Evidence base for additional investment in rural health in Australia

National Rural Health Alliance

23 June 2023

nous

Nous Group acknowledges Aboriginal and Torres Strait Islander peoples as the First Australians and the Traditional Custodians of country throughout Australia. We pay our respect to Elders past, present and emerging, who maintain their culture, country and spiritual connection to the land, sea and community.

This artwork was developed by Marcus Lee Design to reflect Nous Group's Reconciliation Action Plan and our aspirations for respectful and productive engagement with Aboriginal and Torres Strait Islander peoples and communities.

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Contents

1 Overview

This report presents estimates of the expenditure and usage patterns in the Australian healthcare system based on geographical remoteness, exploring health expenditure from a patient-centred perspective. It demonstrates the shortfall in health expenditure across hospital, community, aged care, the disability sector, and ancillary care in Australia's regional and remote communities. The National Rural Health Alliance commissioned this report to better understand current healthcare expenditure and to inform discussions on the health needs of rural Australia.

The disparity in health expenditure between metropolitan and rural, regional, and remote Australia (referred to in the remainder of the report as "rural Australia" unless otherwise stated) is difficult to measure due to the complex public-private health system in Australia. Health funding primarily comes from federal and state/territory governments, as well as private health insurers and individuals. In Major Cities and Inner Regional areas, health services are mainly supported through activity-based funding and fee-for-service funding, while block funding is common in remote areas. This makes it challenging to get a clear picture of the disparity in health expenditure between metropolitan and rural Australia. This report focuses on service delivery expenditure and how that varies across different regions. The expenditure does not cover all government expenditure on the service delivery sectors covered, including programs aiming to support improved heath workforce and infrastructure in urban and rural areas. Assessing the distribution of this expenditure would have required a different methodology and significant additional analysis and was not within the scope of the work.

Nous' analysis evaluates both publicly available and privately sourced data sets, including the Australian Institute of Health and Welfare (AIHW), Australian Bureau of Statistics (ABS), National Disability Insurance Scheme (NDIS), Medicare benefits scheme (MBS), pharmaceutical benefits scheme (PBS) and census data, working to align them to demonstrate the component parts of the rural health spend. Few data sources broke down expenditure by geographical remoteness, necessitating modelling to estimate these expenditure figures. This analysis was then contextualised through a series of structured interviews with key stakeholders in rural health delivery to provide a representative current state report.

Available data sets each used one of Australian Geography Standard Remoteness Area (RA) or Modified Monash Model (MMM) scales. Unless otherwise stated, we will use the terms "urban" for RA 1/MMM 1, "regional and rural" for RA 2-3/MMM 2-5, "remote" for RA 4-5/MMM 6-7 and "rural Australia" or "non-urban" to summarise non-urban expenditure (see glossary overleaf).

This report demonstrates a clear healthcare disparity between rural and urban Australia: rural Australians have a poorer health status, and even before accounting for the increased cost of health service, receive significantly less funding per capita than their urban counterparts.

Further action to address these inequities would improve both social justice and economic prosperity. Rural industries such as farming, mining, and tourism make up disproportionately large (compared to population share) portion of Australia's economic output. Poor health service access is a disincentive to live in rural areas and poorer health outcomes limit the potential of rural industries by reducing the workforce's efficiency through increased absenteeism and decreased productivity.

To effectively address this inequity in healthcare and health outcomes, the specific barriers to delivery and the shortcomings of the current approach need to be acknowledged. Current funding models and service delivery arrangements create significant barriers to workforce recruitment and retention, further exacerbating the funding shortfall. This issue is particularly evident in market-based programs like MBS and NDIS, where expenditure is directly dependent on practitioner availability to provide services. To truly make a difference for rural Australia's health, we need to take a comprehensive approach that considers

the challenges faced by these communities. This includes addressing both workforce shortages and funding shortfalls.

This analysis shows the need for greater and more strategic investment in the health of rural Australians. There is clear evidence that per-person spending on healthcare is not equitable, and that this inequity is contributing to poorer health outcomes experienced in rural areas.

2 Glossary

Acronyms used in this report

Acronym	Description
ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
CSIRO	Commonwealth Scientific and Industrial Research Organisation
COPD	Chronic Obstructive Pulmonary Disease
GP	General Practitioner
NDIS	National Disability Insurance Scheme
MBS	Medicare Benefits Scheme
MMM	Modified Monash Model
PBS	Pharmaceutical Benefits Scheme
PHN	Primary Health Network
RA	Remoteness Area
RFDS	Royal Flying Doctor Service
SPOT	Strategic Planning Online Tool

Geographic classifications used in this report

Classification	Remoteness	Terminology
Modified Monash Model	MMM 1	Metropolitan areas
	MMM 2	Regional centres
	MMM 3	Large rural towns
	MMM 4	Medium rural towns
	MMM 5	Small rural towns
	MMM 6	Remote communities
	MMM 7	Very remote communities
ASGS remoteness areas	RA 1	Major Cities
	RA 2	Inner Regional
	RA 3	Outer Regional
	RA 4	Remote
	RA 5	Very Remote

Classification	Remoteness	Terminology
Summary terms	MMM 1 / RA 1	Urban
	MMM 2 – 5 / RA 2 – 3	Regional and rural
	MMM 6 – 7 / RA 4 – 5	Remote
	MMM 2 – 7 / RA 2 – 5	Rural Australia; Non-urban

3 Executive summary of findings

In the financial year FY2020-21, the health-spend shortfall between urban and rural citizens was $6.55 billion, or $848.02 per capita, per year (age standardised; Figure 1).

Figure 1 | Summary of expenditure gap between urban and non-urban populations

This figure draws on analysis of privately sourced and publicly available government and private expenditure data across hospitals, the MBS, Pharmaceutical Benefits Scheme (PBS), NDIS, aged care, dentistry, Aboriginal and Torres Strait Islander healthcare, Primary Health Networks (PHNs), and the Royal Flying Doctor Service. A summary of expenditure across these domains is presented in Table 1.

Table 1 | Per capita expenditure on healthcare across urban and rural areas, FY2020-21

Domain	Urban expenditure MMM 1	Regional and rural expenditure MMM 2 – 5	Remote expenditure MMM 6 – 7	Rural Australia expenditure MMM 2 – 7
Public hospitals	**2,856.77**	2,508.31	3,085.06	**2,545.41**
Private hospitals	**787.95**	526.59	388.68	**517.93**
MBS	**1,011.14**	814.57	519.20	**795.11**
PBS	**515.60**	522.27	304.51	**507.99**
NDIS	**508.55**	527.84	335.56	**513.44**
Aged care	**839.57**	911.42	553.03	**885.39**
Dentistry	**489.61**	318.16	312.76	**317.78**
Aboriginal and Torres Strait Islander healthcare	**10.04**	46.29	545.37	**82.55**
Primary Health Networks	**45.37**	75.35	156.93	**81.28**
Royal Flying Doctor Service	-	0.95	109.42	**8.83**
Funding per capita ($, age standardised)	**7,103.72**	6,251.77	6,310.52	**6,255.71**
Difference compared to urban ($)		-851.96	-793.20	**-848.02**
Total difference ($ million)		-6,104.06	-445.13	**-6,551.74**

The data shows the gap in healthcare expenditure is largely driven by private hospital and MBS expenditure. There is an increase in public hospital, Aboriginal and Torres Strait Islander primary healthcare, and PHN expenditure with increasing remoteness. These trends reflect the barriers to primary healthcare in rural Australia and are consistent with a reliance on more costly secondary and tertiary care for worsened disease presentation. The increased expenditure on Aboriginal and Torres Strait Islander primary healthcare and PHNs reflect efforts to improve access, but also demonstrate the need to address shortfalls with other programs. Increased hospital expenditure demonstrates the increased reliance on hospital-based care with increasing remoteness.

We have shown the change in expenditure since 2010 across each domain based on the AIHW Australian Health Expenditure by Remoteness report[1] in Table 2.

Table 2 | Change in healthcare expenditure since 2010 ($ millions)

Domain	Year	Urban expenditure MMM 1	Regional and rural expenditure MMM 2 – 5	Remote expenditure MMM 6 – 7	Rural Australia expenditure MMM 2 – 7
Public hospitals	2010	13,744.80	7,067.60	776.60	7,844.20
	2020-21	49,526.52	19,417.61	1,641.53	21,059.15
	% change	260%	175%	111%	168%
Private hospitals	2010	4,948.30	1,747.20	67.00	1,814.20
	2020-21	13,547.58	4,152.78	205.37	4,358.15
	% change	174%	138%	207%	140%
Medicare	2010	10,768.00	3,866.00	198.00	4,064.00
	2020-21	17,651.26	6,288.45	282.65	6,571.10
	% change	64%	63%	43%	62%
PBS	2010	4,466.00	2,057.00	117.00	2,174.00
	2020-21	8,826.15	4,026.61	164.79	4,191.40
	% change	98%	96%	41%	93%
Grants to ACCHOs	2010	48.00	108.00	110.00	218
	2020-21	177.16	331.69	306.05	637.74
	% change	269%	207%	178%	193%
Total expenditure	2010	33,975.10	14,845.80	1,268.60	16,007.00
	2021	89,728.67	34,217.14	2,600.39	36,817.54
	% change	164%	130%	105%	130%

4 Expenditure on rural health

4.1 Methodology

Our analysis draws on publicly available and privately sourced data from the AIHW, Services Australia, ABS and other sources. Generally, these data sources do not break down expenditure by remoteness classification. This section outlines the methodologies used to calculate per-capita spend on healthcare across remoteness areas.

