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Eye health measures for Aboriginal and Torres Strait Islander people 2023

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Ngurlu Jukurrpa (Native Seed Dreaming) by Gloria Napangardi Gill.

Please note that there is the potential for minor revisions of data in this report. Please check the online version at www.aihw.gov.au for any amendments.

Contents

A message from the Aboriginal and Torres Strait Islander Eye Health Data Report Advisory Group

Since it was first published in 2017, the Australian Institute of Health and Welfare's (AIHW's) annual Eye health measures for Aboriginal and Torres Strait Islander people report has been a valuable tool to monitor progress in driving down rates of preventable vision loss for Aboriginal and Torres Strait Islander people and in improving their eye health.

The report's evidence-based insights help to maintain a strong focus on the gains made and on areas where improvement is still needed, either nationally or in specific regions.

The reporting has evolved over time to provide further information at local levels. This helps communities and services to plan and monitor pathways of care and improved eye health outcomes.

The need is ongoing for strong data collections and reporting not only to monitor changes in the eye health of Indigenous people over time and their access to and use of eye health services, but also to identify gaps in service delivery.

Aboriginal and Torres Strait Islander Eye Health Data Report Advisory Group

The Eye health measures for Aboriginal and Torres Strait Islander people Advisory Group was established to provide expert advice to the AIHW on the national Eye health measures for Aboriginal and Torres Strait Islander people data report series. Members of this multi-disciplinary group are familiar with not only eye health conditions and the policy environment and programs aimed at improving eye health but also eye health service providers and data and indicators relevant to monitoring and reporting on eye health.

Summary

This is the seventh annual Eye health measures for Aboriginal and Torres Strait Islander people report. The measures in these annual reports were developed to provide an evidence base to monitor changes in eye health among Aboriginal and Torres Strait Islander (First Nations) people over time and their use of eye health services.

This report includes the latest available data for each measure where possible. The 2016, 2017 and 2018 editions of the report presented data for 23 measures, however, collection of data for 1 measure ceased. Of the 22 measures with ongoing data collections, 11 have sub-measures. In total, this 2023 edition of the report contains 37 measures and sub-measures, 28 of which have been updated. Of the 28 measures that have been updated, Table 1 presents trend data for 25 key eye health measures. Of these:

- 11 measures or sub-measures appear to be improving
- 4 measures or sub-measures appear to be worsening
- 7 measures or sub-measures have updated data but show no change or no clear trend over time
- 3 measures have updated data but it is not possible to determine if changes represent an improvement or not. For example, an increase in hospitalisations for eye diseases could be interpreted as an increase in disease rates or an increase in treatment rates.

Prevalence

One of the 3 prevalence measures has updated data. Both of the sub-measures of this measure – trachoma (1.3.1) and trichiasis (1.3.2) – appear to have improved over the reporting years.

- The prevalence of bilateral vision impairment for First Nations people aged 40 and over was 10% and the prevalence of bilateral blindness was 0.3%, based on the latest available NEHS data from 2016 (combined vision impairment and blindness affected an estimated 18,300 First Nations people aged 40 and over).
- The 3 leading causes of vision impairment and blindness (vision loss) for First Nations people aged 40 and over in 2016 were refractive error (61%), cataract (20%) and diabetic retinopathy (5.2%).
- Repeated trachoma infections can result in scarring, in-turned eyelashes (trichiasis) and blindness. The overall prevalence of active trachoma among children aged 5–9 years in at-risk communities fell from 15% in 2009 to 2.2% in 2022.

Diagnosis and screening

Four of the 5 diagnosis and screening measures have updated data. Of these, both sub-measures of measure 2.1 (annual health assessments for First Nations people), measure 2.2 (eye examinations by an eye care specialist), 2 of the 3 sub-measures of measure 2.3 (screening for diabetic retinopathy) and both sub-measures of measure 2.4 (trachoma and trichiasis screening) appear to have improved over the reporting years.

- In 2021–22, 24% (around 209,000) of First Nations people had an annual health assessment that should have included an eye health check. The age-specific proportion of First Nations people who had a health assessment increased from around 11% to 14% in 2011–12 for all age groups under 44 years to around 19% to 25% in 2021–22.
- In 2021–22, 13% of First Nations people (around 114,000) had an initial eye examination by an optometrist or ophthalmologist.
- Diabetic retinopathy is a complication of diabetes which can result in vision loss if not detected and treated early. An estimated 29,000 First Nations people had a diabetes test in the previous 2 years, while around 13,500 (47%) also had an eye examination in 2021–22.

Treatment

Eight of the 10 treatment measures have updated data. Of these, measure 3.4 (cataract surgery) and both sub-measures of measure 3.8 (trachoma and trichiasis treatment), appear to have improved over the reporting years. All 4 sub-measures of measure 3.6 (waiting times for elective cataract surgery) appear to have worsened over the reporting years. Data for both sub-measures of measure 3.7 (treated for diabetic retinopathy) and measure 3.8 (trachoma and trichiasis treatment) do not show change or a clear trend over time. It is not possible to determine if changes are improvements or not for 3 measures: 3.1 (diseases), 3.2 (injuries) and 3.3 (procedures).

- In 2019–21, among First Nations people, there were around 6,700 (3,894 per 1,000,000 population) hospitalisations for cataract surgery. Between 2013–14 and 2020–21, the agestandardised rate for cataract surgery for First Nations people increased from 6,462 to 8,691 per 1,000,000.
- In 2019–21, among First Nations people, there were around 11,000 (6.4 per 1,000 population) hospitalisations for diseases of the eye and around 10,800 (6.2 per 1,000) hospitalisations for eye procedures.
- In 2022, the overall treatment coverage of active trachoma cases in at-risk communities was 95% – that is, 829 community members received treatment. This included children with active trachoma, along with their household contacts and other community members.
- In 2021–22, around 17,550 pairs of spectacles were dispensed to First Nations people under state spectacle schemes by New South Wales, Victoria, Queensland, South Australia and Tasmania (the states and territories able to provide data). Of these, Victoria (2,496 spectacles, 39 per 1,000 population) came closest to meeting the estimated number of spectacles needed among First Nations people (4,230) – with 59% of the population-based need met.

Workforce and outreach

All 4 of the workforce and outreach measures have updated data. Of these, measure 4.1 (optometrists) appears to have improved over the reporting years. Data for measures 4.2 (ophthalmologists) and 4.3 (allied ophthalmic personnel) do not show change or a clear trend over time. Data for the 5 sub-measures of measure 4.4 (outreach and other programs) are mixed. Some sub-measures appear to show improvement over time while others seem to be worsening. Trends should be interpreted with caution, however, as jurisdictions may elect to use different outreach programs for eye services depending on their needs.

- In 2021, around 5,700 optometrists were employed in Australia (19 full-time equivalent (FTE) per 100,000 total Australian population). The numbers and rates of optometrists were lowest in Remote and Very remote areas.
- In 2021, around 1,000 ophthalmologists were employed in Australia (3.9 FTE per 100,000 total Australian population).
- The number of occasions of service provided under the Visiting Optometrists Scheme – which provides specialist eye health services to First Nations people in mainly regional and remote areas – has fluctuated; however, overall, First Nations services more than tripled between 2009–10 (around 7,000 occasions of service) and 2021–22 (around 25,000 occasions of service).

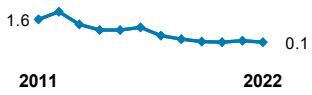
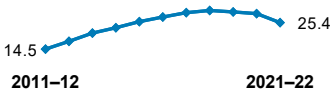
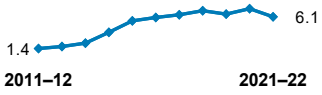
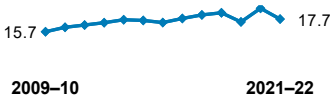
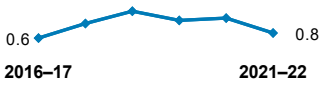
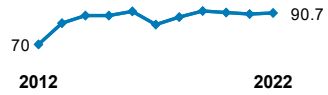
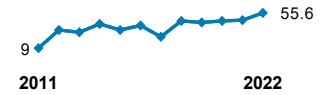
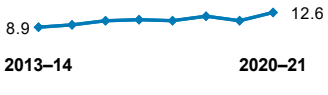
Comparison with non-Indigenous Australians

- Between 2009–10 and 2021–22, the total age-standardised proportion of First Nations people who had an initial eye examination by an optometrist and/or an ophthalmologist increased from 16% to 18%, while the equivalent proportion for non-Indigenous Australians rose from 20% to 25%.
- Between 2010–11 and 2021–22, the total age-standardised proportion of First Nations people tested for diabetes who had an eye examination rose from 33% to 40%; for non-Indigenous Australians, it rose from 37% to 46%.
- In 2020–21, age-standardised hospitalisation rates for First Nations people for cataract surgery (8,691 per 1,000,000 population) were lower than for non-Indigenous Australians (8,944 per 1,000,000).
- In 2020–21, the proportion of First Nations people who had elective cataract surgery and were treated within 90 days was very similar to the proportion of non-Indigenous Australians who were treated within this time (both 38% when rounded).

Impact of COVID-19

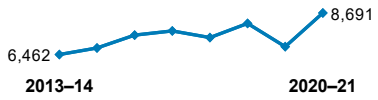
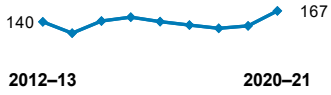
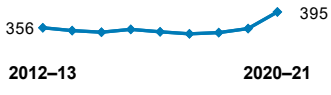
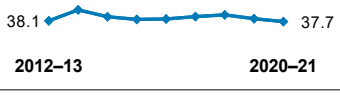
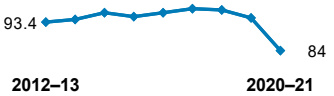
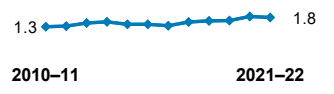
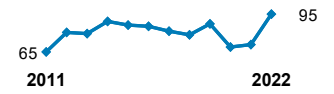
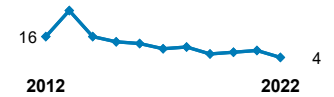
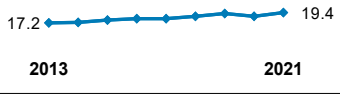
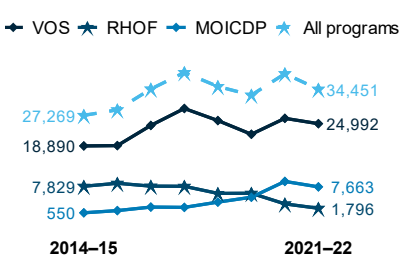
- This report presents information on the impact of COVID-19 on health assessments for First Nations people (measure 2.1, sub-measures 2.1.1 and 2.1.2) and hospitalisations (measures 3.1, 3.2, 3.3 and 3.4).

Table 1: Trend data for selected measures and sub-measures

Measure/sub-measure		Change over time for First Nations people	Progress
Prevalence			
1.3.1	Prevalence of trachoma in at-risk First Nations communities (First Nations children aged 5–9 years, crude per cent)		✓
1.3.2	Prevalence of trichiasis in at-risk First Nations communities (First Nations adults aged over 40 years, crude per cent)		✓
Screening and diagnosis			
2.1.1	Annual health assessments for First Nations people (First Nations people, age-standardised proportion)		✓
2.1.2	Annual health assessments for First Nations people and initial eye examination (First Nations people, age-standardised proportion)		✓
2.2	Eye examinations by an eye care professional (First Nations people, age-standardised proportion)		✓
2.3.1	Screening for diabetic retinopathy among those tested for diabetes (First Nations people, age-standardised proportion)		✓
2.3.3	Screening for diabetic retinopathy (First Nations people, crude per 1,000)		✓
2.4.1	Screening for trachoma (First Nations children aged 5-9 years screened in at-risk communities, proportion)		✓
2.4.2	Screening for trichiasis (First Nations adults aged 40 years and over, proportion in trachoma endemic regions)		✓
Treatment			
3.1	Hospitalisations for diseases of the eye (First Nations people, age-standardised per 1,000)		~
3.2	Hospitalisations for injuries to the eye (First Nations people, age-standardised per 1,000)		~
3.3	Hospitalisations for eye procedures (First Nations people, age-standardised per 1,000)		~

(continued)

Table 1 (continued): Trend data for selected measures and sub-measures

Measure/sub-measure		Change over time for First Nations people	Progress
3.4	Hospitalisations for cataract surgery (First Nations people, age-standardised per 1,000,000)		✓
3.6.1	Waiting times for cataract surgery (First Nations people, days waited at the 50th percentile)		✗
3.6.1	Waiting times for cataract surgery (First Nations people, days waited at the 90th percentile)		✗
3.6.2	Waiting times for cataract surgery (First Nations people, treated within 90 days, proportion)		✗
3.6.2	Waiting times for cataract surgery (First Nations people, treated within 365 days, proportion)		✗
3.7.1	Treated for diabetic retinopathy among those screened for diabetic retinopathy (First Nations people, crude proportion)		– –
3.7.2	Treated for diabetic retinopathy among those screened for diabetes (First Nations people, crude proportion)		– –
3.8.1	Trachoma treatment coverage (Community members treated in communities where active trachoma was identified, cude proportion)		– –
3.8.2	Trichiasis treatment coverage (First Nations people aged 40 years and over treated for trichiasis, number)		– –
Workforce and outreach			
4.1	Optometrists (All Australians, FTE per 100,000)		✓
4.2	Ophthalmologists (All Australians, FTE per 100,000)		– –
4.3	Allied ophthalmic personnel (All Australians, FTE per 100,000)		– –
4.4	Outreach programs (First Nations people, occasions of service)		– –

FTE = full-time equivalent, MOICDP = Medical Outreach Chronic Diseases Program, RHOF = Rural Health Outreach Fund, VOS = Visiting Optometrists Scheme

✓ Measure/sub-measure shows improvement over time.

✗ Measure/sub-measure worsening over time.

-- Updated data available but data show no change or no clear trend over time.

~ Unclear whether the trend in the data represents improvement or not. For example, an increase in hospitalisations for eye diseases could be interpreted as an increase in disease rates or an increase in treatment rates.

Sources: See chapters 1, 2, 3 and 4 and the online data tables for detailed results.

Introduction

This publication and the accompanying web report are part of a series of reports that annually update the eye health measures for Aboriginal and Torres Strait Islander people. This is the seventh such annual report.

It includes comprehensive eye health data at the national, state and regional levels, presenting the most recently available data, which cover:

- the prevalence of vision impairment and blindness
- diagnosis and screening
- treatment
- the workforce
- outreach programs.

The 2016, 2017 and 2018 editions of the report presented data for 23 measures, however, collection of data for 1 measure ceased. Of the 22 measures with ongoing data collections, 11 have sub-measures. In total, this 2023 edition of the report contains 37 measures and sub-measures, 28 of which have been updated. Table 2 provides information about which measures and sub-measures have been updated.

Table 2: First Nations eye health measures and sub-measures update status

Measures (sub-measures)		Latest Reporting period	First reporting period	First Nations rate (latest reporting period)
Prevalence				
1.1	Prevalence of			
(1.1.1)	(i) Vision impairment (%, aged 40 years and over) (n^a=1,738)	2016*	2016	10.4
	(ii) Blindness (%, aged 40 years and over) (n^a=1,738)	2016*	2016	0.3
(1.1.2)	Self-reported eye or sight problems (age-standardised %)	2018–19**	2001	49
1.2	Main causes of vision impairment and blindness			
(1.2.1)	(i) Refractive error (% of those with vision impairment) (n^b=183)	2016*	2016	60.8
	(ii) Cataract (% of those with vision impairment) (n^b=183)	2016*	2016	20.1
	(iii) Diabetic retinopathy (% of those with vision impairment) (n^b=183)	2016*	2016	5.2
(1.2.2)	Self-reported causes of eye or sight problems			
	(i) Long-sightedness (%) (n^a=10,579)	2018–19**	2018–19	22
	(ii) Short-sightedness (%) (n^a=10,579)	2018–19**	2018–19	16
	(iii) Cataract (%) (n^a=10,579)	2018–19**	2018–19	1.4

(continued)

Table 2 (continued): First Nations eye health measures and sub-measures update status

Measures (sub-measures)		Latest Reporting period	First reporting period	First Nations rate (latest reporting period)
1.3	Prevalence of			
(1.3.1)	Trachoma (%, aged 5–9 years, Qld, WA, SA and NT)	2022	2009	2.2
(1.3.2)	Trichiasis (%, aged 40 years and over, WA, SA and NT)	2022	2011	0.07
Diagnosis and screening services				
2.1	Conduct of			
(2.1.1)	Annual health assessments for First Nations people(%)	2021–22	2010–11	24
(2.1.2)	Annual health assessments for First Nations people and initial eye examination (%)	2021–22	2020–21	4.5
2.2	Initial eye examinations undertaken by an eye care professional (%)	2021–22	2009–10	13
2.3	Target population screened for diabetic retinopathy			
(2.3.1)	Eye examination among those tested with diabetes (%)	2021–22	2009–10	47
(2.3.2)	Screening for diabetic retinopathy among those with self-reported diabetes (crude %)	2016*	2016	53
(2.3.3)	Screening for diabetic retinopathy with a retinal camera (number per 1,000)	2021–22	2016–17	0.8
2.4	Screening coverage			
(2.4.1)	Trachoma (in 76 at-risk communities in 3 jurisdictions) (%, aged 5–9 years, WA, SA and NT)	2022	2012	91
(2.4.2)	Trichiasis (in 120 communities in 3 jurisdictions) (%, aged 40 years and over, WA, SA and NT)	2022	2011	56
2.5	Undiagnosed eye conditions (%, aged 40 years and over) (n^a=1,783)	2016*	2016	57
2.6	Eye health problems managed by GPs*	2010–2015***		
Treatment services				
3.1	Hospitalisations for diseases of the eye (number per 1,000)	2019–21	2012–13	6.4
3.2	Hospitalisations for injuries to the eye (number per 1,000)	2019–21	2012–13	1.2
3.3	Hospitalisations for eye procedures (number per 1,000)	2019–21	2012–13	6.2

(continued)

Table 2 (continued): First Nations eye health measures and sub-measures update status

Measures (sub-measures)		Latest Reporting period	First reporting period	First Nations rate (latest reporting period)
3.4	Cataract surgery rate (number per 1,000,000)	2019–21	2012–13	3,894
3.5	Cataract surgical coverage rate (%, aged 40 years and over) (n^b=183)			
(3.5.1)	NEHS coverage rate	2016*	2016	59
(3.5.2)	WHO coverage rate	2016*	2016	93
3.6	Waiting times for elective cataract surgery			
(3.6.1)	Median waiting time in days	2020–21	2012–13	167
(3.6.2)	Treated within 90 days (%)	2020–2021	2012–13	37.7
3.7	Target population treated for diabetic retinopathy			
(3.7.1)	Treated for diabetic retinopathy (crude % of those screened for diabetic retinopathy)	2021–22	2010–11	3.8
(3.7.2)	Treated for diabetic retinopathy (crude % of those screened for diabetes)	2021–22	2010–11	1.8
3.8	Treatment coverage			
(3.8.1)	Trachoma (% community members treated, all ages, Qld, WA, SA and NT)	2022	2011	96
(3.8.2)	Trichiasis (treated number aged 40 years and over, Qld, WA, SA and NT)	2022	2012	4
3.9	Treatment of refractive error	2016*	2016	82
3.10	Spectacles dispensed under state schemes	2021–22		—
Workforce and outreach services				
4.1	Number and rate of optometrists (FTE per 100,000)	2021	2014	19
4.2	Number and rate of ophthalmologists (FTE per 100,000)	2021	2014	4
4.3	Number and rate of allied ophthalmic personnel			
	(i) optical dispensers (FTE per 100,000)	2021	2016	14
	(ii) orthoptists (FTE per 100,000)	2021	2016	3
4.4	Occasions of eye health services provided under outreach and other programs			
(4.4.1)	Visiting Optometrists Scheme (number)	2021–22	2011–12	24,992
(4.4.2)	Rural Health Outreach Fund (number)	2021–22	2012–13	1,796
(4.4.3)	Medical Outreach Indigenous Chronic Disease Program (number)	2021–22	2014–15	7,751
(4.4.4)	Combined outreach (number)	2021–22	2014–15	33,960
(4.4.5)	Eye and Ear Surgical Support Services program (number)	2021–22	2020–21	548

Not updated since previous reporting period

Discontinued data

AATSIHS = Aboriginal and Torres Strait Islander Health Survey; ABS = Australian Bureau of Statistics; BEACH = Bettering the Evaluation and Care of Health survey; FTE = full-time equivalent; na = number of Indigenous Australians who participated in the National Eye Health Survey 2016, nb = number of Indigenous Australians who participated in the National Eye Health Survey 2016 who had vision impairment, NATSIHS = National Aboriginal and Torres Strait Islander Health Survey; NATSINPAS = National Aboriginal and Torres Strait Islander Nutrition and Physical Activity Survey; NEHS = National Eye Health Survey; WHO = World Health Organization.

*Updated data are not available as data for these measures are based the NEHS. Due to COVID, the conduct of the next NEHS has been delayed. It is being conducted in 2023 and updated NEHS data should be available in 2024.

** Updated data are not available as data for these measures are based on the ABS 2018–19 NATSIHS, the ABS 2017–18 National Health Survey and the ABS 2012–13 AATSIHS. The last NATSIHS was in 2018–19. The next NATSIHS is visiting communities across the country between now and mid-2023 as part of the Intergenerational Health and Mental Health Study. The 2017-–18 National Health Survey has the most recent eye health data. The AATSIHS is the most recent combined data file of the NATSIHS and the NATSINPAS.

*** Data for this measure were previously sourced from BEACH survey, which ceased collection in 2015. This measure was most recently presented in the 2018 edition of this report but is no longer presented since the data collection has ceased.

Note: Measures 4.1, 4.2 and 4.3 are total rates and not First Nations rates.

Sources: See chapters 1, 2, 3 and 4 and the online data tables for detailed results.

The eye health measures reports provides an evidence base:

- to monitor changes in First Nations eye health over time
- to monitor First Nations people's access to and use of eye health services
- to identify gaps in service delivery.

First Nations people view health in a holistic way as described in the NACCHO Constitution (NACCHO, 2011: 5–6):

> Aboriginal [and Torres Strait Islander] health means not just the physical well-being of an individual but refers to the social, emotional and cultural wellbeing of the whole Community in which each individual is able to achieve their full potential as a human being, thereby bringing about the total well-being of their Community. It is a whole-of-life view and includes the cyclical concept of life-death-life.

The health and wellbeing of First Nations people can be improved if local First Nations people determine and own the process of health-care delivery. First Nations community control in health is essential to attaining holistic health, and it allows Aboriginal communities to determine their own affairs, protocols and procedures. (National Aboriginal Community Controlled Health Organisation 2012, as cited in Department of Health and Ageing, 2013).

Eye health has a profound impact on a person's quality of life and on their ability to perform everyday activities. Eye diseases and vision problems are the most common long-term health conditions reported by First Nations people, with over one-third (38%) self-reporting eye or sight problems (ABS 2019).

Vision loss may limit opportunities for physical mobility, work, education and social engagement. As well, people with vision loss may be more dependent on services and other people, and can also face an increased risk of injury or death and have reduced life expectancy (Razavi et al. 2018).

Self-determination and leadership are key to improving the health of First Nations people and involve practices and processes that incorporate not only self-governance and shared decision-making, but also the right to express and pass on culture, language and relationships with Country.

Self-determination and leadership in health and wellbeing empower communities through culturally centred processes of decision-making and deliver solutions that respond to local context (The Lowitja Institute 2020).

While First Nations children have a lower incidence of poor vision than other Australian children, the prevalence of vision impairment increases markedly with age: First Nations people over the age of 40 have nearly 3 times the rate of vision loss of other Australians (Foreman et al. 2017). There is evidence, however, of some improvement in recent years – with findings of the 2016 National Eye Health Survey (NEHS) indicating that the prevalence of blindness among First Nations adults has declined, possibly related to improvements in prevention and treatment services.

Most of the blindness and vision impairment experienced by First Nations people is caused by conditions that are preventable or amenable to treatment – that is, vision loss due to refractive error, cataract and diabetic retinopathy (see Box 1 for the main eye conditions). For example, use of glasses (spectacles) and cataract surgery are 2 relatively low-cost effective interventions for treating the main causes of vision loss (Foreman et al. 2016).

Box 1: Main eye health conditions affecting First Nations people

Refractive error refers to problems with the focusing of light and occurs when the shape of the eye prevents light from focusing directly on the retina. It causes long- or short- sightedness and is a frequent cause of reduced visual acuity. The error can generally be corrected with the use of spectacles and contact lenses, or through laser surgery (National Eye Institute 2022).

A **cataract** is a mostly degenerative condition where the lens of the eye clouds over, obstructing the passage of light to the retina and causing vision impairment and, potentially, blindness. Cataracts usually develop slowly and at different rates in each eye, and most are due to ageing. Other risk factors include smoking, exposure to the sun, diabetes and injury to the eye. Cataracts can be treated with surgery, which involves replacing the clouded lens with 1 made from plastic (Taylor et al. 2012). Surgery can be necessary when the cataract begins to interfere with daily activities.

Diabetic retinopathy is a complication of diabetes and refers to damage to the blood vessels in the retina. People with diabetes are at risk of developing diabetic retinopathy, but factors that increase the risk include poor control of diabetes, having diabetes for a long time, high blood pressure, high cholesterol and smoking (Biotext 2008). Initially, the condition may cause no symptoms or only mild vision problems, however, if poor diabetes management continues, it can result in blindness – so early diagnosis is important. At any stage of severity, it can be associated with diabetic macular edema, a swelling of the macular area of the retina that affects vision. A retinal camera is used by eye specialists to screen for diabetic retinopathy. Treatment includes laser surgery to repair leaking blood vessels, injections to decrease inflammation and, in more severe cases, surgery (Healthinfonet 2016).

Trachoma is an infectious disease of the eye caused by Chlamydia trachomatis. If left untreated, it can result in scarring, in-turned eyelashes (trichiasis) and blindness. The early stage of trachoma usually occurs in young children aged 2–3, but can also occur in older children. Trachoma is highly infectious and easily spread; it is generally found in dry and dusty environments where people live in overcrowded conditions and where personal and community hygiene is hard to maintain. The 'SAFE' strategy – namely surgery to prevent blindness by correcting inturned eyelashes, antibiotics to treat active infection, face washing to stop eye-seeking flies that spread infection, and improving environmental access to water and improved sanitation – is the approach recommended by the World Health Organization (WHO) to control trachoma (Kirby Institute 2015). Antibiotics (azithromycin) are used to treat trachoma, while surgery is required to prevent blindness for people who have trichiasis. Facial cleanliness and environmental improvements are required to stop the spread of the condition (Healthinfonet 2016).

Protective and risk factors for eye health problems

The factors that contribute to poorer eye health for First Nations people are complex and may be related to a range of social and cultural determinants of health (Kirby Institute 2020; Razavi et al. 2018; Taylor et al. 2012).

The devastating impacts of colonisation on First Nations communities and culture are recognised as having a fundamental impact on the physical and mental health of the population. Consequential impacts of living conditions and poor nutrition have contributed to the development of eye problems and other chronic conditions (such as diabetes) which are an important risk factor for eye disease (Razavi et al. 2018). First Nations people, particularly those in remote areas, are more likely to have limited access to culturally safe primary health care, and inadequate access to appropriate living and environmental conditions – which further exacerbates eye health problems (Razavi et al. 2018).

In contrast, First Nations cultural identity and participation in cultural activities, access to traditional lands along with connection to family and kinship are recognised as protective factors and can positively influence overall health and wellbeing (AIHW 2017a).

Health protective and risk factors

Health factors contributing to poor eye health may include age, high blood pressure, obesity, diabetes, low birthweight, diet, and alcohol and tobacco use. As well, past eye health – including increased incidence of eye injuries or repeated eye infections (for example, trachoma) – can increase the risk of poor eye health in the future (Razavi et al. 2018).

While a range of behavioural and biomedical factors are known to be associated with an increase in the risk of developing eye problems, improvements in these factors can contribute to improvements in eye health. For example, a better nutritional intake among a Central Australian cohort of Aboriginal people was found to protect against chronic diseases, including hypertension, diabetes and cardiovascular disease, all of which have known associations with eye health (Razavi et al. 2018). Reductions in tobacco use and hypertension, and improvements in diet, can also reduce the risk of eye problems.

Environmental and socioeconomic factors

Environmental conditions – such as exposure to dust, ultraviolet light exposure and access to nutritional food – all have an impact on eye health. Living conditions, such as access to adequate sanitation and safe and functional washing facilities, also directly influence the quality of eye health as do havingappropriately sized housing and maintenance and prompt repair of household hardware, such as washers and plumbing

Also important for overall eye health are broader socioeconomic factors such as education, employment and income (Razavi et al. 2018).

Access to services

Despite higher rates of vision loss, research consistently shows that First Nations people use eye health services at lower rates than non-Indigenous Australians (see, for example, AIHW 2019; Turner et. al. 2011).

Eye health is influenced by the accessibility and availability of eye health services, including their cost (affordability and cost certainty), their location, and the availability of transport and outreach services. These factors mean that limited access is a risk factor for poor eye health for those living in remote First Nations communities.

Primary health care is the gateway to the health service and has an important role in providing primary eye care, as well as in facilitating access to culturally safe eye care services, improving the monitoring of eye health and adopting needs-based planning for eye care. Aboriginal and Torres Strait Islander community controlled health organisations make unique contributions to health care for First Nations people by delivering holistic, comprehensive and culturally appropriate health care. Improvements in eye care monitoring and access to eye care services by primary health care services will contribute to improvements in First Nations eye health (Boudville et al. 2013). The National Aboriginal and Torres Strait Islander Health Plan recommends that all services delivering primary health care at the local, regional and state levels should seek to optimise their engagement and involvement with First Nations people to improve health outcomes (Department of Health and Aged Care 2021).

Access to services is also influenced by the complexity of the eye health system and continuity of care – between general practitioners (GPs), optometrists, ophthalmologists, Aboriginal health workers/ practitioners and other health-care providers. For example, treatment of eye conditions, such as diabetic retinopathy and cataract, involve complex clinical pathways and a series of visits to different providers (Taylor et al. 2012). This complexity means that people may not complete treatment.

