Disease expenditure in Australia 2019-20

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About

Disease expenditure in Australia 2019-20 analyses Australia's national health spending to provide additional detail about the people receiving care and the conditions and diseases being treated.

2019-20 data is presented using Australian Burden of Disease Study (ABDS) conditions including COVID-19, with spending reported by health care sector, type of condition, age group, and sex. Information is presented on the web pages using interactive visualisations, and a downloadable Microsoft Excel workbook.

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Findings from this report:

- Musculoskeletal disorders are responsible for more health spending than any other group of conditions ($14.6 billion)

- Cardiovascular diseases ($12.7 billion) and cancer and other neoplasms ($12.1 billion) ranked 2nd and 3rd highest

- Mental and substance use disorders overtook injuries in 2019-20 as the 4th highest disease group for spending

- $183 million was spent on COVID-19 with $87 million spent through hospitals and $96 million through pathology testing

Introduction

In this report, data is taken from Australia's national health spending data in order to understand more about the people receiving care and the diseases and conditions being managed. Estimates are presented for the following areas of spending:

- Public hospital admitted patients
- Public hospital emergency departments
- Public hospital outpatients
- Private hospital services
- Primary health care (general practitioner services, allied health and other services, pharmaceutical benefits scheme and dental expenditure)
- Referred medical services (specialist services, pathology and medical imaging).

Estimates of spending on COVID-19 in the hospital setting as well as through Medicare have been included in this report.

All sources of funding, including patient co-payments, are included in spending estimates.

> **Box 1: How do we measure disease costs?**
>
> The cost of disease is not just financial: being unwell or suffering from a health condition has other effects on quality of life, affecting people's ability to work or do the activities they enjoy. The spending estimates do not include direct costs from outside of the health care sector or estimates of the indirect costs due to illness.
>
> How much is financially spent on treating, managing, or preventing conditions can be influenced by a range of factors such as the cost and availability of effective treatments, and disease prevalence. As such, the disease expenditure estimates in this report do not necessarily reflect the incidence or prevalence of those conditions, or the full 'burden', or human cost. The AIHW has produced separate estimates of disease burden in the Australian Burden of Disease Study reports.
>
> It is not feasible (or appropriate) to allocate some forms of health spending to specific diseases. For example, administration expenditure and capital expenditure are generally unable to be attributed to any particular condition. In addition, most community and public health programs, which support the treatment and prevention of many conditions, do not have sufficient data to allocate to conditions. Therefore the disease expenditure estimates in this publication are not directly comparable with estimates published in the AIHW's Health expenditure Australia reports (which cover all health spending). Refer to Figure 1 in the 'Area of spending' section within this report to see how total health spending for 2019-20 as reported in Health expenditure Australia 2020-21 relates to spending reported in Disease expenditure Australia 2019-20. Also refer to Table 2.2 in Disease Expenditure Study: Overview of analysis and methodology 2019-20 for more detailed information on the inclusions and exclusions.
>
> For details on the estimation methods, scope of data included, and comparability to previous studies, readers are directed to Disease Expenditure Study: Overview of analysis and methodology 2019-20.

Health spending in Australia is generally managed through particular funding programs such as the *National Health Reform Agreement* or the Medicare Benefits Schedule (MBS). Often the relationship under these schemes between the spending, the particular diseases or conditions being managed, and the demographic characteristics of the people whose care the spending is for, is complex. It can be difficult, for example, to precisely identify for a hospital stay involving someone suffering from a number of ailments and including a range of procedures and treatments, which expenses were related to which conditions. Health spending is also often associated with the management of symptoms and issues for which there is no specific diagnosis (e.g. someone attending an Emergency Department with abdominal pain for which no specific cause can be identified).

The aim of this report is to use a range of modelling techniques to apportion health spending to population groups based on age, sex, and to disease expenditure groups using the International Statistical Classification of Diseases and Related Health Problems (ICD) and the AIHW's ABDS conditions as far as is possible. Due to data availability, allocated spending is skewed towards activity in hospitals, and estimates should be interpreted with this in mind.

Whilst findings in this report are based on estimates (rather than direct observations) these data provide important insights into the nature and drivers of health spending, such as how an ageing population affects health spending.

The current disease expenditure study largely draws upon previously published methods. The changes that have been made in the 2019-20 study compared with the 2018-19 study are the following:

- In the public hospital setting, care types 7.3 (Unqualified newborns), 9 (posthumous organ procurement) and 10 (hospital boarder) were excluded from the analysis. Similarly, hospitalisations in WA with a contracted patient status of 'Inter-hospital contracted patient to private sector hospital' were excluded to adjust for separations recorded on both sides of contractual care arrangements. These exclusions were made to align with AIHW Australian Hospital Statistics reporting. See 'Changes from 2018-19 study' within Disease Expenditure Study: Overview of analysis and methodology 2019-20 for further details.

- The ABDS disease list is based on the International Statistical Classification of Diseases and Related Health Problems, Eleventh Revision, Australian Modification (ICD-10-AM) whereas the 2018–19 data was based on the Tenth Revision.
- The inpatient fractions (or IFRACs) used to derive the admitted patient share of public hospitals spending was sourced from the Government Health Expenditure National Minimum Data Set (GHE NMDS) supplied to the AIHW by all state and territory health authorities through their annual data submissions. In 2018–19, the National Public Hospitals Establishments Database (NPHED) was used as the data source for the IFRAC but this was not available for 2019-20. For this reason, caution should be applied if comparing the spending for sub-categories of public hospitals spending between 2018–19 and 2019-20 due to the different methodology used.
- Inclusion of COVID–19 as a new infectious disease within the ABDS conditions to capture the estimated spending for patients who were confirmed or suspected COVID–19 positive patients that were treated in either a public hospital emergency department, public hospital admitted patient or in a private hospital. This also includes estimated spending in cases where patients in the hospital setting suspected they had COVID–19 but where testing ruled this out. Pathology testing for COVID-19 claimed through the MBS has also been included. It excludes spending on MBS items where the 'service is provided to a person who is a patient at risk of COVID-19' or where 'the medical practitioner is a health professional at risk of COVID-19 virus'. It also excludes health prevention measures such as the purchasing of personal protective equipment.

Summary

In 2019–20, $140.4 billion (73% of recurrent health spending) could be attributed to specific disease groups.

Key findings in 2019-20

Spending by disease group and specific conditions

- *Musculoskeletal disorders* such as back pain and arthritis are responsible for more health spending than any other group of conditions ($14.6 billion, or 10.4%).
- *Cardiovascular diseases* ($12.7 billion) and c*ancer and other neoplasms* ($12.1 billion) ranked second and third highest for health spending.
- *Mental and substance use disorders* overtook injuries in 2019–20 as the 4th highest disease group for spending ($10.8 billion).
- Over one-third of disease spending was related to *musculoskeletal disorders*, *cardiovascular diseases*, *cancers and other neoplasm*s and *mental and substance use disorders*.
- The two conditions with the highest spending were injuries where the external cause was f*alls* ($4.7 billion) and *dental caries* ($4.5 billion).

Spending by sex and age group

- For females r*eproductive and maternal conditions,* including spending on pregnancy and birth, had the highest spending ($8.6 billion), while for males c*ardiovascular diseases* ranked the highest ($7.2 billion).
- The bulk of spending tends to occur later in life with a peak for both males and females in the age group 70 to 74. While for females spending between the ages of 20 to 45 was substantially higher than males, largely due to spending on r*eproductive and maternal conditions*.