Population modelling

Determining per-capita expenditure figures requires populations split by MMM and RA. Our modelling maps census population and postcode data to MMM and RA using the Department of Health and other mapping datasets. Where postcodes map across multiple remoteness areas, we use the modal value.

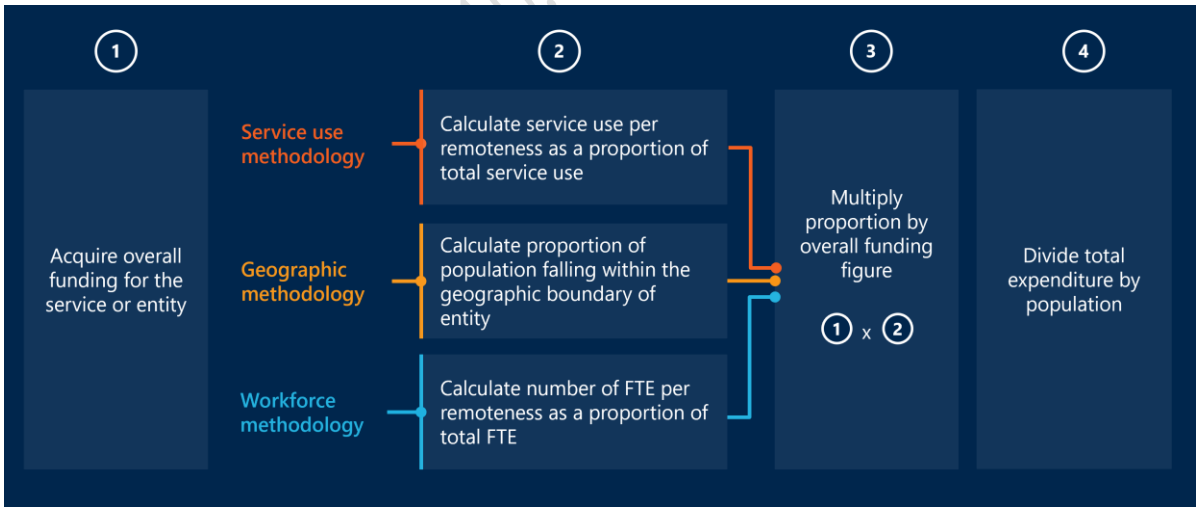
When displaying expenditure by MMM, we group MMM 2 – 5 and 6 – 7 to capture recipients who may cross geographic boundaries to receive care.

Per-capita figures in this document are total expenditure for that region, divided by population in that region. This is to account for any differences in service usage to understand the true level of funding across Australia. These figures are then age standardised using the indirect age standardisation methodology.

Expenditure methodologies

Where expenditure per remoteness was unavailable, we employ the most appropriate of the following: service use methodology, geographic methodology, or workforce methodology, to determine expenditure.

Figure 2 | Methodology for deriving expenditure per remoteness



We engage geographic methodology when an entity covers multiple remoteness areas (e.g., hospital peer-groups, Primary Health Networks), and workforce methodology used where neither service use nor geography data is available (e.g., dentistry).

Indirect age standardisation

We apply an indirect age standardisation methodology to control for the impact of differing age distributions on per-capita results. This involves:

1. **Define the standard and reference population:** in our case, we use the whole of Australia as the standard population and the MMM or RA as the reference population.
2. **Acquire age-specific health expenditure data for the standard population.**
3. **Calculate the expected health expenditure for the reference population:** this involves multiplying the per-age expenditure of the standard population by the age distribution in the reference population (age buckets are constrained by available data).
4. **Calculate the standardised health expenditure ratio (SHER):** this is the standard population expenditure per capita divided by the expected expenditure per capita of the reference population.
5. **Multiply the SHER by the expenditure per capita of the reference population:** to get the age standardised per-capita figure.

Where age-specific health expenditure data was unavailable, we determine per-age expenditure using the methodologies outlined in Figure 2.

4.2 Public hospital expenditure

When looking at data across RA, we see an initial dip in per-capita age-standardised funding from Major Cities to Inner Regional (13% and 5% less than Major Cities), then a steady increase in expenditure with increasing remoteness, with Remote and Very Remote areas receiving 9% and 40% more funding. This trend reflects both the higher cost of delivering hospital services in Remote and Very Remote areas, as well as the higher reliance on hospitals with increasing remoteness due to higher barriers to primary care. We can see this trend further reflected in non-admitted patient care (section 0) and emergency department expenditure (section 0). We will further explore the context behind this trend in section 5 of this report. Overall public hospital expenditure across RA is outlined in Table 3.

Table 3 | Hospital expenditure by ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ million)	49,526.52	12,656.57	6,761.04	963.51	678.02
Expenditure per capita ($)	2,768.12	2,731.03	2,906.97	3,007.08	3,443.60
Expenditure per capita ($, age standardised)	2,860.46	2,493.24	2,705.05	3,112.81	3,995.55
Indexed at Major Cities	1.00	0.87	0.95	1.09	1.40

Expenditure estimated using the AIHW dataset on recurrent expenditure by public hospital peer groups (FY2019-20) with AIHW health inflation of 1.96% applied. Indirectly age standardised using the AIHW dataset on per-age hospital separations (2018-19).

4.2.1 Non-admitted patient care (in-hospital)

Data is only available for non-admitted patient care in hospitals, for example procedural clinics, diagnostics, and outpatient clinics. No data is available for care outside of the hospital setting, such as non-hospital community health services and private allied health services. Generally, the number of in-hospital non-admitted patient events increases with remoteness, with Remote and Very Remote regions experiencing an average of 1.92 events per person, compared to Major Cities at 1.27 events per person. As such, per-capita age-standardised non-admitted patient care expenditure increases with remoteness to reflect this higher use and cost of delivery. A detailed outline of this expenditure is presented in Table 4.

Table 4 | Non-admitted patient care expenditure by ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ million)	9,217.18	2,609.42	1,304.25	214.57	212.36
Expenditure per capita ($)	515.16	563.06	560.77	669.68	1,078.55
Expenditure per capita ($, age standardised)	521.75	553.70	555.02	690.72	1,162.03
Indexed at Major Cities	1.00	1.06	1.06	1.32	2.23

Expenditure estimated using IHACPA's National Hospital Cost Data Collection Report Round 24 results on total non-admitted patient expenditure and the AIHW dataset on non-admitted patient events per remoteness (FY2020-21). Indirectly age standardised using the AIHW dataset on non-admitted patient events per remoteness (FY2020-21).

4.2.2 Emergency department expenditure

As with non-admitted patient care, rural populations experience higher emergency department presentations per 1,000 people compared to urban (423 vs 309). Consistent with other hospital expenditure, per-capita age-standardised emergency department expenditure increases with remoteness, as shown in Table 5.

Table 5 | Emergency department expenditure per ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ million)	3,979.83	1,398.50	655.31	136.86	82.50
Expenditure per capita ($)	222.44	301.77	281.76	427.12	419.02
Expenditure per capita ($, age standardised)	222.65	300.16	281.87	431.31	427.86
Indexed at Major Cities	1.00	1.35	1.27	1.94	1.92

Expenditure estimated using IHACPA's National Hospital Cost Data Collection Report Round 24 results on total emergency department expenditure and the AIHW dataset on emergency department presentations per remoteness (FY2020-21). Indirectly age standardised using the AIHW dataset on emergency department presentations per remoteness (FY2020-21).

4.3 Private hospital expenditure

Expenditure per capita (age standardised) on private hospital declines significantly with remoteness, with those in Remote areas experiencing only 46% of per-capita age-standardised private hospital expenditure compared with those in Major Cities. This is likely due to reduced access to private hospitals with increasing remoteness; Major Cities experience 181.9 private hospital separations per 1,000 people, while Remote and Very Remote populations experience 94.9 and 125.3 respectively.

Table 6 | Private hospital expenditure per ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ million)	13,547.58	3,104.98	1,047.80	113.13	92.24
Expenditure per capita ($)	757.20	669.99	450.51	353.09	468.46
Expenditure per capita ($, age standardised)	789.20	599.05	411.51	366.70	558.98
Indexed at Major Cities	1.00	0.76	0.52	0.46	0.71

Expenditure estimated using the AIHW datasets on private hospital expenditure (2018-19) and private hospital separations (2018-19) with AIHW health inflation of 2.19% (FY2019-20) and 1.96% (FY2020-21) applied. Indirectly age standardised using the AIHW dataset on per-age private hospital separations (FY2018-19).

