



Injury expenditure in Australia 2015-16

Web report | Last updated: 04 Aug 2020 | Author: AIHW |

Citation

AIHW

Australian Institute of Health and Welfare 2020. Injury expenditure in Australia 2015-16. Cat. no. HWE 78. Canberra: AIHW. Viewed 17 December 2020, <https://www.aihw.gov.au/reports/health-welfare-expenditure/injury-expenditure-in-australia-2015-16>

Injuries were responsible for the third most health spending of all the burden of disease groups in 2015-16, accounting for an estimated \$8.9 billion of health spending. This report provides estimates of health spending on injuries categorised according to both the nature and cause of the injury being treated or managed. Information is presented for total and per person spending by area of expenditure, patient demographics, Indigenous status, state, remoteness area, and the nature and external cause of injury based on the conditions included in the Australian Burden of Disease Study 2015.

Cat. no: HWE 78

Findings from this report:

- Per person injury spending was \$397 for Indigenous Australians and \$292 for non-Indigenous Australians
- Around 41% (\$3.7 billion) of injury expenditure was attributed to *Falls*
- Hospital based services contributed to 78% of total injury-related spending
- Injury spending in younger age groups was higher for males, while spending in older age groups was higher for females

Last updated 1/12/2020 v7.0

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Summary

The cost of injury in Australia (both human costs and economic costs) varies with both the type and severity of injury and across different population groups. The injury-related expenditure estimates presented in this report describe the activity and characteristics of Australia's health care system in 2015-16 in different types of injuries and patient characteristics.

The estimates included in this report represent a detailed sub-analysis of the data presented in the [Disease Expenditure in Australia 2015-16](#) web report. The main findings of this report are that, in 2015-16:

- Injury was the third highest area of health care spending in Australia at \$8.9 billion, after musculoskeletal disorders (\$12.5 billion) and cardiovascular diseases (\$10.4 billion).
- Most injury expenditure occurred in hospitals (78%), with 37 per cent of expenditure on public admitted patients and 17 per cent in public hospital emergency departments.
- The cause of injury associated with the most spending was *Falls* at \$3.6 billion or 41% of total injury spending.
- Hospitalisation rates and cause/nature of injuries varied across age groups with expenditure on hip fractures increasing substantially in people aged 65 and over.
- Across hospital settings, the spending per person on injuries for Indigenous Australians was \$397, and was \$292 for non-Indigenous Australians.
- The majority of injury spending occurred in major cities (\$5.3 billion), though per person spending was highest in remote areas (\$418 compared to \$323 in major cities).
- Per person spending on injuries was highest in the Northern Territory (\$423) and lowest in Tasmania (\$342).

Related information can be found in the [Disease Expenditure in Australia](#) web report and the accompanying  [Disease Expenditure 2015-16 Study: Overview of analysis and methodology](#) report.

Last updated 17/12/2020 v8.0

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Overview

There are many and varied causes of injury including falls, burns, motor vehicle accidents, violence, self-harm, and poisoning. The impact of injury varies, ranging from mild short-term musculoskeletal discomfort to lifetime disability and death. Based on estimates from the *2015 Australian Burden of Disease Study*, injury is a major contributor to mortality and morbidity in Australia, contributing 8.5 per cent of the total burden of disease in 2015 (AIHW 2019a). In addition, there is variability in the types and amounts of health services accessed by individuals to treat injury, from primary care services delivered in the community, to in-hospital care.

The AIHW's disease expenditure analysis describes the activity and characteristics of spending for different demographic groups in the population and different disease groups. The *Disease expenditure in Australia 2015-16* study found that an estimated \$117 billion was able to be attributed to over 200 specific diseases and conditions, representing almost three-quarters of total health expenditure (73%) for that year.

The estimated total spending on injuries 2015-16 was \$8.9 billion, or 7.6 per cent of total disease expenditure, equating to about \$373 per person. Injury was the third most costly condition group, behind musculoskeletal disorders (10.7%) and cardiovascular diseases (8.9%) (AIHW 2019b).

Injuries can be classified by either the external cause of injury (such as road traffic accidents or fire, burns and scalds), or the nature of injury (such as fractures or spinal cord injury). In this report both the cause of the injury and the nature of the injury have been included in the analysis. In terms of cause of injury, *Falls* had the highest spending accounting for 41 per cent (\$3.7 billion) in 2015-16. In terms of the nature of injury, *Soft tissue injuries* were the most expensive accounting for 13 per cent (\$1.2 billion) of total injury-related spending.

