per year, from 49 per 100,000 population in 1998-99. There was no difference in annual rate of increase between males and females.

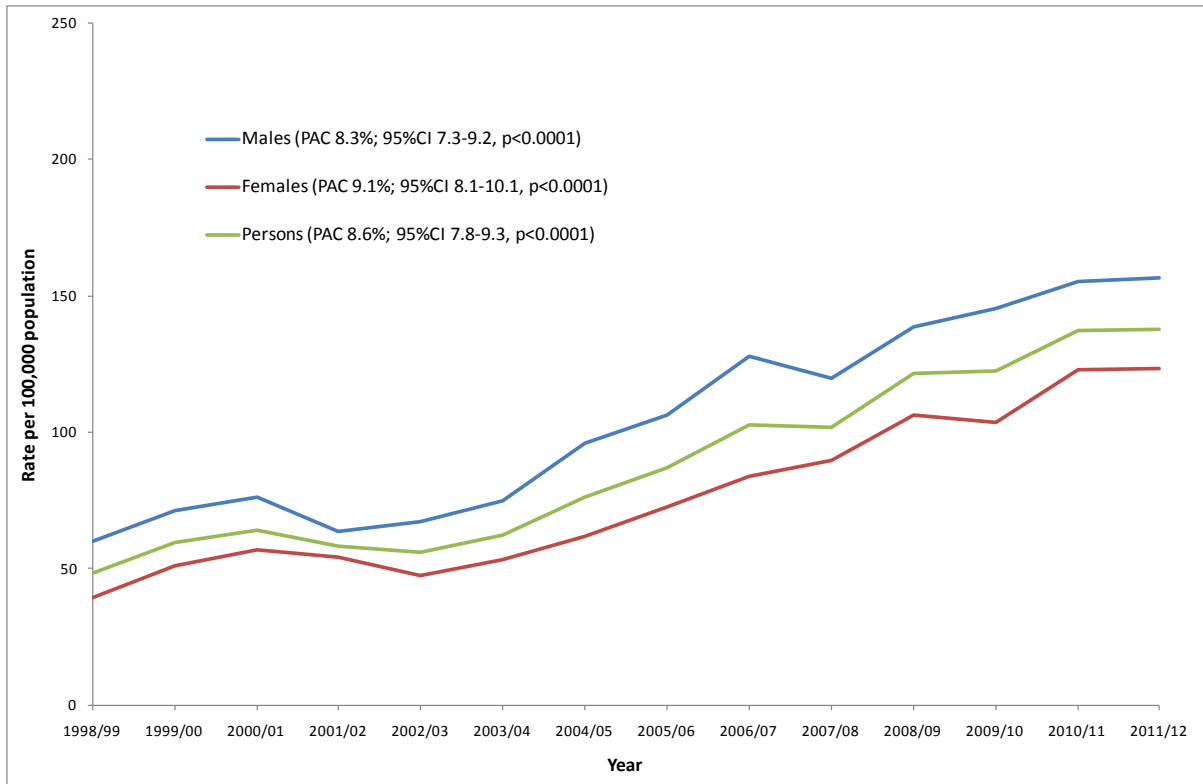


Figure 4a.1: Fall-related TBI hospitalisations by sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-specific rates by quinquennial age groups

Of fall-related TBI hospitalisations, a third (33.0%, n=3,999) were for persons aged 85 years and above. Age-specific hospitalisation rates for TBI increased markedly with age. In 2011-12 the hospitalisation rate for persons 85 years and older (409/100,000 population) was nine times higher than for 65-69 year olds (46/100,000 population).

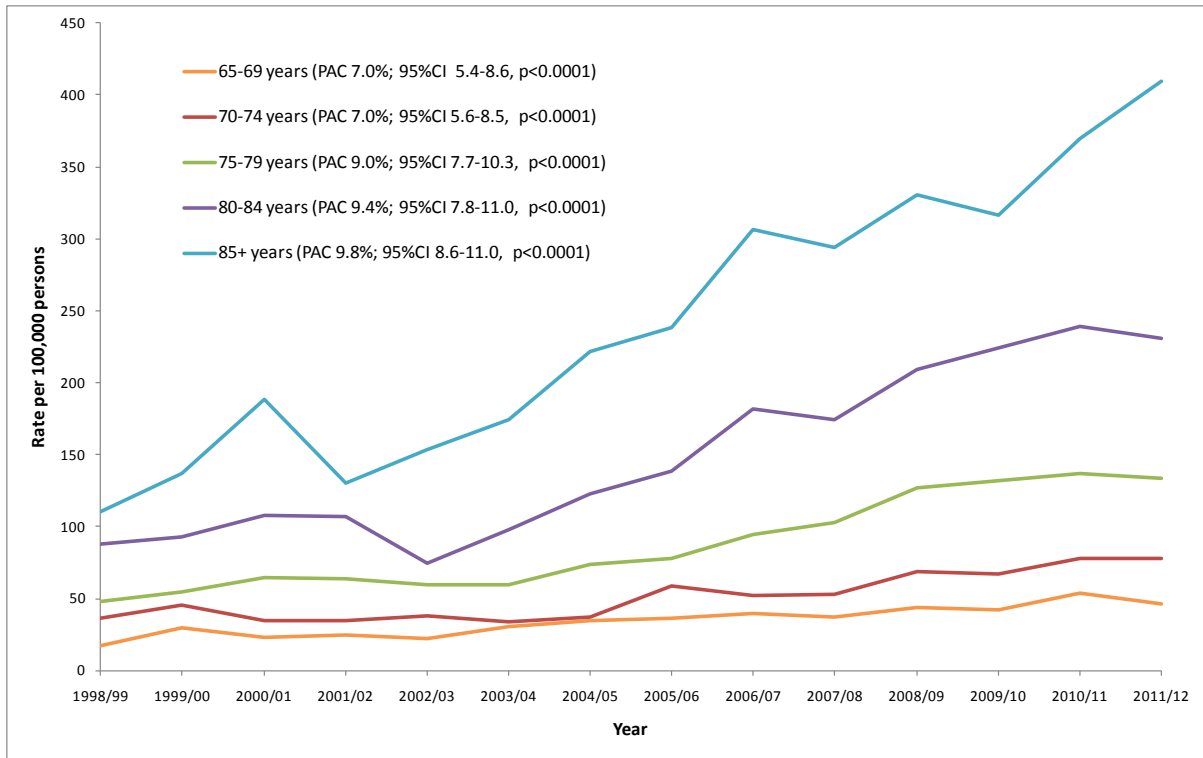


Figure 4a.2: Fall-related TBI hospitalisations by quinquennial age group, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Age-standardised rates by Local Health Districts

In 2011-12 the rate of fall-related TBI ranged from 72 per 100,000 population in Hunter New England LHD to 172 per 100,000 population in Nepean Blue Mountains LHD. TBI hospitalisation rates in Hunter New England LHD were consistently lower than the NSW average from 2003-04 onwards.

There were differences in trend over time by LHD; hospitalisation rates in Murrumbidgee (4.0% per year), Hunter New England (4.5% per year) and Mid North Coast (5.1% per year) LHDs increased at a lower rate than the NSW average (8.6% per year).