4.4 Medicare Benefits Schedule (MBS)

Our analysis draws on expenditure of eligible MBS services provided outside of an in-patient hospital context. In FY2020-21, $24.3 billion was spent on out-of-hospital MBS services across all of Australia. This includes services performed by a registered provider for services that qualify for a Medicare Benefit and which a claim was processed by Services Australia.

Analysis shows a decline in MBS per-capita age-standardised spending with increasing remoteness. This is consistent with the reduced access services attracting Medicare rebates with increasing remoteness. Medicare claims data from FY2020–21 show that the number of non-hospital non-referred attendances per person, such as general practitioner (GP) visits, were lower in Remote and Very remote areas (4.7 and 3.4 per person respectively), than in Outer regional areas (6.1 per person), Inner regional areas and Major cities (6.8 per person each)[2]. A comparison of MBS expenditure is outlined in Table 7.

Table 7 | MBS expenditure per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	17,651.26	6,288.45	282.65
Expenditure per capita ($)	1,000.45	877.69	503.68
Expenditure per capita ($, age standardised)	1,011.14	814.57	519.20
Indexed at MMM 1	1.00	0.81	0.51

Expenditure sourced from Services Australia data. Indirectly age standardised using the Services Australia per-age expenditure data. Data is privately sourced with caveats:

- This report is based on date of service between 01 August 2016 and 30 June 2021 and processed up to 20 July 2021
- MMM is based on patient mailing address as at the end of each period E.g., address as of 30 June 2017 is used for the period 01 Aug 2016 to 30 June 2017
- MMM classifications are based on the Australian Statistical Geography Standard - Remoteness Areas (ASGS-RA) framework and by the Australian Bureau of Statistics
- The report excludes unknown state (0.1%) where the postcodes cannot be mapped to state
- The figures in the report include only those services that are performed by a registered provider, for services that qualify for Medicare Benefit and for which a claim has been processed by Services Australia. They do not include services provided by hospital doctors to public patients in public hospitals or services that qualify for a benefit under the Department of Veterans' Affairs National Treatment Account.
- Total expenditure figures do not add up to the totals included in the text due to spending where there was an unknown MMM category

4.5 Pharmaceutical Benefits Scheme (PBS)

Total expenditure on the PBS in FY2020-21 was $13.2 billion across Australia. We see an increase in per-capita age-standardised expenditure on the PBS in MMM 2 – 5, with a decline across MMM 6 – 7. This initial increase may represent medications being used in lieu of other services such as allied health (explored in section 5.4). A comparison of PBS spending via remoteness is outlined in Table 8.

Table 8 | PBS expenditure per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	8,826.15	4,026.61	164.79
Expenditure per capita ($)	500.26	562.00	293.65
Expenditure per capita ($, age standardised)	515.60	522.27	304.51
Indexed at MMM 1	1.00	1.01	0.59

Expenditure sourced from Services Australia data. This was indirectly age standardised, using the ABS dataset on number of PBS medication types dispensed by age (FY2020-21). Data is privately sourced with caveats:

- This report is based on PBS services supplied between 01 August 2016 and 30 June 2021 and processed up to 28 July 2021
- MMM is based on patient mailing address as at the end of each period E.g., address as of 30 June 2017 is used for the period 01 Aug 2016 to 30 June 2017
- MMM classifications are based on the Australian Statistical Geography Standard - Remoteness Areas (ASGS-RA) framework and by the Australian Bureau of Statistics
- Some MMM classified regions cross state and territory borders, affecting total national vs. individual state and territory patient totals by MMM
- The report excludes data where the patient could not be identified. This occurs when the patient presents to emergency or when a patient could not provide a valid card and a PBS Medicine needed to be dispensed
- The figures reported relate to the value (benefit) of PBS that have been processed by Services Australia. They refer only to paid services processed from claims presented by approved pharmacies. They do not include any adjustments made against pharmacists' claims, any manually paid claims or any benefits paid as a result of retrospective entitlement or refund of patient contributions
- RPBS Services are Excluded, and Under Co-Payment medications are excluded
- The following PBS service categorisations were excluded: Doctor's Bag, Supplied using Special PINs under Emergency Cases, Rejected or Cancelled services.
- Total expenditure figures do not add up to the totals included in the text due to spending where there was an unknown MMM category

4.6 NDIS-related health expenditure

In our overall analysis of NDIS health expenditure in Table 1 we have only included 'total payments' rather than 'committed support' as this is the actual amount paid for services to NDIS recipients rather than the planned amount. Expenditure by both dimensions is demonstrated in Table 9Table 10 and Table 10Table 10. While we see similar levels of committed support per capita across remoteness, actual payments tell a different story. Remote and Very Remote communities (MMM 6 – 7) receive less than 70% funding per capita (age standardised) than their urban counterparts. This is likely to be primarily related to a lack of access to service providers.

Table 9 | NDIS committed support per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	12,143.02	5,181.23	311.49
Expenditure per capita ($)	688.25	723.16	555.07
Expenditure per capita ($, age standardised)	675.68	724.25	538.44
Indexed at MMM 1	1.00	1.07	0.80

Table 10 | NDIS payments per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	9,143.66	3,771.90	194.08
Expenditure per capita ($)	518.25	526.45	345.83
Expenditure per capita ($, age standardised)	508.55	527.84	335.56
Indexed at MMM 1	1.00	1.04	0.66

Expenditure sourced from NDIS data builder, back-casted to estimate Q4 FY20-21 expenditure figures. Indirectly age standardised using NDIS data.

4.7 Aged care

Aged care funding considers residential care, home care packages, transitional and short-term care, and Commonwealth Home Support Program across remoteness. This data shows an initial dip across inner and outer regional and remote expenditure, with a higher rate of per-capita expenditure in Very Remote regions. This is despite the usage rate of residential aged care being 11 times greater in Major Cities than it is in Very Remote areas[3]. Echoing the pattern seen in hospital cost data, the higher per-capita expenditure in Very Remote communities is in part at least a reflection of higher cost of service delivery, rather than representing higher access or service effectiveness.

Table 11 | Aged care funding per ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ million)	15,502.91	4,694.89	1,835.19	194.68	115.67
Expenditure per capita (70+ years old) ($)	7,806.02	6,601.32	5,524.06	5,889.11	8,877.09
Indexed at Major Cities	1.00	0.85	0.71	0.75	1.14

Expenditure is calculated from the AIHW datasets on funding via service providers, clients by remoteness and overall funding. Not age standardised as aged care is spent on people aged 70+.

4.8 Dentistry services

Our model estimates dentistry expenditure using service use data from the AIHW and the National Study of Adult Oral Health 2017–18, as well as using workforce distribution as a proxy of service distribution. The results are a decreasing level of per-capita age-standardised expenditure on dentistry with increasing remoteness, with regional and rural communities (MMM 2 – 5) and remote communities (MMM 6 – 7) experiencing 35% and 36% less funding, respectively.

Table 12 | Dentistry expenditure per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	8,591.16	2,313.16	172.65
Expenditure per capita ($)	486.94	322.85	307.66
Age standardised ($)	489.61	318.16	312.76
Indexed at Major Cities	1.00	0.65	0.64

Expenditure estimated using workforce distribution from the Department of Health and Age Care's National Health Workforce Dataset and the AIHW dataset on dental expenditure. Indirectly age standardised using the AIHW dataset on per-age dental usage (2017-18).

4.9 Aboriginal and Torres Strait Islander primary healthcare

The Aboriginal Community Controlled health sector plays a pivotal role in the provision of culturally safe primary healthcare to Aboriginal and Torres Strait Islander peoples. Given the proportion of Indigenous Australians within the population increases with remoteness (from 1.09% in Major Cities to 32% in Remote and Very Remote areas)[4], this sector plays an important role in the provision of healthcare in rural Australia.

In line with this, our results in Table 13 demonstrate increasing per-capita expenditure on Aboriginal and Torres Strait Islander primary healthcare with increasing remoteness. This expenditure was calculated using service use and expenditure data from the Productivity Commission's Report on Government Services.

Table 13 | Aboriginal and Torres Strait Islander healthcare expenditure per ASGS Remoteness Area, FY2020-21

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
Total expenditure ($ '000)	177,162.22	162,148.47	169,539.85	155,450.03	150,599.43
Expenditure per capita ($)	9.90	34.99	72.90	485.15	764.88
Indexed at Major Cities	1.00	3.53	7.36	49.00	77.25

Expenditure estimated using the Productivity Commission's Report on Government Services figures for Aboriginal and Torres Strait Islander primary healthcare usage and expenditure. Not age standardised due to data constraints.

4.10 Primary Health Networks (PHNs)

PHNs are organisations funded by the Australian Government's Department of Health and Aged Care to streamline and coordinate better primary healthcare to defined populations across Australia. Our analysis shows that per-capita expenditure on PHNs increases with remoteness.

Table 14 outlines expenditure per remoteness, which is derived from publicly available financial reports of PHNs across Australia.