Spending by area of expenditure

- Total spending generally increased with age for the Pharmaceutical Benefits Scheme (PBS), pathology, and medical imaging.
- Public hospital emergency department and allied health spending were relatively steady across age groups.
- For people admitted to public hospitals, *cardiovascular diseases* ($5 billion) accounted for the highest spending followed by *injury* ($4.7 billion) and *gastrointestinal disorders* ($4.2 billion).
- In private hospitals, the disease groups with the highest spending were *musculoskeletal disorders* ($4.9 billion) followed by *cardiovascular diseases* ($2.7 billion) and *cancer and other neoplasms* ($2.6 billion).
- Expenditure on medicines under the PBS was highest for *cancer and other neoplasms ($3.0 billion)*, followed by *musculoskeletal disorders ($2.3 billion)* and *cardiovascular diseases ($2.0 billion)*.

Spending on COVID-19

- An estimated $183 million was spent on COVID–19 in 2019–20 with $85 million spent in public hospitals, $2 million in private hospitals and $96 million through pathology testing. Spending was distributed across all age groups but was highest for both males and females in the 30–39 age groups.
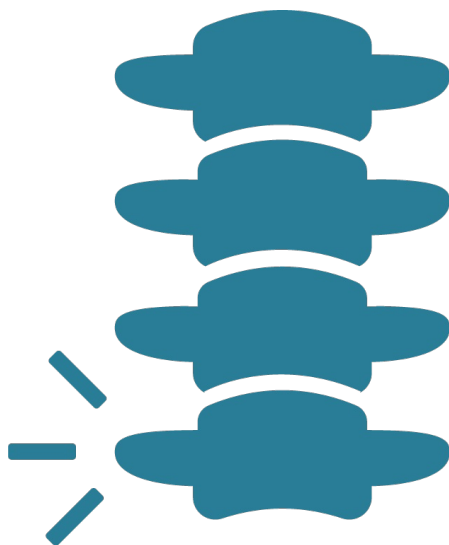
Musculoskeletal disorders had the highest estimated spending ($14.6 billion, or 10.4%).
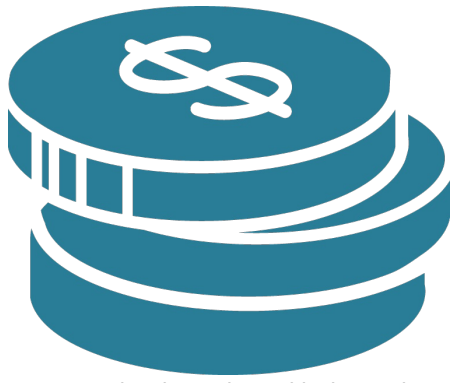
For people admitted to public hospitals, *cardiovascular diseases* accounts for the highest spending, followed by *injury* and *gastrointestinal disorders*

$4.5 billion was spent on *dental caries*

The bulk of spending tends to occur later in life with a peak for both males and females in the age group 70 to 74.

$4.7 billion was spent on *injuries* where the external cause was *falls*

Over one-third of disease spending was related to *musculoskeletal disorders, cardiovascular diseases, cancers and other neoplasms* and *mental and substance use disorders*
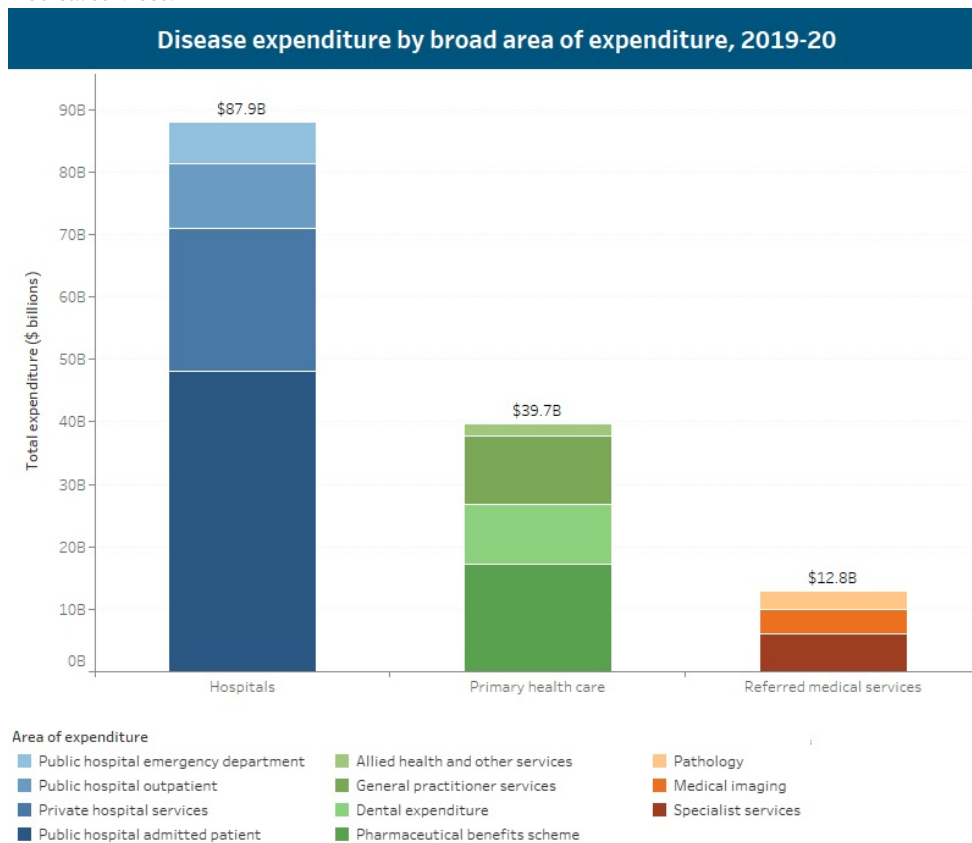
Area of spending

The areas of spending in the disease expenditure analysis include:

- hospital services $87.9 billion (public and private admitted patient services, public hospital emergency departments, and public hospital outpatient clinics)
- primary health care services $39.7 billion (general practitioner services, allied health services, pharmaceuticals and dental)
- referred medical services $12.8 billion (include specialist services, medical imaging, and pathology).

The following interactive data visualisation can be used to display disease spending by area of expenditure. Data used to create the visualisations can also be downloaded as an Excel workbook.

This stacked bar chart shows the estimated health system spending among different areas of expenditure in 2019-20. An estimated $87.9 billion was spent on disease groups within the hospital setting compared to $39.7 billion in primary health care and $12.8 billion for referred medical services.

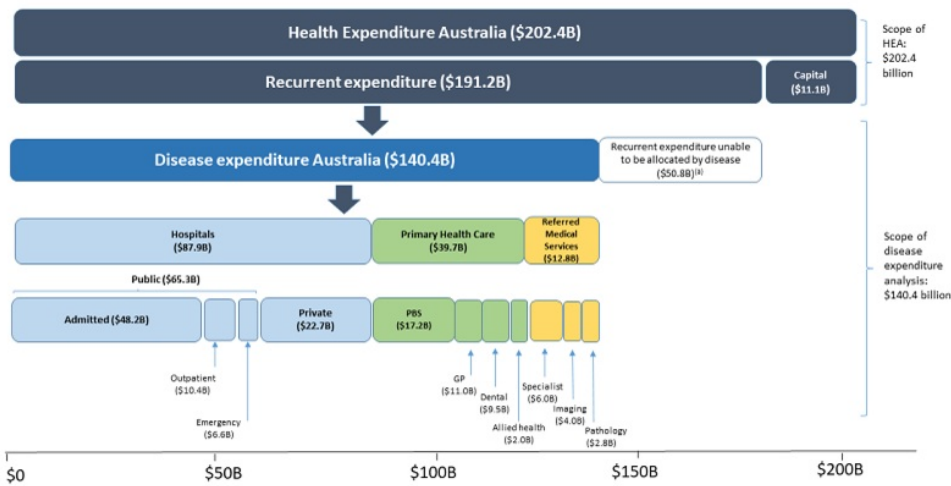Figure 1 below shows how total health spending for 2019–20 as reported in Health expenditure Australia 2020–21 relates to spending reported in Disease expenditure Australia 2019–20.