Cultural safety

A lack of cultural safety in health-care services may also act as a barrier to accessing eye care services. Cultural safety is determined by First Nations individuals, families and communities. Culturally safe practice is the result of health practitioner knowledge, skills, attitudes and practising behaviours that negate power differentials and deliver safe, accessible and responsive health care free of racism (AHPRA 2020).

Improving cultural safety across all levels of care has been shown to increase First Nations people's access to health care. For example, patients are more likely to attend ophthalmology appointments if eye clinic staff take a sensitive, patient-centred approach and provide encouragement, reminders and transport (Razavi et al. 2018). However, even when there is proportionately greater access to culturally safe community-controlled health services, such as in rural and remote areas, these services are not always available in all areas and there is often a need to travel long distances to access care.

Wellbeing and quality of life

Poor eye health can have a major impact on the health of individuals and communities. One way to combine the fatal and non-fatal effects of diseases in a comparable way is through burden of disease analysis. This analysis measures the impact of different diseases and injuries in terms of the number of years of healthy life lost due to illness or premature death. Burden of disease is measured using a summary metric of disability-adjusted life years (DALY). One DALY is 1 year of healthy life lost to disease and injury. DALY caused by living in poor health (non-fatal burden) are the 'years lived with disability' (YLD) (AIHW 2022).

In 2018, it was estimated that vision disorders were responsible for 699 YLD among First Nations people. Total YLD for First Nations people was estimated to be 126,496 in 2018 – meaning vision disorders were responsible for 0.6% of years of life lost to disability (AIHW Burden of Disease database, unpublished).

An alternative way to quantify this is through the number of years with disability that can be averted by closing the gap for First Nations eye health and eliminating unnecessary blindness over the 10 years from 2015 to 2024. A 2015 report estimated that, if this occurred, 7,300 years of life lived with disability would be averted (using the WHO Global Burden of Disease 2004 disability weightings) (University of Melbourne 2015).

Eye health policy context, services and programs

Across a continuum of care, eye health services cover prevention, screening, diagnosis and treatment services. A range of different health care workers, including GPs, optometrists, ophthalmologists, nurses and Aboriginal health workers, provide these services. Table 3 lists a broad overview of these services.

The Medicare Benefits Schedule (MBS) provides for general consultations with GPs. All First Nations people are also eligible for an annual health assessment for First Nations people (which incorporates a basic eye health check). The MBS also provides for a comprehensive optometric consultation every 3 years (formerly every 2 years), as well as for consultations for people with existing conditions or notable changes in vision.

Table 3: Overview of eye health services – continuum of eye care

Primary	Secondary	Tertiary
Services	***Services***	***Services***
Eye health promotion	Eye examinations	Medical treatment of eye conditions
Screening for eye health and vision; basic eye checks, trachoma screening	Diagnosis and treatment of refractive error	Cataract surgery, laser treatment and other eye surgery
Treatment of minor eye conditions (e.g. conjunctivitis, removal of foreign bodies)	Diagnosis and referral for more complex conditions (e.g. cataracts, treatment for diabetic retinopathy)	Prescription of all eye care medications
Diagnosis and referral of more complex cases (e.g. diabetes)	Prescription and supply of visual aids	
Coordination of care		
Follow-up, post-operative care		
Providers	***Providers***	***Providers***
GPs	Optometrists	Ophthalmologists
Nurses	Ophthalmologists	Ophthalmic nurses
Aboriginal health workers/ practitioners	Eye health support staff	Hospital staff
Aboriginal Community Controlled Health Organisation		

Table 3 (continued): Overview of eye health services – continuum of eye care

Primary	Secondary	Tertiary
Settings	***Settings***	***Settings***
Private general medical practices First Nations primary health care Community clinics and health centres	Private practices and clinics Sessional services in First Nations primary health care and community health centres Outreach services in various settings (e.g. First Nations primary health care services, private rooms)	Public and private hospitals Private clinics Outreach services in various settings (e.g. regional hospitals, First Nations primary health care services)
Access	***Access***	***Access***
No referral required, but optometrists may refer clients	Referral is not required for optometry services but is required for ophthalmology services.	Referral required if claiming Medicare GPs and optometrists can refer clients

Responsibility for eye health services in Australia is shared across different levels of government, the private sector, health-care professions and non-government organisations. Their respective initiatives to prevent and treat vision loss for First Nations people are having a positive impact on First Nations people's access to eye health services.

The Australian Government, through Medicare, funds eye health services provided by GPs, optometrists and ophthalmologists, as well as procedures for private patients in public hospitals. It also funds some targeted eye health programs designed to improve access to eye care services for First Nations people. Public hospitals are funded by state, territory and Australian governments; are managed by state and territory governments; and provide services to public and some private patients. States and territories also provide funding for various other eye health services, including outreach programs and spectacle schemes.

The context in which services are provided to patients can affect access and waiting times. Currently, rates of cataract surgery are lower for First Nations people than for other Australians (see also ACSQHC and AIHW 2017; Randall et al. 2014). This may be because agestandardised rates of cataract surgery for First Nations people in public hospitals were higher than those for non-Indigenous Australians (927 and 388 per 1,000,000, respectively) in 2019–20 (AIHW analysis of the National Hospital Morbidity Database [NHMD], unpublished). This means delays or interruptions to the public health system will disproportionately affect cataract surgery rates and waiting times for First Nations people.

Australian Government initiatives

Recent and current high-level policy developments provide an important context for the current state and future of eye health among First Nations people.

- All Australian governments are working with First Nations people, their communities, organisations and businesses to implement the National Agreement on Closing the Gap at the national, state and territory, and local levels. This has been undertaken in genuine partnership between Australian governments and the Coalition of Aboriginal and Torres Strait Islander Peak Organisations (hereafter referred to as the Coalition of Peaks) (see Box 2).

- The National Aboriginal and Torres Strait Islander Health Plan (2021–2031) changes the way governments work with First Nations people to achieve better health outcomes. Developed in real partnership with First Nations people, it reflects their priorities and embeds a holistic perspective of First Nations health. This perspective recognises the influence of social determinants, and the strengths of culture as a protective influence on physical, social and emotional wellbeing.

Box 2: National Agreement on Closing the Gap

The National Agreement on Closing the Gap commits all governments to uphold partnership, self-determination and community-control as the best way to close the gap in health outcomes for First Nations peoples. It does this through 4 Priority Reforms:

- Shared decision-making and partnerships
- Building the community-controlled sector
- Transforming government organisations
- Shared access to data and information at a regional level.

The agreement not only provides for more shared accountability but also facilitates a better ability to demonstrate progress than before. For the first time, the Australian, state and territory, and local governments and the Coalition of Peaks are jointly accountable for implementing targets under the National Agreement. Checks on progress toward achieving commitments in the National Agreement will be managed through ongoing monitoring by the Joint Council on Closing the Gap and through the Productivity Commission and First Nations-led reviews every 3 years (see http://www.closingthegap.gov.au).

The Australian Government has also put in place a number of policies and initiatives specific to First Nations eye health, including:

- Strong eyes, strong communities – a 5-year plan for Aboriginal and Torres Strait Islander eye health and vision 2019–2024, to close the gap for vision and achieve a world-class system of eye health and vision care for First Nations people (developed at the request of the Australian Government and presented in March 2019 to the Council of Australian Governments). This plan is evolving in line with the National Agreement on Closing the Gap (Vision 2020 Australia 2019) and continues to help inform the work of the Australian Government in First Nations people's eye health
- the Australian Eye and Ear Health Survey – the survey will obtain data on the prevalence and causes of vision and hearing loss, blindness and eye disease in the population. It is expected the survey will be conducted between 2022 and 2024 with data available from 2024. It will use methodology similar to that for the 2016 NEHS so that data from the 2 surveys can be compared.
- engaging an external review of health outreach programs including the Visiting Optometrists scheme (VOS), the Eye and Ear Surgical Support scheme (EESS), the Medical Outreach Indigenous Chronic Diseases Program (MOICDP) and the Rural Health Outreach Fund (RHOF). The Department of Health and Aged Care is considering the review report and its recommendations

- Australia's Long Term National Health Plan's actions to support priorities to end avoidable blindness in First Nations communities by 2025 (Department of Health 2019)
- funding agreed to deliver health outreach services, trachoma control, surveillance and reporting, and the National Subsidised Spectacles Scheme.

State and territory-based programs and services

All jurisdictions have subsidised spectacle schemes which provide eye care and visual aids to clients at low or no cost. These schemes have varying eligibility criteria and different levels of entitlements. The schemes generally provide access for those eligible for pensioner or benefit concessions, through participating optometrists and ophthalmologists. Some jurisdictions also provide access for First Nations people through Aboriginal Community Controlled Health Services. These programs are currently being updated to enhance First Nations identification and improve access. Recently, some jurisdictions have broadened their spectacle schemes by expanding eligibility requirements to First Nations customers.

Outreach programs

Outreach programs aim to improve access to medical specialists, to GPs, and to allied and other health providers for people living in rural, regional and remote areas where these services are generally not available. Outreach services for eye health exist in all states and territories, though the models of service delivery vary. These services are provided through a mix of funding from the Australian Government, from state and territory governments, and from philanthropic and educational organisations.

Eye health measures and the data sources

The framework for this report groups the 23 eye health measures into 4 categories as shown in Table 4.

Table 4: First Nations eye health measures

Measures	Main data source	Latest year of reporting
Prevalence		
1.1 Prevalence of vision impairment and blindness	NEHS*	2016
1.2 Main causes of vision impairment and blindness	NEHS*	2016
1.3 Prevalence of trachoma and trichiasis	ATSR	2022
Diagnosis and screening services		
2.1 Annual health assessments for First Nations people	MBS	2021–22
2.2 Eye examinations undertaken by an eye care professional	MBS	2021–22
2.3 Target population screened for diabetic retinopathy	MBS	2021–22
2.4 Trachoma and trichiasis screening coverage	ATSR	2022
2.5 Undiagnosed eye conditions	NEHS*	2016
2.6 Eye health problems managed by GPs	BEACH** [discontinued]	2010–15
Treatment services		
3.1 Hospitalisations for diseases of the eye	NHMD	2019–21
3.2 Hospitalisations for injuries to the eye	NHMD	2019–21
3.3 Hospitalisations for eye procedures	NHMD	2019–21
3.4 Cataract surgery rate	NHMD	2019–21
3.5 Cataract surgical coverage rate	NEHS*	2016
3.6 Waiting times for elective cataract surgery	NHMD	2019–21
3.7 Target population treated for diabetic retinopathy	MBS	2021–22
3.8 Trachoma and trichiasis treatment coverage	ATSR	2022
3.9 Treatment of refractive error	NEHS*	2016
3.10 Spectacles dispensed under state and territory schemes	State admin	2021–22
Workforce and outreach services		
4.1 Number and rate of optometrists	NHWDS	2021
4.2 Number and rate of ophthalmologists	NHWDS	2021
4.3 Number and rate of allied ophthalmic personnel	Census	2021
4.4 Occasions of eye health services provided under outreach and other programs	Admin data	2021–22

ATSR = Australian Trachoma Surveillance reports, BEACH = Bettering the Evaluation and Care of Health survey, Census = ABS Census of Population and Housing, GP = general practitioner, MBS = Medicare Benefits Schedule, NEHS = National Eye Health Survey, NHMD = National Hospital Morbidity Database, NHWDS = National Health Workforce Data Set.

* Due to COVID, the conduct of the next National Eye Health Survey has been delayed. It is being conducted in 2023 and updated NEHS data should be available in 2024.

** Data for this measure were previously sourced from the BEACH survey which ceased collection in 2015. This measure was most recently presented in the 2018 edition of this report but is no longer presented since the data collection has ceased.

Measures shown in the first category (Prevalence) of Table 4 provide information on the extent of First Nations vision problems. The next 2 categories focus on the continuum of eye care services, starting with diagnosis and screening of vision problems and then treatment of eye diseases and vision problems. The final category has measures on workforce and outreach programs that aim to increase First Nations access to eye health services.

Data disaggregations

Where possible, the data for each of these measures are presented:

- for both First Nations and other Australians
- by age and sex
- by state/territory
- by remoteness areas
- over time
- and/or by primary health network (PHN) and/or Roadmap region.

Where available, the report presents data against the measures disaggregated by 10-year age groupings. However, data limitations constrain the disaggregations that can be presented for older age groups across the report, as rates become unreliable and volatile due to small numbers. Therefore data are presented to:

- age 75 and over for Australian Bureau of Statistics (ABS) survey data, MBS health assessments for First Nations people, and hospitalisation rates. However, numbers of patients treated and population denominators for age groups 75–84 and 85 and over for hospitalisation rates are now reported separately in the online data tables for this report
- age 65 and over for MBS measures relying on the Voluntary Indigenous Identifier (VII).

Key data sources

The main data sources used by the Australian Institute of Health and Welfare (AIHW) to report on the measures were:

- National Eye Health Survey (NEHS), Centre for Eye Research and Vision 2020 Australia
- National Hospital Morbidity Database (NHMD), AIHW
- Australian Trachoma Surveillance reports (ATSR), Kirby Institute
- Medical Benefits Schedule (MBS) data, Department of Health and Aged Care
- National Health Workforce Data Set (NHWDS), Department of Health and Aged Care
- Department of Health and Aged Care administrative data on outreach programs
- state government administrative data on the spectacle subsidy schemes.

More details about the data sources are provided in the following chapters under each measure and in Appendix A.

Population estimates

Statistics presented in this release use the ABS 2016 Census-based projection of the Aboriginal and Torres Strait Islander population. Until the release of 2021 Census-based population estimates and projections in mid-2024, these 2016 statistics are the latest available official figures for the First Nations population. Details of how the different population rates presented in the report are calculated are presented in Box 3.

Box 3: Population rates

There are 3 types of population rates used to present data in this report:

- Crude rates are the number of events divided by the total population.
- Age-specific rates are the number of events for a specified age group divided by the population in that age group.
- Age-standardised rates are the crude rates for different groups, such as First Nations people and non-Indigenous Australians, applied to a standard population to produce a summary rate.

Crude rates are used to look at differences within a population, such as the First Nations population. These can be misleading, however, when comparing populations with different age structures, such as First Nations people and non-Indigenous Australians. It is important to take into account these differences, particularly when looking at conditions that are age related, such as refractive error and cataracts.

Age-specific rates allow populations with different age structures to be compared. These comparisons provide information about the measures of interest for different age groups, but are difficult to summarise and present. Age-standardised rates control for the effects of age and provide a summary rate for each of the populations of interest. The resulting rates, however, are not the 'real' or reported rates that occur in the population.

First Nations identification

Improving the accuracy of First Nations identification in data collections is an important and ongoing issue across administrative data and needs to be considered when interpreting measure results across the report.

The quality of First Nations identification varies across data sources. The results of the AIHW's examination of the quality of First Nations identification of patients in hospitals data are presented in Box 4.

Box 4: First Nations identification in hospitals data

The AIHW analysed the quality of First Nations identification in records of hospitalisations in public hospitals in Australia in both 2007–08 and 2011–12.

Overall, an estimated 11% and 12% of First Nations patients were either not identified or incorrectly identified, respectively, in the hospital record in 2007–08 and 2011–12. The weighted completeness of First Nations identification in public hospitals in different jurisdictions varied, as shown below:

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
2007–08	88%	84%	86%	97%	87%	48%	59%	96%
2011–12	80%	78%	87%	96%	91%	64%	58%	98%

Source: AIHW 2013.

People accessing Medicare-funded services may choose to identify to Services Australia as being of Aboriginal and/or Torres Strait Islander descent. This information is provided on a voluntary basis, and is referred to as the Voluntary Indigenous Identifier (VII). First Nations people are not required to enrol on the VII to access Medicare services, but doing so helps with understanding their use of services and with evaluating and improving health policies and programs (Services Australia, 2023). Not all First Nations people have identified as being of Aboriginal and/or Torres Strait Islander descent in the VII. The incomplete coverage of the VII means that Medicare data generated using the VII enrolments alone do not represent actual Medicare use by all First Nations people.

The AIHW, in consultation with the Department of Health and Aged Care (DoHAC), has developed a scale-up methodology for estimating use of Medicare services by First Nations people (ABS 2011, 2012). The methodology compensates for the incompleteness of VII coverage by adjusting VII data based on its level of coverage compared with the total estimated First Nations population (Department of Health and Ageing 2012).

Before the current edition of this report, the scale-up factors were calculated by the DoHAC. For this report they have been calculated by the AIHW, however, the estimates obtained are consistent with those produced by the DoHAC. The VII scale-up factors were applied in this report to estimate MBS service use for the following measure and sub-measures:

- Measure 2.2 (Eye examinations by an eye care professional)
- Sub-measure 2.3.1 (Eye examinations among those tested for diabetes)
- Sub-measure 3.7.1 (Treated for diabetic retinopathy among those screened for diabetic retinopathy)
- Sub-measure 3.7.2 (Treated for diabetic retinopathy among those tested for diabetes)

Regional data

The data for some of the measures are reported for smaller regional units, including PHNs and Roadmap regions.

- PHNs are 31 geographic areas covering Australia, with boundaries defined by the Department of Health and Aged Care. They vary in relation to the size of the First Nations populations who live there, and by the proportion of the total population that is First Nations (for example, the Northern Territory, the Australian Capital Territory and Tasmania each constitute a whole PHN). In this report, PHNs were classified as either metropolitan (if at least 85% of the population was in an area classified as Major cities) or regional (AIHW 2016b). The data relate to services provided to those living in these areas, and not to whether the PHNs provided the services. A map and list of PHN areas are available in Appendix B.
- Roadmap to Close the Gap for Vision regions evolved as an outcome of the University of Melbourne's Indigenous Eye Heath Unit (IEHU) Roadmap to Close the Gap for Vision project to review health service provision for First Nations people and develop a model to improve their eye care. There are 64 regions in which local collaborations to improve eye care pathways for First Nations patients have been initiated. Most of these regions have an identified 'surgical hub' – a hospital with an operating theatre where cataract surgery can be performed – and a network of stakeholders, mostly centred around local Aboriginal Community Controlled Health Services, who contribute to improved pathways of care and outcomes. Each Roadmap region is contained within a single state or territory. A map and list of the Roadmap regions are available in Appendix B. Data for some Roadmap regions have been combined for reporting purposes, including across state and territory boundaries. This was done due to data quality issues associated with deriving reliable Roadmap estimates from the available geographic areas in the underlying data sets.

Needs estimates

The IEHU at the University of Melbourne developed a 'Calculator for the delivery and coordination of eye care services', based on the 2008 National Indigenous Eye Health Survey and models of service delivery developed in the Roadmap to Close the Gap for Vision (IEHU 2017). This calculator uses the First Nations population for a community or region to estimate the annual need for eye care services in that area. The results for the following 3 eye health measures in this report were comparable with these needs estimates and are reported in chapters 2 and 3:

- 2.2 Eye examinations by an eye care professional
- 3.4 Cataract surgery rate
- 3.10 Spectacles dispensed under state schemes.

Structure of the report

- **Chapter 1** presents detailed results on the prevalence of vision impairment and blindness.
- **Chapter 2** provides detailed results on diagnosis and screening services.
- **Chapter 3** presents detailed results on the treatment of eye health conditions.
- **Chapter 4** provides information on workforce and outreach programs.
- **Appendix A** provides information on the data sources.
- **Appendix B** provides the locations of PHNs and Roadmap regions.
- **Appendix C** provides technical specifications for the measures reported, including information on relevant classification codes.
- **Appendix D** presents information on data gaps and limitations.

An in-brief report https://www.aihw.gov.au/reports/indigenous-australians/indigenous-eye-health-measures-2023-inbrief/summary, an interactive web report https://www.aihw.gov.au/reports/indigenous-australians/indigenous-eye-health-measures-2023 and online data tables https://www.aihw.gov.au/reports/indigenous-australians/indigenous-eye-health-measures-2023/data accompany this report.

1

Prevalence – what is the extent of eye health problems?

Eye diseases and vision problems are the most common long-term health conditions reported by Aboriginal and Torres Strait Islander people. Based on the latest available NEHS data, in 2016, it was estimated that about 15,000 First Nations people over the age of 40 suffered from vision loss (Foreman et al. 2017). After adjusting for age and sex, First Nations people over the age of 40 had almost 3 times the rate of vision loss of non-Indigenous Australians (Foreman et al. 2017).

Trachoma is not commonly found in high-income countries but is endemic in some remote First Nations communities in Western Australia, South Australia and the Northern Territory.

Australia is a signatory to the new road map for neglected tropical diseases: *Ending the neglect to attain the Sustainable Development Goals: a road map for neglected tropical diseases 2021–2030* (WHO 2020). The road map sets global targets and milestones to prevent, control, eliminate or eradicate 20 diseases and disease groups including trachoma.

Prevalence – measures and data sources

Three prevalence measures are reported on in this chapter.

Measure 1.1: Prevalence of vision impairment and blindness – the number of First Nations people with vision impairment and blindness (vision loss), proportion of the population and age-standardised rates.

Measure 1.2: Main causes of vision impairment and blindness – main causes of vision impairment and blindness (vision loss) for First Nations people, as a proportion of those with vision loss.

The data for both of these measures come from sample surveys. The 2016 NEHS included a sample of 1,738 First Nations people aged 40 and over and included ophthalmologic examinations to assess vision impairment and blindness. First Nations participants in the survey were aged 40 and over while non-Indigenous participants were aged 50 and over. Self-reported data on prevalence of eye and sight problems are also available from the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2018–19.

Measure 1.3: Prevalence of trachoma and trichiasis – the estimated number, and proportion of: First Nations children in at-risk communities with active trachoma, First Nations adults in at-risk communities with trichiasis.

Data for this measure were collected through state and territory screening programs and collated by the Trachoma Surveillance and Reporting Unit at the University of New South Wales Kirby Institute (Kirby Institute 2020).

Measure 1.1: Prevalence of vision impairment and blindness

Key finding: In 2016, around 15,000 First Nations people over the age of 40 suffered from vision loss, almost 3 times the rate of non-Indigenous Australians (Foreman et al. 2017).

1.1.1 Prevalence of vision impairment and blindness

Overall: Based on the latest available NEHS data, in 2016, the sampling weighted prevalence of bilateral vision impairment for First Nations people aged 40 and over was 1 in 10 (10.4%) and the prevalence of bilateral blindness was 1 in 330 (0.3%) (Figure 1.1.1a).

After standardising for age and sex, the estimated prevalence of bilateral vision loss (vision impairment and blindness combined) for First Nations people was 2.8 times the rate for non-Indigenous Australians (17.7%, confidence interval (CI) 14.5–21.0; 6.4%, CI 5.2–7.6, respectively). Based on weighted data, it was estimated that up to 15,000 First Nations people aged 40 and over suffer from vision impairment and blindness combined (Foreman et al. 2017).

Age and sex: The prevalence of vision loss for both First Nations and non-Indigenous survey participants in 2016 rose markedly with age. For First Nations people, the prevalence of vision loss was 1 in 14 (7.2%) among those aged 40–49, compared with more than 1 in 2 (56%) among those aged 80–89. First Nations' rates were higher than non-Indigenous rates for all age groups (non-Indigenous Australians aged 40–49 were not sampled) (Figure 1.1.1b).

There was no significant difference between First Nations males and females in the rates of vision loss (Figure 1.1.1c).

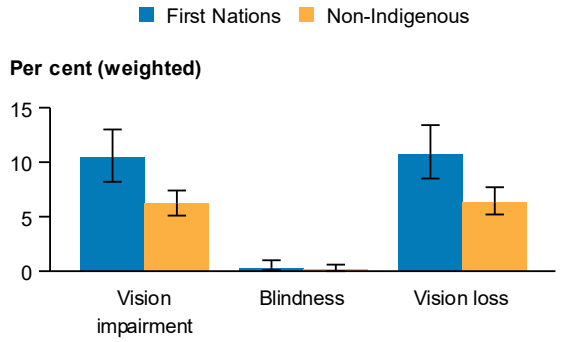
Remoteness: In 2016, the age-standardised prevalence of vision loss for First Nations people in *Outer regional* and *Very remote* areas was significantly higher than for nonIndigenous Australians (Figure 1.1.1d).

Things to consider

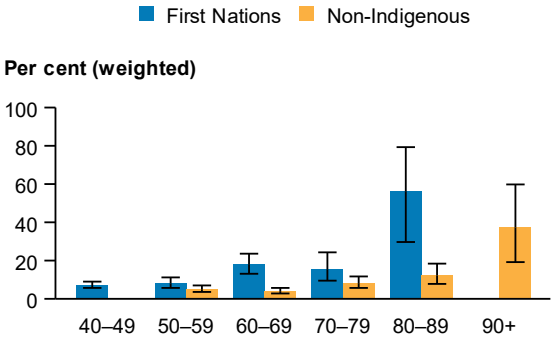
- Data are from the 2016 NEHS, a sample survey of 1,738 First Nations people aged 40 and over and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The results reported are survey weighted to account for the sampling protocol. These results are subject to sampling errors, so the 95% CIs are provided to indicate the reliability of the estimates reported.
- Vision loss refers to vision impairment and blindness combined.
- Vision impairment does not include corrected refractive error.

Figure 1.1.1: Prevalence of vision loss (vision impairment and blindness), by various characteristics

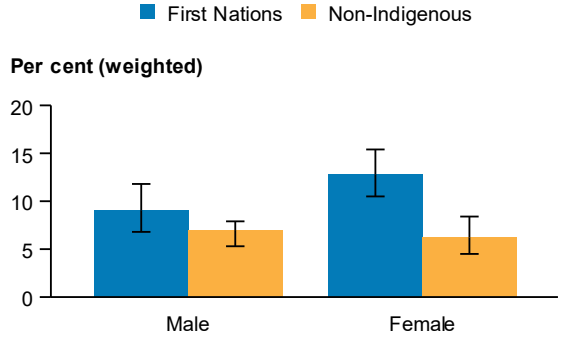
a) Overall prevalence, 2016



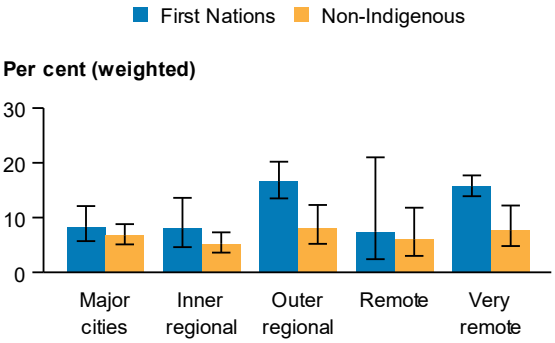
b) Vision loss, by age, 2016



c) Vision loss, by sex, 2016



d) Vision loss, by remoteness, 2016



Notes

1. Data have been survey weighted to account for sampling protocol.
2. Error bars show 95% confidence intervals
3. Data for these figures are available in the online data tables.

Sources: Foreman et al. 2017; National Eye Health Survey data 2016; Taylor et al. 2010.

1.1.2 Self-reported eye or sight problems

Overall: Based on the latest available NATSIHS data, in 2018–19, nearly 4 in 10 First Nations people (38%, or 307,300 people) reported long-term eye or sight problems (ABS 2019) (Figure 1.1.2a).

Age and sex: In 2018–19, the prevalence of self-reported eye or sight problems was higher for First Nations females than for First Nations males (Figure 1.1.2b). Self-reported eye or sight problems was highest for First Nations people aged 55–64, 65–74 and 75 and over (around 93%), compared with 10% for First Nations people aged 0–14 (Figure 1.1.2c).

Remoteness: In 2018–19, the proportion of First Nations people who self-reported eye or sight problems fell as remoteness increased, from 42% in *Major cities* to 27% in *Very remote* areas (Figure 1.1.2d).

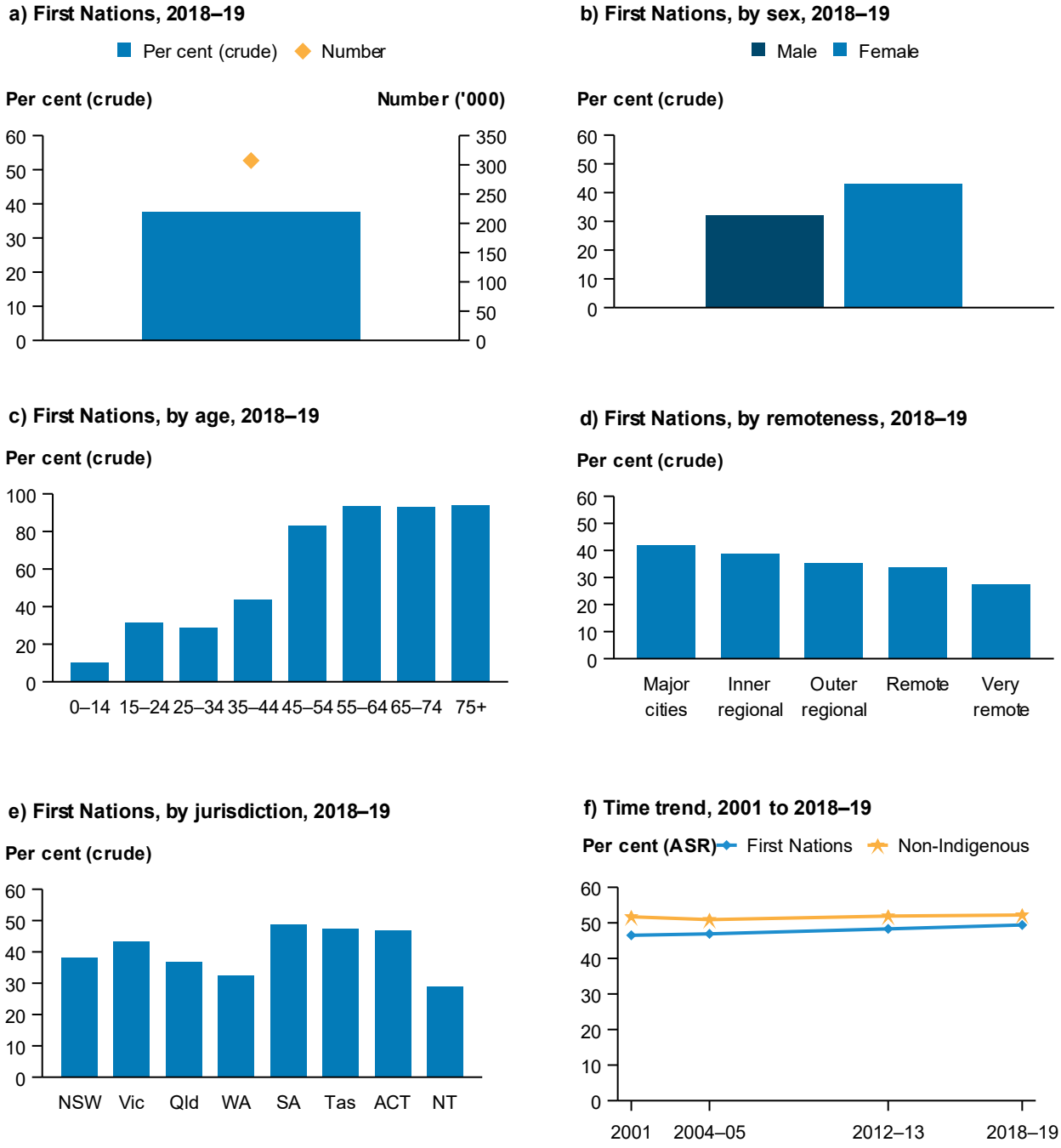
Jurisdiction: In 2018–19, the prevalence of self-reported eye or sight problems for First Nations people was highest in South Australia (49%) and lowest in the Northern Territory (29%) (Figure 1.1.2e).