Table 14 | Primary Health Network expenditure per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ million)	800,549.76	539,882.93	88,068.77
Expenditure per capita ($)	45.37	75.35	156.93
Indexed at Major Cities	1.00	1.66	3.46

Expenditure estimated using revenue figures from publicly available PHN financial reports. Not age standardised due to data constraints.

4.11 Royal Flying Doctor Service (RFDS)

The RFDS receives funding from the Department of Health and Aged Care to bridge the disparity in healthcare between urban and rural populations. Originally providing emergency aeromedical evacuation

services, the RFDS has since expanded into providing medical consultations and supplies, and dental and mental health outreach services. Estimated expenditure per capita on RFDS is $0.95 for regional and rural populations and $109.42 for remote populations, as shown in Table 15.

Table 15 | Royal Flying Doctor Service expenditure per MMM remoteness, FY2020-21

	Urban MMM 1	Regional and rural MMM 2 – 5	Remote MMM 6 – 7
Total expenditure ($ '000)	-	6,822.72	61,404.48
Expenditure per capita ($)	-	0.95	109.42

Expenditure estimated using revenue figures from the RFDS Annual Report (2021) and input from RFDS consultation. Not age standardised due to data constraints.

4.12 Data assumptions and limitations

While our approach aims to give the most accurate possible picture of healthcare expenditure, it cannot quantify the entire range of costs due to the constraints on available data. We have not included expenditure on non-admitted patient care outside of hospitals (such as in community health centres), allied health expenditure, private health expenditure (outside of private hospitals), and expenditure on patient-assisted travel schemes.

While most data sources and usage costs relate to the user's residential address, some data are based on service location. In the case of public hospitals, this results in limitations in accounting for people who are visitors from out of area, e.g., tourists to regional areas needing emergency care, or patients from non-urban areas requiring transfer to a Metropolitan hospital. The impact of out-of-area services is difficult to quantify, and we do not have a means of reliably reconciling it.

Expenditure figures calculated in this document were derived from data sources with some assumptions and limitations applied. A summary of these assumptions and limitation to the data is presented in Table 16Table 16.

Table 16 | Summary of data assumptions and limitations

Domain	Inputs	Methodology	Assumptions and limitations
Public hospitals	Recurrent expenditure by public hospital peer group, 2019-20 (AIHW) Separations by age group and sex, public hospitals, 2018-19 (AIHW)	**Geographic methodology** Identified the remoteness area of each hospital within each peer group and calculated the proportion of remote hospitals. Multiplied proportions by the total expenditure of that peer group, then summed expenditure for each remoteness area across all peer groups. **Indirect age standardisation** Apportioned total expenditure on public hospitals based on per-age hospital separations.	Expenditure data is from 2019-20, health inflation of 1.96% applied. Expenditure is based on service location, not residential address. Expenditure apportioned according to proportion of remoteness within peer groups to account for differences in proportions of hospital funding (activity-based versus block funding) between remoteness areas.
Private hospitals	Separations by remoteness area of usual residence, public and private hospitals, 2018-19 (AIHW) Separations by age group and sex, private hospitals, 2018-19 (AIHW)	**Service use methodology** Apportioned total expenditure on private hospitals based on proportion of separations per remoteness area. **Indirect age standardisation** Apportioned total expenditure on private hospitals based on per-age hospital separations.	Expenditure data is from 2018-19, health inflation of 2.19% and 1.96% applied. Expenditure is based on residential address. Expenditure was apportioned according to proportion of separations; no other factors were included.
Non-admitted patient care	National Hospital Cost Data Collection Report Round 24 (IHACPA) Non-admitted service events by age group and remoteness area, 2020-21 (AIHW)	**Service use methodology** Apportioned total expenditure on non-admitted patient care based on proportion of activity per remoteness area. **Indirect age standardisation** Apportioned total expenditure on non-admitted patient care based on per-age non-admitted service events.	Expenditure is based on residential address. Expenditure was apportioned according to proportion of separations; no other factors were included. Non-admitted patient care outside of the hospital setting is not included due to data limitations.
Emergency department admissions	National Hospital Cost Data Collection Report Round 24 (IHACPA) Emergency department presentations by age group and remoteness area, 2020-21 (AIHW)	**Service use methodology** Apportioned total expenditure on emergency department based on proportion of presentations per remoteness area. **Indirect age standardisation** Apportioned total expenditure on emergency department based on per-age presentations.	Expenditure is based on residential address. Expenditure was apportioned according to proportion of presentations; no other factors were included.
MBS	Services Australia data	Calculated expenditure per capita by dividing total expenditure per MMM by estimated population. Total expenditure on out of hospital services is total expenditure on MBS minus in-hospital expenditure on MBS.	Expenditure is based on residential address. We grouped expenditure by MMM 1, MMM 2 – 5, and MMM 6 – 7 to control for any differences in our population estimates versus those of the raw data.

Domain	Inputs	Methodology	Assumptions and limitations
		Indirect age standardisation Used per-age expenditure provided by Services Australia. Applied ratios of total MBS expenditure as out-of-hospital only age data was unavailable.	
PBS	Services Australia data Number of PBS medication types dispensed by age, 2020-21 (ABS)	Calculated expenditure per capita by dividing total expenditure per MMM by estimated population. **Indirect age standardisation** Apportioned total expenditure on the PBS based on per-age usage of the PBS.	Expenditure is based on residential address. Grouped expenditure by MMM 1, MMM 2 – 5, and MMM 6 – 7 to control for any differences in population estimates.
NDIS	NDIS data explorer (NDIS)	Calculated expenditure per capita by dividing total expenditure per MMM by estimated population. We multiplied average support and average payments by total recipients to get a total expenditure figure.	Expenditure is based on residential address. Data is from Q3 FY21-22 to Q2 FY22 – 23. Back-casted growth rates to arrive at a Q4 FY20-21 figure. Grouped expenditure by MMM 1, MMM 2 – 5, and MMM 6 – 7 to control for any differences in population estimates.
Aged Care	Aged Care Data Snapshot, 2021 (AIHW) Aged Care Service List: 30 June 2021 (AIHW)	**Service use methodology** Expenditure on Residential Care, Home Care Packages, Transitional Care and Short-Term Care by ASGS-RA included. Apportioned total expenditure on Commonwealth Home Support Packages (CHSPs) based on proportion of clients per remoteness area.	Expenditure only includes Residential Care, Home Care Packages, Transitional Care, Short Term Care and CHSP. Expenditure on other aged care services. Per capita expenditure is not age standardised as aged care is spent on people aged 70+. Expenditure is based on service location for Residential Care, Home Care Packages, Transitional Care, Short-Term Care; and based on residential address for CHSP.
Dentistry	National Health Workforce Dataset (Department of Health and Aged Care) Total dental expenditure, 2020-21 (AIHW) Average number of dental visits per age, 2017-18 (AIHW)	**Workforce methodology** Apportioned total expenditure on dentistry (from government and non-government sources) by dental workforce distribution per remoteness. **Indirect age standardisation** Apportioned total expenditure on dentistry based on per-age dental visits.	Expenditure was apportioned according to workforce distribution, no other factors, such as salary and operating costs were included. Usage of dentistry by age is estimated. Dentistry workforce included dentists, oral health therapists, dental hygienists, dental therapists, and dental prosthetists. Expenditure is based on service location.
ACHHO	Report on Government Services 2023 (Productivity Commission)	**Service use methodology** Apportioned total expenditure on Aboriginal and Torres Strait Islander primary care by proportion of service events per remoteness.	Expenditure was apportioned according to service use distribution; no other factors were included. Figures were not age standardised due to data constraints. Whether data is by residential address or service location is not explicitly stated.

Domain	Inputs	Methodology	Assumptions and limitations
Primary Health Networks	Individual PHN financial reports	**Geographic methodology** Apportioned total revenue per PHN (derived from financial reports) by the rural population proportion within that PHN.	Revenue figures included government grants, interest income and other income. We were unable to isolate government grants due to data constraints. Figures were not age standardised due to data constraints. Expenditure is based on service location.
Royal Flying Doctor Service	Royal Flying Doctor Service Annual Report 2020-21 (RFDS)	Total expenditure across programs or services included in the scope of this report and attributed 10% to regional and rural (MMM 2 – 5) and 90% remote (MMM 6 – 7) based on figures provided from consultation with the RFDS.	Only included expenditure which is included in the scope of this report. For example, patient transfers were excluded as transport costs have not been considered for urban populations. Figures were not age standardised due to data constraints. Expenditure is based on service location.

5 Understanding the context of the rural Australia health spend

Expenditure figures represent only part of the health disadvantage of people living in non-urban areas. Gaining a fuller understanding of the operational environment of the current health spend requires consideration of health outcomes, apparent barriers to access and equity, and analysis of the patterns of expenditure across different domains of our healthcare system.

5.1 Rural Australians have worse health outcomes

Rural Australians do not enjoy equitable quality of health outcomes. Comparison of disability adjusted life-year data from 2018 by Remoteness Area demonstrates that the burden of disease in remote areas is 1.4x that of Major Cities[5].