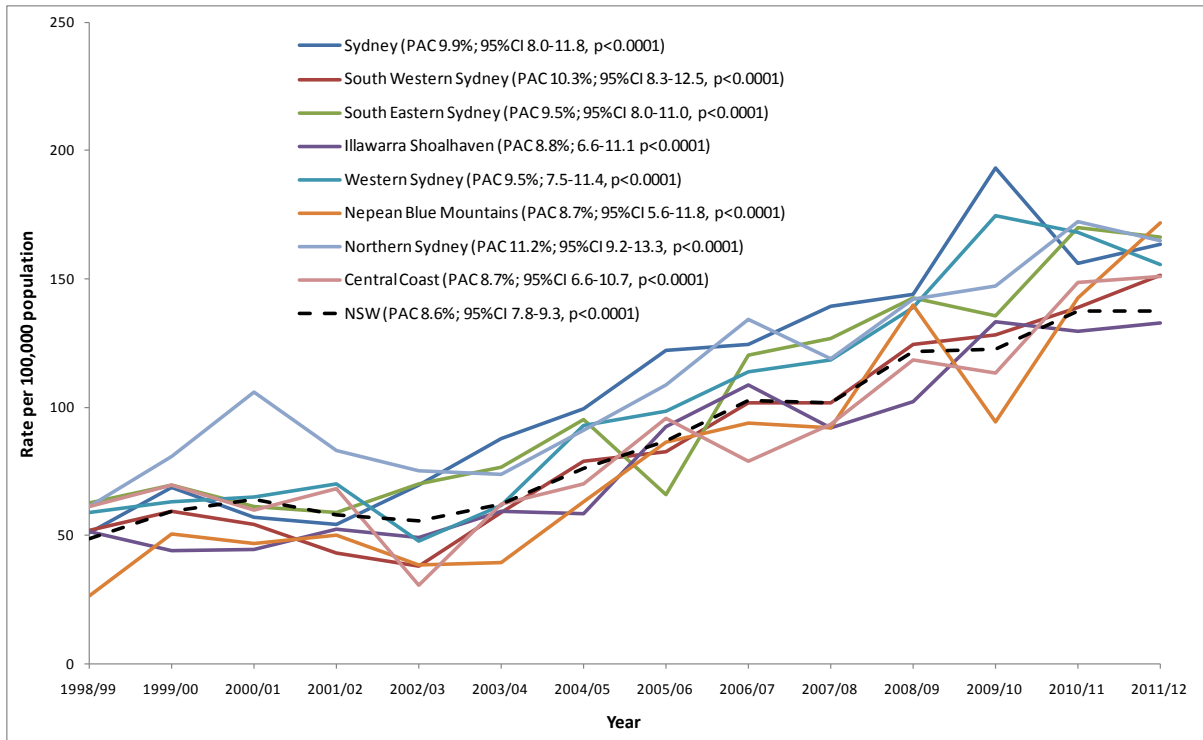
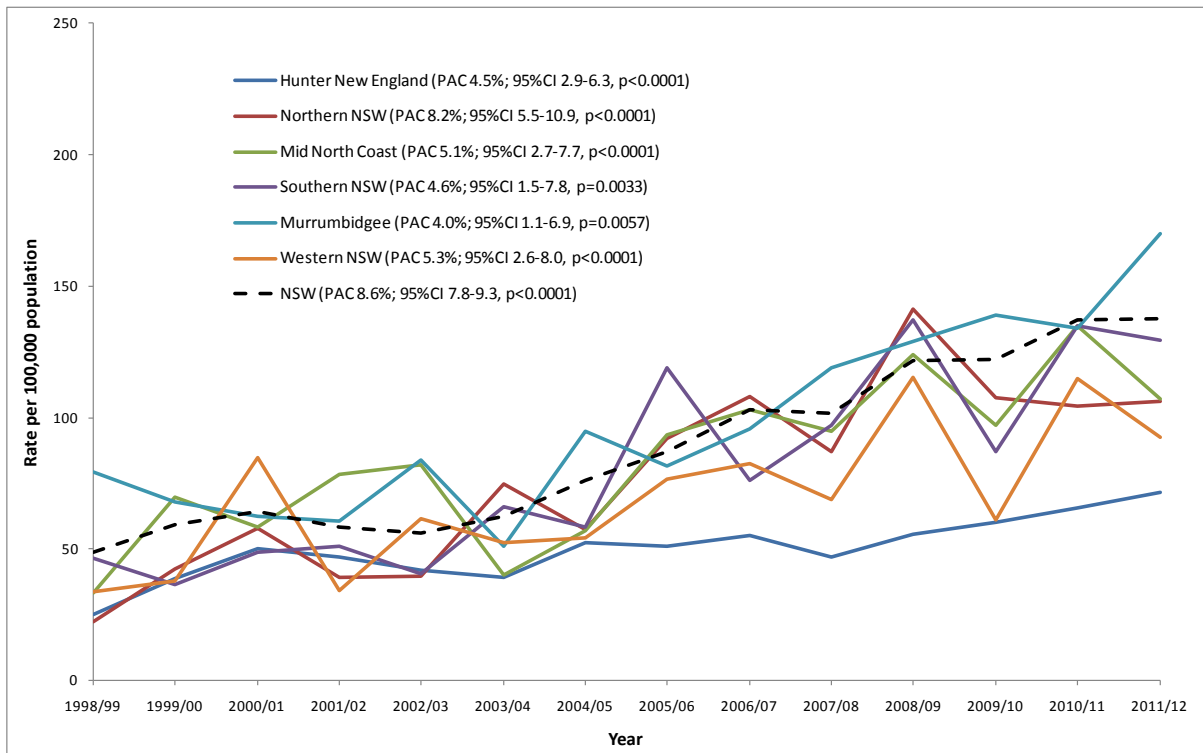


Figure 4a.3: Fall-related TBI hospitalisations by metropolitan LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12



Note: Far West LHD not reported due to small numbers (>5 admissions in some years)

Figure 4a.4: Fall-related TBI hospitalisations by rural and regional LHDs, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

Fall-related TBI hospitalisations for people aged 65 year and older, accounted for 120,729 patient bed days over the fourteen year period of the report. The annual number of bed days increased from 3,216 in 1998-99 to 14,625 in 2011-12.

The length of stay per TBI hospitalisation ranged from 1 day to 212 days; with the greatest proportion (30.5%) of TBI hospitalisations being for 1 day or less. In all, 0.001% (n=9) of fall-related TBI hospitalisations had a length of stay of 100 days or more.

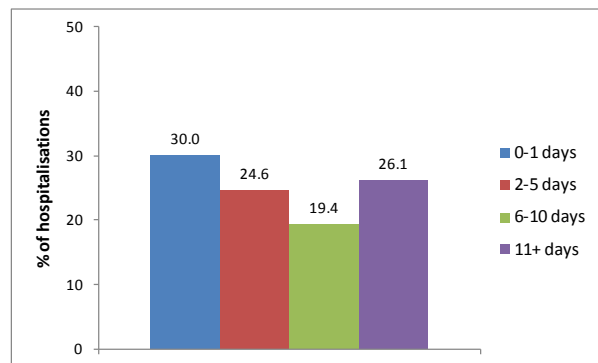


Figure 4a.5: Length of stay profile for fall-related TBI hospitalisations, persons aged 65 years and over, NSW, 1998-99 to 2011-12

The average length of stay for fall-related TBI hospitalisations was 10.0 days, with the average length of stay for males (10.6 days) being greater than that for females (9.5 days). Males had a longer average LOS than females across all age groups.