Previously published data relating to the impact and expenditure associated with injuries indicate that the disease burden and spending are not equally distributed in the population, with some groups at higher risk of experiencing injury (AIHW 2019a AIHW 2019b). This report presents a more detailed analysis on the estimated injury expenditure based on the AIHW's [XLS 2015-16 Disease Expenditure Database](#) to examine these differential aspects of injury across different segments of the population.

Last updated 5/08/2020 v6.0

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Injury spending by health system area

About 78 per cent (\$6.9 billion) of total injury-related spending was for hospital-based services in 2015-16. The other three major areas of spending, non-hospital medical services (13%), dental services (6%) and prescription pharmaceuticals (4%), contributed less than a quarter of total injury spending. Pharmaceuticals in this report does not include over-the-counter medication such as painkillers or anti-inflammatory medicines.

Hospital services

In 2015-16, 80 per cent of hospital-based injury spending (\$5.6 billion) was for public hospitals and about 20 per cent (\$1.4 billion) was for private hospital services. Of the \$5.6 billion of injury related spending in public hospitals, 60 per cent (\$3.3 billion) was for admitted patient care services and 27 per cent (\$1.5 billion) was for emergency department services. Spending on outpatient services was \$737 million (13.3%).

Of the estimated \$374 per person spending on injury in 2015-16, about \$290 was spent on hospital services. This was comprised of \$138 for public hospital admitted patients, \$64 on emergency departments, \$58 for private admitted patients, and \$31 for outpatient clinics.

By cause of injury, *Falls* were the highest area of spending in all hospital settings, 51 per cent of injury-related spending on private hospital services, 45 per cent on public hospital admitted care services, 31 per cent on public hospital emergency department services, and 38 per cent on public hospital outpatient services.

Non-hospital medical services

In this report, non-hospital medical services include those services provided by general practitioners, medical specialists, allied health practitioners (such as physiotherapists) and diagnostic services. Expenditure on medical services relates to services that were funded through the Medicare Benefits Schedule (MBS), and does not include privately funded health care.

In 2015-16, 13% of the \$8.9 billion spent on injuries related to non-hospital medical services. About 42 per cent (\$468 million) was on general practitioner services, 38 per cent (\$421 million) on diagnostic imaging services, 11 per cent (\$127 million) on medical specialist services, 6 per cent (\$68 million) on allied health services, and 3 per cent (\$34 million) on pathology services.

On a per person basis, about \$47 of the \$374 total per person injury-related spending was on non-hospital medical services. This was comprised of \$20 for general practitioner services, \$18 for diagnostic imaging services, \$5 for medical specialist services, \$3 on allied health services, and \$1 on pathology services.

Considering cause of injury, injuries related to *Falls* were the highest area of spending in all non-hospital medical service settings. Fall-related injuries accounted for 33 per cent (\$156 million) of the injury spending on general practitioner services, 37 per cent (\$157 million) on diagnostic imaging services, 40 per cent (\$51 million) on medical specialist services, 48 per cent (\$32 million) on allied health services, and 37 per cent (\$9 million) on pathology services.

Pharmaceuticals

In this report, pharmaceutical spending refers to spending on prescription medicines that occurs outside of the hospital setting. This does not include over-the-counter medications such as painkillers.

Injury-related spending on pharmaceuticals was estimated to be \$325 million in 2015-16. Of the estimated \$374 total per person injury-related spending, about 4 per cent (\$14) was spent on pharmaceuticals.

Considering cause of injury, *Falls* were the highest area of spending on pharmaceuticals accounting for 34 per cent of spending.

Dental services

Injury-related spending on dental services was estimated to be \$556 million in 2015-16. Of the estimated \$374 total per person injury-related spending 6 per cent (\$23) was on dental services.

Considering cause of injury, *Falls* were the highest area of spending on dental services. *Falls* accounted for more than a third of injury-related spending on dental services (37.3%).

Injury expenditure in Australia 2015-16

How much is spent on injuries compared to other condition groups?