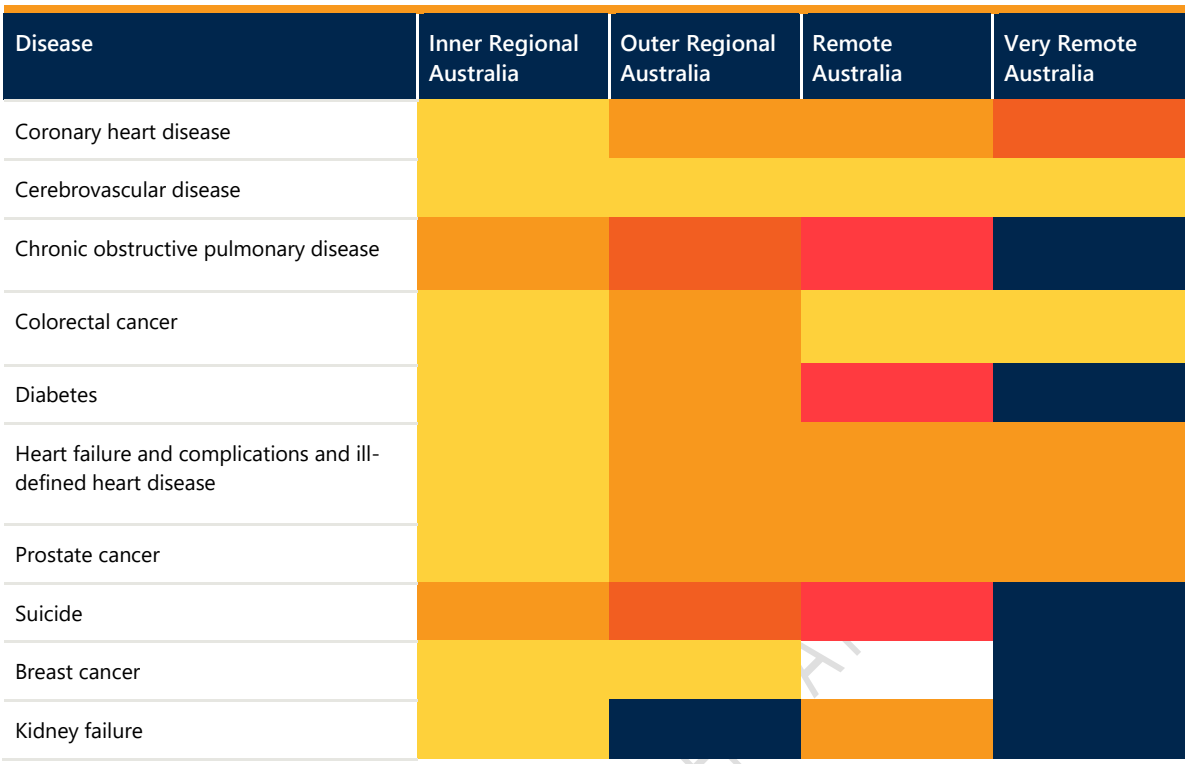
Life expectancy declines for both men and women with increasing rurality, with a four and five year drop in life expectancy between Major Cities and Remote and Very Remote settings for men and women respectively[6].

Compared to Major Cities, potentially avoidable deaths (defined as deaths under 75 years from conditions considered preventable) are 2.3x higher in males and 3x higher in females in Very Remote areas[7]. Examination of some leading causes of preventable deaths shows a pattern of higher severity and later presentation. Comparing death rates between Major Cities and Very Remote settings, death rates are 3.8x as high for diabetes, 2.3x from suicide and 1.7x as high from coronary artery disease[8,9]. Comparing hospitalisation rates between Major Cities and Very Remote areas, they are 2.5x higher for diabetes[10], 1.9x for self-harm[11] and 1.5x for coronary artery disease[12].

Figure 3 highlights the overrepresentation of Remote communities in potentially avoidable deaths, with Very Remote communities experiencing more than two times the rate of death for chronic obstructive pulmonary disease (COPD), diabetes, breast cancer and kidney failure.

> "You see some things in the bush you don't get in cities, but most of what you deal with are the same problems as metro but a higher severity, at a later stage and often in a higher prevalence".
>
> Rural GP, South Australia

Figure 3 | Rate of potentially avoidable deaths versus Major Cities



These deaths are avoidable in that they arise from conditions that can be treated or prevented using existing primary and hospital care. The increased incidence across rural Australia communities demonstrates a disparity in health outcomes compared to urban settings where healthcare access is greater.

2018 data across remoteness areas shows that comparing Remote and Very Remote Australia to major metropolitan settings, kidney and urinary diseases were 2.7 times as high; coronary heart disease was 2.2 times as high; and suicide/self-inflicted injuries were 2.0 times as high[13].

The prevalence of people living with two or more chronic conditions is higher in regional areas (21% per 100,000 population, compared with 18% in major cities) and despite lower service availability, is comparable in Remote and Very Remote settings [14].

5.2 Rural Australians experience poorer social determinants of health and disease risk factors

Exploring the social determinants of health[15] and associated disease risk factors illustrates some of the challenges non-urban Australians face.

Many fundamental quality of life factors deteriorate with increasing remoteness, with increasing rates of homelessness in Remote and Very Remote areas[16], poorer telecommunications access[17], reduced security of food access[18] and disproportionate increases in cost of food[19].

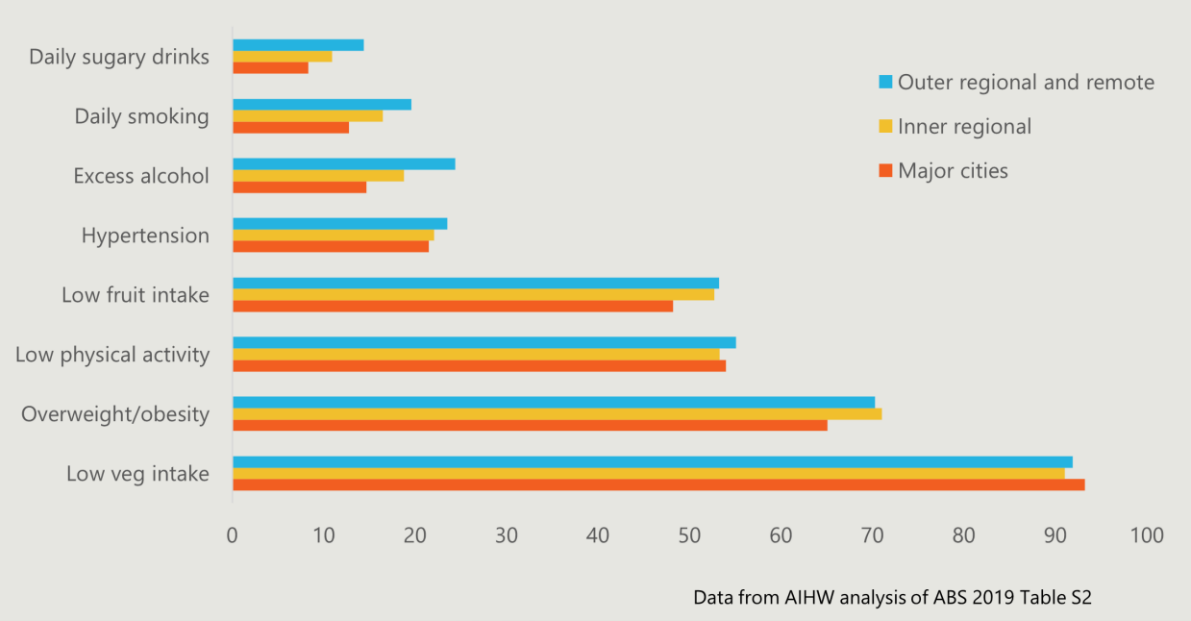
"Without good food access, how can we hope to tackle diabetes and cardiovascular atherosclerosis?"

Care coordinator, Northern Territory

Sparse infrastructure often deprives rural citizens of incidental preventative health benefits. For instance, reliance on tank and bore water results in low access to fluorinated water, which in turn correlates with higher rates of dental complications[20].

Data from the ABS' National Health Survey indicates that Inner Regional and Outer Regional and Remote citizens are more likely to engage in levels of smoking and alcohol consumption that place them at increased risk of harm. Sugary drink consumption rates are higher, as is inadequate fruit intake and rates of overweight and obesity. They do, however, show comparable rates of insufficient physical activity and marginally higher rates of adequate vegetable consumption[21].

Figure 4 | Commonly identified disease risk factors increase with remoteness



Health outcomes are known to be poorer in persons who are socially or economically disadvantaged. In 2021, 77% of people ages 20-64 in urban had completed year 12 education, compared to 56% across rural Australia areas. In the same study, 41% of urban residents had completed a bachelor's degree or above, compared to 20% across rural Australia areas[22].

This discrepancy in education levels the collective scope of job opportunities and limitations in income potential through acquisition of higher education in many non-urban areas. The average non-urban citizen is less wealthy: June 2021 data shows percentage of families with children on income support increases from 4.3% in Major Cities to 14.7% in Very Remote areas[23]. Financial status influences decisions made around accessing care. 2021-22 ABS survey data showed people living in Outer Regional, Remote or Very Remote areas were more likely to delay or not use the following health services when needed due to cost than those living in Major cities: dental care 21.1% compared to 15.4%, general practice 5.0% compared to 3.1%[24].