Figure 1: Areas of health spending included in the disease expenditure study

Note: (a) Recurrent spending unable to be allocated by disease includes for example, administration expenditure, and most community and public health programs. Refer to Table 2.2 in *Disease Expenditure Study: Overview of Analysis and Methodology 2019-20* for further information on the type of expenditure that has not been allocated by disease.

Some components of recurrent spending are allocated differently between the health expenditure Australia database, and the disease expenditure study. This approach was taken to reflect patterns of healthcare use for particular conditions, which is the focus of this body of work, rather than health funding arrangements. For example:

- Public hospitals spending is further reported as emergency department, admitted patient, and outpatient clinic spending in this study.
- This study includes $1.5 billion of highly specialised PBS drugs dispensed in hospitals as PBS spending, while the health expenditure database reports this as hospital spending.
- In this disease expenditure study, $6.4 billion of MBS services provided in hospitals as part of an admission are allocated to public and private hospitals, while the majority of this spending is counted in referred medical services in the health expenditure database.

See visualisation below. For further information, please refer to the Technical notes and the *Disease Expenditure Study: Overview of analysis and methodology 2019-20* report.

This bar chart provides a comparison between expenditure allocated to broad areas of expenditure in the Health expenditure database versus the Disease Expenditure database in 2019-20.

Disease groups could be allocated to Hospitals, Primary health care and Referred medical services.

Disease expenditure and recurrent health expenditure by broad area of expenditure, 2019-20

| | Hospitals | Primary health care | Referred medical services | Other services | Research |

Total expenditure ($ billions)

Hospitals: $84.1B, $87.9B
Primary health care: $65.2B, $39.7B
Referred medical services: $21.1B, $12.8B
Other services: $14.1B, $0.0B
Research: $6.7B, $0.0B
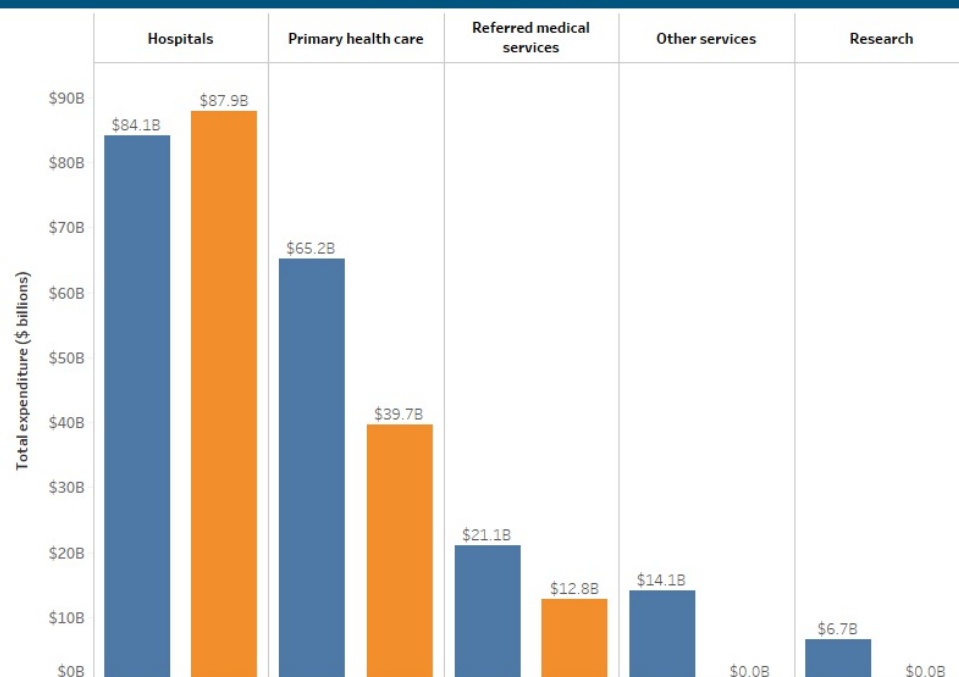
Source
■ Health Expenditure database
■ Disease Expenditure database

Source:
AIHW Disease Expenditure database
AIHW Health Expenditure database
http://www.aihw.gov.au

The following interactive data visualisations can be used to display disease spending by age group, sex and area of expenditure. Data used to create the visualisations can also be downloaded as an Excel workbook.

The first bar chart shows the estimated disease expenditure attributable by sex among different age groups in 2019-20.

The X-axis shows total expenditure and the Y-axis shows age groups ranging from < 1 year to 85 years and over. For total persons, the highest expenditure was found in the 70-74 years old group whereas the lowest was seen in the 5-9 years old group.

The second bar chart displays total disease spending by sex and age group across either broad or detailed area of expenditure.

Disease expenditure by sex and age group, 2019-20

Select level of analysis:
- ○ Total Persons
- ● Sex Breakdown

Total expenditure - males | Total expenditure - females
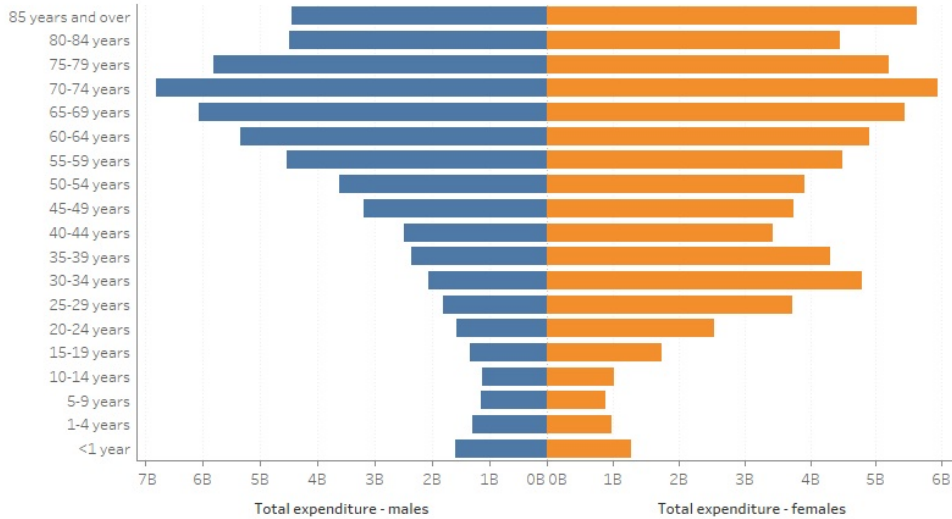
Disease expenditure by sex, age group and area of expenditure, 2019-20