Time trend: Since 2001, the age-standardised proportion of First Nations people who had an eye or sight problem rose from 47% to 49% in 2018–19, while it remained stable for non-Indigenous Australians at around 52% across this period (Figure 1.1.2f). After adjusting for age, the proportion of First Nations people with an eye or sight problem was similar to that for non-Indigenous Australians (49% and 52%, respectively).

Things to consider

- The 2018–19 NATSIHS collected self-reported data on various health conditions, including diseases of the eye/adnexa – referred to as 'eye or sight problems' in this report. These data are self-reported and have not necessarily been diagnosed by a health professional. They do not include eye conditions that respondents are unaware that they have.
- The 2018–19 NATSIHS included 10,579 First Nations people in Australia (ABS 2019). Survey results are subject to sampling errors as only a proportion of the population is used to produce estimates that represent the whole population.
- Eye or sight problems include corrected refractive error.

Figure 1.1.2: Self-reported eye/sight problems, by various characteristics



Notes

1. Age-standardised rates (ASRs) are shown in Figure (f). All other figures show crude rates.
2. Data for these figures are available in the online data tables.

Sources: AIHW analysis of ABS 2018–19 NATSIHS, ABS 2017–18 National Health Survey, ABS 2012–13 Aboriginal and Torres Strait Islander Health Survey (AATSIHS).

Measure 1.2: Main causes of vision impairment and blindness

Key finding: In 2016, the 3 main causes of vision loss for First Nations people aged 40 and over were refractive error 116 (61%), cataract 39 (20%) and diabetic retinopathy (5.2%).

1.2.1 Main causes of vision impairment and blindness

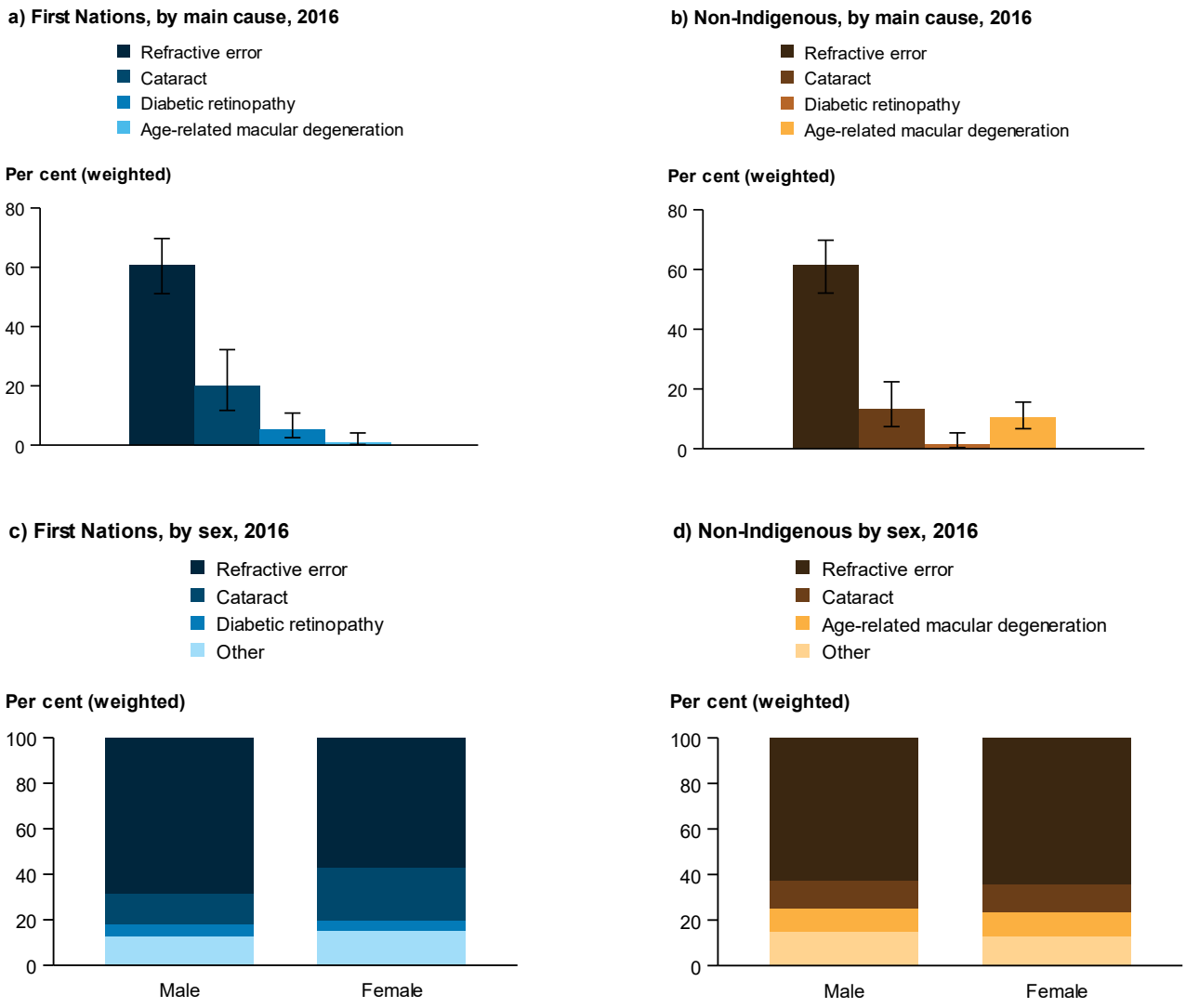
Overall: Based on the latest available NEHS data, in 2016, the 3 main causes of vision loss for First Nations people aged 40 and over were refractive error (61%), cataract (20%) and diabetic retinopathy (5.2%) (Figure 1.2.1a). For non-Indigenous Australians with vision loss, the main causes were refractive error (61%), cataract (13%) and age-related macular degeneration (10%) (Figure 1.2.1b).

Age and sex: In 2016, a higher proportion of First Nations males had refractive error than First Nations females while a higher proportion of non-Indigenous females had refractive error than non-Indigenous males (Figure 1.2.1c and Figure 1.2.1d).

Things to consider

- Data are from the 2016 NEHS, a sample survey of 1,738 First Nations people aged 40 and over and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The results reported are survey weighted to account for the sampling protocol. These results are subject to sampling errors, so, where available, the 95% CIs are provided to indicate the reliability of the estimates reported.
- Vision loss does not include corrected refractive error.

Figure 1.2.1: Main causes of vision loss (vision impairment and blindness), by First Nations status and sex



Notes

1. Data have been survey weighted to account for sampling protocol.
2. Error bars show 95% confidence intervals.
3. Data for these figures are available in the online data tables.

Sources: AIHW analysis of Foreman et al. 2017 data; National Eye Health Survey data 2016.

1.2.2 Self-reported causes of eye or sight problems

Overall: Based on the latest available NATSIHS data, in 2018–19, the main causes of eye or sight problems reported by First Nations people were long-sightedness (22%), short-sightedness (16%) and cataract (1.4%) (Figure 1.2.2a).

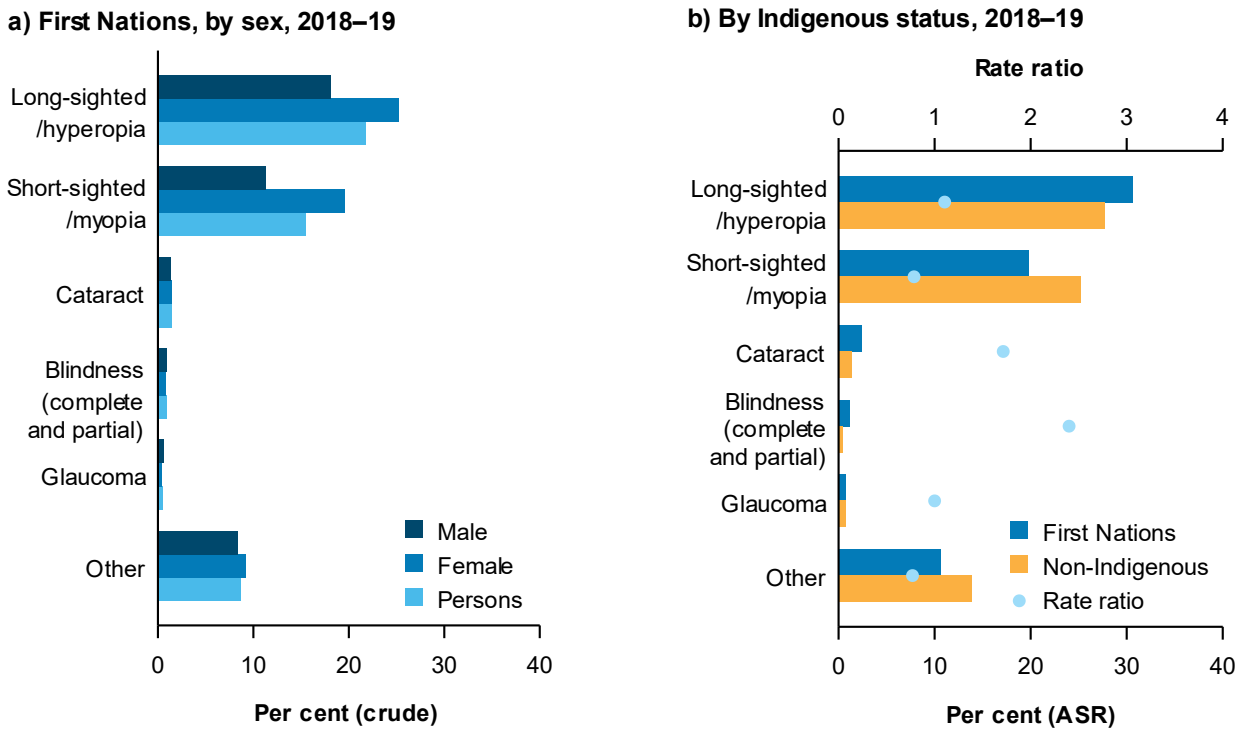
Adjusting for age, First Nations people were more likely than non-Indigenous Australians to report blindness (2.4 times as likely) or having a cataract (1.7 times as likely) as a cause of sight problems (Figure 1.2.2b).

Age and sex: The prevalence of long-sightedness and short-sightedness was higher for First Nation's females (25% and 20%, respectively) than for First Nation's males (18% and 11%, respectively) (Figure 1.2.2a).

Things to consider

- The 2018–19 NATSIHS collected self-reported data on various health conditions, including diseases of the eye/adnexa – referred to as 'eye or sight problems' in this report. These data are self-reported and have not necessarily been diagnosed by a health professional. They do not include eye conditions that respondents are unaware that they have.
- The 2018–19 NATSIHS included 10,579 First Nations people in Australia (ABS 2019). Survey results are subject to sampling errors as only a proportion of the population is used to produce estimates that represent the whole population.
- Eye or sight problems include corrected refractive error.

Figure 1.2.2: Self-reported eye/sight problems, by main cause, by various characteristics



Notes

1. Age standardised rates (ASRs) are shown in Figure (b), whereas Figure (a) shows crude rates.
2. The estimate for glaucoma for First Nations males, females and persons and the estimate for blindness for First Nations females have a relative standard error between 25% and 50% and should be used with caution. Multiple responses are allowed for this question, so proportions may add to more than 100%.
3. Data for these figures are available in the online data tables.

Sources: AIHW analysis of ABS 2018–19 NATSIHS and 2017–18 National Health Survey.

Measure 1.3: Prevalence of trachoma and trichiasis

Key findings: In 2022, 2.2% of children aged 5–9 years were found to have active trachoma in the 76 communities that were screened for trachoma (based on overall prevalence). In 2022, among First Nations people aged 15 years and over who were examined in at-risk communities, 8 (0.07%) were found to have trichiasis.

1.3.1 Trachoma

Overall: In 2022, there were 87 children aged 5–9 years with active trachoma in the 76 communities that were screened for trachoma. This meant the observed prevalence of active trachoma was 5.8% of 5–9-year-olds in the screened communities and the overall prevalence was 2.2% (Figure 1.3.1a).

Jurisdiction: In 2022, the observed prevalence of active trachoma in children aged 5–9 years in screened communities was 10% in Western Australian (37 children) and 5.4% in the Northern Territory (50 children). In South Australia no children were found with active trachoma. In Queensland, screening for trachoma was not undertaken in 2022 (Figure 1.3.1a).

Time trend: Based on overall prevalence, from 2009 to 2022, the rate of active trachoma in children aged 5–9 years screened in all at-risk communities fell from 15% to 2.2%. The overall prevalence has been below 5% since 2012 (Figure 1.3.1b).

Things to consider

- In 2022, trachoma screening was undertaken in 76 at-risk communities in 3 jurisdictions (Western Australia, South Australia and the Northern Territory). In Queensland, screening for trachoma was not undertaken in 2022 (Kirby Institute in press).
- The Communicable Diseases Network Australia (CDNA) guidelines for trachoma control were revised in 2014 so that at-risk communities were not required to be screened each year. The observed prevalence of active trachoma was calculated using only data from screening activities undertaken during the reporting year. The overall prevalence of active trachoma was calculated by combining:
  - data from at-risk communities screened during the year
  - the most recent prevalence data from communities that did not screen in the year
  - the most recent prevalence data carried forward from communities that were judged by jurisdictions to have eliminated trachoma (Kirby Institute 2022).
- In line with CDNA guidelines, the 5–9 years-age group is the target group for screening programs in all regions, with variable screening undertaken for other age groups.
- At-risk communities are identified by:
  - the prevalence of active trachoma of more than 5% in First Nations children aged 5–9 years in the last 5 years, or
  - current data showing more than 5% prevalence but less than 5% prevalence recorded in the last 5 years, or
  - where no data are available, historical evidence of endemic trachoma (National Aboriginal Community Controlled Health Organisation and The Royal Australian College of General Practitioners 2018).

1.3.2 Trichiasis

Overall: In 2022, among First Nations people aged 40 years and over examined in at-risk communities, there were 8 people with trichiasis, a prevalence rate of 0.07%. There were no people aged under 40 years with trichiasis in these communities (Figure 1.3.2a).

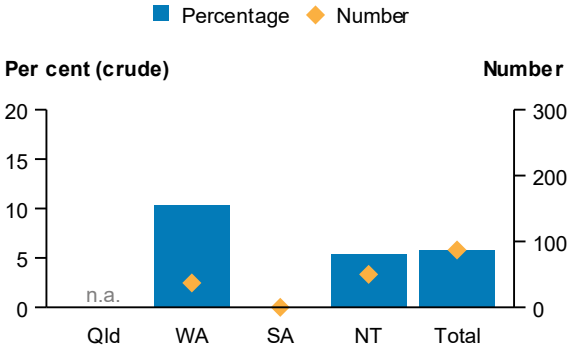
Jurisdiction: Of the 3 jurisdictions that undertook screening in 2022, the prevalence of trichiasis in First Nations people was 0.2% in South Australia and 0.2% in Western Australia. In the Northern Territory, no adults aged 40 years and over who were screened were found to have trichiasis. In Queensland, screening for trichiasis was not undertaken in 2022 (Figure 1.3.2b).

Time trend: The proportion of First Nations people aged 40 years and over with trichiasis fell from 2.1% in 2012 to 0.1% in 2022 (Figure 1.3.2c).

Things to consider

- In 2022, trichiasis screening was undertaken in 120 at-risk communities in 3 jurisdictions in (Western Australia, South Australia and the Northern Territory) (Kirby Institute in press).
- Screening for trichiasis is undertaken opportunistically, such as during adult health checks.

Figure 1.3.1: Prevalence of active trachoma in at-risk First Nations communities



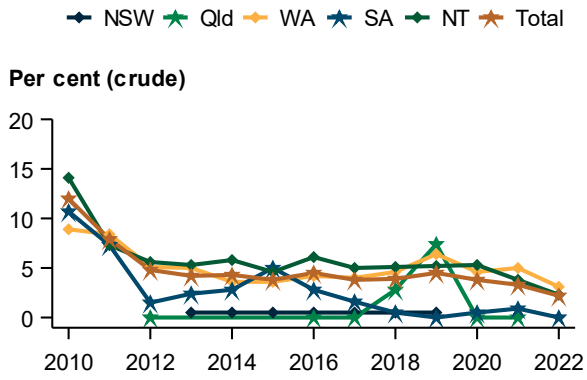
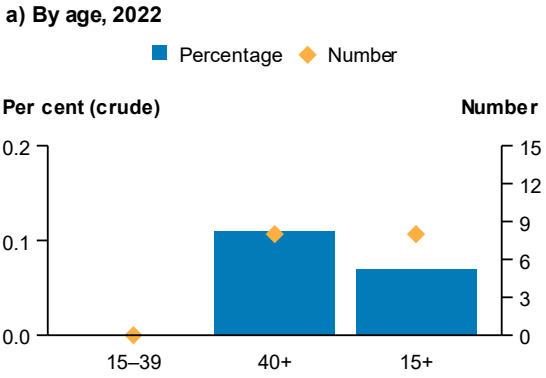
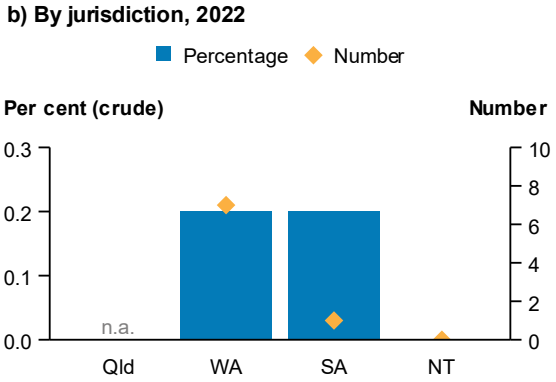
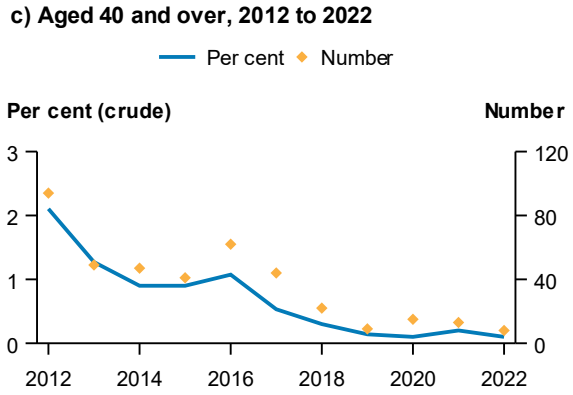


Figure 1.3.2: Prevalence of trichiasis in at-risk First Nations communities







Notes

1. All figures show crude rates.
2. The data cover 76 communities and 1,491 children screened for trachoma and 120 communities screened for trichiasis in 2022.
3. The rates shown in Figure 1.3.1b are based on the most recent estimates carried forward in all communities that were considered at risk at some time.
4. Data for these figures are available in the online data tables.

Source: AIHW analysis of Australian Trachoma Surveillance report 2022 (Kirby Institute in press).

2

Diagnosis and screening – how are eye health problems identified?

Primary health care providers play a key role in detecting problems, treating minor eye conditions and referring patients to more specialised care. Optometrists and ophthalmologists provide more specialised eye health screening services. Various types of eye examinations are rebated through the MBS.

All First Nations people, regardless of age, are eligible for a First Nations specific health assessment, which includes an eye health check.

First Nations health assessments relate to MBS items 715 and 228 for health checks undertaken in the community, including health assessments provided via videoconference or teleconference (MBS items 92004, 92011, 92016, 92023). Note that the MBS items 92016 and 92023 were removed from the MBS as of 1 July 2021.

Diagnosis and screening – measures and data sources

Five measures are reported for diagnosis and screening. The MBS database was the data source for 3 of the measures in this category.

Measure 2.1: Annual health assessments for First Nations people – two sub-measures are reported:

- **2.1.1: Annual health assessments for First Nations people** – the number, proportion and age-standardised rates of people who had a health assessment for First Nations people, including a health assessment provided via videoconference or teleconference.
- **2.1.2: Annual health assessments for First Nations people and initial eye examination by an optometrist** – the number, proportion and age-standardised rates of people who had a health assessment for First Nations people, including a health assessment provided via videoconference or teleconference, who also had an initial eye examination by an optometrist.

Measure 2.2: Eye examinations by an eye care professional – the number and proportion of First Nations people who had an eye examination by an optometrist or ophthalmologist in the last 12 months.

Measure 2.3: Screening for diabetic retinopathy among target population – three sub-measures are reported:

- **2.3.1: Eye examinations among those tested for diabetes (MBS data)** – the number and proportion of First Nations people and non-Indigenous Australians who had eye examinations in the 12-month period who were also screened for diabetes in the previous 2 years.
- **2.3.2: Screening for diabetic retinopathy among those with self-reported diabetes (survey data)** –t he proportion of First Nations participants in the NEHS with selfreported diabetes who had a diabetic eye examination in the preceding 12 months.
- **2.3.3: Screening for diabetic retinopathy with a retinal camera (MBS data)** – the number and rate per 1,000 of First Nations people screened for diabetic retinopathy with a retinal camera.

Measure 2.4: Trachoma and trichiasis screening coverage – the estimated number, and proportion of:

- First Nations children in at-risk communities screened for trachoma
- First Nations adults screened for trichiasis.

Measure 2.5: Undiagnosed eye conditions – the diagnosis and screening chapter also includes a measure related to undiagnosed conditions. This measure aims to provide some indication of the number of First Nations people with vision impairment or blindness who had not had their condition formally diagnosed.

The measure relates to the number of First Nations people with vision impairment or blindness attributed to 1 of the 5 main causes (refractive error, cataract, diabetic retinopathy, age-related macular degeneration and glaucoma) who had not had their condition diagnosed, as a proportion of those with vision impairment or blindness attributed to 1 of the 5 main causes.

Measure 2.1: Annual health assessments for First Nations people

Key findings: In 2021–22, just under one-quarter (208,620) of First Nations people had a health assessment and 4.5% had a health assessment and an initial eye examination by an optometrist.

2.1.1 Annual health assessments for First Nations people

Overall: In 2021–22, just under one-quarter (208,620 or 24%) of First Nations people had a health assessment. This included over 4,000 health assessments provided via videoconference or teleconference.

Age and sex: In 2021–22, the number and proportion of First Nations males aged 0–14 who had a health assessment was slightly higher than the number and proportion of females of the same age–32,511 (22%) and 28,929 (21%), respectively. For all other age groups, health assessments for First Nations females outnumbered those for First Nations males (Figure 2.1.1a).

Remoteness: In 2021–22, the proportion of First Nations people who had a health assessment was highest in *Outer regional* and *Remote* areas (30% and 26%, respectively); it was 23% in *Inner regional* areas and around 21% in *Major cities* and *Very Remote* areas (Figure 2.1.1b).

Jurisdiction: In 2021–22, the proportion of First Nations people who had a health assessment was highest in Queensland (30%) and the Northern Territory (25%), (Figure 2.1.1c).

Time trend: The age-specific proportion of First Nations people who had a health assessment was between 10% and 14% in 2011–12 for age groups 44 years and under, it increased to between 19% and 25% for age groups 44 years and under in 2021–22. The proportion of First Nations people in all age groups aged 55 and over who had a health assessment rose from between 19% and 22% in 2011–12 to between 33% and 36% in 2021–22 (Figure 2.1.1d).

Between 2011–12 and 2018–19, the age-standardised proportion of First Nations people who had a health assessment (including a telehealth assessment) grew from 15% (94,783 patients) in 2011–12 to 30% (241,018 patients) in 2018–19, before declining over the next 2 years to 25% (208,620 patients) in 2021–22 (Figure 2.1.1e).

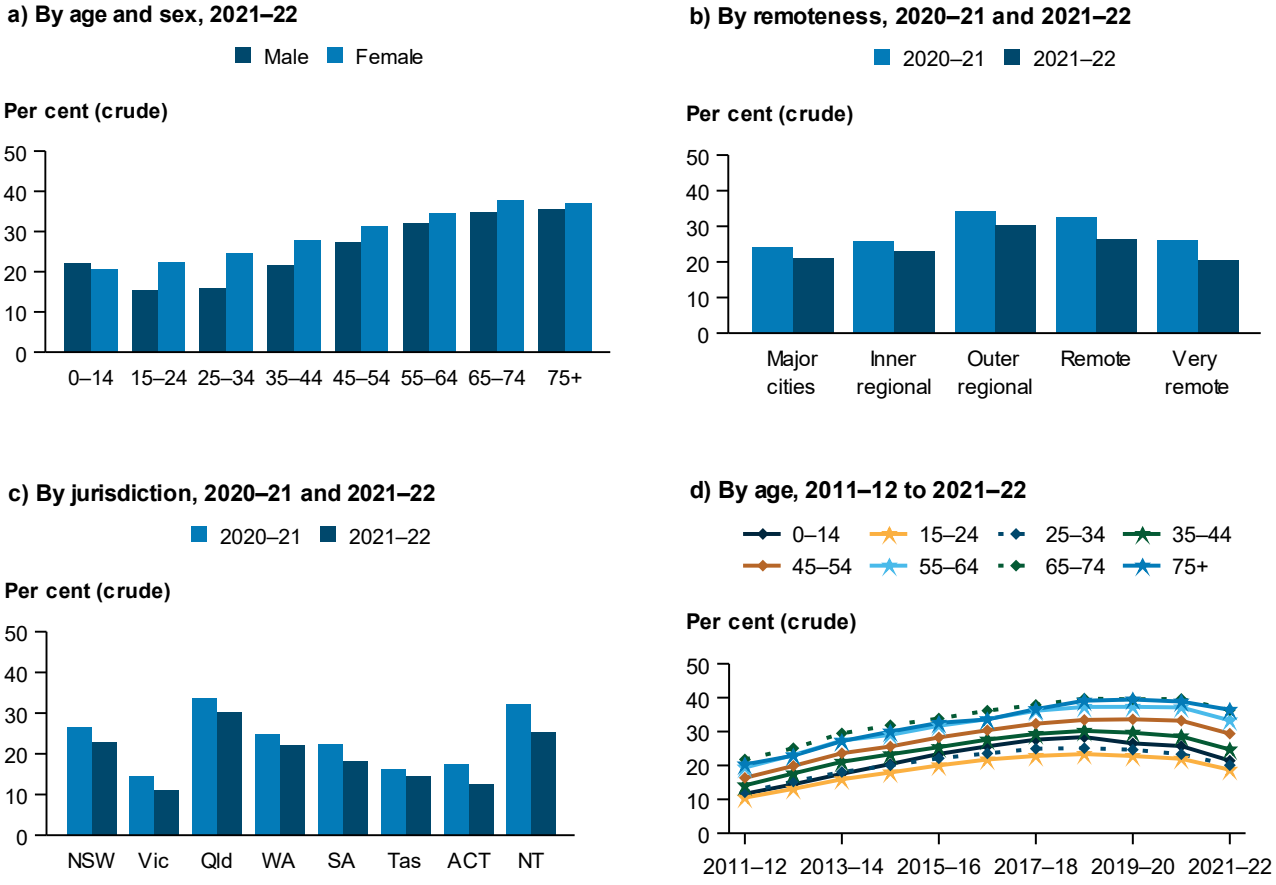
PHN: In 2021–22, the PHNs with the highest proportion of First Nations people who had a health assessment were Western NSW (34%) and Northern Qld (34%) (Figure 2.1.1f, see also Figure 2.1.1i).

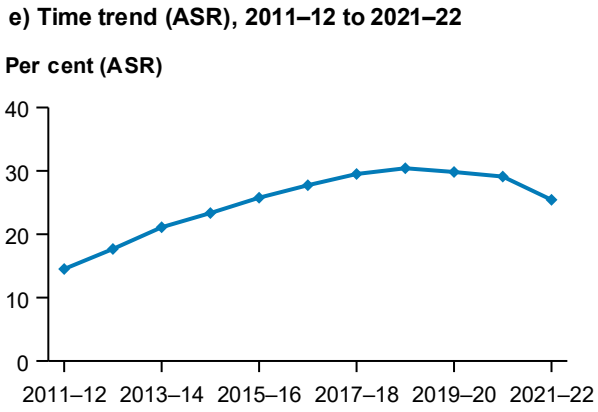
Roadmap region: In 2021–22, the Roadmap region with the highest proportion of First Nations people who had an MBS health assessment was *Townsville/Palm Island* (45%) (Figure 2.1.1g, see also Figure 2.1.1h).

Things to consider

- A basic eye check is a mandatory component of the MBS health assessments. However, while these are required, they are not always conducted, and specific data on the provision of eye health checks as part of health assessments are not available.
- MBS data reflect billing practices and do not necessarily reflect all services received. For example, MBS data do not generally capture equivalent services provided by jurisdiction-funded primary health care, or by public hospitals. Equivalent or similar care may also be billed as a different MBS item (such as a standard consultation).