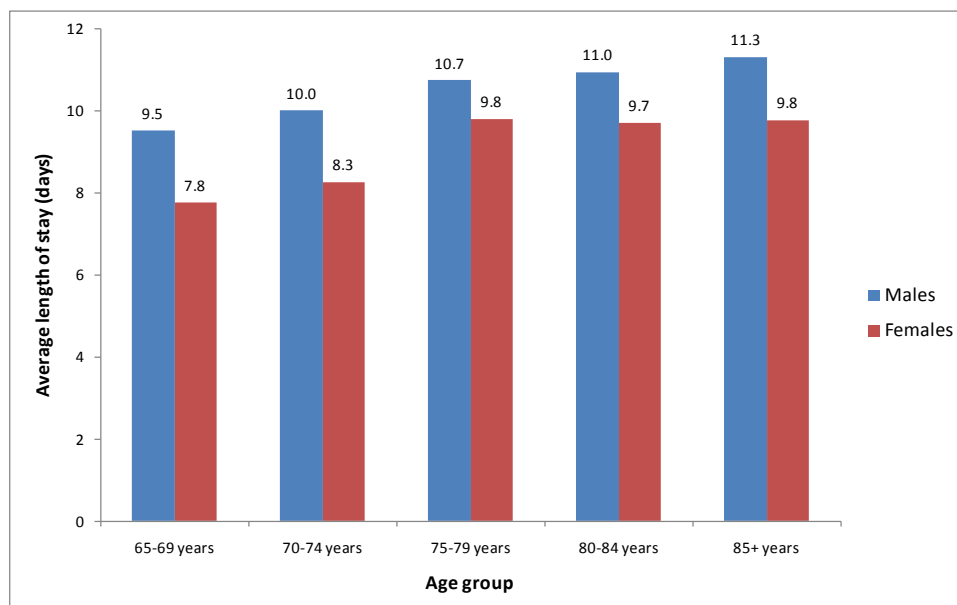


Figure 4a.6: Average length of stay for fall-related TBI hospitalisations, by age group and sex, persons aged 65 years and over, NSW, 1998-99 to 2011-12

There has been no consistent trend in average length of stay over the period of the report. (Table 4a.1.)

Year ^a	Males	Females	Persons	65-69 years	70-74 years	75-79 years	80-84 years	85+ years
1998-99	8.5	8.1	8.3	9.3	6.2	8.8	10.1	7.5
1999-00	10.3	9.4	9.8	9.1	8.5	10.6	10.5	10.2
2000-01	9.9	8.9	9.4	9.4	9.4	9.4	8.9	9.7
2001-02	9.0	8.3	8.6	5.4	6.6	7.2	9.5	11.7
2002-03	10.0	9.0	9.5	9.1	6.5	9.7	10.1	10.8
2003-04	11.4	10.5	10.9	10.3	11.3	13.5	11.1	9.3
2004-05	12.7	9.9	11.3	12.4	12.4	9.8	11.2	11.6
2005-06	10.8	9.1	10.0	7.4	9.0	10.0	11.2	10.4
2006-07	11.4	10.8	11.1	7.7	9.6	13.2	10.9	11.7
2007-08	10.7	10.5	10.6	8.8	10.9	11.3	10.4	10.7
2008-09	10.5	10.3	10.4	8.7	10.1	9.7	11.5	10.5
2009-10	10.6	9.0	9.8	8.7	10.0	10.5	8.6	10.5
2010-11	10.4	9.2	9.8	8.0	9.2	10.7	10.0	9.9
2011-12	10.8	8.7	9.7	10.4	9.2	8.9	10.2	9.7

^aexcludes 15 cases where date of admission is 1920

Table 4a.1: Average length of stay (days) for fall-related TBI hospitalisations, by year, NSW, 1998-99 to 2011-12

4b. Other fall-related non-fracture injury hospitalisations

Case inclusion criteria:

- Principal diagnosis code of non-fracture and non-TBI injury, in range S00-T75 or T79 (excluding fracture codes and S06),
- First external cause code in range W00-W19, and
- Mode of admission is not a transfer from another hospital, or change in service category.

There were 112,109 hospitalisations for fall-related non-fracture injuries (excluding TBI), in persons 65 years and over in the period 1998-99 to 2011-12; comprising the majority (90.2%) of all fall-related non-fracture injury hospitalisations. Almost two thirds (63.6%) were females. The most common anatomical location of injury was the head (33.6%) followed by injuries to the lower limb (hip and thigh 12.2%, knee and lower leg 10.9%). (Table 4b.1.)

Table 4b.1: Fall-related non-fracture injury hospitalisations by anatomical location, persons aged 65 years and over, NSW, 1998-99 to 2011-12

	Males (%)	Females (%)	Persons	% of non-fracture injuries
Injuries to the head (excluding TBI)	15,668 (37.5)	26,108 (62.5)	41,776	33.6
Injuries to the neck	720 (46.1)	841 (53.9)	1,561	1.3
Injuries to the thorax	2,414 (43.9)	3,090 (56.1)	5,504	4.4
Injuries to the abdomen, lower back and pelvis	3,424 (34.6)	6,479 (65.4)	9,904	8.0
Injuries to the shoulder and upper arm	3,360 (35.4)	6,129 (64.6)	9,488	7.6
Injuries to the elbow and forearm	2,501 (45.6)	2,981 (54.4)	5,482	4.4
Injuries to the wrist and hand	1,748 (49.6)	1,774 (50.4)	3,522	2.8
Injuries of the hip and thigh	4,845 (31.8)	10,370 (68.2)	15,215	12.2
Injuries of the knee and lower leg	3,985 (29.5)	9,507 (70.5)	13,492	10.9
Injuries to the ankle and foot	558 (25.5)	1,628 (74.5)	2,186	1.8
Multiple ^a /unspecified ^b body regions	1076 (38.0)	1,785 (62.4)	2,860	2.3
Certain early complications of trauma	376 (46.8)	427 (53.2)	803	0.6
Other	114 (36.0)	203 (64.0)	317	0.3
TOTAL	40,788	71,322	112,109	90.2

Age-standardised rates by anatomical region

Hospitalisation rates for fall-related non-fracture injuries for all body regions have increased over the report period. Injuries to the lower limb have increased at a significantly slower rate (3.8% per year) than other regions. (Figure 4b.1)