Select Sex or Total Persons:
Total Persons

Explore by broad or detailed area of expenditure:
All areas
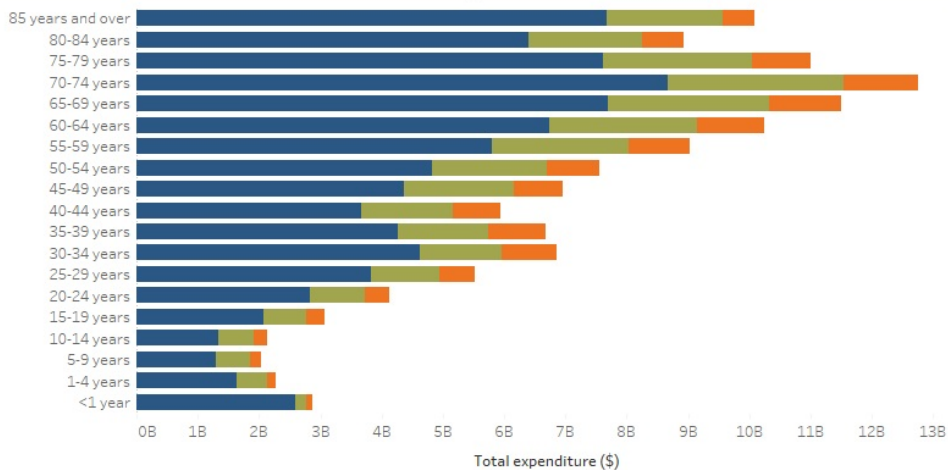
Total expenditure ($)

Notes:
1. Pharmaceutical expenditure includes benefits and patient contributions for over and under-copayment prescriptions
2. Dental expenditure does not contain age or sex disaggregation
Totals refer to recurrent spending attributed to specific diseases and injuries
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

Australian burden of disease groups

The Australian Burden of Disease Study (ABDS) condition list contains over 200 conditions in 17 groups. In this disease hierarchy, each disease is allocated to a disease group. The burden of disease groups contains related diseases or conditions–such as *cardiovascular diseases, gastrointestinal disorders, or injuries*–and one alternative reporting disease group (nature of *injury* instead of *injury* by external cause). These groups are listed in the figures below.

Not all health spending is directly related to a burden of disease condition or group. Some expenditure relates to interactions for purposes such as health maintenance (such as yearly health or dental checks) or investigation of potential health problems, which remain undiagnosed. These services are reported as signs and symptoms, interventions, examination and observation, and physical, behavioural social problems not elsewhere classified.

- The condition groups with the highest spending were *musculoskeletal disorders* followed by *cardiovascular diseases*, and *cancer and other neoplasms*.
- The disease groups with the highest spending for admitted patients in public hospitals were *cardiovascular diseases, injury* and *gastrointestinal disorders*. In private hospitals, these were *musculoskeletal disorders, cardiovascular diseases* and *cancer and other neoplasms*.
- Spending on general practitioner services was highest for *infectious diseases, mental and substance use disorders*, followed by *musculoskeletal disorders and cardiovascular disease*s.
- More than half of spending for allied health and other health practitioners related to *mental and substance use disorders*, with just under a quarter relating to *hearing and vision disorders*.
- There was a 10% increase in estimated spending for the *infectious diseases* group since 2018–19. This may partly be due to the spending on COVID–19, a new condition within the *infectious diseases* group. Refer to the COVID–19 section within this web report for further information.

The following interactive data visualisation can be used to display health spending for each disease group by area of expenditure. Data used to create the visualisations can also be downloaded as an Excel workbook.

This horizontal bar chart explores spending on different burden of disease groups by broad and detailed area of expenditure in 2019-20. Groups are listed in descending order of spending. Musculoskeletal disorders ranked first for hospitals and referred medical services, while oral disorders rankest first for primary health care. For specialist services cancer and other neoplams had the highest spending. Infectious diseases was the main reason people visited the GP in 2019-20.

Expenditure by Burden of Disease groups and area of expenditure, 2019-20

Expenditure by broad area of expenditure	Expenditure in Hospitals	Expenditure in Primary health care	Expenditure in Referred medical services

Select broad area of expenditure:
All areas

Burden of Disease group

Musculoskeletal disorders	Oral disorders	Endocrine disorders
Cardiovascular diseases	Symptoms NEC	Infant and congenital conditions
Cancer and other neoplasms	Blood and metabolic disorders	Examination and observation NEC
Mental and substance use disord..	Skin disorders	Interventions NEC
Injury (nature)	Respiratory diseases	Physical, behavioural social probl..
Reproductive and maternal condi..	Neurological conditions	
Gastrointestinal disorders	Hearing and vision disorders	
Infectious diseases	Kidney and urinary diseases	

NEC: Not elsewhere classified
Notes:
1. Pharmaceutical expenditure includes benefits and patient contributions for over and under-copayment prescriptions.
2. The Injuries Burden of Disease group can be disaggregated according to the cause of injury, or nature of injury, the latter of which is reported here.
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

The proportion of total spending related to condition groups varies substantially according to age group, sex, and area of expenditure.

- Within the *infectious diseases* group, spending was highest within the 1–4 and 85+ age groups.
- While spending on *mental and substance use disorders* peaked in the 35–39 age group with similar spending for males and females, spending was high for all age groups between 20 and 49.
- Spending on chronic conditions such as *cancer and other neoplasms* and *cardiovascular diseases* was highest for age groups from around age 55 onwards for males and females.

The following interactive data visualisation can be used to display spending on disease groups by age group and sex, for each area of expenditure. Data can be displayed as total expenditure or as a proportion of total expenditure. Data used to create the visualisations can also be downloaded as an Excel workbook.

This stacked vertical bar chart looks at the estimated spending in 2019-20 by sex and age group for each area of expenditure broken down by disease group. Overall, expenditure increases with age. Injury and Infectious diseases were the major contributors to Public hospital emergency admissions for all age groups. For females, over $1 billion was spent on admitted patients in public hospitals for Reproductive and maternal conditions. For males, the leading cause for being admitted in Public hospitals was due to Cardiovascular diseases.

Disease expenditure by detailed area of expenditure, sex, age group and disease group, 2019-20

Select detailed area of expenditure:
All areas

Select Sex or Total Persons:
Total Persons

Select level of analysis:
- ● Total Expenditure
- ○ Proportion of Expenditure
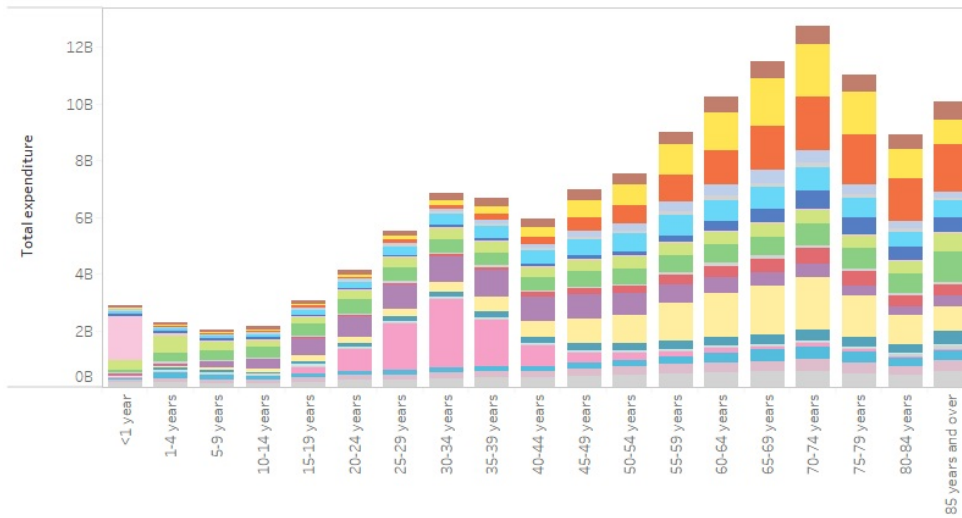
Burden of Disease group