5.3 Rural Australians face greater environmental vulnerability

Reporting from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and the Royal Commission into National Natural Disaster Arrangements Report indicates that natural disasters are increasing in frequency and severity[25]. Climate change is adding to Australia's natural climate variability, driving changes in average and extreme weather, and increasing climate impacts on our water resources, ecosystems, health, infrastructure and economy.

The effects of climate change are disproportionately high across rural Australian communities[26], smaller towns, who have high vulnerability and low resilience to disasters in rural areas[27,28].

Natural disasters have flow-on health impacts to both physical and mental health[29]:

Table 17 | Examples of health impacts of natural disasters[26-30]

Drought	• Water-borne and dust-related disease • Anxiety and depression
Bushfires	• Death • Respiratory and cardiovascular sequelae, • Anxiety, depression post-traumatic distress
Storms and flood	• Physical trauma and drowning • Spread of insect vector-borne disease • Post-traumatic stress
Mouse plague	• Injury from mouse bites • Illness from food contamination • Mental health distress

5.4 Rural Australians face barriers to equitable access to care

The disparity in health outcomes and paradoxical reduced health spend highlights the presence of barriers to service access.

The increased cost of service delivery can create a deceptive picture of level of service delivery in remote settings. For example, the expenditure outlined in table 4, section 4.2 shows a higher per capita spend on hospitalisation with increasing remoteness. However, the Australian Independent Health and Aged Care Pricing Authority weights this cost has 7% higher for remote areas and 14% higher for very remote areas[32], showing that the increased expenditure does not result in additional activity in the same proportion.

> "Some communities go without a GP for 6 months; some have one but they're 400-500kms away".
>
> Child health advocate, New South Wales

The geographic spread of people creates both issues with logistics of access and efficiency of utilisation of resources. This impacts upon the costs, both of delivering services and for patients attending care, often requiring a greater time commitment and transportation costs to physically access services. The larger geographic footprint involved with creating a patient pool sufficient to sustain a clinic or service on a fee-for-service basis results can result in lower utilisation. This is typically reflected in lowered utilisation of staff and services in these regions, and a greater reliance on grant and block funding to address shortfalls. This is reflected in the analysis in section 4.10, which shows primary healthcare network spending, which aims to address service gaps, in Remote and Very Remote communities is 3.46x times per capita than that of metropolitan settings.

Primary and preventative healthcare

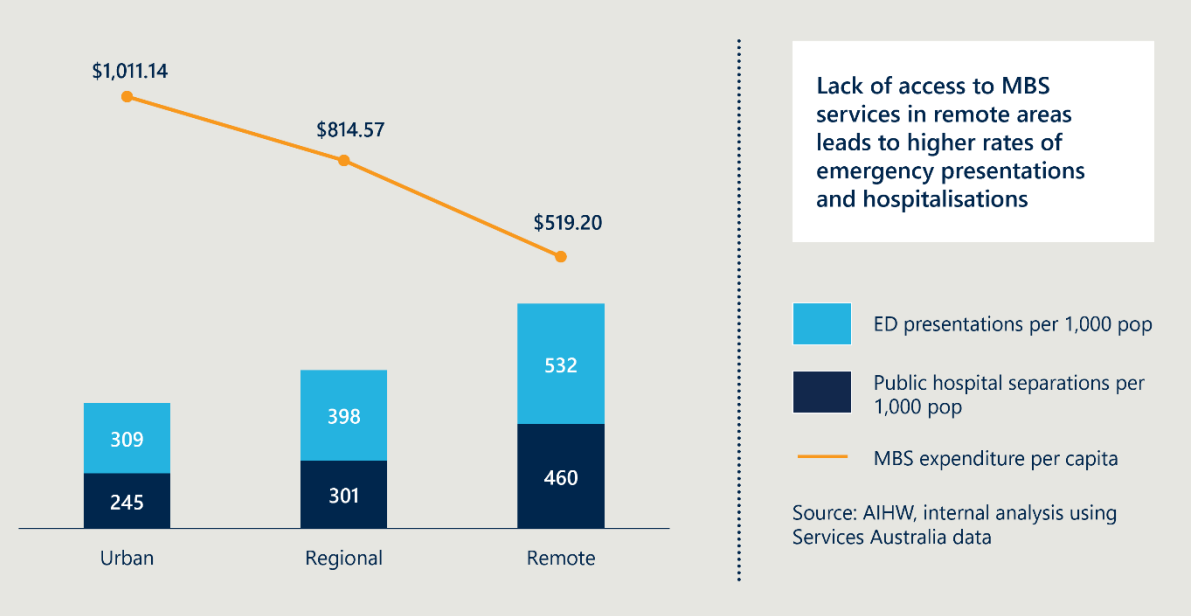
In the Australian healthcare system, general practitioners are commonly the referral pathway for both service access and funding, with low GP access having a resultant in flow on impact to access to allied health and medical sub-specialty services[33]. It is recognised that where primary care access is low, patients access emergency departments in higher rates[34].

The data in sections 4.3 and 4.4 illustrates this trend. MBS utilisation, for example from GP consults, drops as areas become more remote, with associated rise in emergency department attendances. This is illustrated in figure 5: with a drop in MBS expenditure, a proxy for services like general practice, rate of emergency department presentations rises.

"Under covid, primary healthcare in the bush was basically removed. And now we're seeing the results: people are sicker, we have a higher volume and higher acuity of aerial retrievals".

Researcher in Rural and Remote Healthcare

Figure 5 | Age-standardised community MBS expenditure vs ED and public hospital service use



The number of GPs providing care per capita drops with increasing remoteness: for the year FY2021-22 125/100,000 people in Metropolitan Areas compared to 84.9 in Small Rural Towns and 66.8 in Very Remote communities[36]. In 2022, 57899 living in Australia did not have access to general practitioner services within a 60-minute drive from their place of residence[37].

Consistent with this, after adjusting for the effects of other patient characteristics, patients living in Remote and Very Remote areas were 8.2x as likely as those living in major cities to report not having a GP as their reason for not seeing a GP when needed[35].

Along with a pattern of reduced access to primary care, people living in Remote and Very Remote areas also have lower rates of uptake of preventative services like cancer screening programs, including all of bowel, breast and cervical cancer[38].

Health Workforce

The scarcity of healthcare professionals, including doctors, dentists, pharmacists, and allied health professionals, poses a significant challenge to rural areas in meeting their healthcare needs. The number of non-GP medical specialists falls from 189.3 FTE per 100,000 to 11.4 in small rural towns and 24.1 in Very Remote communities[39]. We have provided full breakdown of FTE per health practitioner classification in Appendix A.

Comparison of FTE of allied health practitioners per capita can give a deceptive sense of parity between metropolitan and rural settings, but unequal geographical distribution means many communities do not

have access to particular allied health services altogether. Inadequate supply and uneven distribution of the allied health workforce greatly impede rural communities' access to essential allied health services, particularly in remote areas. This impact is most pronounced for residents of towns with populations of 15,000 or less. The smaller population size across rural Australia areas makes it impractical and unsustainable to establish permanent teams of specialised providers capable of delivering the required allied health services[40].

Despite the pressing demand for healthcare services in these areas, attracting and retaining healthcare professionals remains difficult. Healthcare professionals in rural areas are more likely to report longer working hours than their metropolitan counterparts[41].

The workforce pipeline does not suggest this pattern is soon to change. Survey of final year medical students consistently demonstrates a strong preference to work in capital cities, with 2021 data showing graduates intended to work in:

Table 18 | Adapted from table 24, MSOD 2022 Report[42]

Capital city	Major urban centre	Regional city/ large town	Smaller town	Small community
61.1%	19.5%	13.3%	4.2%	1.9%

The shortfall of healthcare workers in rural areas results in increased healthcare costs for rural patients, who may need to travel to urban areas to receive health services. Moreover, the higher cost of hiring temporary replacements due to staff shortages adds to the already substantial employment expenses in rural healthcare.

Disparity in provision of allied health

In 2020, a National Rural Health Commissioner evaluation of allied health services found that current funding arrangements were failing to support the growth of rural public, not-for-profit and private service capacity. This was supported by data that showed that, of those allied health professionals working in non-urban areas, most work in the public sector. It found that outreach and virtual consultations play a critical role in facilitating early intervention and continuity of care. It concluded that, for effective service distribution, it is essential to have viable business models, an adequate staff base, local community engagement, and staff training[40].

> "We've got allied health deserts, where there's no access at all. Allied health is the big gaping need at this point in time".
>
> PHN Executive, Victoria

Inadequate access to allied health has significant flow on effects for health care. For example, ABS data shows that the more remote an area was, the more likely residents are to have accessed mental-health related medications and less likely they also accessed psychological care[43].

Infrastructure for care

A lack of physical infrastructure in rural Australia significantly impedes the delivery of healthcare.