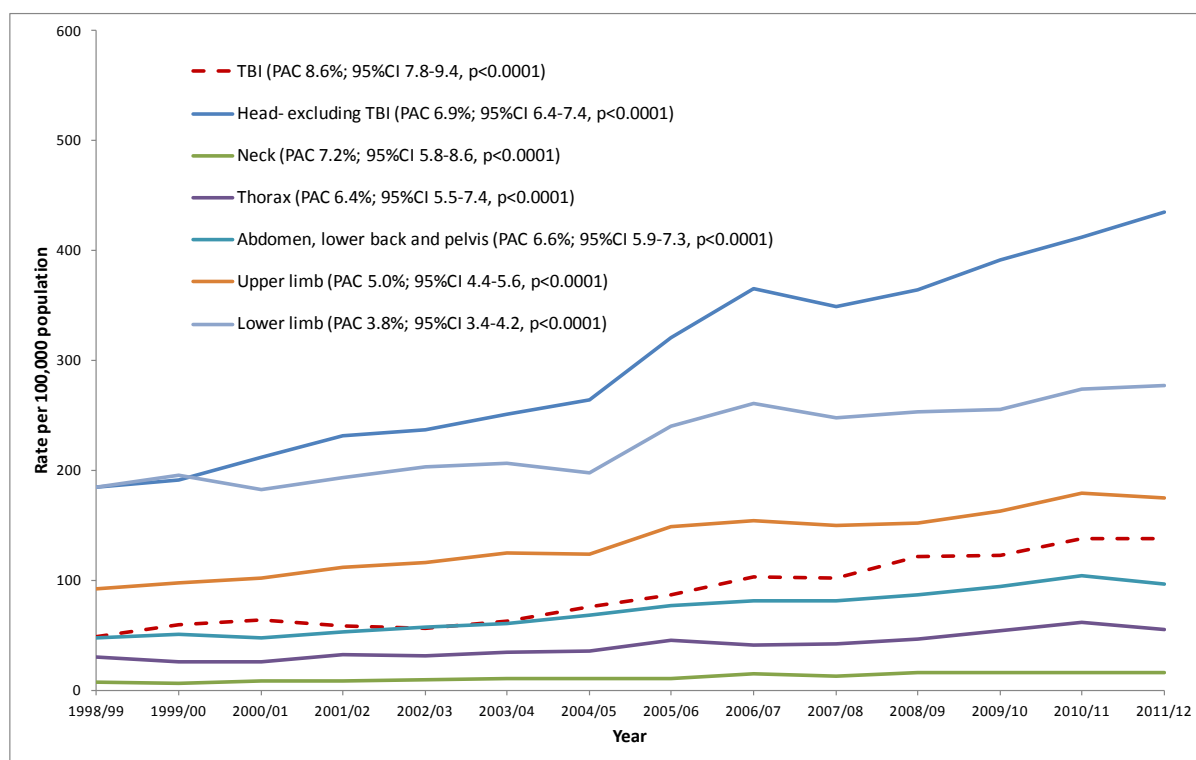


Figure 4b.1 Fall-related non-fracture injury hospitalisations by anatomical location, persons aged 65 years and over, NSW, 1998-99 to 2011-12

Length of stay

There were differences in average length of stay over the period of the study, by non-fracture injury type; neck (8.0 days), lower limb (7.1 days), abdomen (6.6 days), thorax (6.2 days), upper limb (5.0 days). Although head (excluding TBI) was the most common non-fracture injury these hospitalisations had the shortest average LOS (3.7 days). The average LOS by anatomical location and sex is shown in Figure 3b.2. There was a marked difference in ALOS between males (9.6 days) and females (6.7 days) for injuries of the neck. Average length of stay has decreased for all types of non-fracture injuries over the report period. (Table 3b.2)

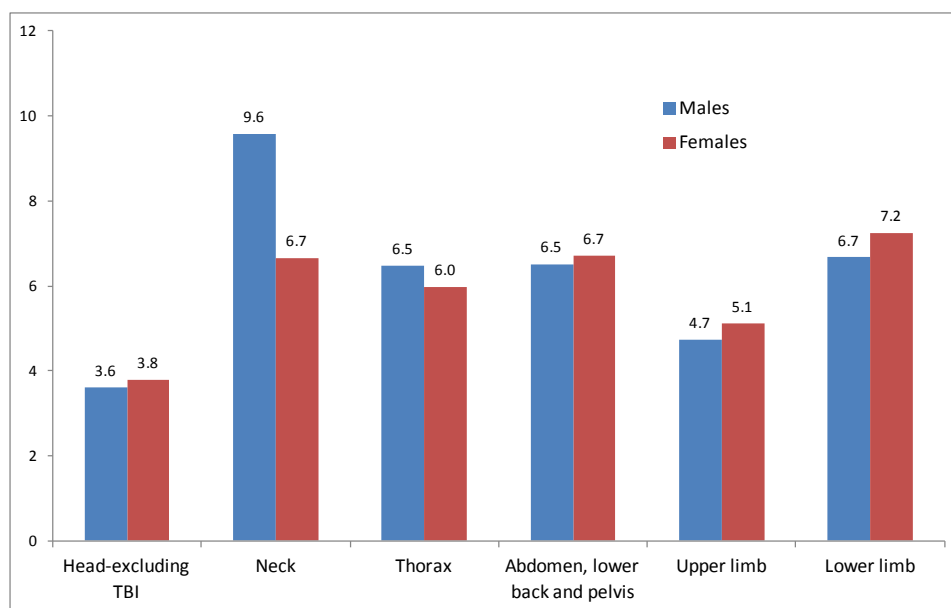


Figure 4b.2: Average length of stay for fall-related non-fracture injury hospitalisations (excluding TBI) by anatomical location and sex, persons aged 65 and over, NSW, 1998-99 to 2011-12

Year	Head-excluding TBI	Neck ^a	Thorax	Abdomen, lower back and pelvis	Upper limb	Lower limb
1998-99	3.4	14.3	8.4	7.7	5.1	8.0
1999-00	3.9	12.9	7.4	7.6	5.4	7.6
2000-01	3.6	7.5	6.2	6.9	5.1	7.7
2001-02	3.4	5.9	7.3	6.9	4.7	6.8
2002-03	3.5	8.3	6.0	6.3	4.4	7.0
2003-04	3.6	7.8	5.6	6.2	4.7	7.2
2004-05	3.8	7.3	6.2	6.8	4.5	7.2
2005-06	3.8	7.5	5.8	6.2	4.9	6.5
2006-07	3.8	6.7	5.5	6.2	5.2	7.2
2007-08	4.1	6.9	6.7	7.3	5.8	7.6
2008-09	3.9	7.6	6.5	7.2	5.1	7.4
2009-10	3.9	7.3	5.9	6.6	4.8	6.4
2010-11	3.8	6.6	5.6	6.2	4.9	6.9
2011-12	3.5	10.3	5.8	6.1	4.9	6.3

^a These results must be interpreted with caution as the small admission numbers can result in large variations in ALOS

Table 4b.2: Average length of stay (days) for fall-related non-fracture injury hospitalisations (excluding TBI), by anatomical region and year, NSW, 1998-99 to 2011-12

Projections

Hospitalisation rates for all fall-related hospitalisations have increased by 3.8% (95%CI 3.5-4.0) per year, and fall-related injury by 2.5% (95%CI 2.2-2.7%) per year over the past 14 years. If these trends in hospitalisation rates continue at the same rate, it is projected that the hospitalisation rate for all fall-related hospitalisations in 2020-21 will be 5,860 per 100,000 population (95%PI 5,710/100,000 to 5,963/100,000), and for fall-related injury 3,480 per 100,000 population (95%PI 3,390 /100,000 to 3,542 /100,000). (Figure 5.1)