Figure 2.1.1: MBS health assessments, First Nations people, by various characteristics



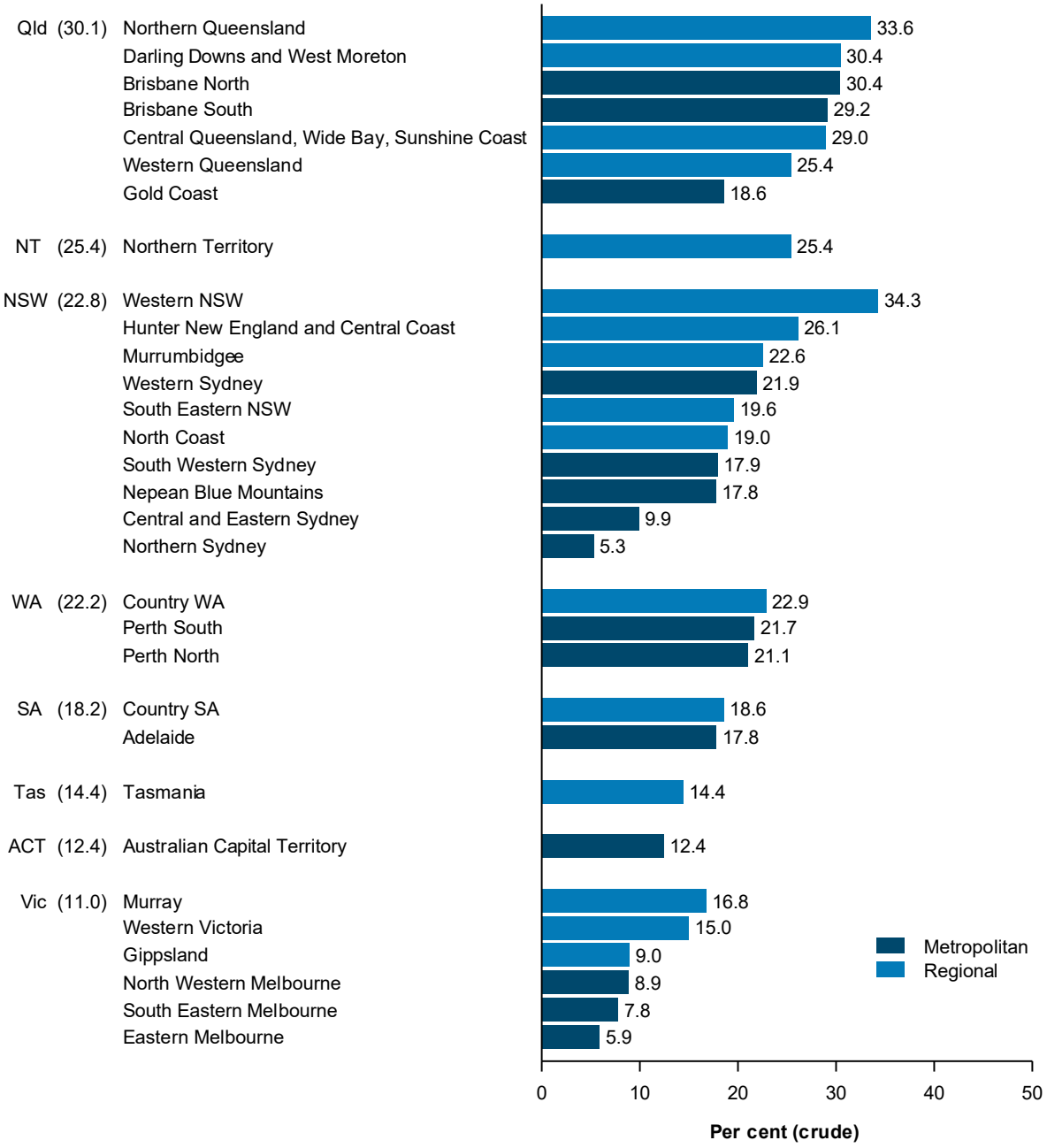


ASR = age-standardised rate.

Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of Medicare Benefits Schedule data.

Figure 2.1.1f: MBS health assessments, First Nations people, by PHN, 2021–22

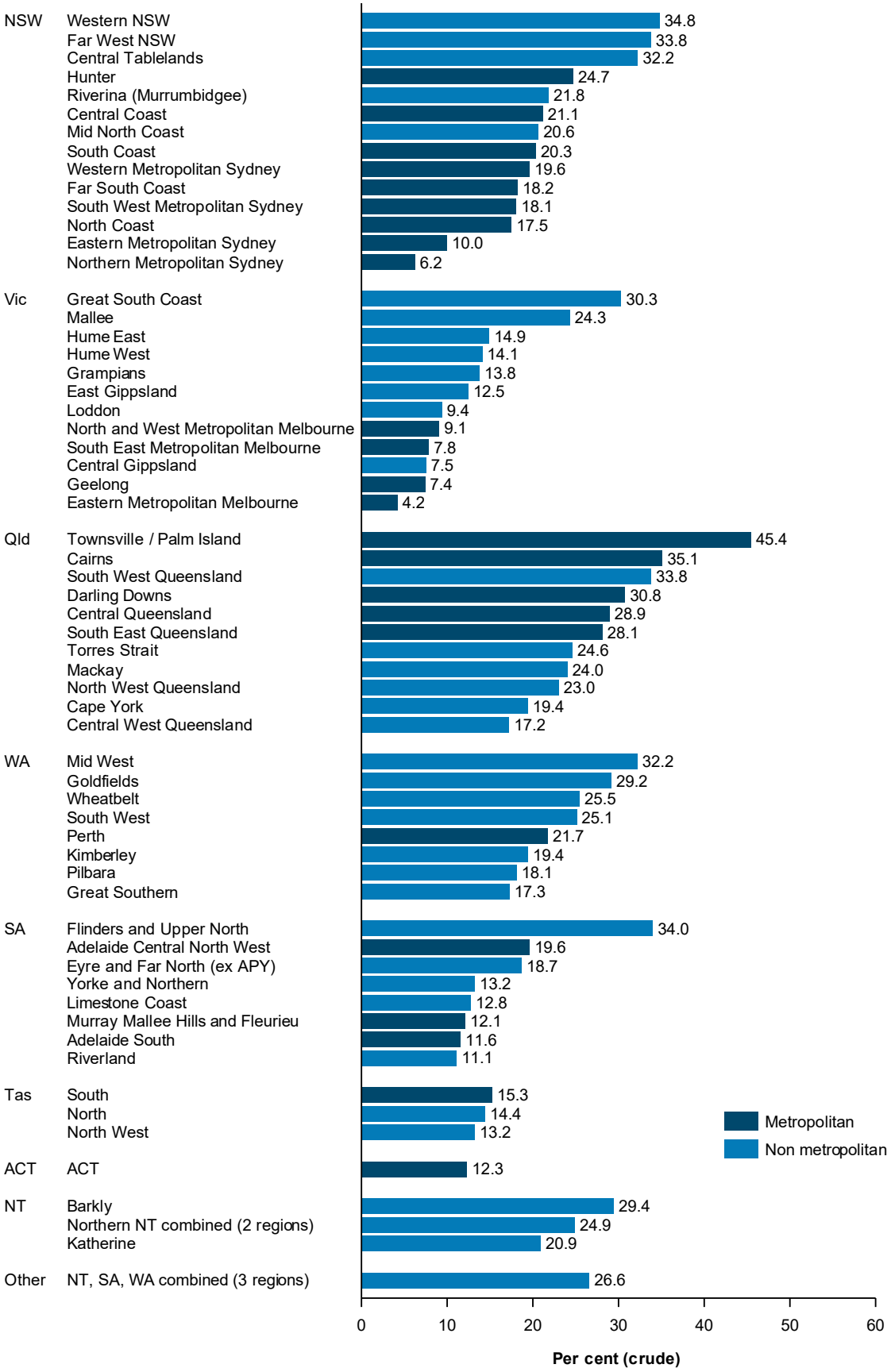


Notes

1. Data are crude rates.
2. The percentages in brackets beside the jurisdictional labels are the overall crude rate of hospitalisation for eye diseases in that jurisdiction.
3. Data for this figure are available in the online data tables.

Source: AIHW analysis of Medicare Benefits Schedule data.

Figure 2.1.1g: MBS health assessments, First Nations people, by Roadmap region, 2021–22

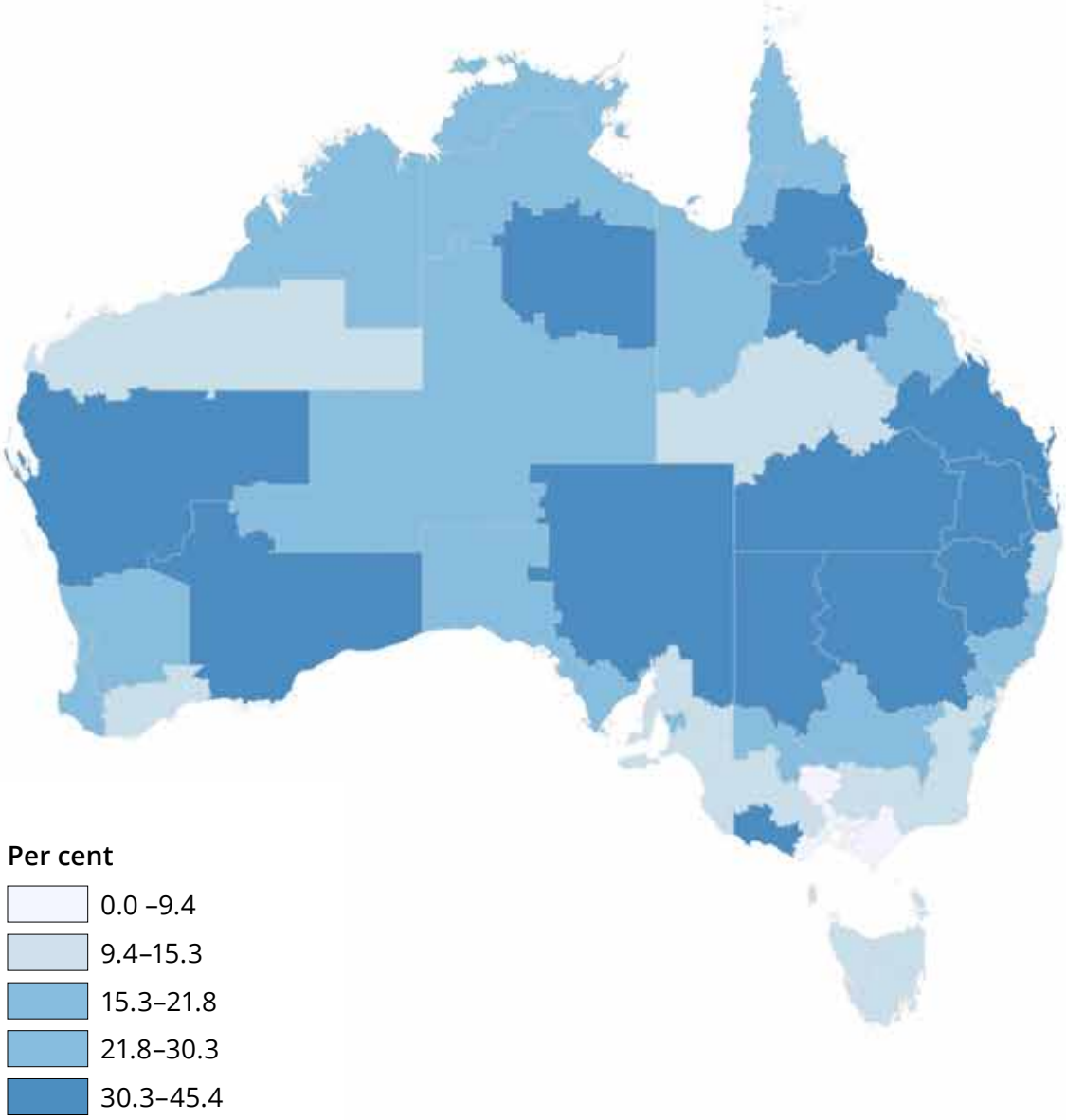


Notes

1. Data are crude rates.
2. Data for this figure are available in the online data tables.

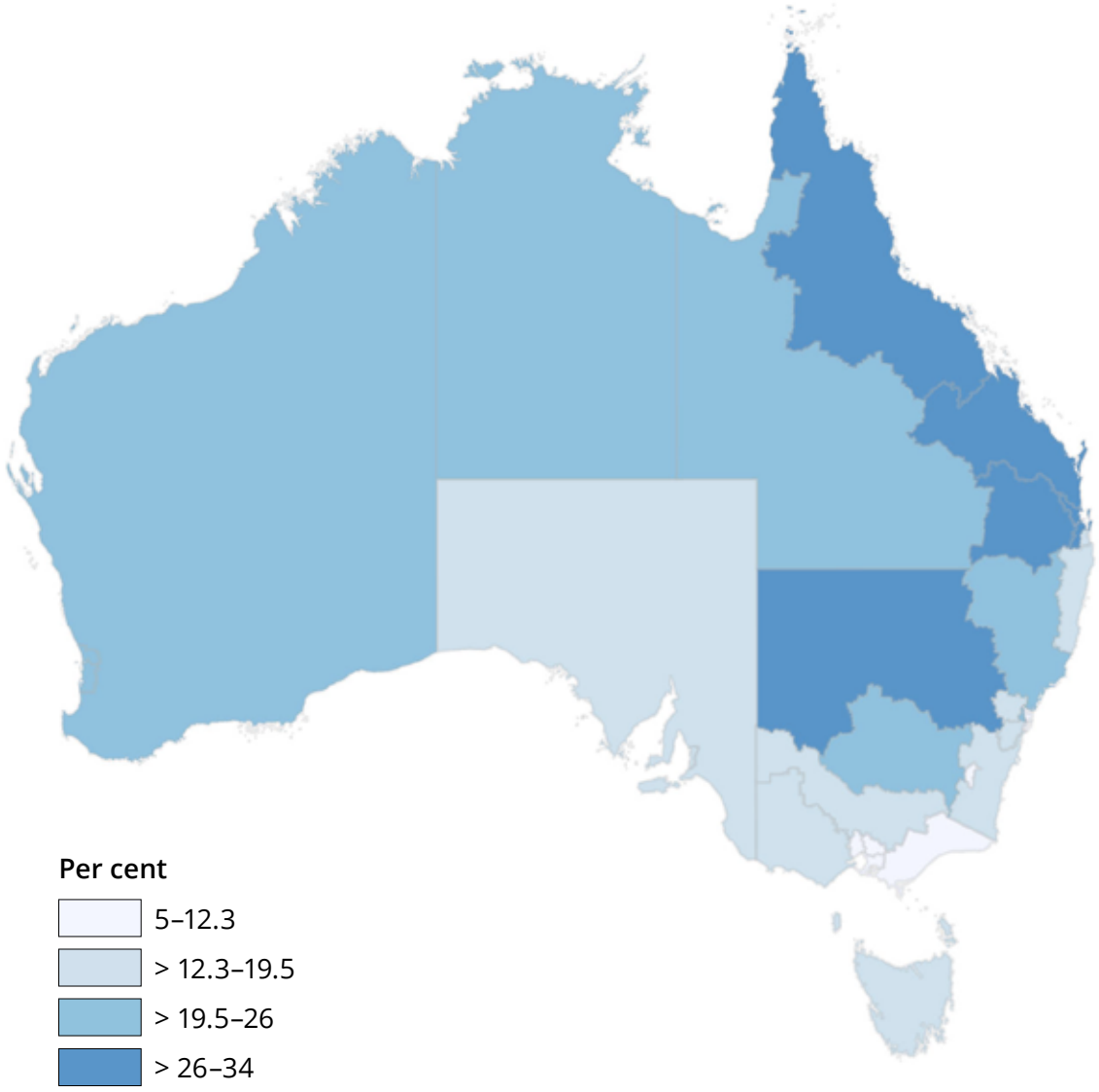
Source: AIHW analysis of Medicare Benefits Schedule data.

Figure 2.1.1h: MBS health assessments, First Nations people, by Roadmap region, 2021–22



Note: The Roadmap region data for this map are available in the online data tables.
Source: AIHW analysis of the National Hospital Morbidity Database.

Figure 2.1.1i: MBS health assessments, First Nations people, by PHN, 2021–22



Note: The PHN data for this map are available in the online data tables.
Source: AIHW analysis of the National Hospital Morbidity Database.

2.1.2: Annual health assessments for First Nations people and initial eye examination by an optometrist

Sub-measure interpretation

This sub-measure was originally intended to report on the number of First Nations people who had a health assessment and then a follow-up eye examination by an optometrist. A doctor may refer a patient as a result of a health assessment to another health-care professional for follow-up care, as needed – for example, by an optometrist, physiotherapist or dietitian.

For some follow-up services, specific codes indicate that a patient has accessed the; however, there is no MBS code for follow-up services by an optometrist. Consequently, it is not possible to provide exact estimates of the number of First Nations people who have had an eye examination by an optometrist as a follow-up from a health assessment.

To provide a rough indication of eye health follow-up services, this sub-measure presents the number of First Nations people who have a health assessment and an initial eye examination in a 12-month period. While the sub-measure will include cases where the eye examination arises out of the health assessment, it will also include cases where the initial eye examination is independent of the health assessment.

Overall: In 2021–22, just under 1 in 20 (40,204 or 4.5%) First Nations people had a health assessment and an initial eye examination by an optometrist.

Age and sex: In 2021–22, health assessments and initial eye examinations for First Nations females outnumbered those for First Nations males across all age groups, although differences were very small for age groups 0–14 and 75 and over (Figure 2.1.2a).

Remoteness: In 2021–22, the proportion of First Nations people who had a health assessment and an initial eye examination by an optometrist was highest in *Inner regional* and *Outer regional* areas (4.9% and 5.3%, respectively). The proportion was 4.4% in *Major cities* and 4.1% in *Remote* areas. It was lowest in *Very remote* areas (3.0%) (Figure 2.1.2b).

Jurisdiction: In 2021–22, the proportion of First Nations people who had a health assessment and an initial eye examination by an optometrist was highest in Queensland (5.9%) and New South Wales (4.8%) (Figure 2.1.2c).

Time trend: The age-specific proportion of First Nations people who had a health assessment and an initial eye examination by an optometrist increased from less than 1% in 2011–12 for all age groups 44 years and under to around 2–4% in 2021–22. The proportion of First Nations people in all age groups aged 55 and over who had a health assessment rose from around 3–5% in 2011–12 to around 11–19% in 2021–22 (Figure 2.1.2d).

Between 2011–12 and 2021–22, the age-standardised proportion of First Nations people who had a health assessment (including a telehealth assessment) and an initial eye examination by an optometrist increased from around 1% in 2011–12 to around 7% from 2018–19 to 2020–21, before slightly declining to 6.1% in 2021–22 (Figure 2.1.2e).

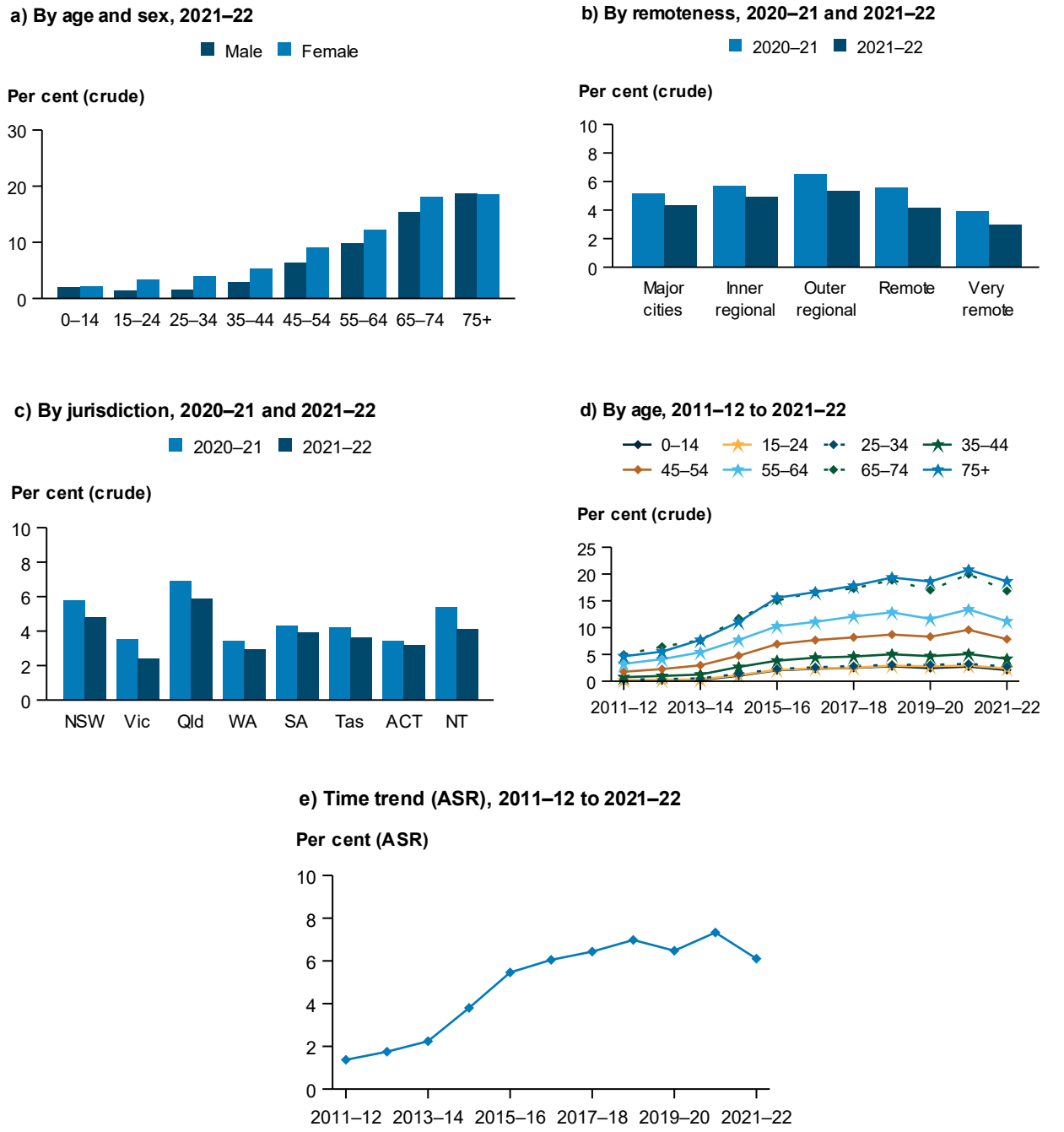
PHN: In 2021–22, the PHNs with the highest proportion of First Nations people who had a health assessment and an initial eye examination by an optometrist were in Western NSW and Brisbane North (both 7.3%) (Figure 2.1.2f).

Roadmap region: In 2021–22, the Roadmap regions with the highest proportion of First Nations people who had an MBS health assessment and an initial eye examination by an optometrist were *Western NSW* (7.4%) and *South West Queensland* (7.3%) (Figure 2.1.2g).

Things to consider

- A basic eye check is a mandatory component of the MBS health assessments for First Nations people.
- MBS data reflect billing practices and do not necessarily reflect all services received. For example, MBS data do not generally capture equivalent services provided by jurisdiction-funded primary health care or by public hospitals. Equivalent or similar care may also be billed as a different MBS item (such as a standard consultation).

Figure 2.1.2: MBS health assessments and initial eye examinations, First Nations people, by various characteristics

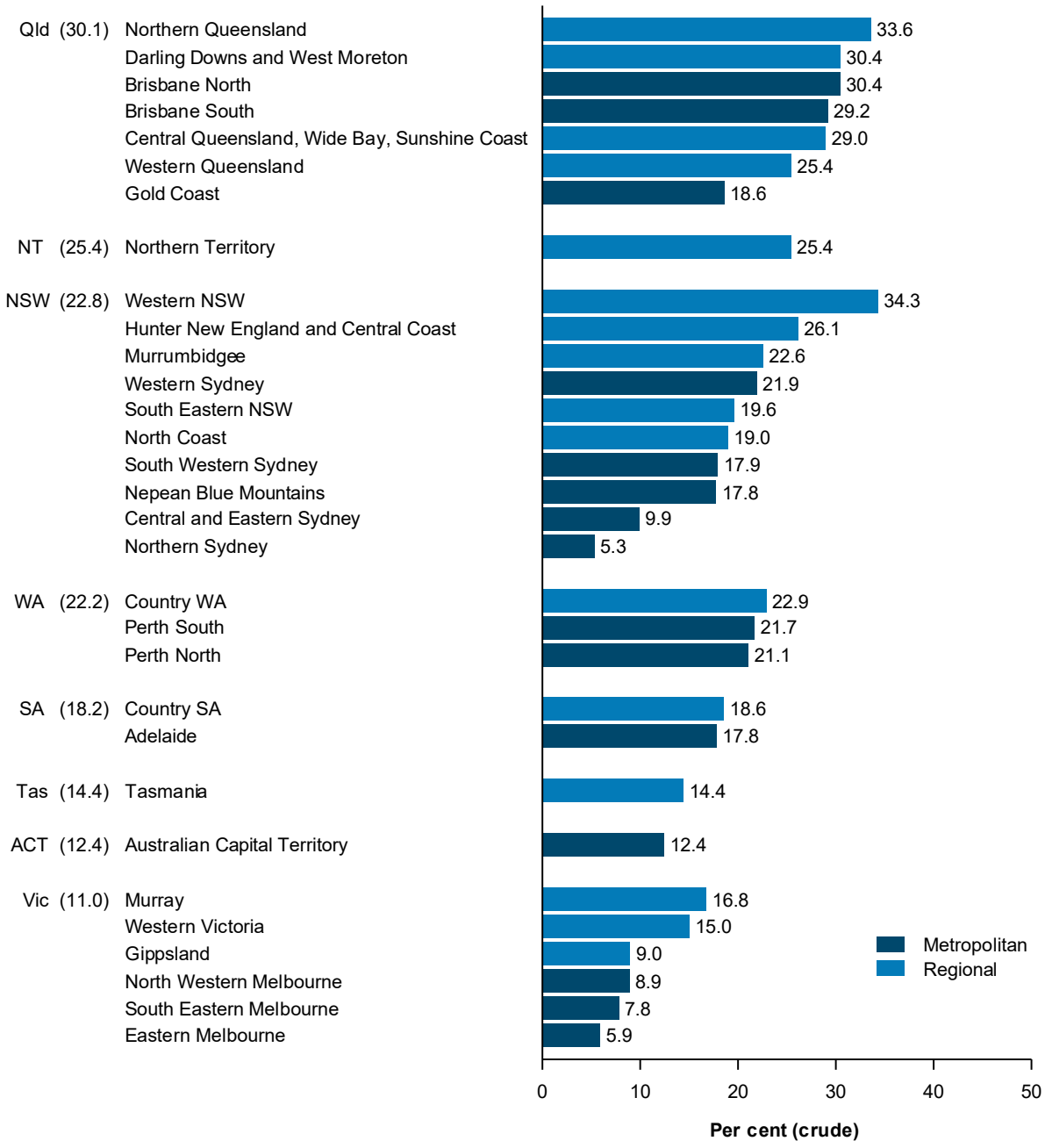


ASR = age-standardised rate

Note: Data for these figures are available in online data tables

Source: AIHW analysis of Medical Benefits Schedule data.

Figure 2.1.2f: MBS health assessments with initial eye examination, First Nations people, by PHN, 2021–22

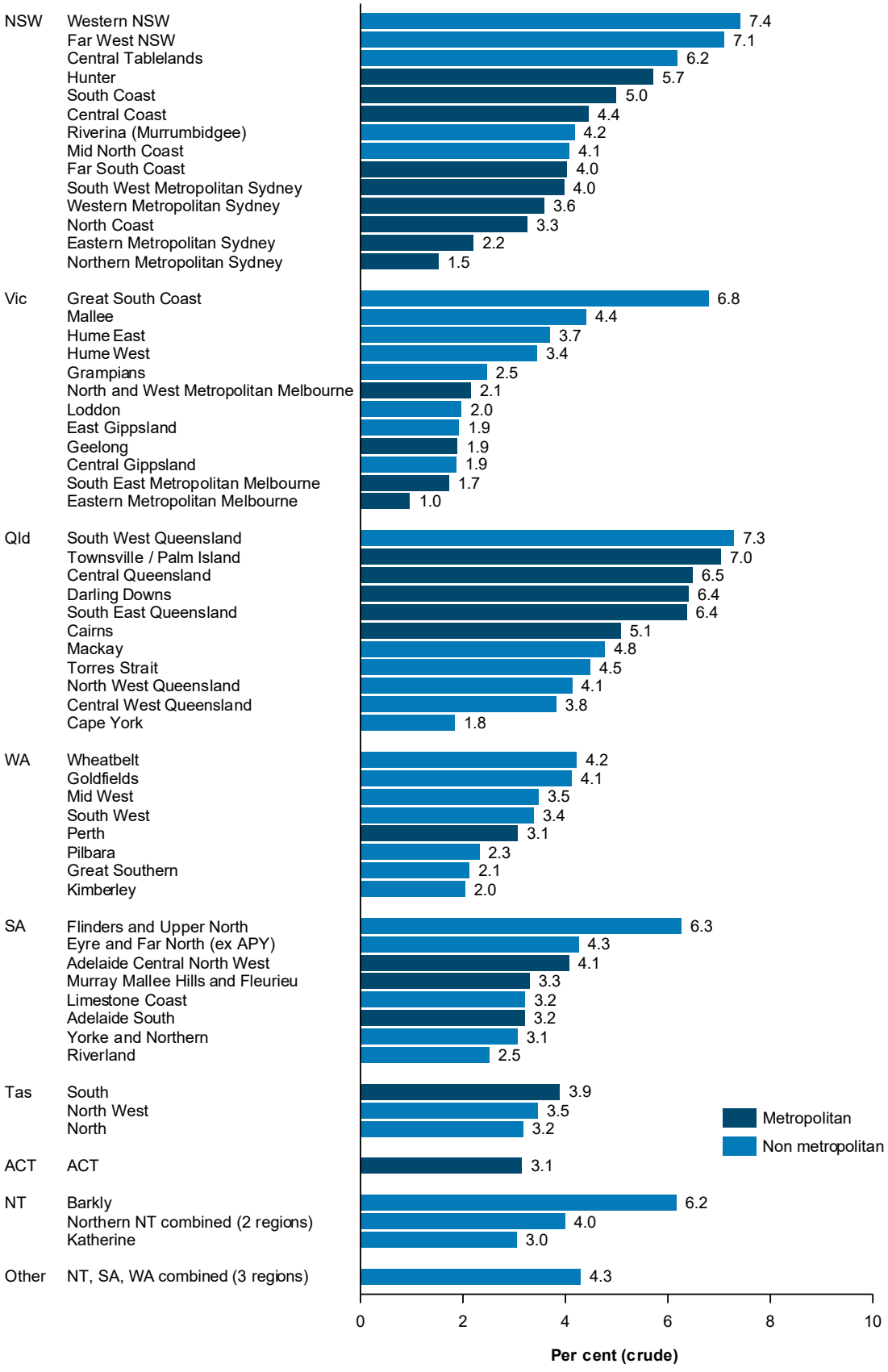


Notes

1. Data are crude rates.
2. The percentages in brackets beside the jurisdictional labels are the overall crude rate of health assessments with an initial eye examination in that jurisdiction.
3. Data for this figure are available in the online data tables.