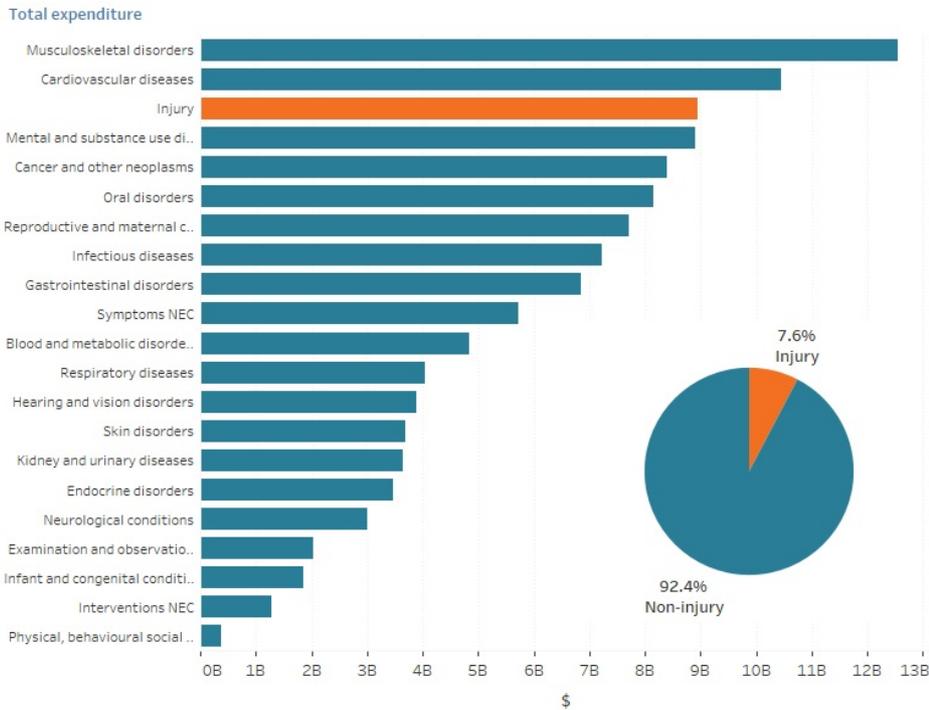
Where is injury expenditure occurring in the health system?

How much is spent on injuries by their nature and cause?

Health Expenditure by Australian Burden of Disease Study (ABDS) condition groups

Explore by type of expenditure
Total expenditure

Burden of Disease Group
Injury
Non-injury



Source: AIHW Disease Expenditure Database

Last updated 5/08/2020 v12.0

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Injury spending by patient characteristics

Patterns of injury expenditure by both nature and cause of injury vary across different population groups including age, sex, geographical location and Indigenous status, due to the likelihood of injury and types of injuries experienced.

Age and sex

The overall spending on injury-related services was slightly higher for males (\$4.3 billion) than females (\$4.1 billion) in 2015-16. There are different profiles in terms of spending on the various service types across age groups. Generally, injury-related spending was higher for males than females in younger age groups and for the older age groups the spending for females was higher than males.

Total spending was highest in the 60-79 years age group for both females (\$1.2 billion, or 28%) and males (\$1.1 billion, or 26%), followed by the 40-59 years age group (\$984 million for males and \$863 million for females).

Per person spending on injuries was higher for males (\$363) than females (\$337). Among males, this increased from \$241 per person in the 0-19 age group up to \$1,347 for males aged 80+. Among females, spending on injuries was \$172 per person in the 0-19 age group, increasing to \$1,559 for those aged 80+.

For females, the 80+ age group had the highest level of spending per person for all service types except diagnostic imaging and specialists. For males, the 25-64 age group had the highest level of spending per person for all service types.

Injuries related to *Falls* was the highest area of injury-related spending, accounting for 41 per cent of total spending. Spending on *Falls* was higher for females (\$2 billion) than males (\$1.5 billion) and this spending is associated with increasing age for both sexes. The highest level of spending was seen in the 80+ age group for females (36%) and 60-79 years for males (33%). For both sexes and all age groups, the highest spending was for public hospital admitted patient services followed by public hospital emergency services. Spending per person on *Falls* for those aged 80+ was \$1,301 for females, and \$944 for males.

Indigenous status

The analysis undertaken for this report allows injury-related spending for Indigenous Australians to be reported for hospital-related services. In 2015-16, injury-related spending in hospitals was \$337 million (4.4%) for Indigenous Australians and \$7.3 billion (95.6%) for non-Indigenous Australians. Considering per person injury-related spending on hospital-related services, Indigenous spending at \$397 per person was higher than non-Indigenous spending at \$292.