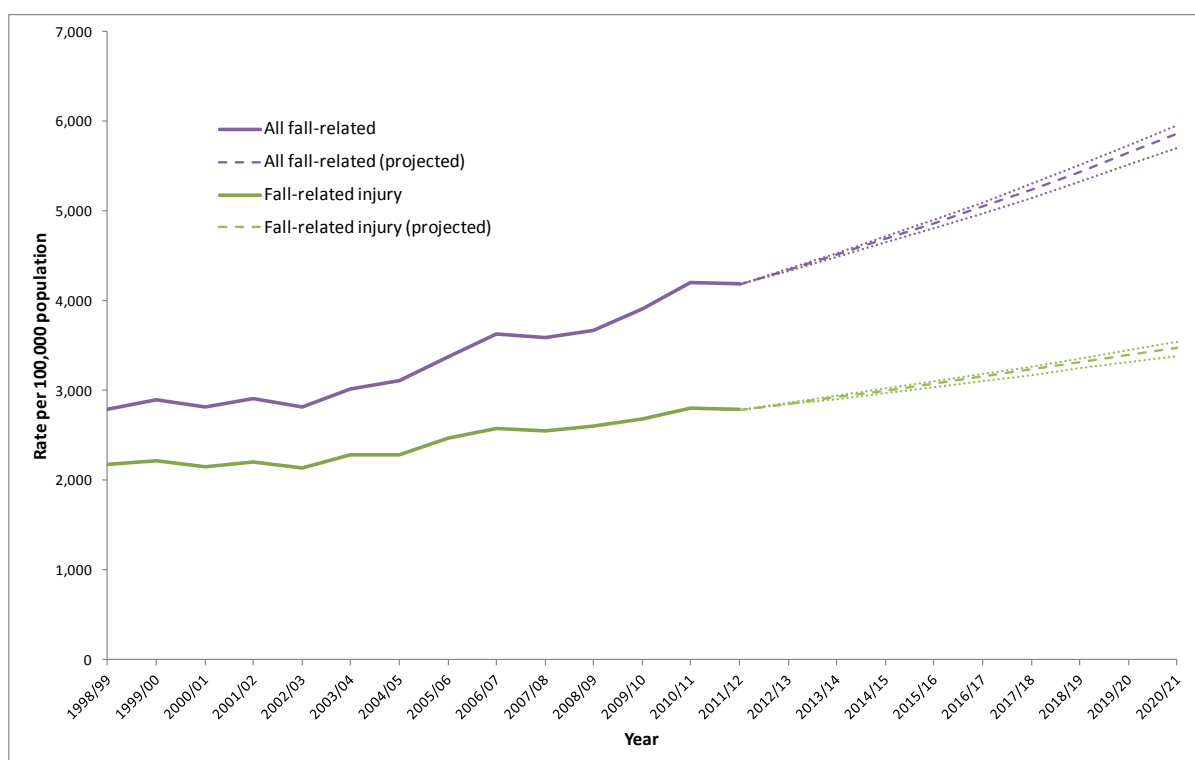


Figure 5.1: All fall-related and fall-related injury hospitalisations, NSW, projected to 2020-21

Hospitalisation rates for fall-related fractures have increased slightly over the report period by 0.5% (95%CI 0.2-0.7) per year. In 2020-21 the hospitalisation rate is projected to be 1,624 per 100,000 population (95%PI 1,581/100,000 to 1,653/100,000). In contrast, fall-related non-fracture injury hospitalisations have increased by 5.9% (95%CI 5.5-6.2) per year. In 2020-21 the hospitalisation rate is projected to be 2,066 per 100,000 population (95%PI 1,997/100,000 to 2,120 /100,000). The rate of hospitalisations for fall-related non-fracture injuries is projected to overtake fall-related fractures in 2016-17. (Figure 5.2)

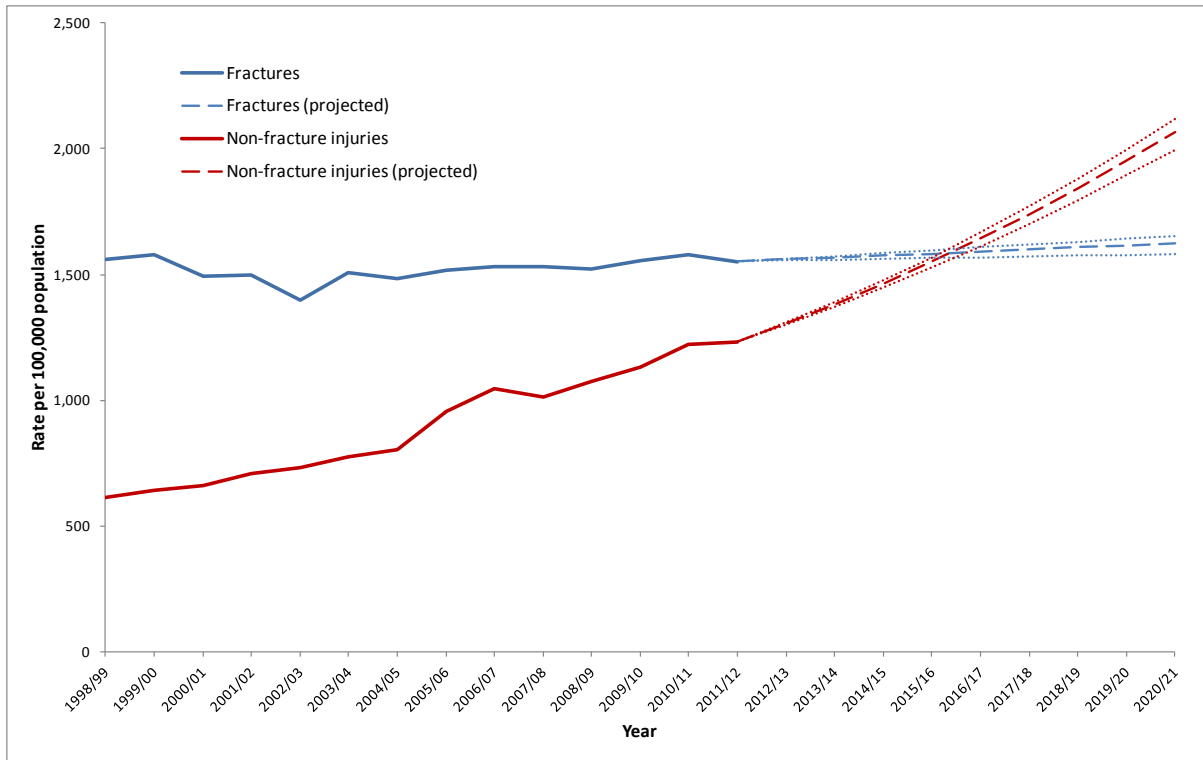


Figure 5.2: Fall-related fracture and non-fracture injury hospitalisations, NSW, projected to 2020-21

Hospitalisation rates of hip fracture have decreased by 1.3% per year (95%CI -1.6--1.0). In 2020-21 the hospitalisation rate for fall-related hip fracture is projected to be 451 per 100,000 population (95%PI 438/100,000 to 463/100,000). Of concern however is the dramatic increase in fall-related TBI, which has increased by 8.6% per year (95%CI 7.8-9.4). In 2020-21 the hospitalisation rate for fall-related TBI is projected to reach 289 per 100,000 population (95%PI 271/100,000 to 309/100,000). (Figure 5.3)

In 2020-21 it is projected that all fall-related hospitalisations will account for just under a million (n=961,236, 95%PI 928,563- 1,003,513) bed days per year. Of these, 409,005 (95%PI 391,742- 423,299) will be for fall-related injuries. Fall-related fractures will account for 260,407 (95%PI 251,471 - 271,973) bed days and non-fracture injuries 164,814 (95%PI 152,921 - 177,523). (Figure 5.4)