Examples include:

- Access to telecommunication and internet services to support remote consultations, telehealth, and other digital health initiatives.
- Treatment rooms or clinical spaces equipped with necessary furniture, equipment, and tools

> "In a lot of areas, access to internet is patchy. In some places if you don't have a Telstra phone you don't have reception, in others internet is patchy. For some patient's coverage is too poor for them to justify the cost of an internet connection."
>
> Health researcher, Tasmania

specific to the profession such as examination tables, therapy mats, diagnostic equipment, and treatment chairs.

- Waiting areas for patients that provide adequate privacy, comfort, and accessibility features.
- Adequate storage space for supplies, equipment, and records, including secure storage for sensitive patient information.
- Adequate transport facilities and safe travel arrangements for patients in rural areas.

The COVID-19 pandemic has driven innovation and development in remote health delivery, but this is contingent on access to suitable hardware and connectivity. Telehealth services offer means of mitigating some of the geographic barriers non-urban populations experience but are vulnerable to limited technological infrastructure and poorer internet access[44]. Technological solutions also do not fully replace the need for physical infrastructure for hands-on care: taking the example of podiatry and dental services, provision of care is made much more challenging without the availability of appropriate clinical chairs.

"We're seeing children with comorbidities not getting the wrap-around multidisciplinary services they need. This will create massive downstream cost to government down the road."

Physiotherapist, Victoria

Volition and understanding

Patients often prioritise health issues based on their level of urgency, which creates a significant volition gap to early presentation and preventative health access, especially when service access is difficult. This means that patients may only seek care when their conditions become more severe, leading to poorer health outcomes. This acts to compound the barriers outlined above. If service access is difficult, patients are incentivised to prioritise care only when it is urgent, creating a volition gap to early presentation and preventative health access.

Related ideas around perceptions of healthcare[45] and the recognised trait of "rural stoicism"[46] can similarly impede help-seeking.

Access is also affected by health literacy, with the ABS' 2018 Health Literacy Survey demonstrating decreasing literacy with increased remoteness[47].

6 The opportunities for a healthier rural Australia

Creating a healthier rural Australia presents a significant opportunity. The economic benefits of a healthier rural population are significant, but successful policy and investment relies on a cohesive approach across the health system and human services landscape to address inequity, access challenges, current failures, and technological and sociological change.

"We need to transfer existing resources into a future model before the old model fails completely."

PHN Executive, Victoria

6.1 The economic benefit of a healthier rural Australia

Our analysis shows that the higher burden of disease in rural Australia represents a $27.5b loss in economic contribution[i]. This does not include the additional economic costs of a higher burden of disease.

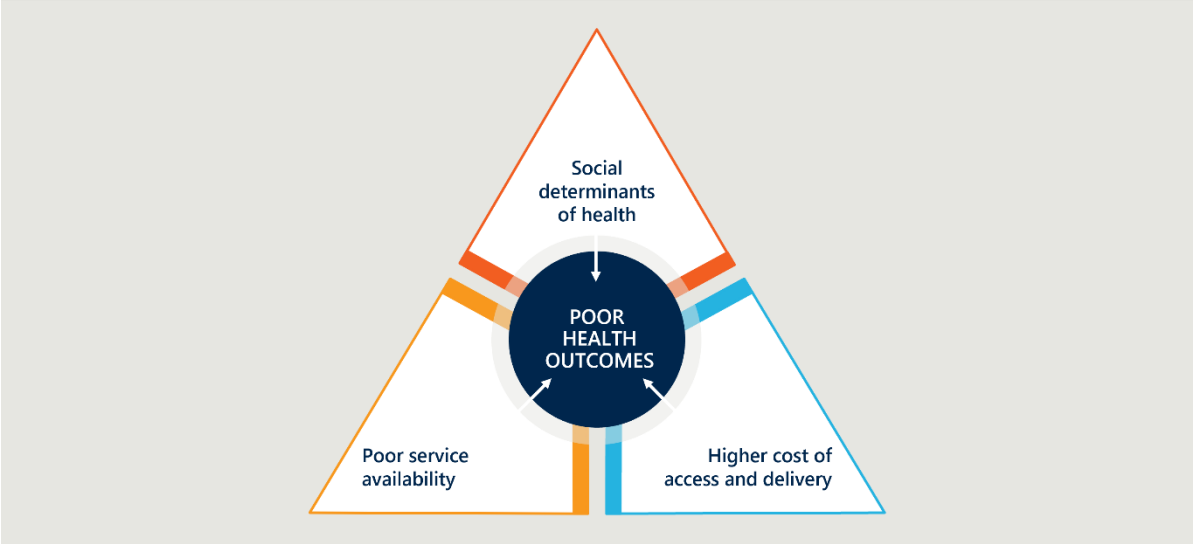
Non-urban communities are often key contributors to national economic growth. Figures from the Reserve Bank indicate that the predominantly non-urban Resource industry and Agriculture, Fisheries and Forestry industries account for 80% of Australia's exports[48]. These predominantly non-urban industries represent a large proportion of Australia's economic output, while representing just 30% of the population[49]. In 2021-22 the value of Australia's resource and energy exports was $421 billion[50] and the Agriculture, Fisheries and Forestry Industries $76 billion[51] in the same year, giving a collective value in 2021-22 of $497 billion. Australia's regional tourism industry also represents a significant area of economic activity, employing over 534,000 thousand people[52]. Improved health outcomes improve workforce productivity both by reduced absenteeism due to illness or injury, and this disproportionately high contribution to economic activity and growth, healthier rural communities represent a significant opportunity for return on investment.

The provision of increased health infrastructure and quality of care reduces barriers to both attracting skilled workers and private enterprise investing in rural settings. Investors are also more likely to invest in areas with healthy and productive workforces, which in turn increases employment opportunities and spurs economic growth. By investing in healthcare infrastructure and services, governments can help to improve the health outcomes of rural communities, leading to economic benefits that extend beyond just the healthcare sector.

6.2 Rural Australians experience a triple healthcare disadvantage

It is important to recognise that equivalent spending in monetary values between rural and urban areas does not necessarily translate into equal health outcomes. Data on current health outcomes and disease prevalence shows that there is significant additional improvement needed. Currently, rural health is subject to a triple disadvantage, and targeted investment is needed to address it.

Figure 6 I The triple disadvantage to rural health outcomes



Investment must account for the specific detractors to health across rural Australia, such as limited access to healthcare facilities, healthcare professionals, and essential health services. Barriers to access must also be addressed, including geographic isolation, transportation difficulties, and the high cost of accessing healthcare which results in increased cost for implementation of comparable services to metropolitan settings. Finally, responses must account for poor social determinants of health, with strategic targeting of preventative health programs to address the trend of late presentation and preventable mortality.

"Regional general practice isn't viable on fee-for-service alone. $39 on the gold coast is much different to $39 in St. George".

Clinic Manager, Queensland

Federal and state governments recognise these challenges and significant investment has been made over time on programs to address the health challenges in rural Australia and to improve health workforce and infrastructure available in rural areas. These efforts have not, however overcome the disparity in health outcomes, and service access and expenditure.

The current pattern of health service use indicates a missed chance for early intervention, preventative healthcare, and cost-effective general practice and allied health services in the community. As a result, there is a higher burden of severe disease, leading to increased usage of emergency and hospital services.

6.3 Funding arrangements can make or break service viability

Historically, programs that aim to address gaps in service delivery have often been grant-based. However, stakeholders report that the grant periods are typically too short to support the longer-term investment in workforce and facilities that will create sustainable services, and provide the certainty needed to attract and retain clinicians in non-urban areas. Unstable funding arrangements and the associated tender-cycle frequently dissuades private allied health and dental businesses from applying, making it challenging to attract and retain an allied health workforce in these areas.

Market-driven solutions such as private health insurance, the Medicare Benefits Schedule (MBS), aged care and the National Disability Insurance Scheme (NDIS) may be effective in larger metropolitan and regional centres, however, in rural and remote towns prone to thin markets and market failure, the expenditure data indicate that these funding models are not effective in addressing the ongoing challenges faced by rural and remote communities. As a result, the workforce largely remains concentrated in metropolitan and regional centres, leaving rural and remote populations with insufficient access to essential healthcare services. This, in turn, leads to poorer health outcomes for communities.

A one-size-fits-all approach to funding arrangements is not effective in addressing the complex challenges faced by non-urban communities. Funding models that are tailored to the needs and challenges across the breadth of rural Australia areas are required. This includes addressing the market failure that is inherent in these areas, supporting the recruitment and retention of the health workforce, and ensuring ongoing access to essential healthcare services.

6.4 Delivery needs a mix of resources on the ground, mobile resources and telehealth solutions

To address shortfalls in rural health service availability a multifaceted approach that utilises a mix of resources on the ground, mobile resources, and telehealth solutions is needed.

Technology has the potential to transform the delivery of healthcare in non-urban areas. It can improve continuity of care and record keeping, leading to more coordinated and effective care for patients. Telehealth is a critical component of this approach and is making significant improvements in recent years. However, to fully leverage the potential of telehealth, a blend of on-the-ground and remote services is needed. This approach can improve coverage and follow-up, ensuring that patients receive the care they need, regardless of their location.