- Blood and metabolic disorders
- Cancer and other neoplasms
- Cardiovascular diseases
- Endocrine disorders
- Examination and observation NEC
- Gastrointestinal disorders
- Hearing and vision disorders
- Infant and congenital conditions
- Infectious diseases
- Injury (nature)
- Interventions NEC
- Kidney and urinary diseases
- Mental and substance use disorders
- Musculoskeletal disorders
- Neurological conditions
- Oral disorders
- Physical, behavioural social problems ..
- Reproductive and maternal conditions
- Respiratory diseases
- Skin disorders
- Symptoms NEC

Notes:
1. Pharmaceutical expenditure includes benefits and patient contributions for over and under-copayment prescriptions
2. Dental expenditure does not contain age or sex disaggregation
3. The Injuries Burden of Disease group can be disaggregated according to the cause of injury, or nature of injury, the latter of which is reported here.
Totals refer to recurrent spending attributed to specific diseases and injuries
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

This butterfly chart shows expenditure by Burden of Disease group by sex and age group for 2019-20. For both males and females, expenditure for disease groups increases with age. However, for the infectious diseases group the expenditure is the highest amongst the 1-4 year age group and the 85 years and over age group.

Expenditure by Burden of Disease group by sex and age group, 2019-20

Select Burden of Disease group:
Infectious diseases

Age group	Females	Males
85 years and over	$428,011K	$297,506K
80-84 years	$248,705K	$227,598K
75-79 years	$243,887K	$248,065K
70-74 years	$249,601K	$268,883K
65-69 years	$226,373K	$247,540K
60-64 years	$224,523K	$258,005K
55-59 years	$207,492K	$243,831K
50-54 years	$190,390K	$236,587K
45-49 years	$184,691K	$222,961K
40-44 years	$176,888K	$208,301K
35-39 years	$190,073K	$205,251K
30-34 years	$200,066K	$198,973K
25-29 years	$179,923K	$169,186K
20-24 years	$168,481K	$139,341K
15-19 years	$122,835K	$93,901K
10-14 years	$111,782K	$109,898K
5-9 years	$149,300K	$160,982K
1-4 years	$280,072K	$334,995K
<1 year	$150,990K	$207,478K

NEC: Not elsewhere classified
Notes:
1. The Injuries Burden of Disease group can be disaggregated according to the cause of injury, or nature of injury, the latter of which is reported here.
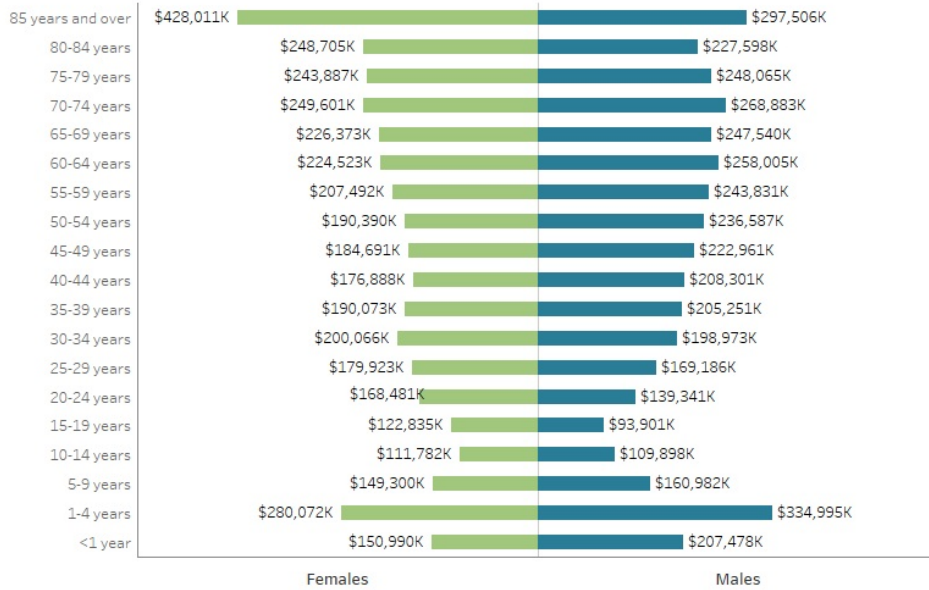Totals refer to recurrent spending attributed to specific diseases and injuries
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

Australian burden of disease conditions

The Burden of Disease conditions list contains over 200 conditions in 17 groups. Refer to Table 7 in the Excel Workbook for a mapping of all of the ABDS conditions to the 17 disease groups. Some of these conditions such as *cardiovascular disease, falls* and *dental caries* can be considered largely preventable, while other conditions aren't preventable such as many types of *cancers* e.g. *breast cancer, brain cancer, prostate cancer*. This is not an exhaustive list of all possible health conditions and, as such, the spending associated with 'other' conditions within a group is relatively large. For example, spending on o*ther maternal conditions* includes costs related to healthy childbirth, which is not a health condition in the Burden of Disease list. Injury spending can be viewed in two ways, by the nature of injury (such as fractures) and the cause of *injury* (such as road traffic crashes).

- The spending associated with 'other' conditions within a disease group was the highest for o*ther cardiovascular, other musculoskeletal*, and o*ther blood and metabolic disorders* (excludes 'not elsewhere classified' groupings).
- The specific conditions with the highest spending were *falls, dental caries, and osteoarthritis* (excludes all 'other' conditions within groups).
- Of the estimated $140.4 billion of health spending included in this study, $183 million could be allocated by age group and sex to the treatment and management of COVID-19 within the hospital setting or pathology testing specifically for COVID-19. Refer to the COVID-19 section within this web report for further information on COVID-19 spending.

The following interactive data visualisation can be used to display spending on conditions within disease groups for each area of expenditure. Data used to create the visualisations can also be downloaded as an Excel workbook.

This visualisation shows expenditure at a more granular level, showing spending by area of expenditure for conditions that are part of each burden of disease group.

Injuries where the external cause was *Falls* were responsible for the highest spending amongst all specific conditions ($4.7 billion).

Considering Cancer and other neoplasms as a group, *Non-melanoma skin cancer* was the condition with the highest spending in referred medical service settings.

Expenditure on Burden of Disease conditions by area of expenditure, 2019-20

Expenditure by broad area of expenditure	Expenditure in Hospitals	Expenditure in Primary health care	Expenditure in Referred medical services

Select Burden of Disease group:
Cardiovascular diseases

Select broad area of expenditure:
All areas

NEC: Not elsewhere classified
Notes:
1. Pharmaceutical expenditure includes benefits and patient contributions for over and under-copayment prescriptions
2. Dental expenditure does not contain age or sex disaggregation
3. Lower respiratory infections includes influenza and pneumonia
Totals refer to recurrent spending attributed to specific diseases and injuries
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

Spending on conditions varies by sex

- For females, spending was highest on *other maternal conditions, other cardiovascular diseases,* and *other musculoskeletal conditions.* For specific conditions, the highest were *falls, osteoarthritis,* and *back pain and problems.*
- For males, spending was highest on *other cardiovascular diseases, other musculoskeletal conditions,* and *other injuries.* For specific conditions, the highest were injuries caused by *falls, coronary heart disea*se, and *osteoarthritis.*