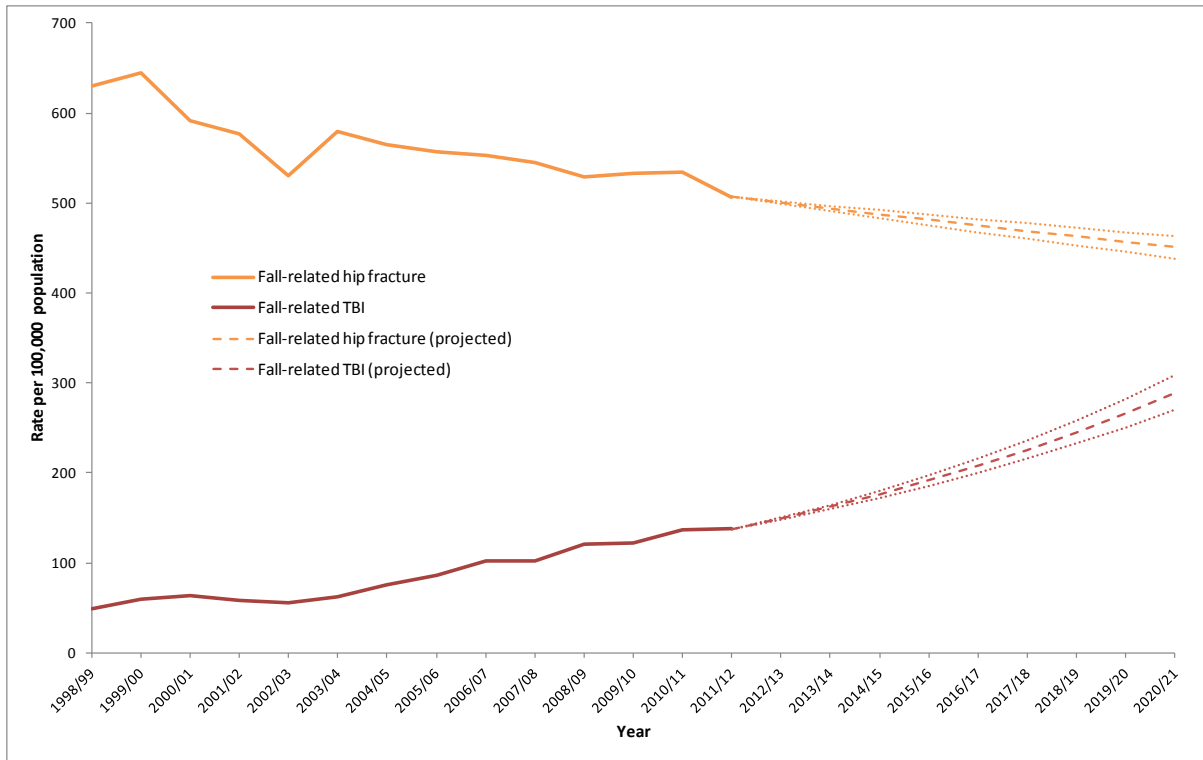


Figure 5.3: Fall-related hip fracture and TBI hospitalisations, NSW, projected to 2020-21

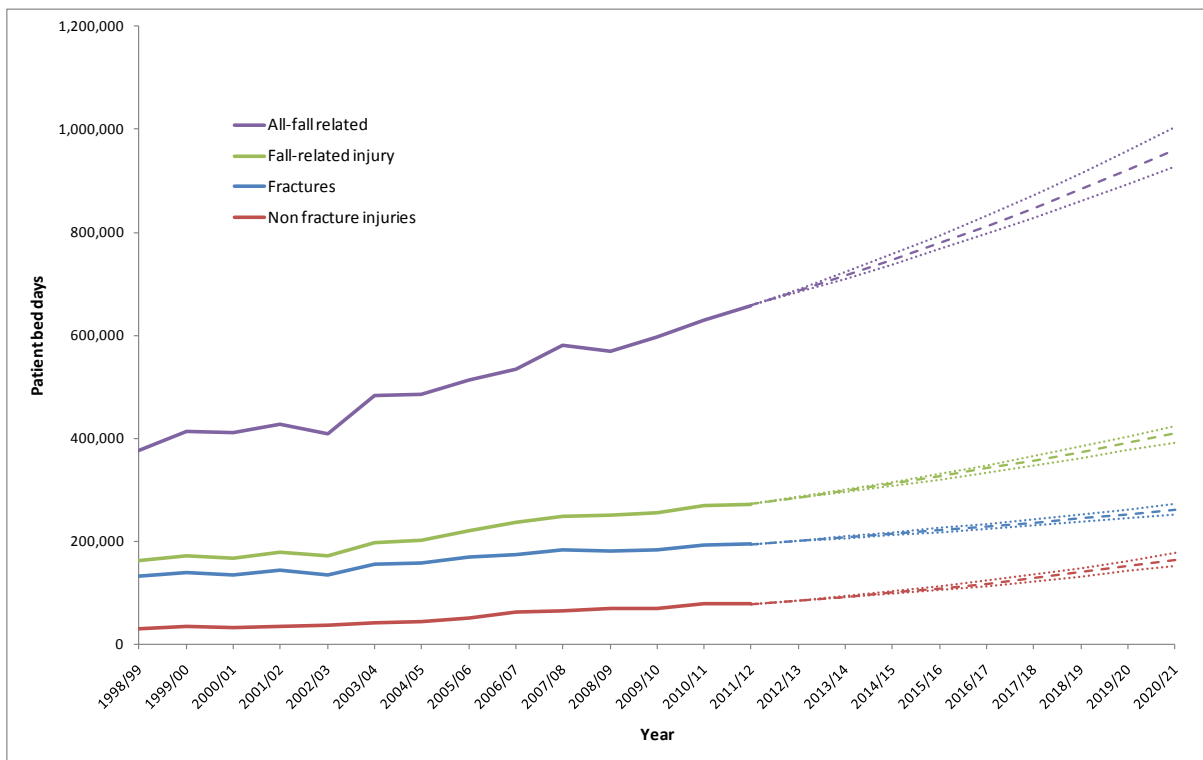


Figure 5.4: Bed days attributable to falls, by year and indicator, NSW, projected to 2020-21

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Appendix: Data tables

Table 1: Number and rate of all fall-related hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	21,926	2,787.1	2,750.2	2,824.2
	Males	6,374	2,081.9	2,029.7	2,135.2
	Females	15,552	3,229.3	3,178.6	3,280.5
1999-00	Persons	23,511	2,893.5	2,856.7	2,930.8
	Males	7,096	2,245.4	2,192.2	2,299.6
	Females	16,415	3,299.1	3,248.7	3,350.2
2000-01	Persons	23,704	2,814.0	2,778.3	2,850.1
	Males	7,125	2,177.6	2,126.3	2,229.7
	Females	16,579	3,222.5	3,173.4	3,272.2
2001-02	Persons	25,387	2,917.4	2,881.6	2,953.5
	Males	7,685	2,258.7	2,207.6	2,310.6
	Females	17,702	3,338.4	3,289.1	3,388.3
2002-03	Persons	25,128	2,819.7	2,784.9	2,854.8
	Males	7,759	2,220.3	2,170.5	2,271.0
	Females	17,369	3,216.1	3,168.0	3,264.7
2003-04	Persons	27,418	3,017.3	2,981.7	3,053.3
	Males	8,450	2,365.9	2,315.0	2,417.6
	Females	18,968	3,454.0	3,404.5	3,504.0
2004-05	Persons	28,948	3,108.4	3,072.6	3,144.5
	Males	9,175	2,490.9	2,439.6	2,543.0
	Females	19,771	3,533.1	3,483.5	3,583.4
2005-06	Persons	32,322	3,382.7	3,345.8	3,419.9
	Males	10,524	2,775.7	2,722.4	2,829.7
	Females	21,798	3,809.3	3,758.1	3,860.9
2006-07	Persons	35,634	3,625.0	3,587.3	3,663.0
	Males	11,471	2,921.7	2,868.2	2,976.0
	Females	24,163	4,125.3	4,072.5	4,178.6
2007-08	Persons	36,393	3,589.8	3,552.8	3,627.1
	Males	11,961	2,926.0	2,873.6	2,979.1
	Females	24,432	4,066.9	4,015.0	4,119.3
2008-09	Persons	38,240	3,670.6	3,633.7	3,707.9
	Males	12,656	2,999.3	2,947.1	3,052.2
	Females	25,584	4,155.5	4,103.5	4,207.9
2009-10	Persons	41,971	3,913.0	3,875.3	3,951.0
	Males	14,094	3,221.6	3,168.4	3,275.3
	Females	27,877	4,414.8	4,361.7	4,468.4
2010-11	Persons	46,492	4,201.3	4,162.7	4,240.1
	Males	16,057	3,543.8	3,489.0	3,599.2
	Females	30,435	4,691.5	4,637.3	4,746.1
2011-12	Persons	47,626	4,189.4	4,151.3	4,227.7
	Males	16,110	3,429.0	3,376.1	3,482.6
	Females	31,517	4,780.8	4,726.5	4,835.6