> "There's no approach to dental telehealth in Australia at the moment, but there's potential there. If you use a light-up tongue depressor, you can take photos and have a remote consultation."
>
> Dental peak body representative

Telehealth-enabled health assistants can assist with tasks such as exercise programs, wound care, and medication management, reducing the workload of allied health professionals and increasing the number of patients who can receive care. Telehealth can also be used to provide remote supervision and training for the health workforce, enabling them to work more effectively and efficiently.

Funding for measures to support a mix of resources on the ground, mobile resources, and telehealth solutions, can improve access and ensure that patients in non-urban areas in mitigate the disparity with service provision in urban areas.

6.5 There are missing pieces for maintaining a rural health workforce

Maintaining a sustainable rural health workforce requires attention to several issues.

Professional decision-making support and professional development are crucial. Non-urban health practitioners often have limited access to peers and mentors and may experience professional isolation. Providing opportunities for networking, peer support, and access to professional development can help to

> "Providers that are looking for work are generally earlier in their careers, and they want a supportive environment but regional and remote don't always have the system to support them. There's a lack of advisory."
>
> PHN representative, Tasmania

retain practitioners in rural areas, improve job satisfaction and encourage skill-sharing.

Another missing piece is lifestyle support for practitioners with families. Access to affordable and quality childcare, housing, schools for children, work for partners as well as flexible work arrangements, can all be challenging in non-urban areas. Providing support for these needs can help practitioners to balance their work and family commitments and improve their ability to remain in rural areas.

Emotional support for rural practitioners is also important. Isolation, burnout, and moral injury can be significant challenges for rural practitioners. Providing access to counselling services, peer support and debriefing can help to address these issues and improve practitioner well-being.

Fly-in, fly-out work can offer some solutions to the challenges of rural practice, but it also has its limitations. It can be physically taxing and can place pressure on practitioners to address high levels of community need in a limited time. Additionally, it can impact on continuity of care, as patients may prefer to see a regular practitioner who they have developed a rapport with. Therefore, it is important to ensure that fly-in, fly-out work is not the only solution provided, and that it is part of a broader range of strategies to support rural practitioners and improve access to healthcare in rural areas.

"Providers find themselves exposed in small communities. There's a feeling you never left work, people at the supermarket ask them why they aren't working."

Disability services advocate

6.6 Planning and coordination are key for efficient utilisation and use of funding

Planning and coordination of services can offset the challenge to service viability posed by low population concentration by improving the utilisation rate of healthcare services. Enhancing use of available resources can not only improve the utilisation of existing healthcare services but also to highlight areas of need and demand. Such data can be crucial for private practitioners in determining where to establish healthcare services. By making use of augmented and refined resources that can offer comprehensive health information can assist decision-making regarding the allocation of resources in underserved communities to be more efficient and effective.

At the local level, by promoting local governance of healthcare spending and service coordination, policymakers can create a more responsive, efficient, and effective healthcare system. Such an approach can foster a sense of community ownership, engender greater community participation, and facilitate better integration between healthcare providers and patients. It can also ensure that healthcare services are tailored to the needs and preferences of the local population, improving the uptake of services.

A region-specific approach to healthcare service delivery, augmented with technological coordination and mapping, has the potential to greatly improve care in our rural communities.

6.7 Health outcomes are affected by inequity in other services

Funding and policy to address inequality in rural Australia requires an integrated view of the interlocking systems and services. The implications of poorer health in rural settings cannot be considered in abstraction from the broader social context in Australia.

Taking the example of paediatric and developmental health, outcomes are affected by the absence of early childhood education facilities. The 2022 Deserts and Oases report[53] presents compelling evidence of disproportionate childcare deserts in non-urban areas, contextualised in the role that early learning has in brain development before primary schooling starts at the age of five. Critically, this benefit is known to be greatest for children from financially disadvantaged backgrounds. Provision of childcare also provides

opportunity for detection of developmental delay and detection of family units that may require external support.

The availability of aged care in these areas is significantly lower than in major cities and has declined in recent years[45]. This results in people in rural areas not consistently receiving the care they need exacerbated by barriers to accessing health care, including doctor visits, mental health services, oral and dental health care, and preventative and holistic care.

NDIS data also shows that people living with disability in rural areas cannot access the level of services they need, either because they are more likely to be unable to use fully their entitlements under the National Disability Insurance Scheme, or because they do not have access to the level of disability services they need. This contributes to the more than 1000 younger people with a disability who were admitted to residential aged care in the year to 30 September 2020. To address these issues, local governance of service coordination and spending is needed to ensure that interlocking services such as aged care and disability services are responsive to community need and equitable.

7 References

i. Calculation:
[(DALYs of remoteness areas 2-5 x their respective 2018 population) – (DALYs of remoteness area 1 x 2018 population)] x weighted average GDP per capita for remoteness areas 2-5
Source data: ABS census data for population, income data; Australian Burden of Disease Study 2018[5]

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Appendix A Health workforce statistics

This appendix provides analysis of health workforce distribution by the NRHA from the National Health Workforce Dataset (NHWDS). While the analysis of this data is not the focus of this report, the figures provide important contextual information to understand the distribution of health workforce in rural and remote regions.

This data outlines the full-time equivalent (FTE) of Australian Health Practitioner Regulation Agency (AHPRA) registered health practitioners, expressed as FTE per 100,000 population across MMM classifications. FTE is calculated from voluntary information by AHPRA registered practitioners through a workforce survey and includes both clinical and non-clinical work.

Table 19 | Health workforce FTE per 100,000 population by MMM (2021)

AHPRA classification	MMM 1	MMM 2	MMM 3	MMM 4	MMM 5	MMM 6	MMM 7
Medical practitioners							
General Practitioners*	125.0	113.3	131.1	134.7	84.9	75.0	66.8
Specialists	189.3	157.9	142.4	34.4	11.4	74.7	24.1
Total medical practitioners	478.8	449.0	440.1	252.4	127.2	350.9	256.1
Allied health							
ATSI Health Practitioners	0.8	3.6	6.8	6.1	2.4	38.0	66.8
Chiropractors	18.2	15.2	20.3	20.5	6.4	10.6	6.4
Chinese Medicine Practitioners	13.6	5.2	7.1	6.6	4.5	1.7	0.5
Dentists	65.5	51.3	54.2	51.0	14.8	28.9	17.4
Oral health therapists	8.0	7.9	8.1	5.8	2.0	5.1	1.0
Dental hygienists	4.6	2.9	3.5	2.1	0.5	1.6	1.1
Dental therapists	2.1	2.9	4.2	3.6	1.0	3.1	4.3
Dental prosthetists	4.2	5.0	7.3	5.6	1.0	1.0	0.6
Medical Radiation Practitioners	64.1	62.9	66.9	33.0	8.2	23.2	15.4
Occupational Therapists	87.7	84.4	82.0	54.3	22.6	49.8	30.5
Osteopaths	9.7	8.0	8.1	9.7	4.6	0.7	0.4
Optometrists	20.9	17.8	24.1	18.9	4.2	10.5	5.2
Pharmacists	108.4	95.5	93.7	80.4	52.2	86.0	57.8

AHPRA classification	MMM 1	MMM 2	MMM 3	MMM 4	MMM 5	MMM 6	MMM 7
Physiotherapists	130.0	96.6	97.4	82.8	30.5	61.6	57.1
Podiatrists	20.1	19.0	22.8	19.4	6.0	11.6	6.9
Paramedicine Practitioners	71.9	114.0	113.9	163.4	98.2	161.8	200.3
Psychologists	121.0	87.1	80.8	51.9	25.7	45.7	20.9
Nurses and midwives							
Enrolled Nurses	156.7	215.5	269.6	265.0	199.1	187.0	129.7
Midwifery	56.5	61.8	69.5	61.1	15.4	74.8	68.0
Registered Nurses	1077.0	1146.1	1219.6	847.3	455.1	1088.4	1126.4

*Source: General Practice Workforce providing Primary Care services in Australia, Department of Health and Aged Care. These figures differ from the NHWDS, and estimates total (clinical and non-clinical) effort spent by GPs on delivering primary care services.

A.1 Data considerations

This data is derived from the National Health Workforce Dataset provided by the Department of Health and Aged Care with some limitations and considerations outlined below.

- FTE equivalence includes both time undertaking clinical activities and non-clinical time. Generally, with increasing remoteness more time is required for travel (e.g.: fly-in, fly-out logistics), reducing proportion of time spent on clinical tasks, and can skew apparent FTE clinical time.
- Data is limited also by the surveys used only allowing nomination of limited number of places of practice per respondent.
- Geographical area covered in order to represent 100,000 people increases with remoteness.
- Data can be considered a snapshot from a given year, and will not reflect workforce changes like employment churn rates and those nearing retirement from clinical practice.
- Nursing and midwifery show a more even distribution across remoteness, which is a reflection of nurses as the primary workforce in rural and remote areas.

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