Dental expenditure is not currently able to be reported by age and sex, except when provided through the MBS or as part of a public or private hospital admission. This ranking of conditions for sexes therefore excludes the bulk of dental expenditure.
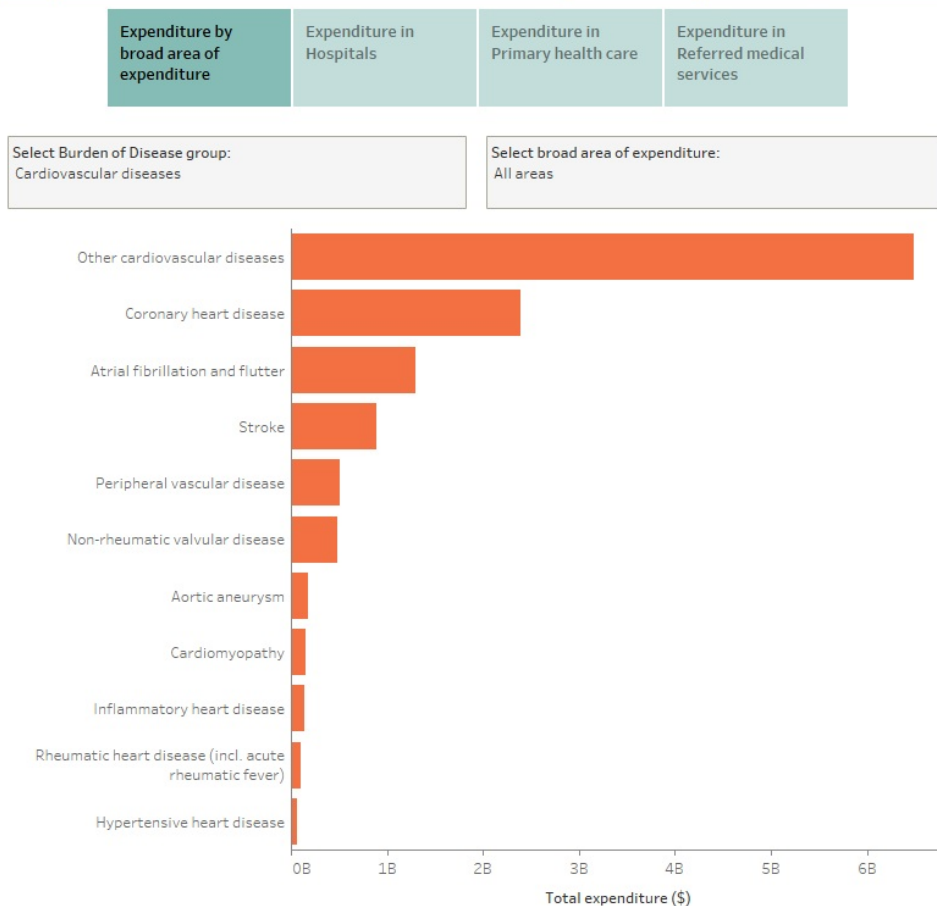
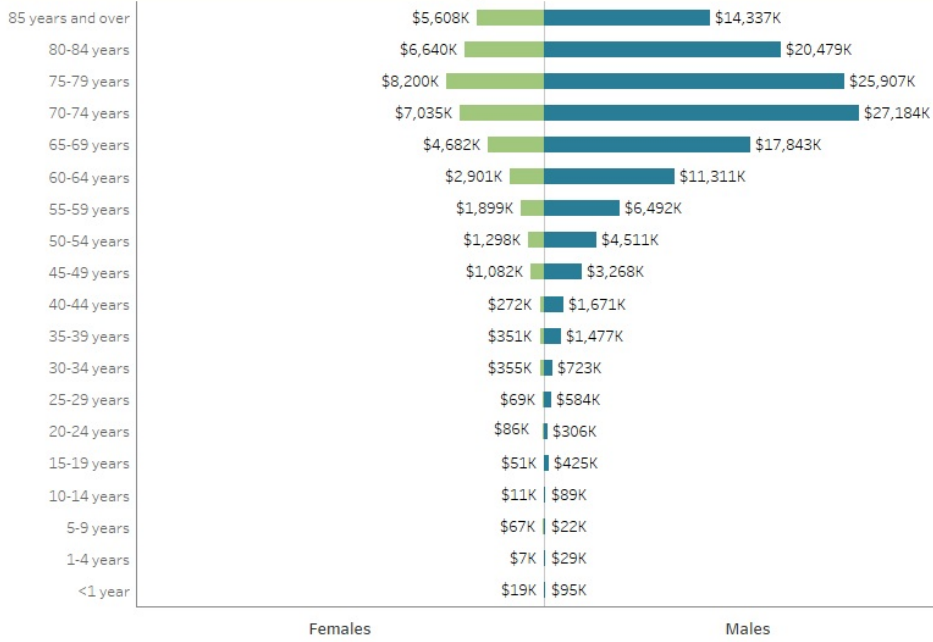The following interactive data visualisation can be used to display spending on a condition within a disease group by age group and sex. Data used to create the visualisation can also be downloaded as an Excel workbook.

> This butterfly bar chart shows spending for conditions within each Burden of Disease group by sex and age group in 2019-20.
> Estimated spending on osteoarthritis was close to $4 billion in 2019-20.

Expenditure on Burden of Disease condition by sex and age group, 2019-20

Select Burden of Disease group:	Select condition within Burden of Disease group:
Cardiovascular diseases	Aortic aneurysm

Age group	Females	Males
85 years and over	$5,608K	$14,337K
80-84 years	$6,640K	$20,479K
75-79 years	$8,200K	$25,907K
70-74 years	$7,035K	$27,184K
65-69 years	$4,682K	$17,843K
60-64 years	$2,901K	$11,311K
55-59 years	$1,899K	$6,492K
50-54 years	$1,298K	$4,511K
45-49 years	$1,082K	$3,268K
40-44 years	$272K	$1,671K
35-39 years	$351K	$1,477K
30-34 years	$355K	$723K
25-29 years	$69K	$584K
20-24 years	$86K	$306K
15-19 years	$51K	$425K
10-14 years	$11K	$89K
5-9 years	$67K	$22K
1-4 years	$7K	$29K
<1 year	$19K	$95K

NEC: Not elsewhere classified
Notes:
1. Lower respiratory infections includes influenza and pneumonia
Totals refer to recurrent spending attributed to specific diseases and injuries
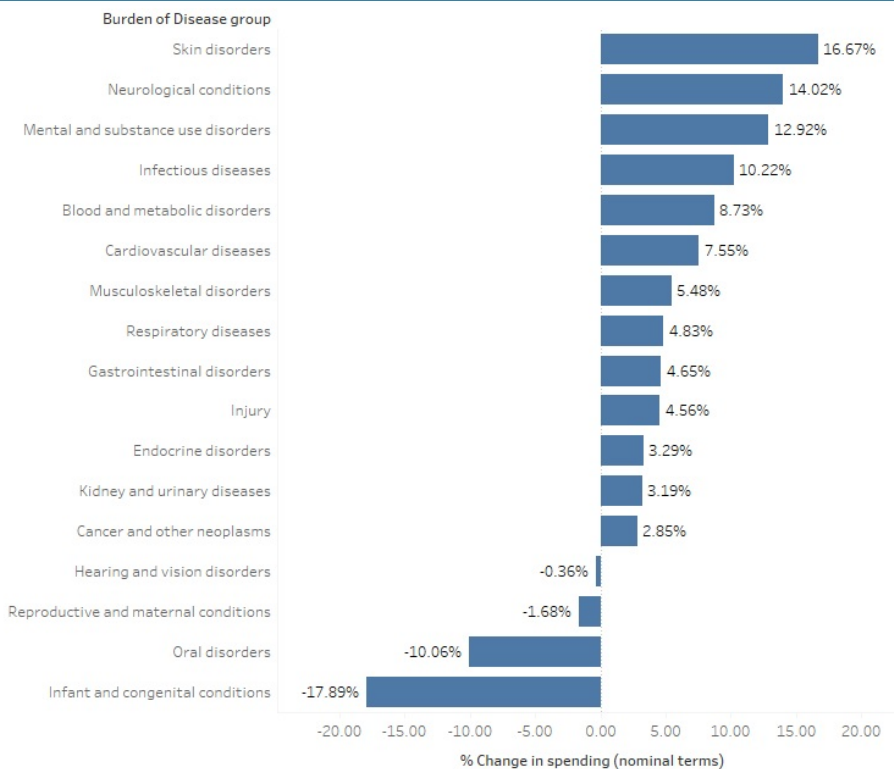*Source:* AIHW Disease Expenditure database
http://www.aihw.gov.au