There was a difference in the profile of injury-related spending across the difference hospital-related services for Indigenous and non-Indigenous patients. About 65 per cent of spending on hospital-related services for Indigenous patients was for public hospital admitted patient services compared with 55 per cent for non-Indigenous patients. About 2 cent of spending for Indigenous patients was for private hospital services compared with 19 per cent for non-Indigenous patients.

On a per person basis, \$231 was spent on public hospital admitted patient services, \$112 on emergency departments, \$44 on public hospital outpatient clinics, and \$10 on private hospital admitted patient services for Indigenous Australians. For non-Indigenous Australians per person spending is \$135, \$63, \$35, and \$59 respectively.

Overall there was little difference between Indigenous and non-Indigenous Australians in the level of per person spending across different types of injuries, by cause or nature. Non-Indigenous Australians had higher spending on *Falls* (43% compared to 28%), while Indigenous Australians had higher spending on *Other unintentional injuries* (31% compared to 24%).

Geographical location

Injury expenditure in Major cities accounted for the largest share of total allocated expenditure (\$5.3 billion). Regional areas (inner and outer regional) accounted for \$2.4 billion, followed by remote areas (remote and very remote) at \$204 million. On a per person basis however, spending was higher for remote areas, with \$418 spent per person, compared to \$323 in major cities, and \$388 in regional areas.

Differences in per person spending was greatest for admitted patients in public hospitals, where \$238 was spent for patients living in remote areas, and \$122 for patients living in major cities. Other areas of expenditure generally had similar spending per person between major cities and regional areas, while spending on non-hospital medical services was lower in remote areas compared to both major cities and regional areas.

Spending on injuries was highest in New South Wales (30% of total injury spending), Victoria (25%) and Queensland (23%). Per person spending is highest in states with a higher proportion of the population living rurally. Spending was highest in the Northern Territory at \$423 per person, Queensland (\$421) and Western Australia (\$388). This pattern holds for most causes of injury, except falls and pedestrians injured in road traffic accidents.

Injury expenditure in Australia 2015-16

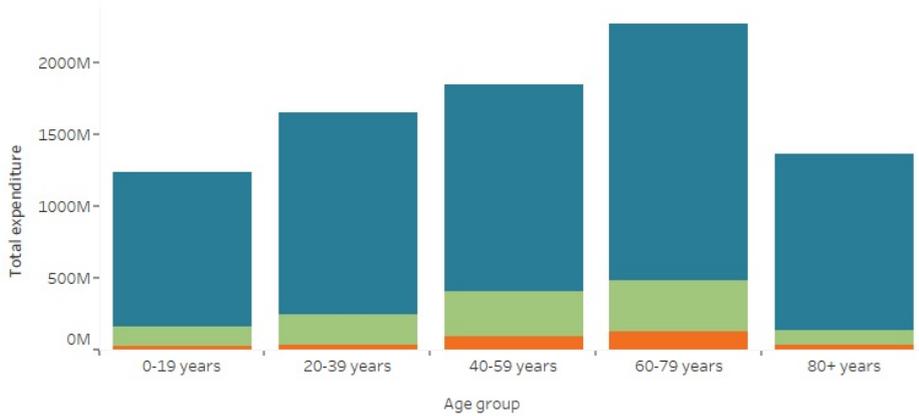
Injury expenditure by patient age group and sex	Injury expenditure by Indigenous status	How does injury expenditure vary by remoteness?	Injury expenditure by state and area of expenditure
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All expenditure by demographics, type of injury and area of expenditure, 2015-16