Source: AIHW analysis of Medicare Benefits Schedule data.

Figure 2.1.2g: MBS health assessments with initial eye examination, First Nations people, by Roadmap region, 2021–22



Notes

1. Data are crude rates.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of Medicare Benefits Schedule data.

Impact of COVID-19 on annual health assessments for First Nations people (sub-measures 2.1.1 and 2.1.2)

Early 2020 saw the emergence of a global pandemic of the novel coronavirus disease COVID-19. Restrictions imposed by the Australian and state and territory governments limited people's movements and activities to curb the spread of the disease. Many people changed their behaviours to protect themselves and others from the risk of exposure.

In 2021–22, claims for health assessments for First Nations people fell from 2020–21 across all age groups. A telehealth option for First Nations health checks was introduced in March 2020 in response to COVID-19. Initially both videoconference and telephone items were made available. Telehealth accounted for more than 11,000 of nearly 237,000 claims (around 5%) in 2020–21. From July 2021, telephone items were discontinued and the proportion of telehealth assessments accounted for just over 4,400 of nearly 215,000 claims. This was just under 5% from July until April 2022 where they fell below 2% for the remainder of the financial year.

More details on monthly health assessments for First Nations people can be found in the AIHW publication *Health checks and follow-ups for Aboriginal and Torres Strait Islander people* (AIHW 2023).

Measure 2.2: Eye examinations by an eye care professional

Key findings: In 2021–22, around 114,000 (13%) First Nations people had an initial eye examination by an optometrist or ophthalmologist in the preceding 12 months. Between 2009–10 and 2021–22, the total age-standardised proportion of First Nations people who had an eye examination increased from 16% to 18%, while the proportion for non-Indigenous Australians increased from 20% to 25%.

Overall: In 2021–22, 114,080 First Nations people had an initial eye examination by an optometrist or ophthalmologist in the preceding 12 months–13% of the population. Most of them were performed by optometrists with smaller numbers by ophthalmologists (Figure 2.2a). However, this total was fewer than the estimated number of eye examinations needed for First Nations people each year (145,469) (IEHU 2017).

Remoteness: In 2021–22, the proportion of First Nations people who had an eye examination in the preceding 12 months decreased with remoteness, with the lowest proportion being for those living in *Very remote* areas (7.0%) (Figure 2.2b).

Jurisdiction: In 2021–22, the proportion of First Nations people who had an eye examination in the preceding 12 months ranged from 16% in the Australian Capital Territory to 8.2% in the Northern Territory (Figure 2.2c).

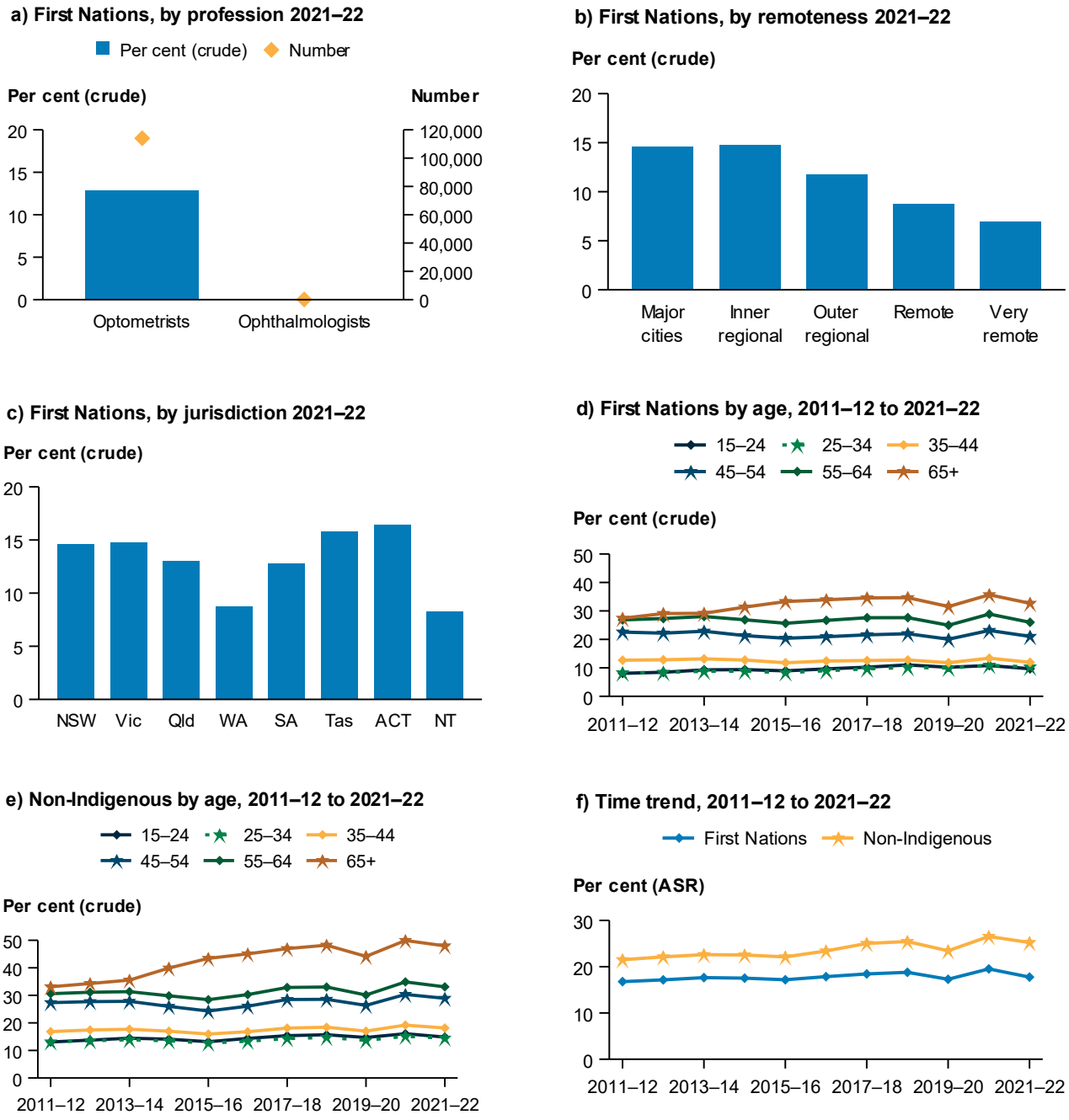
Time trend: Age-specific rates of eye examinations by an optometrist or ophthalmologist in the preceding 12 months increased between 2009–10 and 2020–21 for First Nations people and non-Indigenous Australians, before declining between 2020–21 and 2021–22 across all age groups. (Figure 2.2d and Figure 2.2e). Across all age groups, rates of eye examinations were higher for non-Indigenous Australians than for First Nations people in the same age group.

Between 2009–10 and 2021–22, the total age-standardised proportion of the First Nations population who had an eye examination increased from 16% to 18% (Figure 2.2f).

Things to consider

- MBS data reflect billing practices, and not necessarily all services received. For example, MBS data do not generally capture equivalent services provided by jurisdiction-funded primary health care or by public hospitals – for example, eye examinations undertaken by salaried ophthalmologists in public hospitals.
- Equivalent or similar care may also be billed as a different MBS item (such as a standard consultation).
- MBS data shown for this measure were adjusted for First Nations under-identification.
- The estimated annual number of First Nations people needing an eye examination was derived from the calculator for the delivery and coordination of eye care services, which was developed by the IEHU at the University of Melbourne (see <http://drgrading.iehu.unimelb.edu.au/ecwc/>). The calculations are first-order estimates based on condition prevalence rates from the NEHS (2009) and models of service delivery developed in The Roadmap to Close the Gap for Vision (Taylor et al. 2012) and should be interpreted with caution.
- Age-standardised and age-specific rates are both presented (see Box 3 – Population rates).

Figure 2.2: Population who had an eye examination by an eye care professional, by various characteristics



ASR = age-standardised rate

Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of Medicare Benefits S data.

Measure 2.3: Screening for diabetic retinopathy among target population

Key findings: An estimated 29,000 First Nations people had had a diabetes test in the previous 2 years, with around 13,600 (47%) also having an eye examination at least once in 2021–22. Between 2010–11 and 2021–22, the total age-standardised proportion of First Nations people tested for diabetes who had an eye examination increased from 33% to 40%.

2.3.1 Eye examinations among those tested for diabetes (MBS data)

Overall: An estimated 29,000 First Nations people had a diabetes test in the previous 2 years, and 13,574 (47%) also had an eye examination at least once in 2021–22. Most of the screenings were performed by optometrists, with smaller numbers by ophthalmologists and GPs (Figure 2.3.1a).

Remoteness: In 2021–22, the proportion of First Nations people who had an eye examination was highest in *Inner regional* areas and *Major cities* (51% and 50%, respectively), and then decreased with increasing remoteness (Figure 2.3.1b).

Jurisdiction: In 2021–22, the proportion of First Nations people who had an eye examination ranged from 54% in Tasmania to 33% in the Northern Territory (Figure 2.3.1c).

Time trend: Age-specific proportions of those tested for diabetes who had an eye examination increased between 2010–11 and 2020–21 for First Nations people and non-Indigenous Australians, before declining between 2020–21 and 2021–22 across all age groups. The greatest increase was in those aged 65 and over, where rates rose from 53% in 2010–11 to 63% in 2020–21 before declining to 60% in 2021–22 (Figure 2.3.1d). For nonIndigenous Australians aged 65 and over, rates increased from 50% in 2010–11 to 62% in 2020–21 before declining to 61% in 2021–22 (Figure 2.3.1e). In 2021–22, higher proportions of non-Indigenous Australians than First Nations people were screened in all age groups, although proportions screened were very similar in the 65 and over age category.

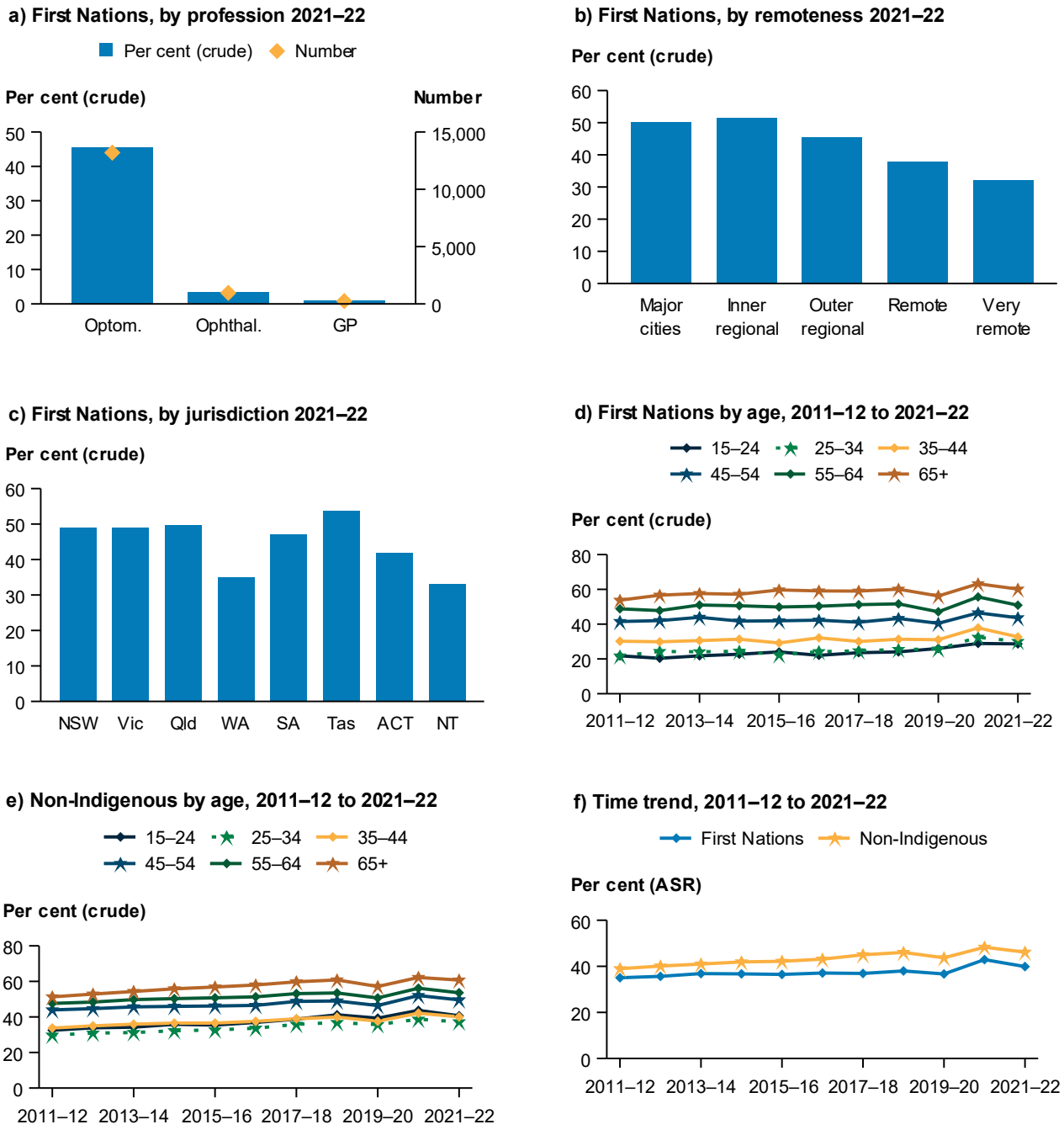
Between 2010–11 and 2021–22, the total age-standardised proportion of First Nations people tested for diabetes who had an eye examination increased from 33% to 40%, while for non-Indigenous Australians it rose from 37% to 46% (Figure 2.3.1f).

Things to consider

- MBS data reflect billing practices, and not necessarily all services received. For example, MBS data do not generally capture equivalent services provided by jurisdiction-funded primary health care or by public hospitals – for example, eye examinations undertaken by salaried ophthalmologists in public hospitals.
- Equivalent or similar care may also be billed as a different MBS item (such as a standard consultation).
- Current National Health and Medical Research Council (NHMRC) guidelines recommend a diabetic eye examination annually for First Nations people with diabetes, and at least every 2 years for non-Indigenous Australians with diabetes.
- MBS data shown for this sub-measure were adjusted for First Nations under-identification.

- Age-standardised and age-specific rates are both presented (see Box 3 – Population rates).
- First Nations people who had a diabetes test may not have been found to have diabetes. For this reason, the rate of those screened for diabetic retinopathy may be an underestimate.

Figure 2.3.1: Population who had an eye examination among those tested for diabetes, by various characteristics



ASR = age-standardised rate.

Notes

1. Profession types in Figure (a): Optom. = optometrist; Ophthal. = ophthalmologist, GP = general practitioner.
2. Data for these figures are available in the online data tables.

Source: AIHW analysis of Medicare Benefits Schedule data.

2.3.2 Screening for diabetic retinopathy among those with self-reported diabetes (survey data)

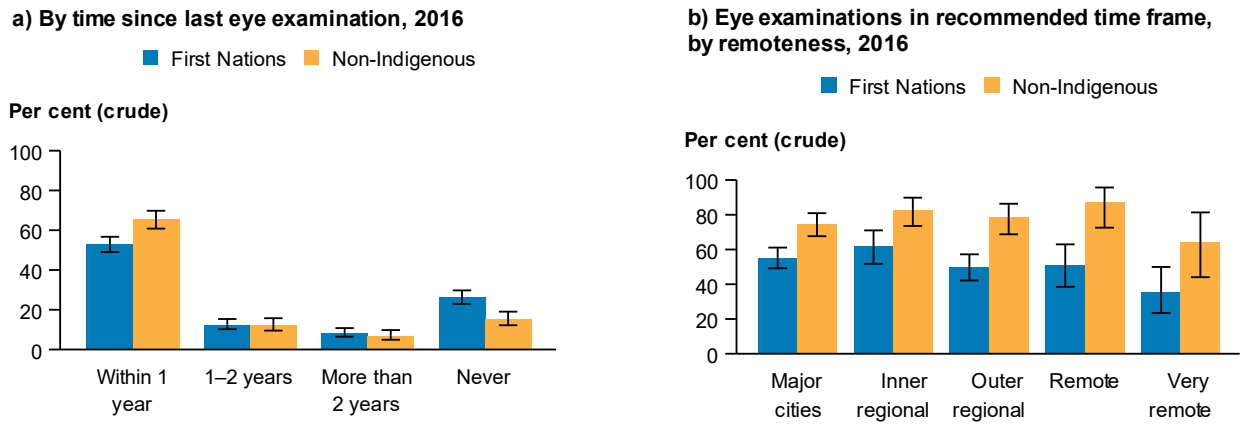
Overall: Based on the latest available NEHS data, in 2016, just over half (53%) of First Nations participants in the NEHS aged 40 and over with self-reported diabetes had a diabetic eye examination in the preceding 12 months, the period recommended in the NHMRC guidelines for First Nations people. For nonIndigenous participants with diabetes aged 50 and over, more than three-quarters (78%) had a diabetic eye examination in the preceding 2 years, the period recommended in the NHMRC guidelines for non-Indigenous Australians (Figure 2.3.2a).

Remoteness: The proportion of First Nations participants in the NEHS with self-reported diabetes who had a diabetic eye examination in the preceding 12 months varied by remoteness, with participants in *Very remote* areas having the lowest rate (35%). Proportions of non-Indigenous participants who had an eye examination in the preceding 12 months were also lowest in *Very remote* areas, but were higher than First Nations rates in each remoteness category (Figure 2.3.2b).

Things to consider

- Data are from the 2016 NEHS, a sample survey of 1,738 First Nations people aged 40 and over and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The survey results reported are crude unadjusted sample proportions. These results are subject to sampling errors, so the 95% confidence intervals are provided to indicate the reliability of the estimates reported.
- Current NHMRC guidelines recommend a diabetic eye examination annually for First Nations people with diabetes, and at least every 2 years for non-Indigenous Australians with diabetes.

Figure 2.3.2: Population screened for diabetic retinopathy among those with self-reported diabetes, by various characteristics



Notes
1. All figures show crude unadjusted sample proportions.
2. Error bars show 95% confidence intervals.
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Eye Health Survey data 2016.

2.3.3 Screening for diabetic retinopathy with a retinal camera (MBS data)

Overall: In 2021–22, an estimated 721 (0.8 per 1,000) First Nations people were screened for diabetic retinopathy with a retinal camera (Figure 2.3.3a).

Age and sex: The number and rate of screening tests for diabetic retinopathy with a retinal camera for First Nations males and females declined between 2020–21 and 2021–22. More First Nations females than First Nations males received screening tests for diabetic retinopathy with a retinal camera in 2020–21.However, in 2021–22 rates of screening tests were the same for First Nations males and females (Figure 2.3.3a).

Remoteness: In 2020–21, the rate of screening tests for diabetic retinopathy with a retinal camera for First Nations people was lowest in *Inner regional* areas (0.6 per 1,000) and highest in *Remote* areas (4.4 per 1,000). In 2021–22, the rate of screening tests for First Nations people was lowest in *Major cities* (0.6 per 1,000) and highest in *Remote* and *Very remote* areas (both 1.3 per 1,000) (Figure 2.3.3b).

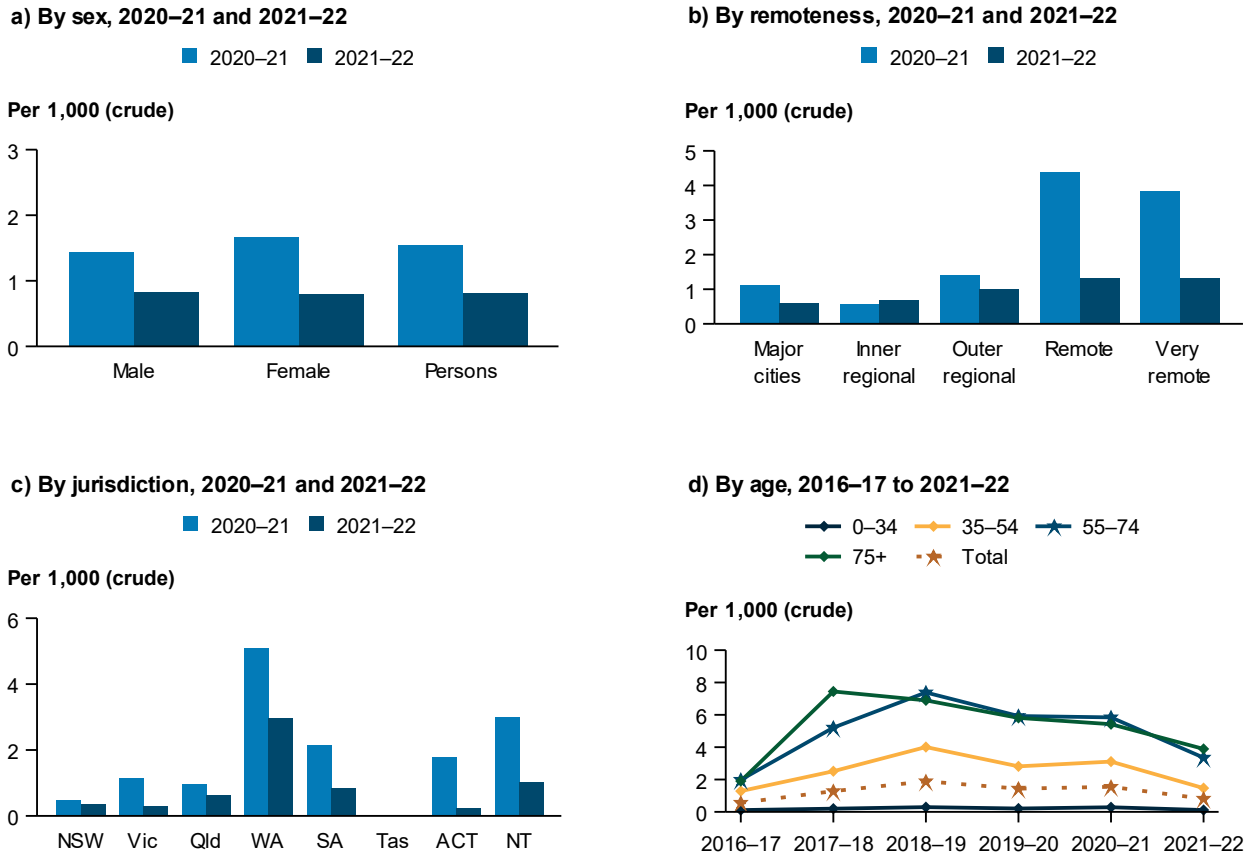
Jurisdiction: In 2020–21 and 2021–22, the rate of screening tests for diabetic retinopathy with a retinal camera for First Nations people was highest in Western Australia and the Northern Territory (5.1 and 3.0 per 1,000, respectively). Data were not available in Tasmania and the number of services was not publishable in the Australian Capital Territory in 2021–22 (Figure 2.3.3c).

Time trend: From 2016–17 to 2021–22, age-specific rates of screening tests for diabetic retinopathy with a retinal camera for First Nations people for all age groups, rose and then declined over the period. The highest rates of screening tests for diabetic retinopathy with a retinal camera were seen in those aged 55 and over (Figure 2.3.3d).

Things to consider

- Screening for diabetic retinopathy can be provided in a number of ways, including direct observations by a health professional during eye examinations or by using a retinal camera.
- MBS data reflect billing practices and not necessarily all services received. For example, the MBS data for this sub-measure do not capture equivalent services provided by eye care practitioners, optometrists and ophthalmologists, jurisdiction-funded primary health care, public hospitals or where retinal cameras are used without billing MBS.
- Age-specific rates are presented (see Box 4 – Population rates).

Figure 2.3.3: Population screened for diabetic retinopathy with a retinal camera among those tested for diabetes, by various characteristics



Note: Data for these figures are available in the online data tables.
Source: AIHW analysis of Medicare Benefits Schedule data.

Measure 2.4: Trachoma and trichiasis screening coverage

Key findings: In 2022, in the 76 communities that undertook screening, 1,491 (91%) children aged 5–9 years were screened for trachoma, an increase from 70% in 2012. In 2022, in the 120 at-risk communities, 10,806 (35%) First Nations people aged 15 years and over were screened for trichiasis.

2.4.1 Trachoma

Overall: In 2022, in the 76 communities that undertook screening, 1,491 (91%) children aged 5–9 years were screened for trachoma (Figure 2.4.1a). This was above the recommended 85% screening coverage for trachoma control.

Jurisdiction: In 2022, the proportions of children aged 5–9 years in at-risk communities screened for trachoma were 93% in Western Australian (358 children), 86% in South Australia (215 children) and 91% in the Northern Territory (918 children). In Queensland, screening for trachoma was not undertaken in 2022 (Figure 2.4.1a).

Time trend: Between 2012 and 2022, the proportion of children aged 5–9 years screened for trachoma in at-risk communities that required and received screening rose from 70% in 2012 to 92% in 2016. The proportion screened dropped slightly in 2017 to 83%. In 2022, the proportion screened was 91% (Figure 2.4.1b).

Things to consider

- In 2022, trachoma screening was undertaken in 76 at-risk communities in 3 jurisdictions (Western Australia, South Australia and the Northern Territory) (Kirby Institute in press).
- The CDNA guidelines for trachoma control were revised in 2014 so that at-risk communities were not required to be screened each year. The screening and treatment frequency for trachoma in at-risk communities is based on the trachoma prevalence rate.
- In line with CDNA guidelines, the 5–9 year-age group is the target group for screening programs in all regions, with variable screening undertaken for other age groups.

2.4.2 Trichiasis

Overall: In 2022, 4,054 First Nations people aged 15–39 years (22%) and 6,752 First Nations adults aged 40 years and over (56%) were screened for trichiasis. Altogether, 10,806 (35%) First Nations people aged 15 years and over were screened for trichiasis (Figure 2.4.2a).

Jurisdiction: In 2022, the proportion of First Nations adults aged 40 years and over screened for trichiasis was highest in South Australia (487 adults, 75%) (Figure 2.4.2b).

Time trend: In jurisdictions that undertook screening, the proportion of First Nations adults aged 40 years and over screened for trichiasis in at-risk communities that required and received screening rose from 1,179 (9%) in 2011 to 6,752 (56%) in 2022. The number of First Nations adults aged 40 years and over screened for trichiasis was highest in 2020 (8,607), while the proportion screened was highest in 2022 (56%) (Figure 2.4.2c).

Things to consider

- In 2022, trichiasis screening was undertaken in 120 at-risk communities in 3 jurisdictions (the Northern Territory, Western Australia and South Australia) (Kirby Institute in press).
- Screening for trichiasis is undertaken opportunistically, such as during adult health checks.
- It is likely that more First Nations adults were screened for trichiasis through health assessments than are included in the data presented for this sub-measure.

Figure 2.4.1: Trachoma screening coverage in First Nations communities, by various characteristics

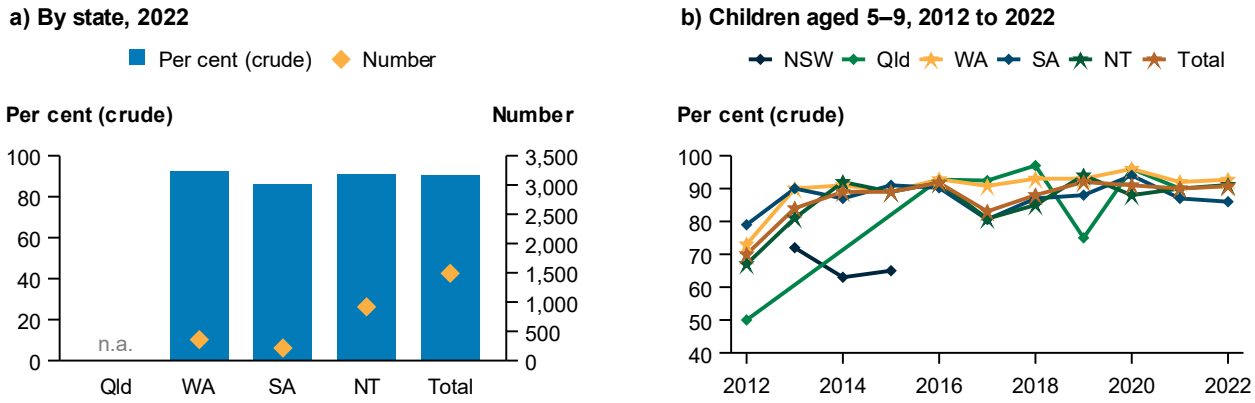


Figure 2.4.2: Trichiasis screening coverage in First Nations communities, by various characteristics

Notes

1. All figures show crude rates.
2. 2022 trachoma data cover 76 communities screened.
3. 2022 trichiasis data cover 120 communities screened.
4. Data for these figures are available in the online data tables.

Sources: AIHW analysis of Australian Trachoma Surveillance reports (Kirby Institute 2013, 2014, 2015, 2016, 2018, 2019a, 2019b, 2020, 2021, 2022, in press).

Measure 2.5: Undiagnosed eye conditions

Key finding: In 2016, 57% of First Nations participants in the NEHS had vision impairment or blindness identified and had not previously had their condition diagnosed.