Comparison with 2018-19

Estimated spending by disease increased by $6.5 billion (in current prices) to $140.4 billion in 2019–20, up from
$134.0 billion in 2018-19. This was an overall growth of 4.8% in nominal terms (current prices). This compares to a nominal growth of 3.7% in
total health spending in 2019–20 reported in *Health expenditure Australia 2020-21*. As the disease expenditure study allocates around 73%
of recurrent health spending to disease groups, the growth in spending on those areas of expenditure that are excluded from the disease
expenditure study such as public health, community health, health administration, health research and capital expenditure may have
contributed to the lower overall growth in total health spending.

The following visualisation shows the growth in spending in nominal terms between 2018–19 and 2019–20 for each disease group. Data used
to create the visualisation can also be downloaded as an Excel workbook.

This bar chart shows the change in spending by Burden of Disease group from 2018-19 to 2019-20 in nominal terms where prices are
unadjusted for inflation. The biggest increase in spending was for Skin disorders (16.67%), followed by Neurological conditions (14.02%) and
Mental and substance use disorders (12.92%). There was a decline in growth for infant and congenital conditions (-17.89%), oral disorders
(-10.06%) and reproductive and maternal conditions (-1.68%) in 2019-20.

Change in spending by Burden of Disease group from 2018-19 to 2019-20, nominal terms

Burden of Disease group	% Change in spending (nominal terms)
Skin disorders	16.67%
Neurological conditions	14.02%
Mental and substance use disorders	12.92%
Infectious diseases	10.22%
Blood and metabolic disorders	8.73%
Cardiovascular diseases	7.55%
Musculoskeletal disorders	5.48%
Respiratory diseases	4.83%
Gastrointestinal disorders	4.65%
Injury	4.56%
Endocrine disorders	3.29%
Kidney and urinary diseases	3.19%
Cancer and other neoplasms	2.85%
Hearing and vision disorders	-0.36%
Reproductive and maternal conditions	-1.68%
Oral disorders	-10.06%
Infant and congenital conditions	-17.89%

Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

The following visualisation shows the growth in spending in nominal terms between 2018–19 and 2019–20 for each disease group by sex and
age group. Data used to create the visualisation can also be downloaded as an Excel workbook.

This bar chart shows the change in spending between 2018-19 and 2019-20 by sex, age group and disease group. The trends in the change in
spending vary across sex, age group, and disease group. For many Burden of Disease groups, the biggest increase in spending was often
amongst those aged 85 years and over.

Change in spending between 2018-19 and 2019-20 by sex, age group and disease group

Select Burden of Disease group:
Cardiovascular diseases

Select sex:
Males

% Change in spending (nominal terms)

Age group	% Change
<1 year	-2.07%
1-4 years	4.04%
5-9 years	0.34%
10-14 years	-0.44%
15-19 years	0.18%
20-24 years	7.26%
25-29 years	5.94%
30-34 years	10.25%
35-39 years	2.96%
40-44 years	3.11%
45-49 years	5.26%
50-54 years	6.90%
55-59 years	3.75%
60-64 years	4.24%
65-69 years	6.23%
70-74 years	9.25%
75-79 years	10.36%
80-84 years	10.29%
85 years and over	13.31%

Sex
■ Males

Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

In 2019–20:

- *Musculoskeletal disorders* continued to rank the highest disease group for health spending followed by *cardiovascular diseases* and *cancers and other neoplasms*
- *Mental and substance use disorders* surpassed injuries to rank 4th highest for health spending
- *Gastrointestinal disorders* and *infectious diseases* also both moved up one place in the rankings to 7th and 8th highest disease group respectively for health spending
- *Oral disorders* dropped two places from 7th in 2018–19 to 9th in 2019–20 for health spending.

The following interactive data visualisation shows the change in rank in terms of spending, for each disease group between 2018–19 and 2019–20. Data used to create the visualisation can also be downloaded as an Excel workbook.
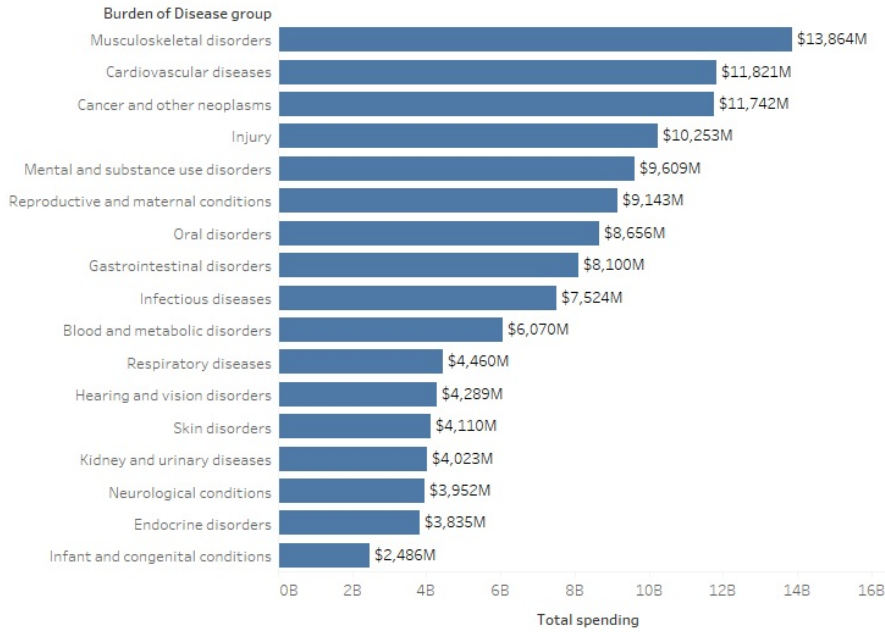
This bar chart shows the estimated expenditure for each disease group in descending order for 2018-19 and for 2019-20. It shows that in both years, the three disease groups with the highest spending were musculoskeletal disorders, cardiovascular diseases and cancer and other neoplasms. In 2019-20, mental and substance use disorders overtook injuries as the fourth leading disease group in terms of spending.