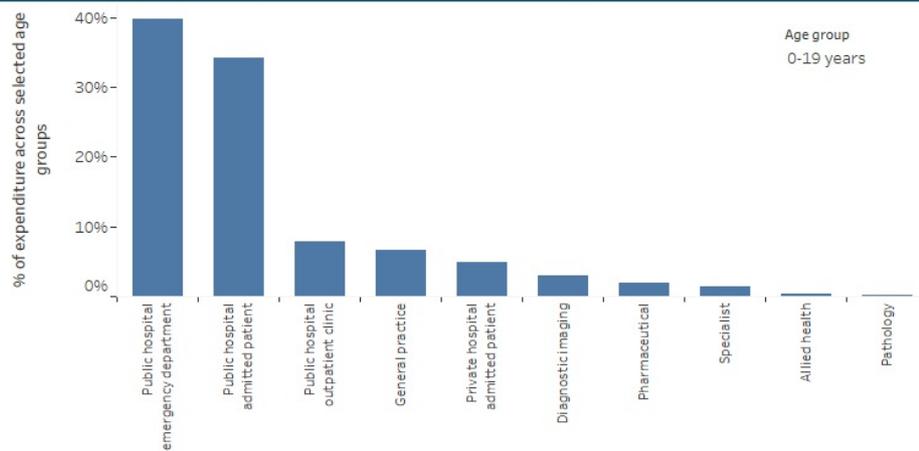
Select from the following

Injury classification Nature of Injury	Explore by cause/nature of injury All injury	Explore by type of expenditure Total expenditure	Explore by sex Total persons	<div style="display: flex; flex-direction: column; gap: 5px;"> <div>■ Hospitals</div> <div>■ Non-hospital medical</div> <div>■ Pharmaceuticals</div> </div>
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To reset 'Explore by cause/nature of injury', select another 'Injury classification'.



Percentages of expenditure across all age groups by age and sex



[Hover for notes]

Last updated 5/08/2020 v9.0

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Data source and injury classification methods

The main source of information for this web report is the AIHW's Disease Expenditure Database. It provides a broad picture of the use of health system resources classified by disease groups and conditions, and is a reference point for planners and researchers interested in costs and use patterns for particular diseases.

Generally, the methods used for estimating disease expenditure is a mixture of 'top-down' and 'bottom-up' approaches, where total expenditure across the health system is estimated and then allocated to the relevant conditions based on the available service use data. An advantage of this approach is that it yields consistency, good coverage and totals that add up to known expenditure but it is not as comprehensive for any specific disease as a detailed 'bottom-up' analysis, which would include the actual costs incurred for that disease. In most cases, however, a lack of amenable data sources means that a more granular 'bottom-up' analysis is not possible.

Data were drawn from the following sources:

- National Hospital Morbidity Database (NHMD),
- National Public Hospitals Establishments Database (NPHEd),
- National Non-admitted Patient Emergency Department Care Database (NNAPEDC),
- National Non-admitted Patient Databases (aggregate, NAPAGG, and unit record, NAPUR),
- National Hospital Costs Data Collection (NHCDC),
- Private Hospital Data Bureau (PHDB) collection,
- Bettering the Evaluation and Care of Health (BEACH) survey,
- Health Expenditure Database.

Injuries are classified by either the cause of injury (such as road traffic accidents), or the nature of injury (such as fractures), consistent with the Australian Burden of Disease Study (ABDS) conditions. The nature of injury classification is intended to identify the type of harm which happened to the patient, whereas the cause of injury best describes the circumstances in which the injury occurred. Both classifications are included in the disease expenditure database, though each episode of care is recorded using only one of the two. The cause of injury is generally only reported in Public Hospital Emergency Departments.

Expenditure is able to be fully reported using both classifications using mapping files. To map between the recorded cause and nature of injury, the injury correspondences used in the ABDS 2015 were applied to the aggregated expenditure data by age and sex. These correspondences are based on epidemiological data, and detail the relationship between each cause of injury and nature of injury allowing for mapping between the two schemas. Total expenditure in this report is consistent across both classifications, whether reported by cause or nature of injury, as data clinically recorded by one has been mapped to the other.

Further information can be found in the [*Australian Burden of Disease Study: methods and supplementary material 2015*](#) report.

Last updated 5/08/2020 v6.0

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References

Australian Institute of Health and Welfare (AIHW) 2019a. Australian Burden of Disease Study: impact and causes of illness and death in Australia 2015. Australian Burden of Disease series no. 19. Cat. no. BOD 22. Canberra: AIHW.

AIHW 2019b. Disease expenditure in Australia. HWE 76. Canberra: AIHW.

Last updated 5/08/2020 v2.0

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Notes

Amendments

30 Jul 2020 - The distribution of dental expenditure across causes of injury has been updated. This affects the dental and total columns by condition in excel tables 3, 5 and 12 (total expenditure and per person), and the tableau visualisation.

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Data

[Data tables: Per person Injury Expenditure Australia 2015-16](#)

Per person Injury Expenditure Australia 2015-16 data tables

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