Overall: Based on the latest available NEHS data, in 2016, around 57% of First Nations participants in the NEHS had vision impairment or blindness attributed to 1 of 5 main causes (refractive error, cataract, diabetic retinopathy, age-related macular degeneration, and glaucoma) and had not previously had their condition diagnosed.

The rates varied by condition (Figure 2.5a), with the highest rate being for undiagnosed cataract:

- 64 of 116 (55%) First Nations participants tested had undiagnosed refractive error
- 27 of 39 (69%) First Nations participants tested had undiagnosed cataract
- 4 of 11 (36%) First Nations participants tested had undiagnosed diabetic retinopathy.

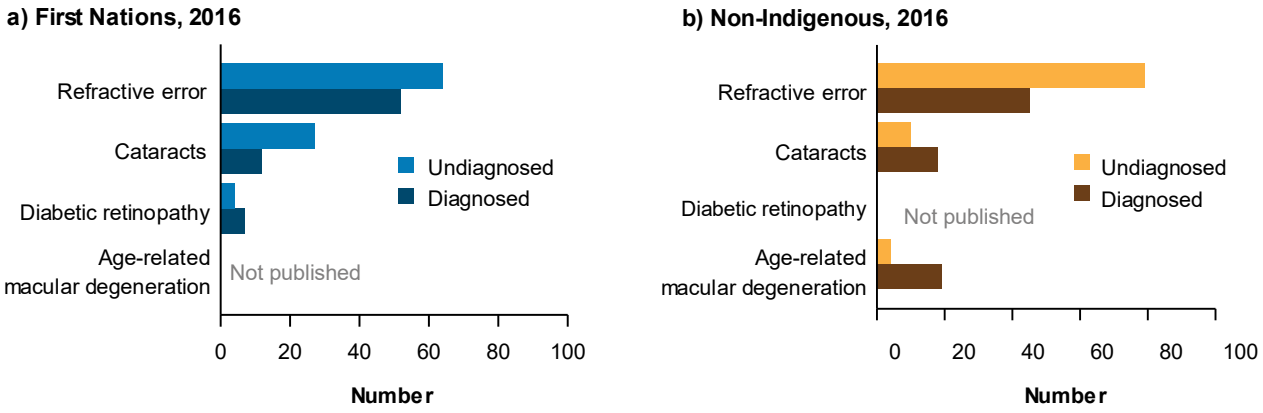
For non-Indigenous participants, 52% had vision impairment or blindness and had not previously had their condition diagnosed. The rates for non-Indigenous participants were highest for refractive error, with 79 out of 124 (64%) having undiagnosed refractive error (Figure 2.5b).

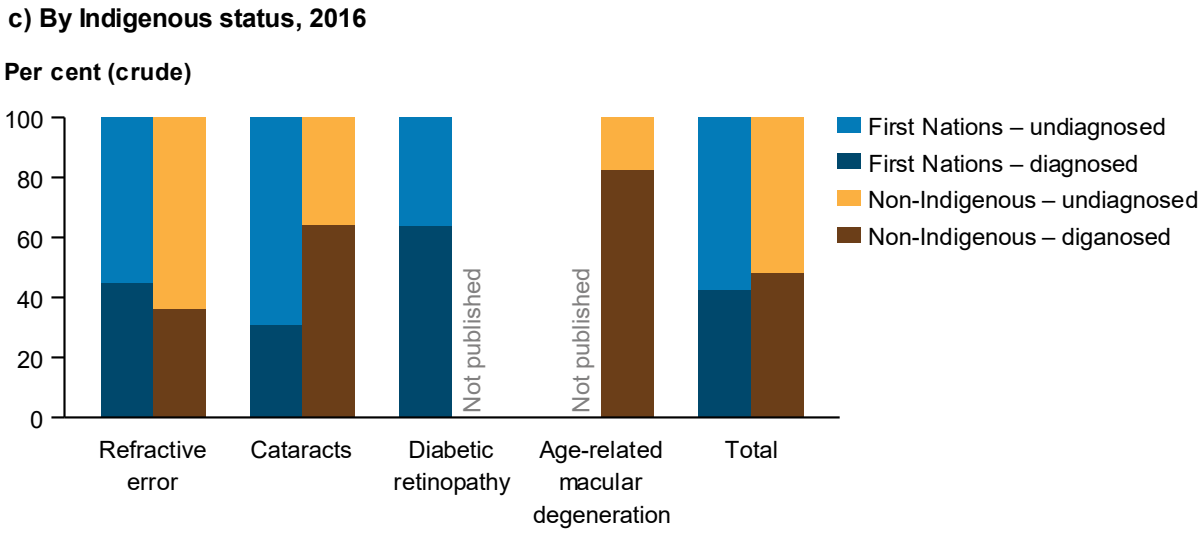
Rates of undiagnosed eye diseases were higher for First Nations people than for non-Indigenous Australians for cataract and diabetic retinopathy, and lower for refractive error and agerelated macular degeneration (Figure 2.5c).

Things to consider

- Data are from the 2016 NEHS, a sample survey of 1,738 First Nations people aged 40 and over and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The survey results reported are crude unadjusted sample proportions. These results are subject to sampling errors.
- 'Undiagnosed major eye condition or disease' was identified as the main attributed cause of vision impairment in participants who reported 'No' or 'Unsure' to the question 'Have you ever been told by a doctor that you have the following condition?'

Figure 2.5: Diagnosis rates for top 3 eye diseases and refractive error, by various characteristics





Notes

1. Percentages are crude unadjusted sample proportions.
2. Some numbers and rates are not presented, due to small numbers.
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Eye Health Survey data 2016.

3

Treatment – how are eye problems treated?

Based on the latest available NEHS data, in 2016–refractive error, cataract and diabetic retinopathy are the leading causes of vision loss among Aboriginal and Torres Strait Islander Australians. Information on First Nations people's hospitalisations for cataract surgery and for treatment for diabetic retinopathy, and on the provision of spectacles (a low-cost effective treatment for refractive error), for example, reflect the prevalence of particular conditions in the population as well as the use of health services. Reporting the use of eye health treatment services allows for ongoing monitoring and for identifying particular services, regions or groups within the First Nations population, where access to and use of services could be improved.

Treatment – measures and data sources

The data for measures 3.1–3.4 and measure 3.6 reported in this chapter come from the NHMD, reporting against treatment in admitted patient care:

Measure 3.1: Hospitalisations for diseases of the eye – the number of hospitalisations for diseases of the eye per 1,000 First Nations people.

Measure 3.2: Hospitalisations for injuries to the eye – the number of hospitalisations for injuries to the eye, per 1,000 First Nations people, age-standardised rate and rate ratio.

Measure 3.3: Hospitalisations for eye procedures – the number of hospital separations with a procedure on the eye, per 1,000 First Nations people.

Measure 3.4: Cataract surgery rate – the number of hospital separations with a procedure for cataract surgery, per 1,000,000 First Nations people.

These hospitalisation measures and elective surgery waiting times are based on admitted patient care data from the NHMD. Hospitalisation numbers and rates are based on episodes of care and not on the number of people who are hospitalised. These data are provided by state and territory health departments to the AIHW, which manages the national data collection. Except for time trend data, 2 financial years of data were aggregated to allow for analyses by Indigenous status and other characteristics, including by PHN and Roadmap region.

Measure 3.5: Cataract surgical coverage rate – expressed as:

- **NEHS definition:** number of First Nations people who have had cataract surgery, as a proportion of those who have had cataract surgery plus those who have vision loss (visual acuity worse than 6/12) and cataracts in 1 or both eyes
- **World Health Organization definition:** number of First Nations people who have had cataract surgery, as a proportion of those who have had cataract surgery plus those with vision loss (visual acuity worse than 6/18) and cataracts in both eyes.

The data for Measure 3.5 come from the 2016 NEHS, the only source of data that includes an estimate of surgery rates for people who have been identified as having cataracts

Treatment – measures and data sources (continued)

Measure 3.6: Waiting times for elective cataract surgery – expressed as:

median waiting time (or the number of days within which 50% of patients who completed their wait were admitted for cataract surgery) and the 90th percentile waiting time (or the number of days within which 90% of patients who completed their wait were admitted for cataract surgery)

proportion of patients who completed their wait who had cataract surgery within 90 days and within 365 days.

Data for this measure come from the NHMD.

Measure 3.7: Treated for diabetic retinopathy among target population

There are 2 sub-measures reported:

- **3.7.1: Treated for diabetic retinopathy among those screened for diabetic retinopathy**
- **3.7.2: Treated for diabetic retinopathy using a retinal laser procedure or an intravitreal injection among those tested for diabetes.**

The data for this measure is based on MBS data.

Measure 3.8: Trachoma and trichiasis treatment coverage – the estimated number, and proportion of:

- community members who were treated in communities where active trachoma was identified
- First Nations adults with trichiasis who were treated.

This measure captures data on treatment provided in at-risk communities. For trachoma, treatment data are provided on the community members treated in communities where active trachoma was identified who received treatment. For trichiasis, data are for treatment for those who have been identified as having the condition (Kirby Institute 2019a).

Measure 3.9: Treatment of refractive error – the number of First Nations people who had spectacle or contact lens correction for refractive error, as a proportion of those who had refractive error (whether or not they had spectacle or contact lens correction).

Measure 3.10: Spectacles dispensed under state schemes – the number of spectacles dispensed to First Nations people under state-subsidised spectacles programs, per 1,000 population.

These final 2 measures relate to refractive error, a major cause of vision impairment, which can generally be corrected easily by providing spectacles. *Treatment of refractive error* comes from the 2016 NEHS and compares treatment rates for refractive error for nonIndigenous and First Nations people. All state and territory governments have subsidised spectacle schemes targeted at low-income people. The measure *Spectacles dispensed under state schemes* captures data on First Nations people's use of these schemes, although only 5 jurisdictions (New South Wales, Victoria, Queensland, South Australia and Tasmania) could provide data.

Measure 3.1: Hospitalisations for diseases of the eye

Key findings: In the 2-year period 2019–21, there were around 11,000 (6.4 per 1,000 population) hospitalisations for First Nations people for diseases of the eye. Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for diseases of the eye for First Nations people increased from 8.9 to 12.6 per 1,000 population.

Overall: In the 2-year period 2019–21, there were 11,058 hospitalisations for First Nations people for diseases of the eye – a crude rate of 6.4 per 1,000 population.

In 2020–21, age-standardised hospitalisation rates for First Nations people for diseases of the eye (12.6 per 1,000) were lower than for non–Indigenous Australians (14.3 per 1,000) (Figure 3.1a).

In 2019–21, for First Nations people, the most common principal diagnosis for hospitalisations for diseases of the eye was disorders of the lens (6,528 hospitalisations or 3.8 per 1,000) followed by disorders of the choroid and retina (1,659 hospitalisations or 1.0 per 1,000), disorders of the eyelid, lacrimal system and orbit (0.4 per 1,000) and disorders of the conjunctiva (0.4 per 1,000) (Figure 3.1b).

Age and sex: In 2019–21, hospitalisation rates for eye diseases increased with age and were greatest for those aged 75 and over. Hospitalisation rates were higher among non–Indigenous Australians aged 75 and over (103.7 per 1,000) than among First Nations people (77.7 per 1,000) (Figure 3.1c).

Remoteness: In 2019–21, age-standardised hospitalisation rates for eye diseases increased with remoteness. The area with the highest hospitalisation rate for First Nations people was *Remote and very remote* areas (combined) (12.0 per 1,000) (Figure 3.1d).

Jurisdiction: In 2019–21, the jurisdictions with the highest age-standardised hospitalisation rates for First Nations people for diseases of the eye were Western Australia (13.7 per 1,000), Queensland (13.6 per 1,000) and New South Wales (11.1 per 1,000) (Figure 3.1e).

Time trend: Between 2013–14 and 2020–21, age-specific hospitalisation rates for First Nations people for diseases of the eye increased for all age groups over age 45. The largest increase was for those aged 75 and over, where the rate rose from 53 per 1,000 in 2013–14 to 86 per 1,000 in 2020–21(Figure 3.1f). Hospitalisation rates for non-Indigenous Australians also increased across all age groups from 2013–14 to 2020–21 (Figure 3.1g). Hospitalisation rates were higher among First Nations people than among non-Indigenous Australians in 2020–21 for those aged 45 to 54 (7.7 and 6.7 per 1,000, respectively) and 55 to 64 (24.9 and 21.0 per 1,000, respectively) but were lower for those aged 65 to 74 and 75 and over (figures 3.1 f and g).

Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for diseases of the eye for First Nations people increased from 8.9 to 12.6 per 1,000, while the rate for non-Indigenous Australians rose from 13.2 to 14.3 per 1,000. The trend line shows there has been a slight rise in the age-standardised hospitalisation rate for First Nations people over this time (Figure 3.1h).

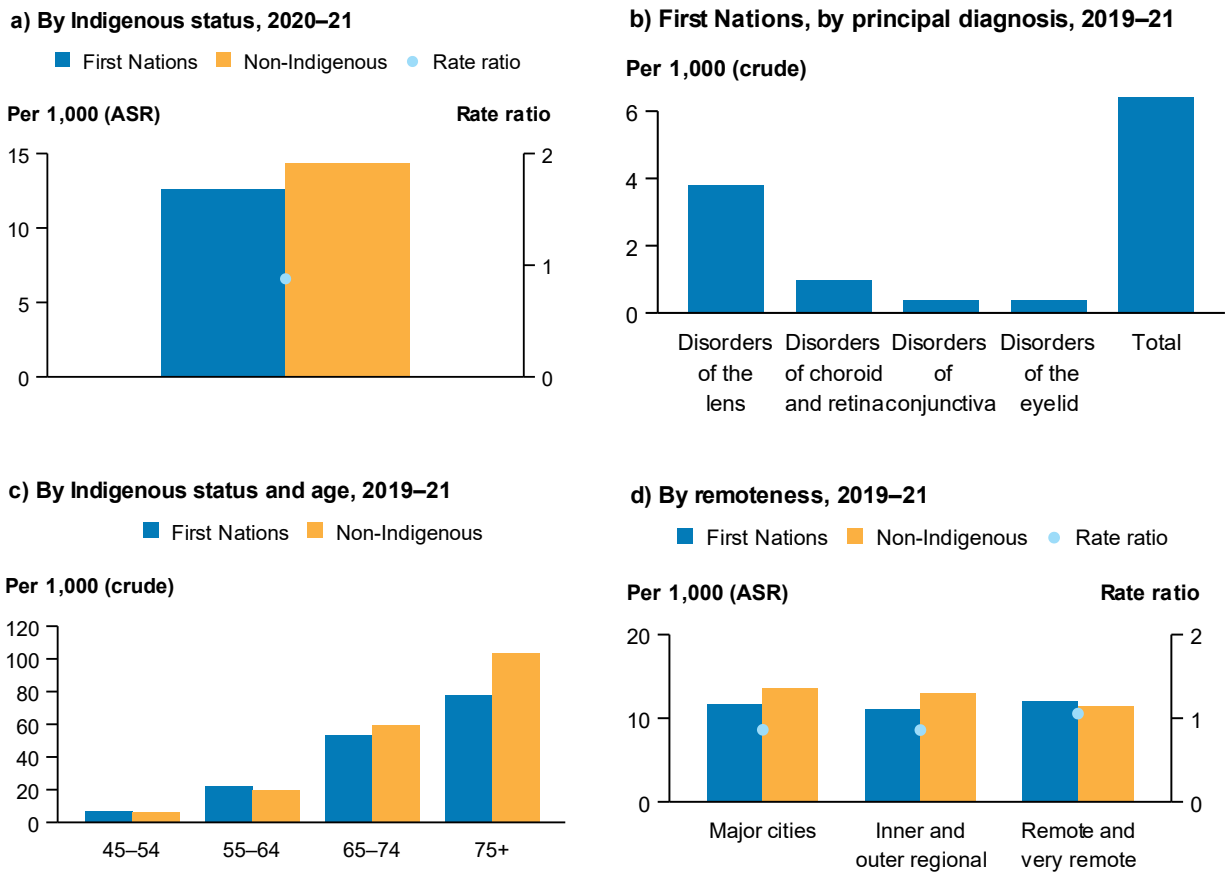
PHN: In 2019–21, the PHNs with the highest hospitalisation rates for First Nations people for diseases of the eye were Country WA (10.3 per 1,000), Western Queensland (8.9 per 1,000) and Brisbane North (8.8 per 1,000) (Figure 3.1i).

Roadmap region: In 2019–21, the Roadmap region with the highest hospitalisation rates for First Nations people for diseases of the eye was *Pilbara* (15.8 per 1,000) (Figure 3.1j).

Things to consider

- The quality of data provided for Indigenous status varies.
- Time series analyses may be affected by changes in the quality of First Nations identification over time.
- Hospitalisations data presented by state and territory and remoteness area in this report are based on the patient's place of usual residence.
- Age-standardised and age-specific rates are both presented (see Box 3 – Population rates).

Figure 3.1: Hospitalisations for diseases of the eye, by Indigenous status, by various characteristics



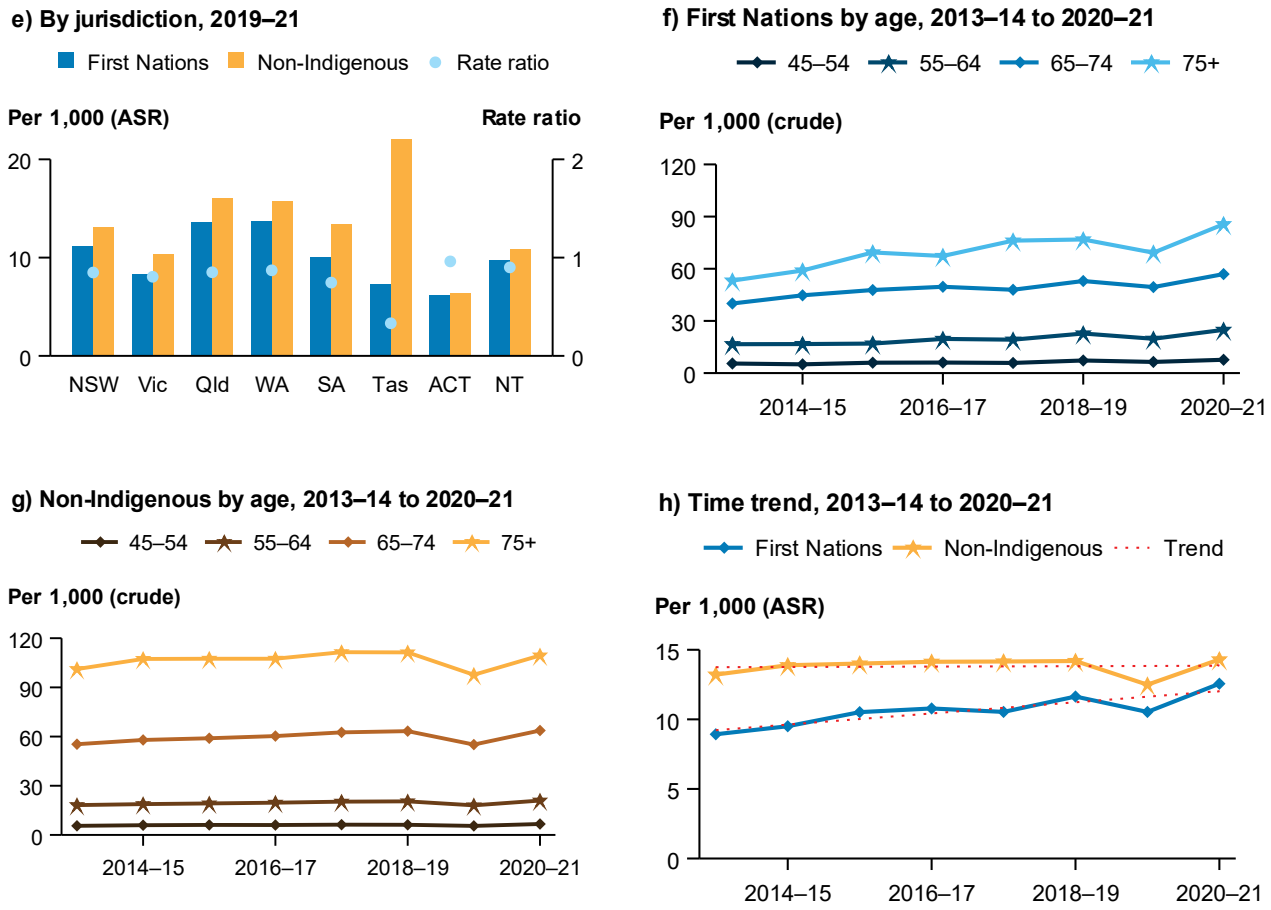
ASR = age-standardised rate.

Notes

1. Figure (b) shows the top 4 principal diagnoses for First Nations people.
2. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.1 (continued): Hospitalisations for diseases of the eye, by Indigenous status, by various characteristics

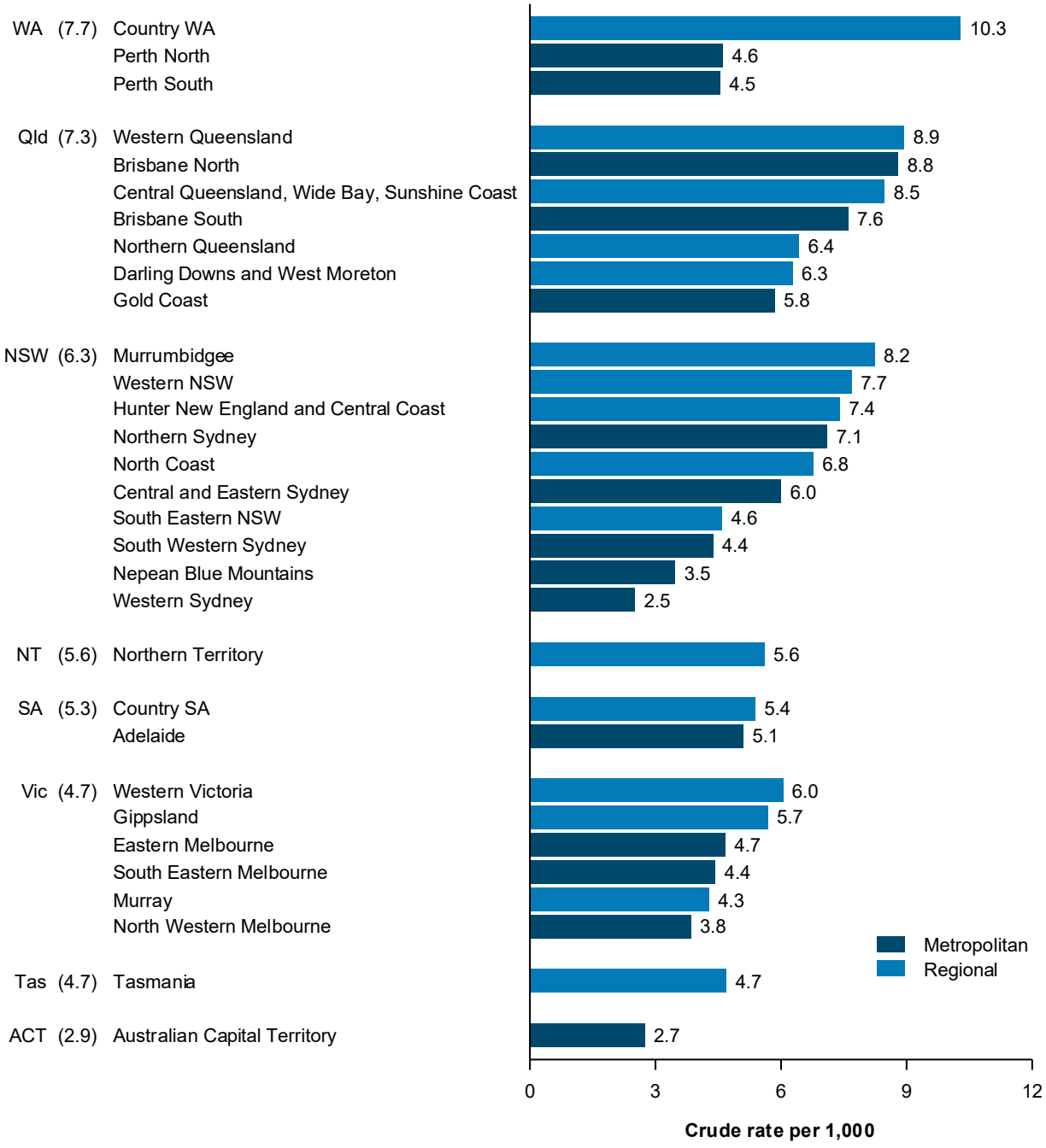


ASR refers to the age-standardised rate.

Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.1i: Hospitalisations for diseases of the eye, First Nations people, by PHN, 2019–21

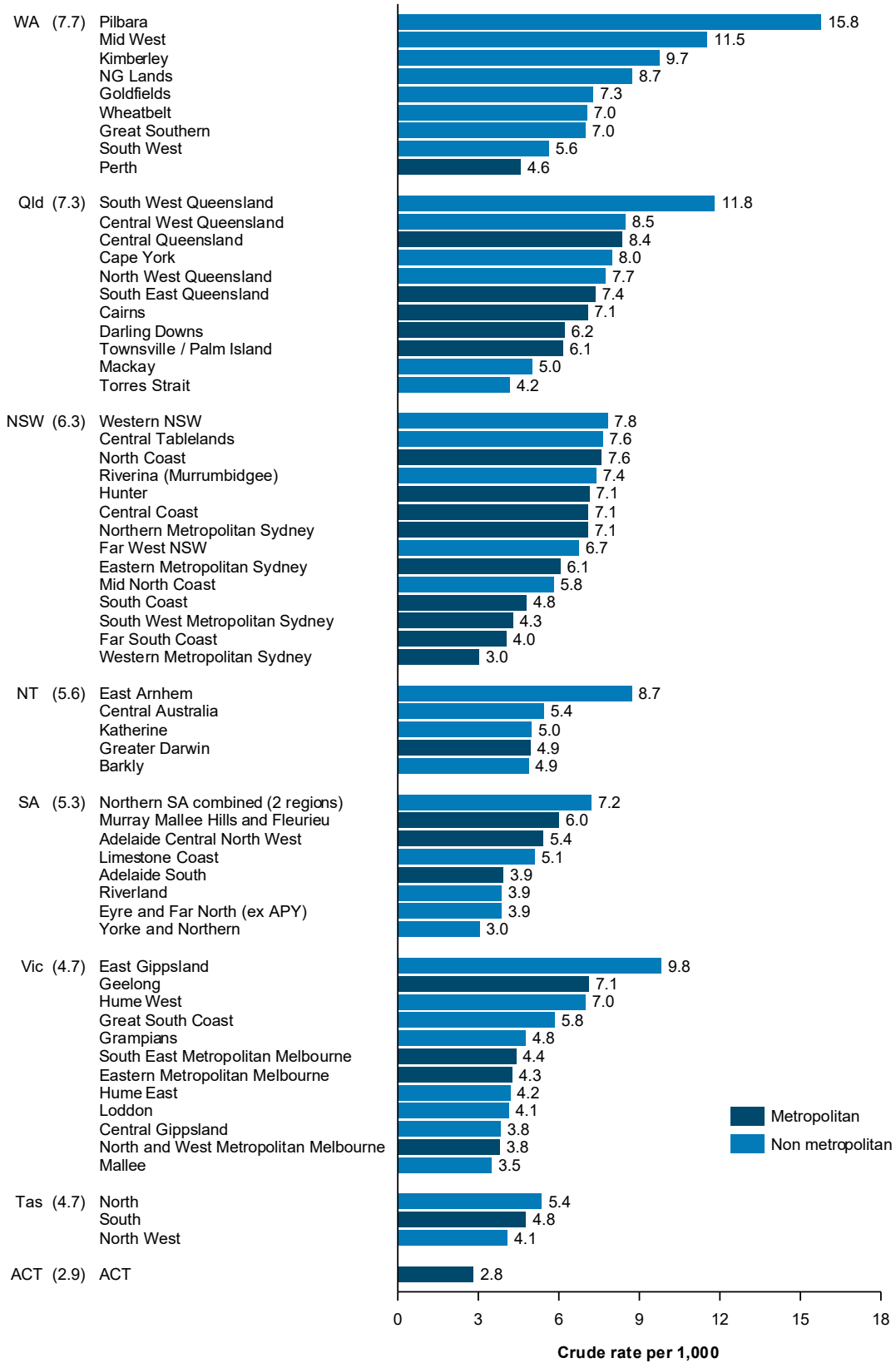


Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye diseases in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.1j: Hospitalisations for diseases of the eye, First Nations people, by Roadmap region, 2019–21



Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye diseases in that jurisdiction.
2. Data for this figure are available in the online data tables.

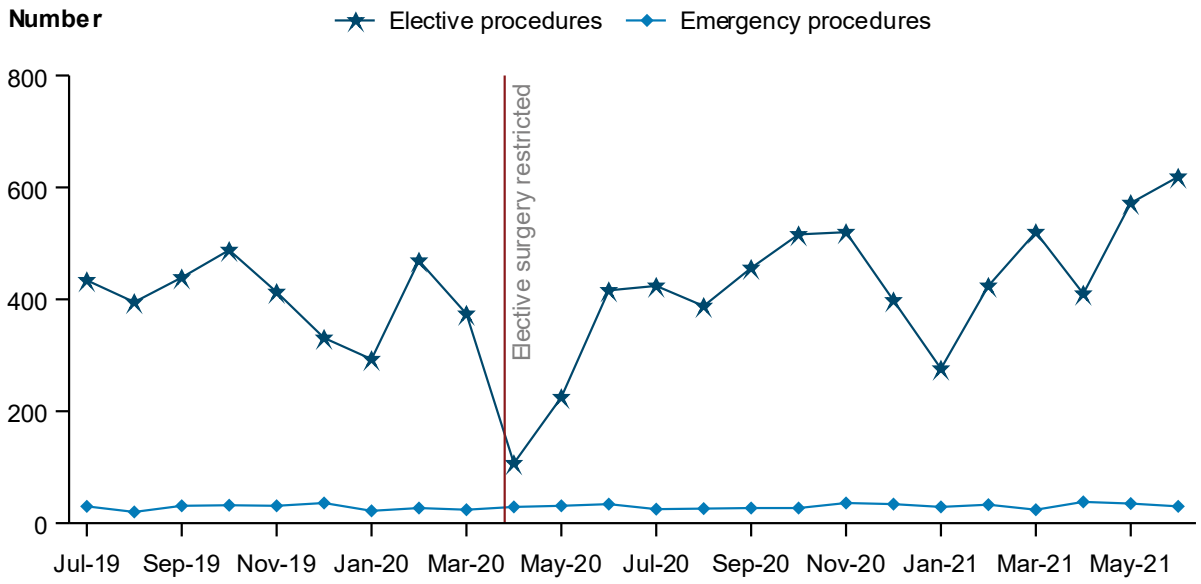
Source: AIHW analysis of National Hospital Morbidity Database.