Table 2: Number and rate of fall-related injury hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	17,098	2,173.0	2,140.5	2,205.8
	Males	4,516	1,470.6	1,426.7	1,515.4
	Females	12,582	2,613.9	2,568.4	2,660.1
1999-00	Persons	18,062	2,222.5	2,190.2	2,255.2
	Males	4,962	1,569.4	1,524.9	1,614.8
	Females	13,100	2,636.0	2,590.9	2,681.7
2000-01	Persons	18,155	2,155.5	2,124.2	2,187.1
	Males	4,890	1,497.1	1,454.6	1,540.5
	Females	13,265	2,580.8	2,536.9	2,625.3
2001-02	Persons	19,187	2,205.2	2,174.1	2,236.7
	Males	5,261	1,541.8	1,499.7	1,584.7
	Females	13,926	2,630.7	2,586.9	2,675.1
2002-03	Persons	19,022	2,134.7	2,104.5	2,165.3
	Males	5,364	1,535.4	1,494.0	1,577.6
	Females	13,658	2,528.5	2,485.9	2,571.6
2003-04	Persons	20,761	2,284.9	2,253.9	2,316.2
	Males	5,889	1,647.9	1,605.5	1,691.1
	Females	14,872	2,706.8	2,663.1	2,751.1
2004-05	Persons	21,305	2,287.4	2,256.7	2,318.4
	Males	6,184	1,681.6	1,639.5	1,724.6
	Females	15,120	2,698.8	2,655.4	2,742.7
2005-06	Persons	23,644	2,472.6	2,441.1	2,504.4
	Males	7,134	1,880.9	1,837.2	1,925.5
	Females	16,510	2,874.8	2,830.4	2,919.6
2006-07	Persons	25,432	2,581.8	2,550.1	2,613.9
	Males	7,757	1,981.1	1,937.0	2,026.0
	Females	17,675	2,999.8	2,955.0	3,045.2
2007-08	Persons	25,869	2,544.6	2,513.5	2,576.0
	Males	7,933	1,944.7	1,902.0	1,988.2
	Females	17,936	2,966.9	2,922.7	3,011.5
2008-09	Persons	27,144	2,597.7	2,566.7	2,629.1
	Males	8,297	1,966.4	1,924.2	2,009.3
	Females	18,847	3,041.6	2,997.2	3,086.4
2009-10	Persons	28,915	2,685.9	2,654.7	2,717.3
	Males	8,912	2,033.8	1,991.7	2,076.6
	Females	20,003	3,151.2	3,106.5	3,196.4
2010-11	Persons	31,214	2,802.7	2,771.3	2,834.3
	Males	10,055	2,213.1	2,169.9	2,256.9
	Females	21,159	3,224.0	3,179.4	3,269.1
2011-12	Persons	31,902	2,786.7	2,755.8	2,817.9
	Males	10,236	2,174.7	2,132.6	2,217.4
	Females	21,666	3,244.8	3,200.3	3,289.7

Table 3: Number and rate of fall-related fracture hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	12,285	1,560.0	1,532.4	1,587.8
	Males	2,819	918.8	884.2	954.4
	Females	9,466	1,970.9	1,931.3	2,011.1
1999-00	Persons	12,834	1,578.7	1,551.5	1,606.2
	Males	3,064	972.3	937.4	1,008.3
	Females	9,770	1,971.7	1,932.6	2,011.3
2000-01	Persons	12,581	1,493.3	1,467.3	1,519.6
	Males	2,935	901.5	868.5	935.4
	Females	9,646	1,884.9	1,847.3	1,923.1
2001-02	Persons	13,017	1,496.2	1,470.6	1,522.1
	Males	3,068	901.0	868.9	934.1
	Females	9,949	1,888.7	1,851.5	1,926.4
2002-03	Persons	12,481	1,400.8	1,376.3	1,425.6
	Males	3,007	862.4	831.4	894.2
	Females	9,474	1,762.8	1,727.2	1,799.0
2003-04	Persons	13,695	1,507.9	1,482.7	1,533.4
	Males	3,311	927.9	896.1	960.5
	Females	10,384	1,901.1	1,864.3	1,938.4
2004-05	Persons	13,819	1,483.8	1,459.1	1,508.8
	Males	3,371	917.6	886.6	949.5
	Females	10,447	1,875.2	1,839.0	1,912.0
2005-06	Persons	14,481	1,515.8	1,491.2	1,540.8
	Males	3,674	970.1	938.7	1,002.3
	Females	10,807	1,896.7	1,860.6	1,933.4
2006-07	Persons	15,056	1,533.3	1,508.8	1,558.1
	Males	3,888	992.5	961.3	1,024.4
	Females	11,168	1,918.3	1,882.2	1,954.9
2007/08	Persons	15,520	1,531.6	1,507.4	1,556.0
	Males	4,035	988.5	958.1	1,019.6
	Females	11,485	1,921.3	1,885.6	1,957.5
2008-09	Persons	15,840	1,520.3	1,496.6	1,544.4
	Males	3,998	947.0	917.8	976.9
	Females	11,842	1,932.3	1,896.8	1,968.3
2009-10	Persons	16,683	1,555.0	1,531.3	1,579.0
	Males	4,257	970.9	941.9	1,000.6
	Females	12,426	1,983.0	1,947.3	2,019.1
2010-11	Persons	17,494	1,578.7	1,555.2	1,602.6
	Males	4,651	1,022.7	993.4	1052.6
	Females	12,843	1,985.7	1,950.5	2,021.4
2011-12	Persons	17,672	1,552.6	1,529.5	1,576.0
	Males	4,650	986.6	958.3	1,015.4
	Females	13,022	1,979.1	1,944.2	2,014.5