Ranking for Disease groups in 2019-20 compared to 2018-19

Select year:
- ○ 2018-19
- ○ 2019-20

Burden of Disease group

Disease group	Total spending
Musculoskeletal disorders	$13,864M
Cardiovascular diseases	$11,821M
Cancer and other neoplasms	$11,742M
Injury	$10,253M
Mental and substance use disorders	$9,609M
Reproductive and maternal conditions	$9,143M
Oral disorders	$8,656M
Gastrointestinal disorders	$8,100M
Infectious diseases	$7,524M
Blood and metabolic disorders	$6,070M
Respiratory diseases	$4,460M
Hearing and vision disorders	$4,289M
Skin disorders	$4,110M
Kidney and urinary diseases	$4,023M
Neurological conditions	$3,952M
Endocrine disorders	$3,835M
Infant and congenital conditions	$2,486M

Total spending

Year
■ 2018-19

COVID-19

The Coronavirus disease 2019 (COVID-19) pandemic has been one of the biggest public health challenges Australia has faced since the Influenza pandemic of 1918 around 100 years ago. COVID-19 has been included as a new infectious disease within the ABDS conditions and in this study it captures the estimated spending that can be identified by age group and sex for patients who were confirmed or suspected COVID-19 positive patients that were treated in either a public hospital emergency department, public hospital admitted patient or in a private hospital. It also includes the estimated spending in cases where patients suspected they had COVID-19 but where testing ruled this out. Pathology testing for COVID-19 claimed through the MBS has also been included. It excludes spending on MBS items where the 'service is provided to a person who is a patient at risk of COVID-19 or where the medical practitioner is a health professional at risk of COVID-19 virus. It also excludes COVID-19 related public health program expenditure.

In 2019-20, an estimated $183 million was spent on COVID-19 to treat patients admitted to public hospitals, treated in public hospital emergency departments, private hospitals and pathology testing for COVID-19. Spending for COVID-19 was distributed across all age groups but was highest for both males and females in the 30–39 age groups.

The following interactive data visualisation can be used to see spending on COVID-19 by sex, age group and area of expenditure. Data used to create the visualisation can also be downloaded as an Excel workbook.

This visualisation looks at COVID-19 spending by area of expenditure, sex and age group in 2019-20. Adults aged 35-39 years had the highest expenditure due to COVID-19.

COVID-19 spending by detailed area of expenditure, sex and age group, 2019-20

Select sex:
Total Persons
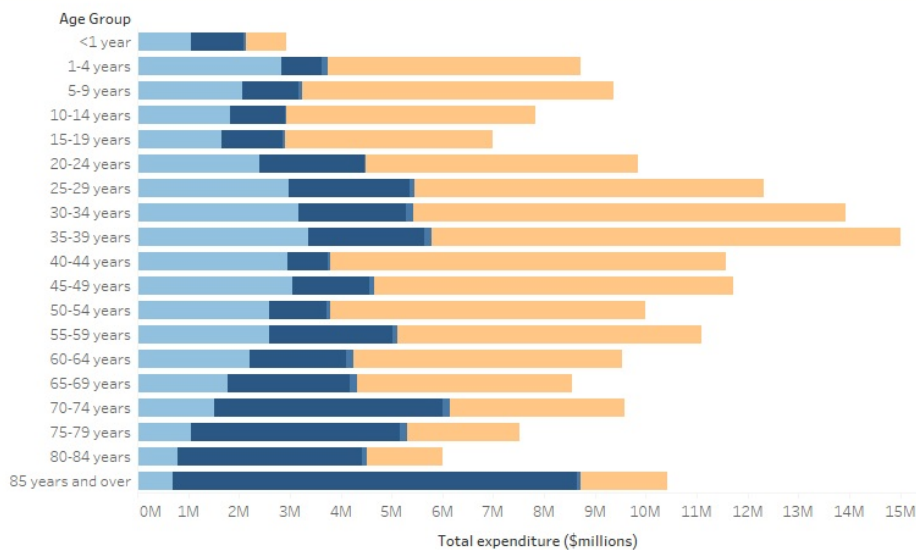
Source: AIHW Disease Expenditure database
http://www.aihw.gov.au

The costs identified as COVID-19 in the disease expenditure database are part of a wider set of COVID-19 payments many of which are unable to be identified by age group and sex at this point in time. These payments include:

- Australian Government payments to the state and territory health authorities under the National Partnership on COVID-19 Response (NPCR)
- Australian Government Department of Health and Aged Care payments related to COVID-19 that are outside of the NPCR including programs for private hospitals, medical services, community health, pharmaceuticals, public health, administration, health research, health workforce, capital and aged care
- State and territory government health authority payments under the NPCR

- Estimated costs for out-of-pocket payments for respirators, face masks and shields.

The Health expenditure article within the report *Australia's Health 2022* presents the costs from both the Australian and state and territory governments in response to COVID-19. In 2019–20, spending on the National Partnership on COVID-19 Response (NPCR) was estimated to be $4.5 billion in current prices ($2.5 billion by the Australian Government and $2.0 billion by state and territory governments) the majority of which is for public health expenditure which is excluded from this report.

Next year the AIHW plans to release a report looking in further detail at the health and aged care spending related to COVID-19 including international comparisons and key health outcomes from the pandemic to date. This report will look at both the direct and indirect COVID-19 spending related to health and aged care, including spending from the Australian Government, state and territory governments and the private sector.

Technical notes

The main source of information for this web report is the AIHW's Disease expenditure database. It contains estimates of spending by Australian Burden of Disease Study condition, age group, and sex for hospital services (including public hospital admitted patients, public hospital emergency departments, public hospital outpatient services and private hospital admitted patients), primary health care (including general practitioner services, allied health services, benefit paid pharmaceuticals and dental services) and referred medical services (including specialist services, medical imaging and pathology).

The methods used for estimating disease spending is a mixture of 'top-down' and 'bottom-up' approaches, where total spending across the health system is estimated and then allocated to the relevant conditions based on the available service use data.

Although this approach produces consistency, good coverage and totals that add up to known expenditure, 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. A lack of amenable data sources means that a more granular 'bottom-up' analysis is not possible.

Estimates in the Disease Expenditure Database have been derived by combining information from the:

- 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
- Medicare Benefits Schedule (MBS)
- Pharmaceutical Benefits Scheme (PBS)
- Health Expenditure Database.

It is not technically appropriate or feasible to allocate all spending on health goods and services by disease. For example, neither administration expenditure nor capital expenditure can be meaningfully attributed to any particular condition due to their nature.

This study includes payments from all sources of funds, such as the Australian and State and Territory Governments, Private Health Insurance, and out of pocket payments by patients.

Some components of recurrent expenditure are allocated differently between the AIHW Health expenditure Australia database, and the disease expenditure study. This approach was taken to reflect patterns of healthcare use for particular conditions, which is the focus of this body of work, rather than health funding arrangements. Spending estimates in hospitals are slightly higher than in the Health Expenditure Database. This is discussed further in the accompanying methodology report.

Expenditure information is added to hospital activity data for every admitted patient record in the NHMD, all emergency department presentations in the NNAPEDC, and all service events in the National Non-admitted Patient Databases. Data sets have been constructed for all private hospital admitted patient separations. Aggregated data sets by sex, age group, state/territory and SA3 geographical area, including patient co-payments, have been created for MBS services by provider specialty and subgroup, and pharmaceuticals by Anatomical Therapeutic Classification (ATC). All of the data sets include expenditure estimates for each ABDS condition.

The AIHW continually seeks to improve the methods used to produce these estimates. Estimates for disease expenditure are subject to revision. Hence the most recently published results are not directly comparable with previously published data. The AIHW is working towards developing a comparable time series of disease expenditure data to be published next year.

Data

Australian Government
Australian Institute of Health and Welfare

Report editions

This release

Disease expenditure in Australia 2019–20 | 02 Dec 2022

Previous releases

- Disease expenditure in Australia 2018-19 |
  Web report | 25 Aug 2021
- Disease expenditure in Australia 2015-16 |
  Web report | 13 Jun 2019

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