Impact of COVID-19 on hospitalisations (measures 3.1, 3.2, 3.3 and 3.4)

Early 2020 saw the emergence of a global pandemic of the novel coronavirus disease COVID-19.

In response to the COVID-19 pandemic, all non-urgent elective surgery was temporarily suspended from 25 March 2020 in both public and private hospitals. This resulted in a large drop in elective eye procedures in April 2020. Emergency eye procedures were largely unaffected during this period (Figure a). The upward trend in elective eye procedures in 2021 suggests hospitalisations have largely rebounded since the height of the pandemic.

Figure a: Monthly number of First Nations hospital separations for eye procedures, 2019–21



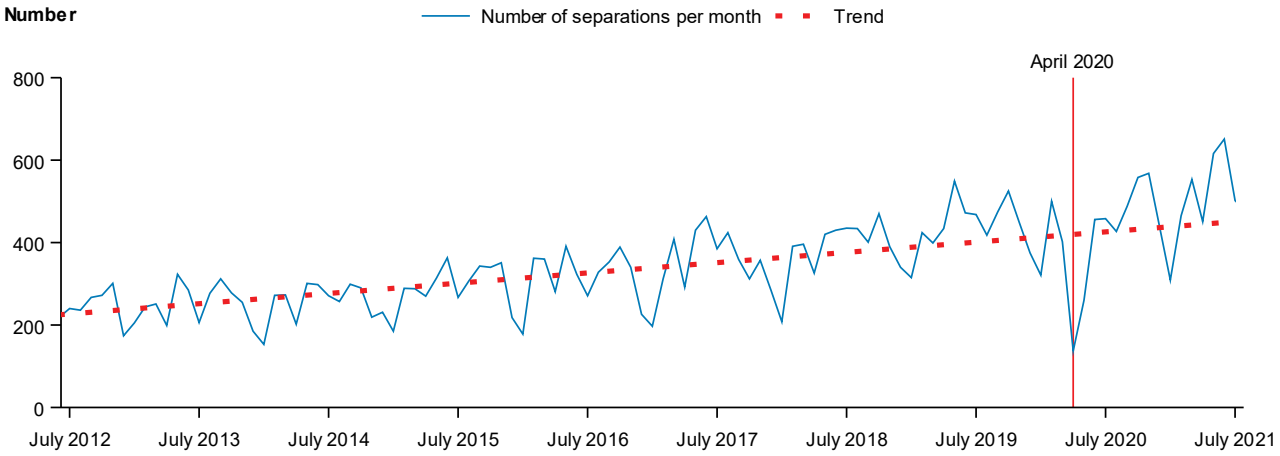
As almost all hospitalisations for eye procedures are elective, total hospitalisations for First Nations people fell by 67 percentage points below the 10-year trend in April 2020. This was the largest monthly percentage point drop in 10 years (Figure b). However, some of this fall is attributable to seasonal effects associated with Easter public holidays, as shown by the dip in hospitalisations in April in the years preceding 2020. An upward trend in hospitalisations in 2021 and evidence of a smaller dip in April 2021 than in April 2020 suggest hospitalisations have largely rebounded since the height of the pandemic.

Hospitalisations for cataract surgery and eye disease were similarly affected as most of these are elective procedures.

(continued)

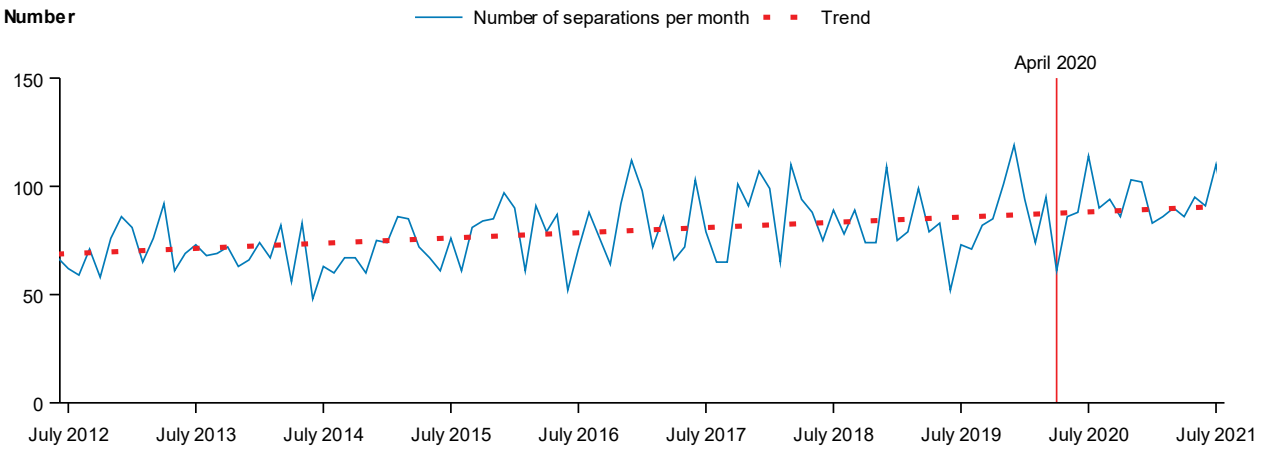
Impact of COVID-19 on hospitalisations (measures 3.1, 3.2, 3.3 and 3.4) (continued)

Figure b: Monthly number of First Nations hospital separations for eye procedures, July 2012 to July 2021



In April 2020, the fall in the number of hospitalisations for eye injuries was less than the fall in the number of hospitalisations for elective procedures such as cataracts, as most hospitalisations for eye injuries are emergency procedures. However, the dip in separations is smaller in April 2021 than in April 2020 suggesting the pandemic affected even emergency procedures to some extent (Figure c).

Figure c: Monthly number of First Nations hospital separations for eye injuries, July 2012 to July 2021



Source: AIHW analysis of the National Hospital Morbidity Database.

Measure 3.2: Hospitalisations for injuries to the eye

Key findings: In the 2-year period from 2019 to 2021, there were around 2,100 (1.2 per 1,000 population) hospitalisations of First Nations people for injuries to the eye. Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for eye injuries for First Nations people was fairly constant.

Overall: In the 2-year period from 2019–21, there were 2,149 hospitalisations of First Nations people for injuries to the eye – 1.2 per 1,000 population.

In 2020–21, age-standardised hospitalisation rates for First Nations people for injuries to the eye (1.5 per 1,000) were higher than those for non-Indigenous Australians (0.4 per 1,000) (Figure 3.2a).

In 2019–21, for First Nations people, the most common principal diagnosis for hospitalisations for injury to the eye was an open wound of eyelid and periocular area (0.4 per 1,000) (Figure 3.2b).

Age and sex: In 2019–21, hospitalisation rates for eye injuries were higher for First Nations people than for non-Indigenous Australians in all age groups apart from those aged 75 and over, where rates were higher for non-Indigenous Australians. Hospitalisation rates for eye injuries were highest for First Nations people aged 35–44 and highest for nonIndigenous Australians aged 75 and over (Figure 3.2c).

For First Nations people in 2019–21, age-specific hospitalisation rates for eye injuries were highest for both males and females in the 35–44 age group (2.7 and 2.3, per 1,000, respectively) (Figure 3.2d).

Remoteness: In 2019–21, the area with the highest age-standardised rate of hospitalisations for First Nations people for eye injuries was *Remote and very remote* areas (combined) (3.2 per 1,000). Rates were higher for First Nations people than nonIndigenous Australians in all regions (Figure 3.2e).

Jurisdiction: In 2019–21, the jurisdictions with the highest age-standardised hospitalisation rates for First Nations people for eye injuries were the Northern Territory (4.1 per 1,000), Western Australia (1.7 per 1,000) and South Australia (1.6 per 1,000) (Figure 3.2f).

Time trend: Between 2013–14 and 2020–21, age-specific hospitalisation rates for injuries to the eye for First Nations people remained fairly constant within each age group over time (Figure 3.2g). Over the same period, the rates for non-Indigenous Australians were also fairly constant within each age group (Figure 3.2g). In 2020–21, the age-specific hospitalisation rate for First Nations people aged 35–44 (2.7 per 1,000) was around 9 times the rate for nonIndigenous Australians of the same age (0.3 per 1,000) (Figure 3.2g).

Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for eye injuries for First Nations people rose slightly from 1.2 to 1.5 per 1,000 while the rate for non-Indigenous Australians was fairly constant. The trend line shows that the age-standardised hospitalisation rate for First Nations people has remained relatively constant over this period (Figure 3.2h).

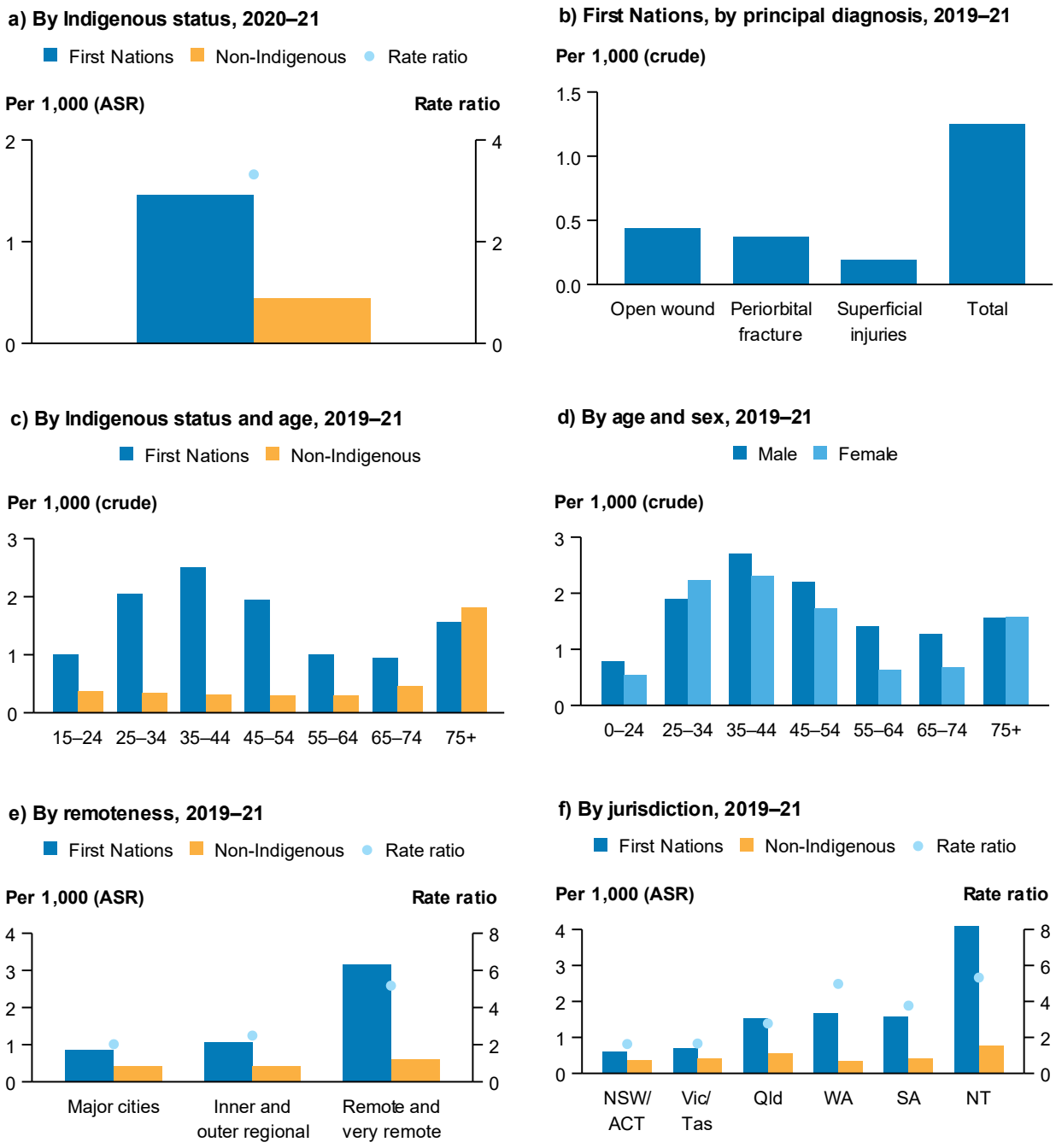
PHN: In 2019–21, the PHN with the highest hospitalisation rate for First Nations people for injury to the eye was the Northern Territory (3.9 per 1,000) (Figure 3.2i).

Roadmap region: In 2019–21, the 2 Roadmap regions with the highest hospitalisation rates for First Nations people for injuries to the eye had rates that were 5.0 per 1,000 or greater (Figure 3.2j).

Things to consider

- This measure is a count of hospitalisations for injury, not of occurrence of injury – as some injuries would result in more than 1 hospitalisation.
- The quality of data provided for Indigenous status varies.
- Time series analyses may be affected by changes in the quality of First Nations identification over time.
- Hospitalisations data presented by state and territory and remoteness area in this report are based on the patient's place of usual residence.
- Age-standardised and age-specific rates are presented (see Box 3 – Population rates).

Figure 3.2: Hospitalisations for injuries to the eye, by Indigenous status, by various characteristics



ASR = age-standardised rate.

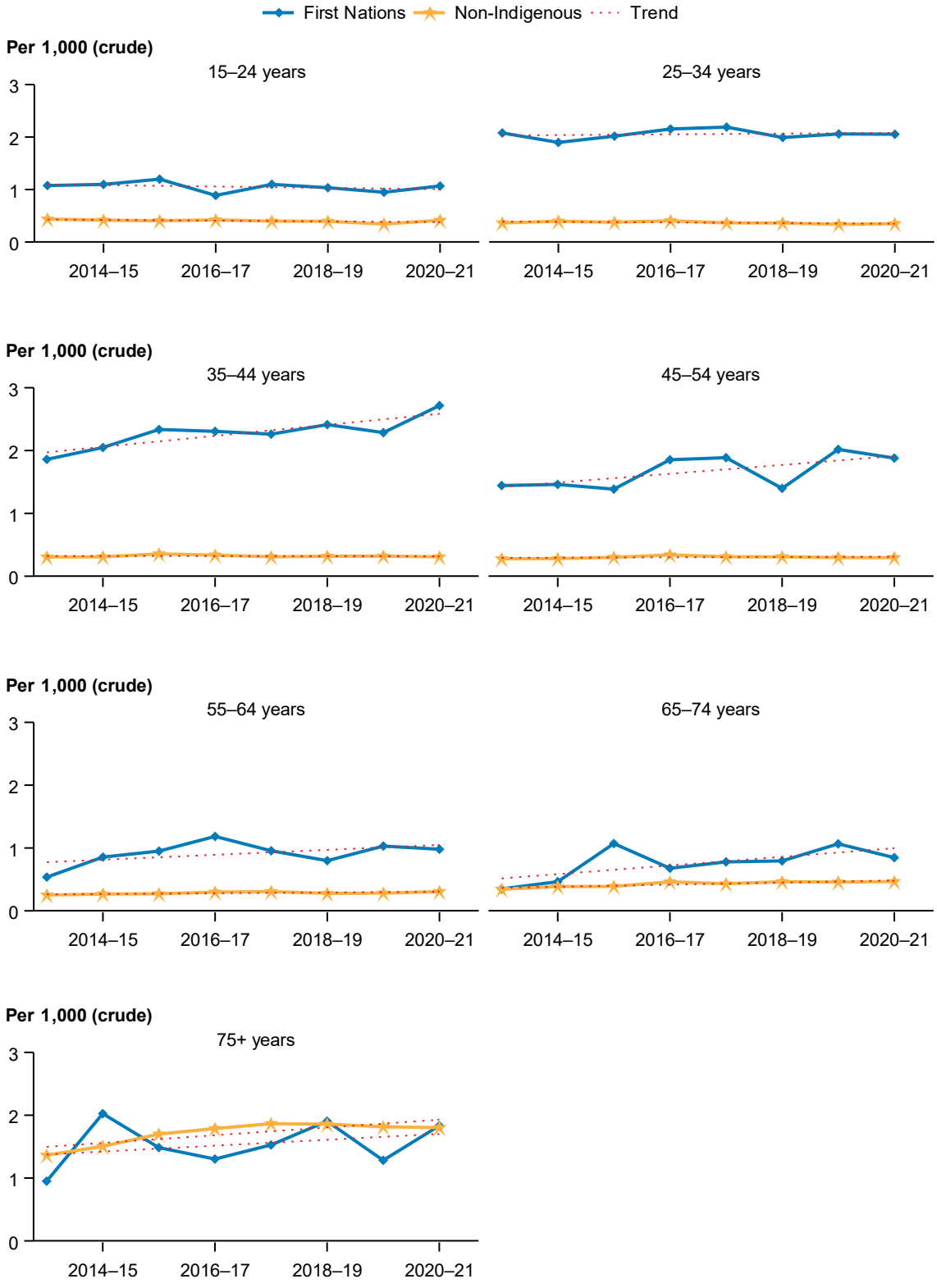
Notes

1. Figure (b) shows the top 4 principal diagnoses for First Nations people.
2. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.2 (continued): Hospitalisations for injuries to the eye, by Indigenous status, by various characteristics

g) By age group, 2013–14 to 2020–21

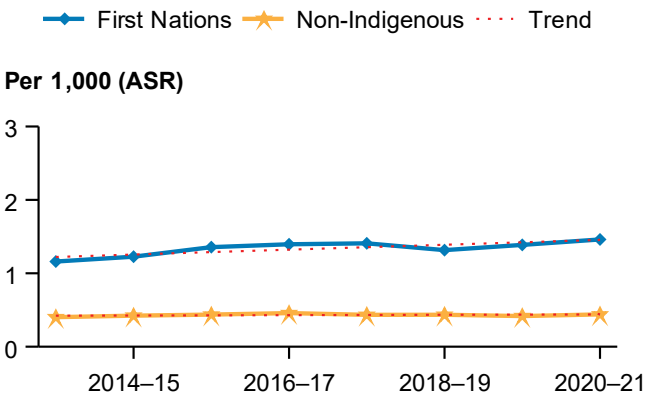


ASR = age-standardised rate.
Note: Data for these figures are available in the online data tables.
Source: AIHW analysis of National Hospital Morbidity Database.

(continued)

Figure 3.2 (continued): Hospitalisations for injuries to the eye, by Indigenous status, by various characteristics

h) All ages, 2013–14 to 2020–21

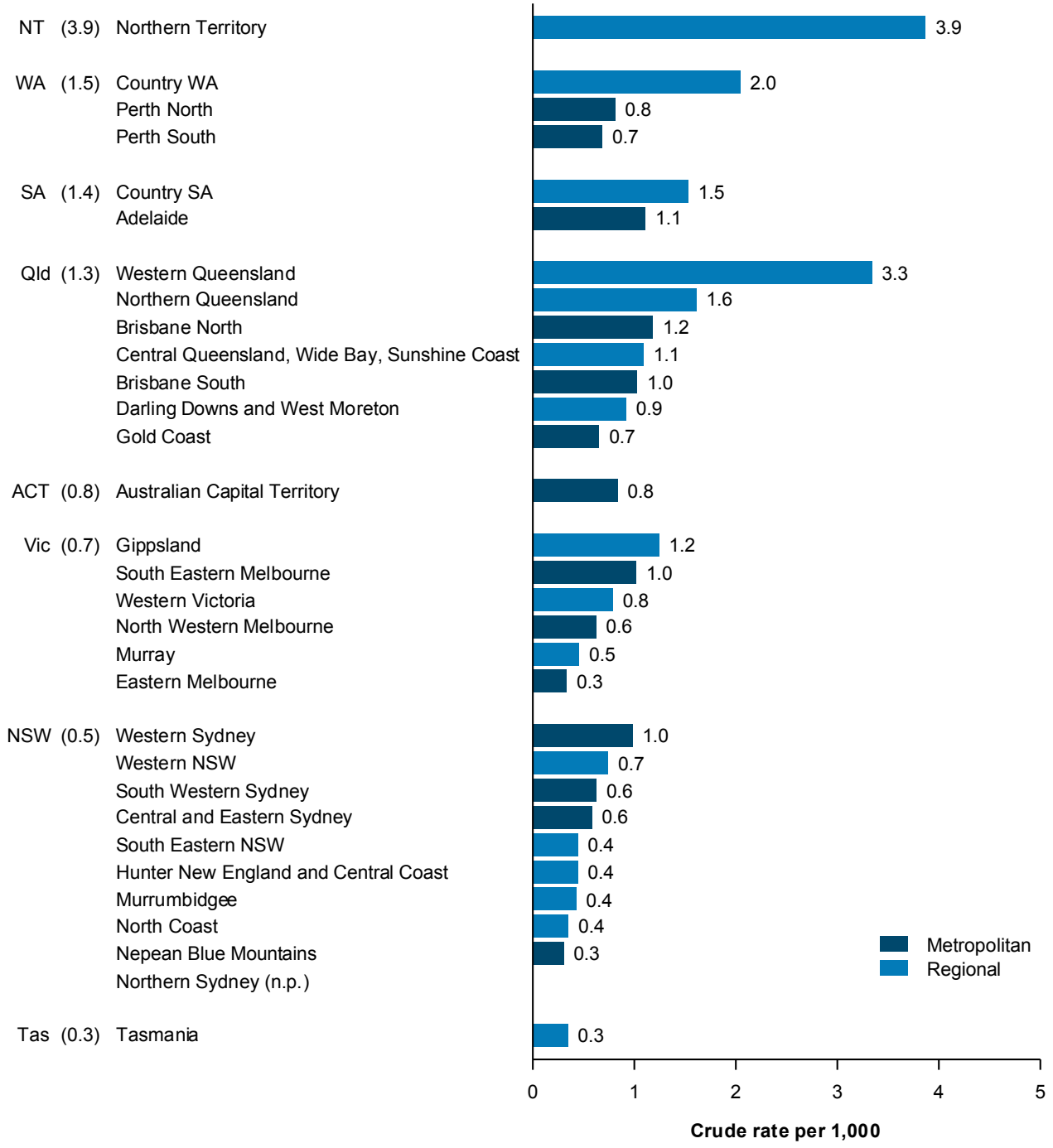


ASR = age-standardised rate.

Note: Data for this figure is available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.2i: Hospitalisations for injuries to the eye, First Nations people, by PHN, 2019–21

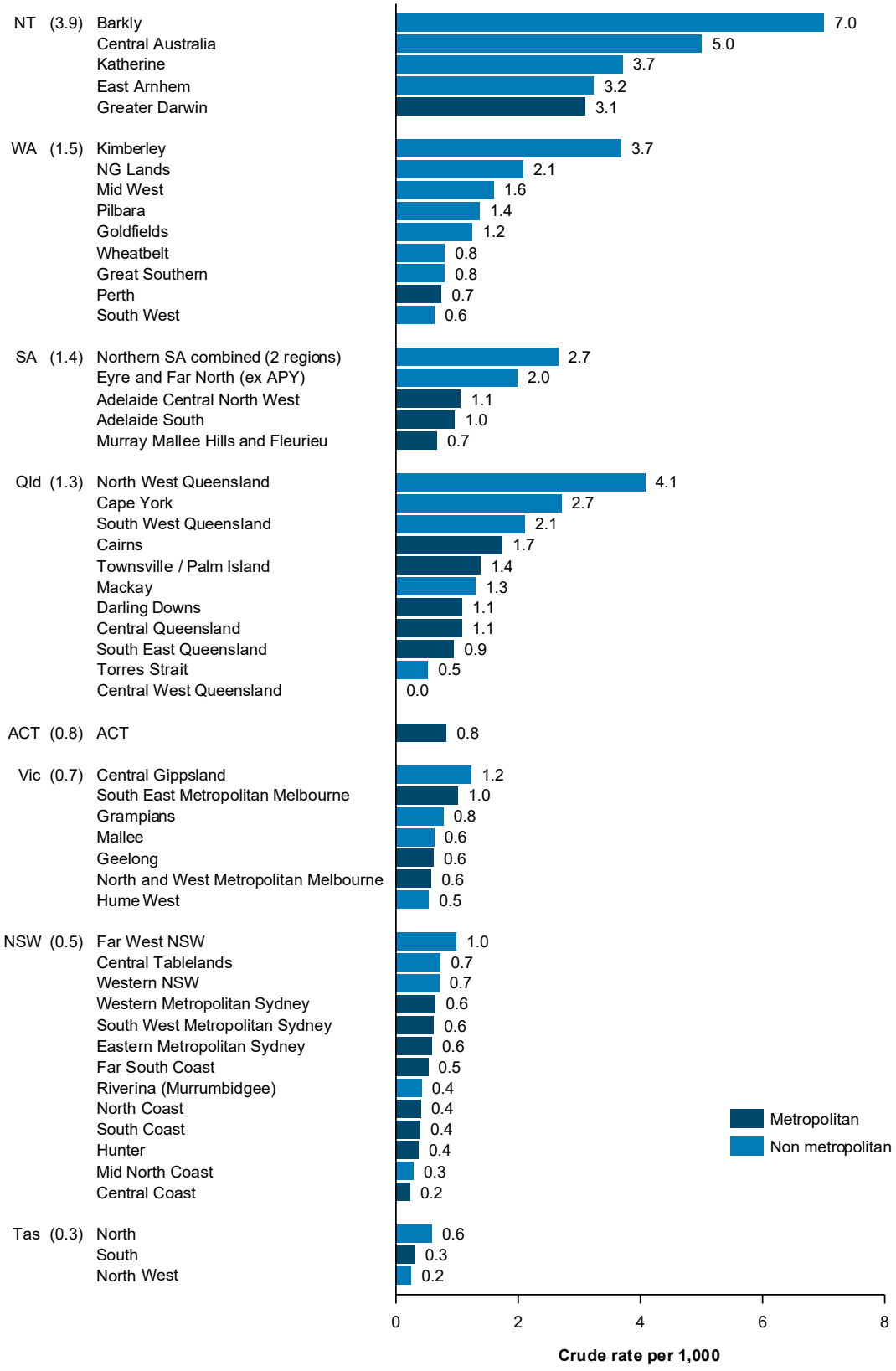


Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye injuries in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.2j: Hospitalisations for injuries to the eye, First Nations people, by Roadmap region, 2019–21



Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye injuries in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Measure 3.3: Hospitalisations for eye procedures

Key findings: In the 2-year period 2019–21, there were around 10,800 (6.2 per 1,000 population) hospitalisations of First Nations people for eye procedures. Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for eye procedures for First Nations people increased from 8.7 to 12.3 per 1,000 population.

Overall: In the 2-year period 2019–21, there were 10,768 hospitalisations of First Nations people for eye procedures – a crude rate of 6.2 per 1,000 population.

In 2020–21, age-standardised hospitalisation rates for First Nations people for eye procedures (12.3 per 1,000) were lower than those for non-Indigenous Australians (14.0 per 1,000) (Figure 3.3a).

In 2019–21, for First Nations people, the most common hospitalisations for an eye procedure were lens procedures (3.5 per 1,000) followed by retinal procedures (1.4 per 1,000) (Figure 3.3b).

Age and sex: In 2019–21, the rate of hospitalisations for eye procedures for First Nations people and non-Indigenous Australians increased with age. Rates were similar for First Nations people and nonIndigenous Australians at younger ages (45–54 and 55–64) but were higher for nonIndigenous Australians than First Nations people at older ages (65–74 and 75 and over) (Figure 3.3c).

Remoteness: In 2019–21, age-standardised rates of hospitalisations for First Nations people for eye procedures were highest in *Major cities* (11.6 per 1,000) (Figure 3.3d).

Jurisdiction: In 2019–21, the age-standardised hospitalisation rate for First Nations people for eye procedures was highest in Western Australia (14.3 per 1,000) (Figure 3.3e).

Time trend: Between 2013–14 and 2020–21, age-specific hospitalisation rates for eye procedures for First Nations people remained fairly constant for those aged 45–54, but increased for those aged 55–64, 65–74 and for those aged 75 and over (Figure 3.3f). Hospitalisation rates for non-Indigenous Australians remained fairly constant for those aged from 45–54, but increased over this period for those aged 55–64, 65–74 and 75 and over (Figure 3.3g). Hospitalisations rates for First Nations people aged 65–74 and 75 and over were lower than those for non-Indigenous Australians of the same age.

Between 2013–14 and 2020–21, the age-standardised hospitalisation rate for eye procedures for First Nations people increased from 8.7 to 12.3 per 1,000, while the rate for non-Indigenous Australians increased from 13.0 to 14.0 per 1,000. The trend line shows that the agestandardised hospitalisation rate for First Nations people remained relatively constant over this period (Figure 3.3h).