Table 4: Number and rate of fall-related hip fracture hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	4,893	630.2	612.6	648.1
	Males	1,163	401.8	378.4	426.2
	Females	3,730	764.2	739.8	789.2
1999-00	Persons	5,193	644.0	626.6	661.8
	Males	1,338	446.4	422.2	471.5
	Females	3,855	761.0	737.1	785.5
2000-01	Persons	4,968	591.6	575.3	608.3
	Males	1,176	380.9	359.0	403.7
	Females	3,792	719.7	696.9	743.1
2001-02	Persons	5,020	576.4	560.6	592.6
	Males	1,238	381.4	360.1	403.6
	Females	3,782	694.6	672.5	717.2
2002-03	Persons	4,747	530.0	515.0	545.3
	Males	1,208	359.7	339.4	380.9
	Females	3,539	635.3	614.3	656.7
2003-04	Persons	5,296	579.1	563.6	594.9
	Males	1,348	392.3	371.3	414.1
	Females	3,948	698.3	676.5	720.7
2004-05	Persons	5,314	564.6	549.5	580.1
	Males	1,375	385.3	365.0	406.5
	Females	3,938	678.9	657.6	700.7
2005-06	Persons	5,390	556.2	541.4	571.3
	Males	1,420	386.5	366.5	407.3
	Females	3,970	668.4	647.5	689.8
2006-07	Persons	5,539	553.1	538.6	568.0
	Males	1,499	390.7	371.1	411.1
	Females	4,040	658.7	638.2	679.6
2007-08	Persons	5,648	545.2	531.0	559.7
	Males	1,534	382.3	363.3	402.0
	Females	4,114	655.7	635.4	676.5
2008-09	Persons	5,652	528.4	514.6	542.4
	Males	1,544	369.4	351.2	388.4
	Females	4,108	632.1	612.5	652.2
2009-10	Persons	5,880	532.7	519.1	546.7
	Males	1,552	357.8	340.1	376.1
	Females	4,328	651.8	632.0	672.1
2010-11	Persons	6,119	534.7	521.3	548.5
	Males	1,692	375.6	357.9	394.0
	Females	4,427	643.6	624.2	663.4
2011-12	Persons	5,964	507.0	494.0	520.2
	Males	1,636	349.6	332.8	367.0
	Females	4,328	616.9	598.1	636.2

Table 5: Number and rate of fall-related non-fracture injury hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	4,813	613.0	595.8	630.6
	Males	1,697	551.8	525.1	579.5
	Females	3,116	643.1	620.6	666.1
1999-00	Persons	5,228	643.9	626.5	661.6
	Males	1,898	597.0	569.8	625.2
	Females	3,330	664.3	641.9	687.4
2000-01	Persons	5,574	662.2	644.9	679.8
	Males	1,955	595.6	569.0	623.2
	Females	3,619	695.9	673.3	719.1
2001-02	Persons	6,170	709.1	691.5	727.0
	Males	2,193	640.7	613.7	668.6
	Females	3,977	742.0	719.0	765.6
2002-03	Persons	6,541	733.9	716.2	751.9
	Males	2,357	673.0	645.7	701.1
	Females	4,184	765.7	742.4	789.4
2003-04	Persons	7,066	777.0	759.0	795.4
	Males	2,578	720.0	692.1	748.7
	Females	4,488	805.8	782.1	829.9
2004-05	Persons	7,486	803.6	785.5	822.1
	Males	2,813	764.0	735.7	793.1
	Females	4,673	823.6	799.8	847.8
2005-06	Persons	9,163	956.8	937.2	976.6
	Males	3,460	910.8	880.5	941.9
	Females	5,703	978.0	952.4	1,004.1
2006-07	Persons	10,376	1,048.5	1,028.4	1,069.0
	Males	3,869	988.7	957.6	1,020.5
	Females	6,507	1,081.6	1,055.0	1,108.6
2007-08	Persons	10,349	1,013.1	993.5	1,032.9
	Males	3,898	956.2	926.3	986.9
	Females	6,451	1,045.6	1,019.7	1,071.9
2008-09	Persons	11,304	1,077.4	1,057.5	1,097.6
	Males	4,299	1,019.4	989.0	1,050.4
	Females	7,005	1,109.2	1,082.8	1,136.1
2009-10	Persons	12,232	1,130.9	1,110.7	1,151.3
	Males	4,655	1,063.0	1,032.5	1,094.0
	Females	7,577	1,168.2	1,141.4	1,195.6
2010-11	Persons	13,715	1,223.5	1,202.9	1,244.4
	Males	5,403	1,190.0	1,158.4	1,222.2
	Females	8,313	1,237.8	1,210.5	1,265.6
2011-12	Persons	14,223	1,233.5	1,213.0	1,254.2
	Males	5,584	1,187.6	1,156.6	1,219.3
	Females	8,639	1,265.0	1,237.6	1,292.9

Table 6: Number and rate of fall-related TBI hospitalisations by year, NSW, 1998-99 to 2011-12

Year	Sex	Number per year	Rate per 100,000	LL 95% CI	UL 95% CI
1998-99	Persons	386	48.6	43.8	53.7
	Males	197	60.2	51.9	69.4
	Females	189	39.2	33.8	45.2
1999-00	Persons	487	59.4	54.3	64.9
	Males	237	71.4	62.4	81.3
	Females	250	51.0	44.8	57.7
2000-01	Persons	542	64.3	59.0	69.9
	Males	250	76.4	67.0	86.7
	Females	292	57.0	50.6	64.0
2001-02	Persons	507	58.3	53.3	63.6
	Males	225	63.4	55.3	72.4
	Females	282	54.1	47.9	60.8
2002-03	Persons	495	55.9	51.0	61.0
	Males	241	67.4	59.1	76.6
	Females	254	47.5	41.8	53.8
2003-04	Persons	564	62.2	57.2	67.6
	Males	274	74.6	66.0	84.1
	Females	290	53.3	47.3	59.9
2004-05	Persons	706	76.0	70.5	81.8
	Males	358	95.9	86.2	106.5
	Females	348	61.9	55.5	68.9
2005-06	Persons	822	87.0	81.1	93.1
	Males	410	106.1	96.0	116.9
	Females	412	72.7	65.8	80.2
2006-07	Persons	1,008	102.8	96.5	109.4
	Males	510	127.9	117.0	139.6
	Females	498	83.9	76.6	91.7
2007-08	Persons	1,026	101.8	95.6	108.3
	Males	491	119.6	109.2	130.7
	Females	535	89.5	81.9	97.6
2008-09	Persons	1,249	121.5	114.8	128.5
	Males	591	138.4	127.4	150.1
	Females	658	106.5	98.3	115.1
2009-10	Persons	1,291	122.4	115.7	129.3
	Males	639	145.5	134.4	157.3
	Females	652	103.5	95.5	112.0
2010-11	Persons	1,496	137.3	130.3	144.5
	Males	711	155.2	143.9	167.1
	Females	785	123.0	114.3	132.2
2011-12	Persons	1,554	137.6	130.8	144.8
	Males	737	156.6	145.4	168.3
	Females	817	123.3	114.7	132.3

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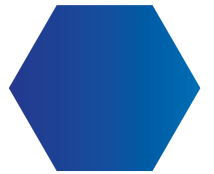
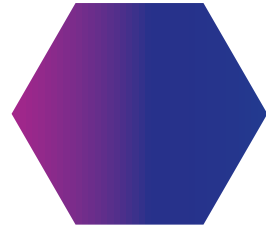
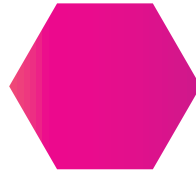
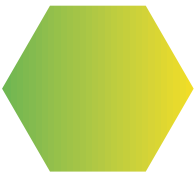
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