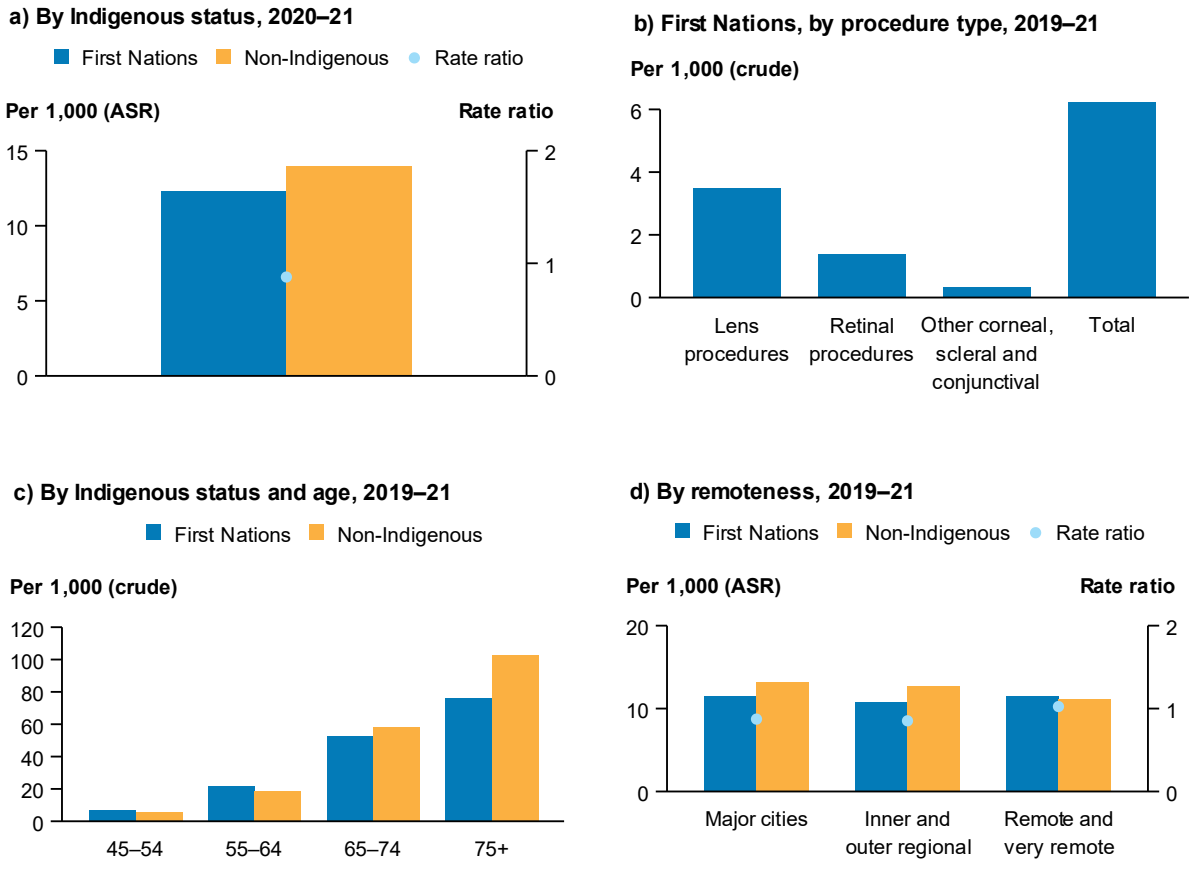
PHN: In 2019–21, the PHN's with the highest reported rates of hospitalisations for First Nations people for eye procedures were Country WA (10.7 per 1,000) and Brisbane North (8.9 per 1,000) (Figure 3.3i).

Roadmap region: In 2019–21, the Roadmap region with the highest hospitalisation rate for First Nations people for eye procedures was *Pilbara* (15.9 per 1,000) (Figure 3.3j).

Things to consider

- The Australian Refined Diagnosis Related Group (AR-DRG) was used to disaggregate this measure into types of eye procedures. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital resources.
- The data may underestimate the number of procedures provided, as they do not include those undertaken on an outpatient basis.
- Hospitalisations data presented by state and territory and remoteness area in this report are based on the patient's place of usual residence.
- The quality of data provided for First Nations status varies. Time series analyses may also be affected by changes in the quality of First Nations identification over time.
- Age-standardised and age-specific rates are both presented (see Box 3 – Population rates).

Figure 3.3: Hospitalisations for eye procedures, by various characteristics



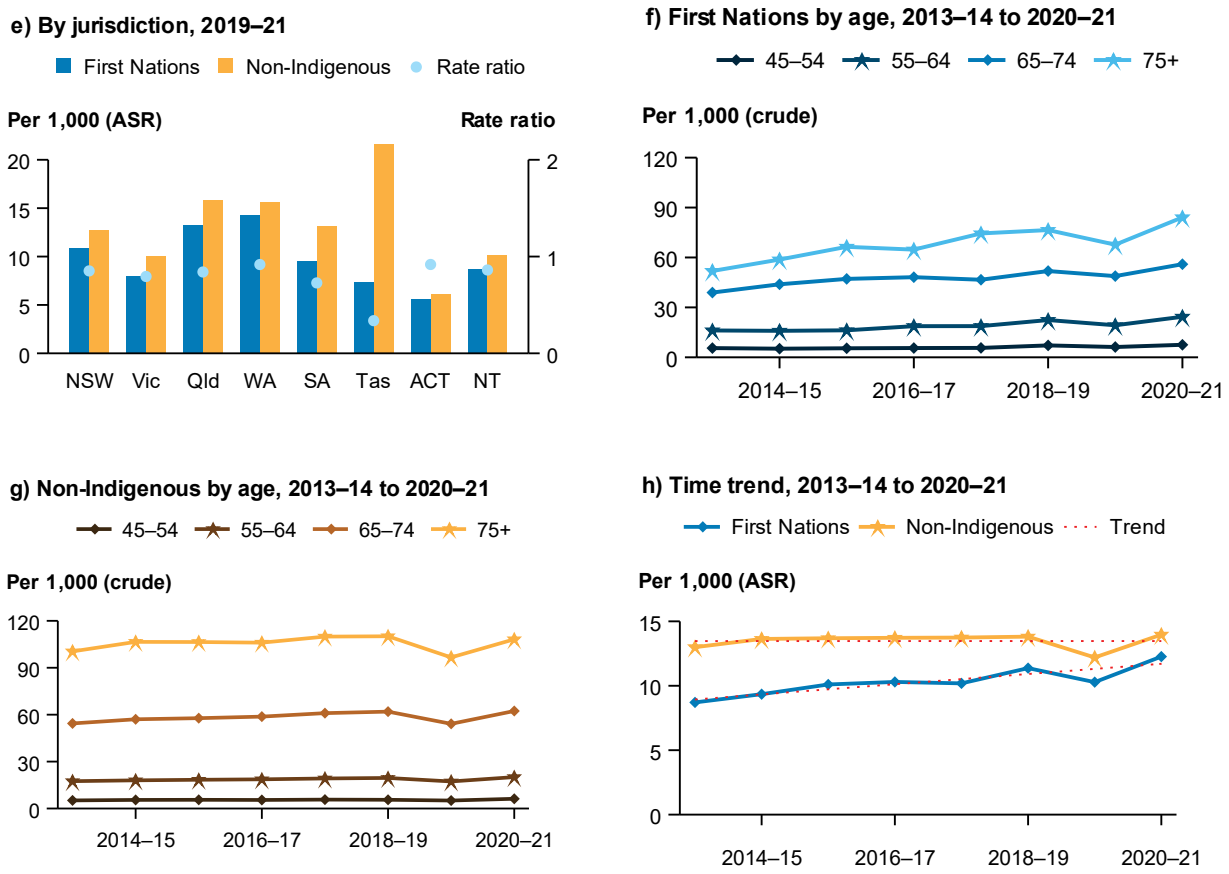
ASR refers to the age-standardised rate.

Notes

1. Figure (b) shows the top 4 principal diagnoses for First Nations people.
2. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.3 (continued): Hospitalisations for eye procedures, by Indigenous status, by various characteristics

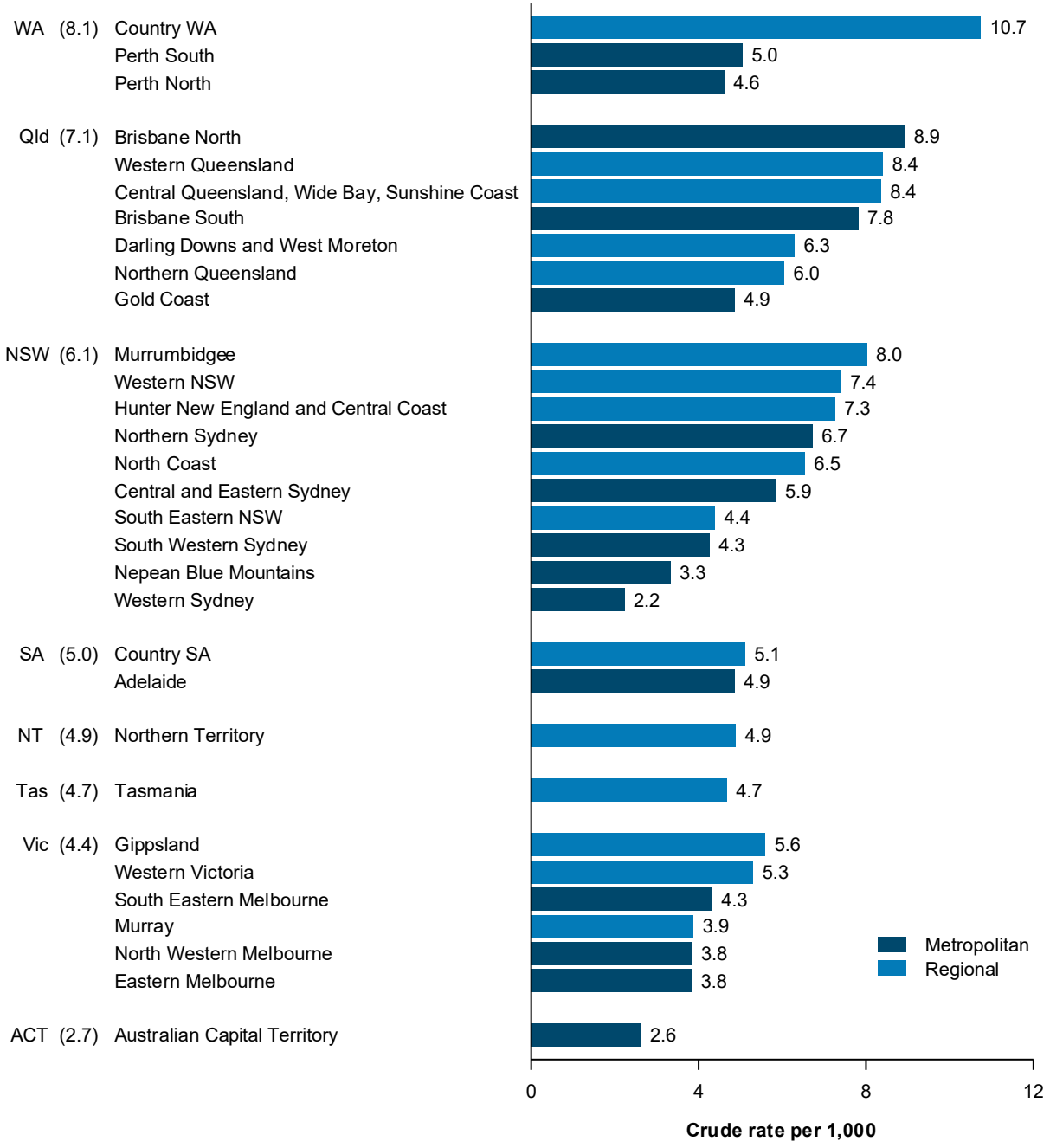


ASR refers to the age-standardised rate.

Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.3i: Hospitalisations for eye procedures, First Nations people, by PHN, 2020–21

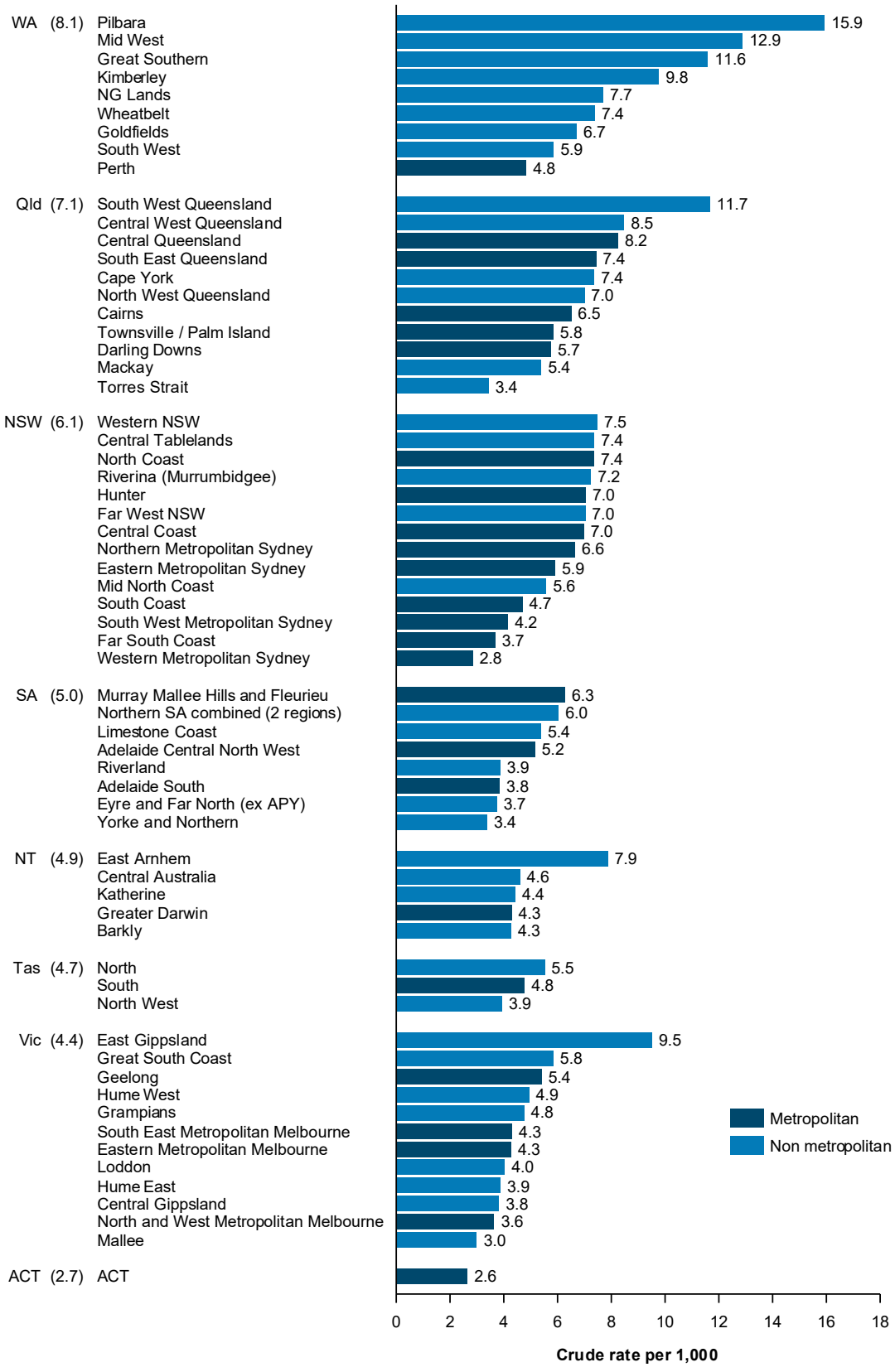


Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye procedures in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.3j: Hospitalisations for eye procedures, First Nations people, by Roadmap region, 2020–21



Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye procedures in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Measure 3.4: Cataract surgery rate

Key findings: In the 2-year period from 2019–21, there were around 6, 700 (3,894 per 1,000,000 population) hospitalisations for First Nations people for cataract surgery. Between 2013–14 and 2020–21, the age-standardised rate for cataract surgery for First Nations people increased from 6,462 to 8,691 per 1,000,000.

Overall: In the 2-year period from 2019–21, there were 6,714 hospitalisations for First Nations people for cataract surgery – a rate of 3,894 per 1,000,000 population. The number of hospitalisations over the 2-year period from 2019–21 was below the estimated annual number of First Nations people needing cataract surgery (15,537) (IEHU 2017).

In 2020–21, age-standardised hospitalisation rates for First Nations people for cataract surgery (8,691 per 1,000,000) were lower than for non-Indigenous Australians (8,944 per 1,000,000) (Figure 3.4a).

Age and sex: In 2019–21, rates of cataract surgery increased with age and were highest for those aged 75 and over. The difference in First Nations and non-Indigenous rates of cataract surgery was greatest for those aged 75 and over (55,923 and 61,482 per 1,000,000, respectively) (Figure 3.4b).

Remoteness: In 2019–21, the age-standardised rate of hospitalisations for First Nations people for cataract surgery was highest in *Inner and outer regional* areas (combined) (7,883 per 1,000,000) (Figure 3.4c).

Jurisdiction: In 2019–21, the jurisdictions with the highest age-standardised hospitalisation rates for cataract surgery for First Nations people were Queensland (8,350 per 1,000,000), New South Wales (8,303 per 1,000,000) and Western Australia (8,182 per 1,000,000) (Figure 3.4d).

Time trend: Age-specific hospitalisation rates for First Nations people and non-Indigenous Australians for cataract surgery increased in all age-groups from 2013–14 to 2018–19, then fell between 2018–19 and 2019–20, before increasing from 2019–20 to 2020–21 (Figure 3.4e).
In 2020–21, the rate of hospitalisations was higher for First Nations people aged 45–54 and 55–64 than for nonIndigenous Australians of the same age. However, at older ages, rates were higher for non-Indigenous Australians than First Nations people.

Between 2013–14 and 2018–19, the age-standardised rate for cataract surgery for First Nations people increased from 6,462 to 8,130 per 1,000,000 before falling to to 6,884 in 2019–20, and then increasing to 8,691 per 1,000,000 in 2020–21. The rate for non-Indigenous Australians rose from 8,631 in 2013–14 to 8,800 in 2017–18 before falling to 7,423 in 2019–20 and then rising to 8,944 in 2020–21. The trend line shows a slight rise in the age-standardised hospitalisation rate for First Nations people over this time (Figure 3.4f).

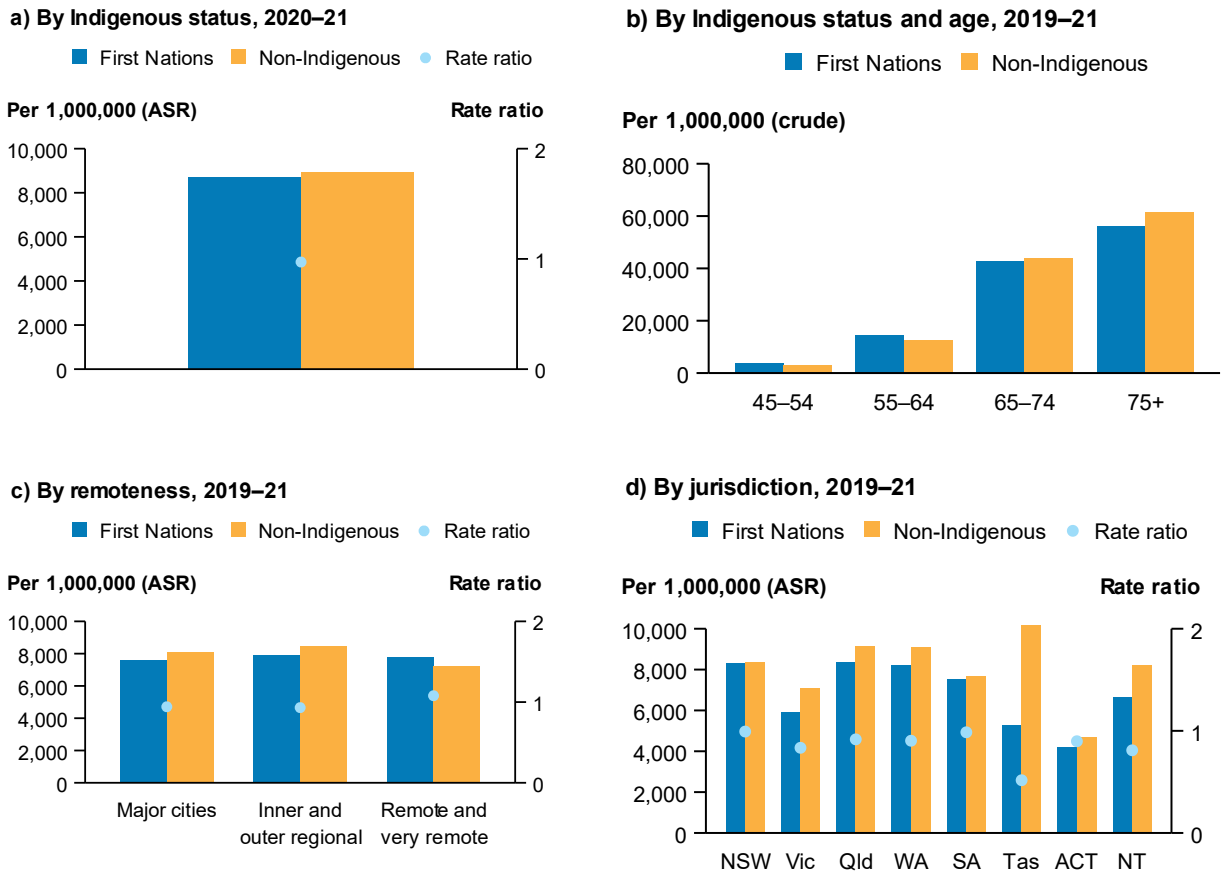
PHN: In 2019–21, the PHNs with the highest reported rates of hospitalisations for First Nations people for cataract surgery were Murrumbidgee (6,648 per 1,000,000) and Western Queensland (5,928 per 1,000,000) (Figure 3.4g).

Roadmap region: In 2019–21, the 7 Roadmap regions that came closest to meeting the estimated need for cataract surgery all met 60% or more of the need (Figure 3.4h). The 4 Roadmap regions with the highest hospitalisation rates for First Nations people for cataract surgery had rates greater than 5,900 per 1,000,000 (figures 3.4i and 3.4j).

Things to consider

- The cataract surgery rate was calculated per 1,000,000 to align with international standards (WHO 2013).
- Almost all (96%) cataract surgery in Australia is undertaken on a same-day basis. The data do not include outpatient surgery and may underestimate the number of procedures.
- Hospitalisations data presented by state and territory and remoteness area in this report are based on the patient's place of usual residence.
- Time series analyses may be affected by changes in the quality of First Nations identification over time.
- The estimated annual number of First Nations people needing cataract surgery was derived from the calculator for the delivery and coordination of eye care services developed by the IEHU at the University of Melbourne (see <http://dr-grading.iehu.unimelb.edu.au/ecwc/>). The calculations are first-order estimates based on condition prevalence rates from the NEHS (2009) and models of service delivery developed in the Roadmap to Close the Gap for Vision (2012) and should be interpreted with caution.
- Figures present age-standardised and age-specific rates (see Box 3 – Population rates).

Figure 3.4: Hospitalisations for cataract surgery, by Indigenous status, by various characteristics



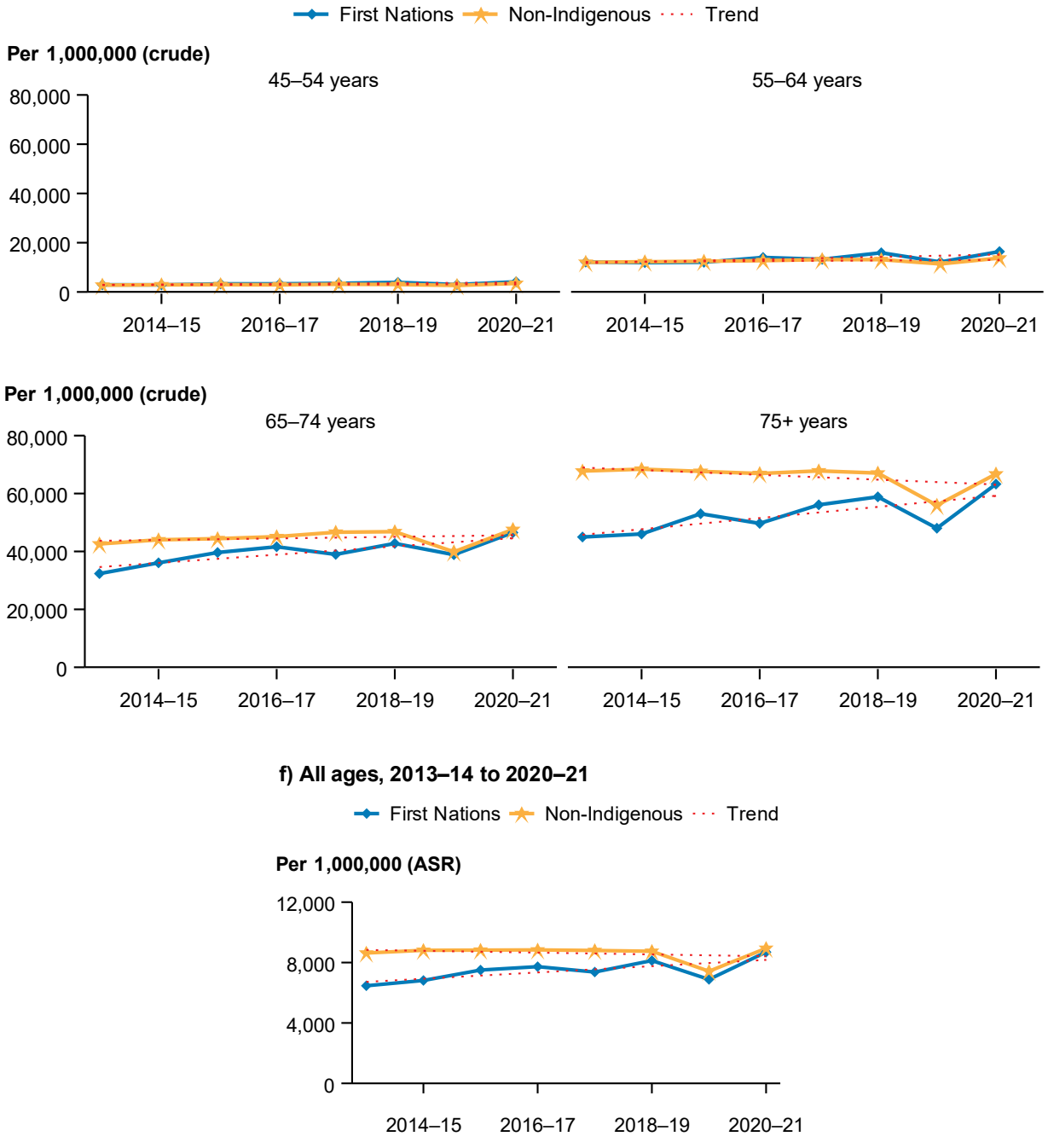
ASR = age-standardised rate.

Note Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.4 (continued): Hospitalisation rates for cataract surgery, by Indigenous status, by various characteristics

e) By age group, 2013–14 to 2020–21



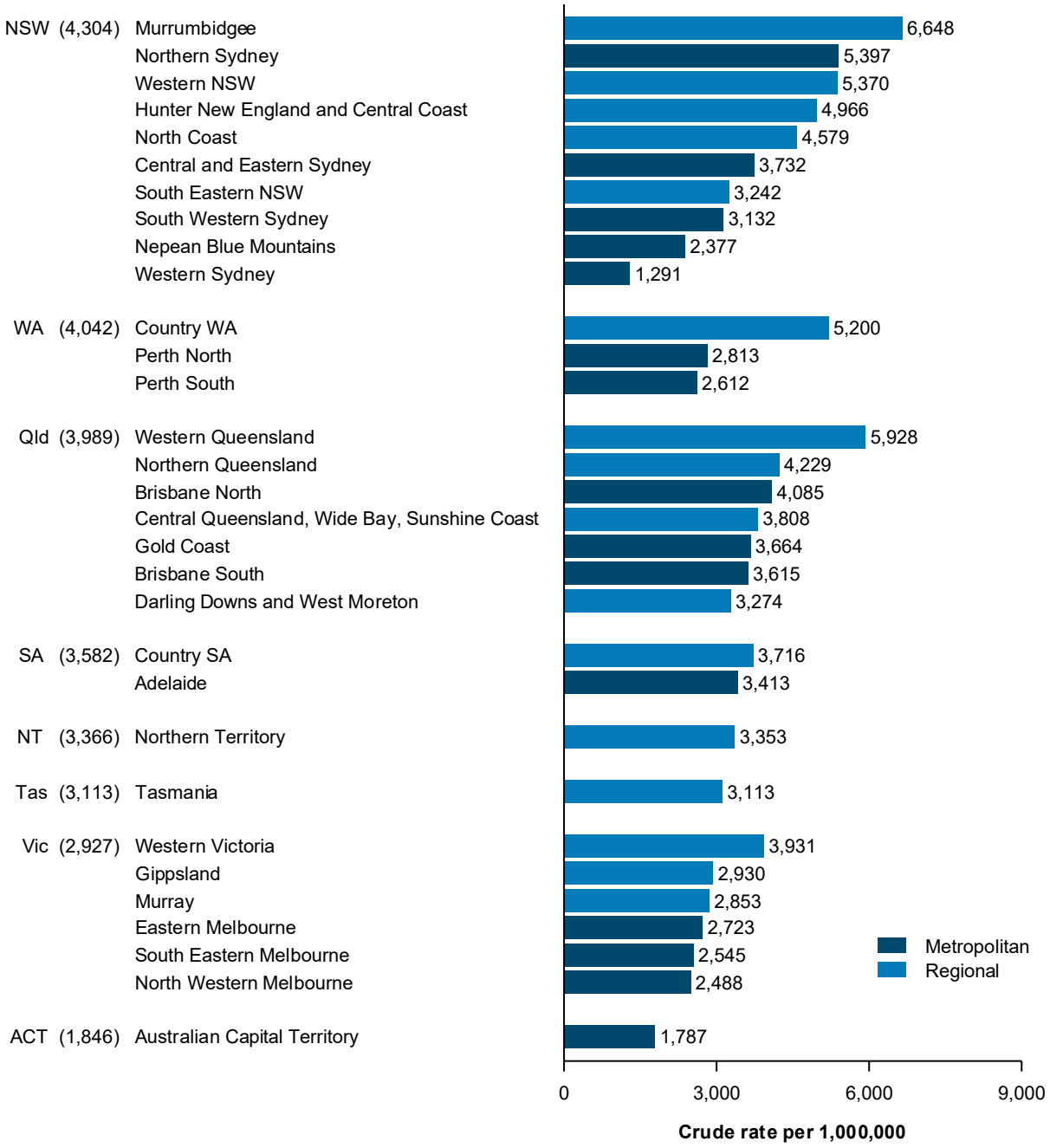
f) All ages, 2013–14 to 2020–21

ASR refers to the age-standardised rate

Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.4g: Hospitalisation rates for cataract surgery, First Nations people, by PHN, 2019–21

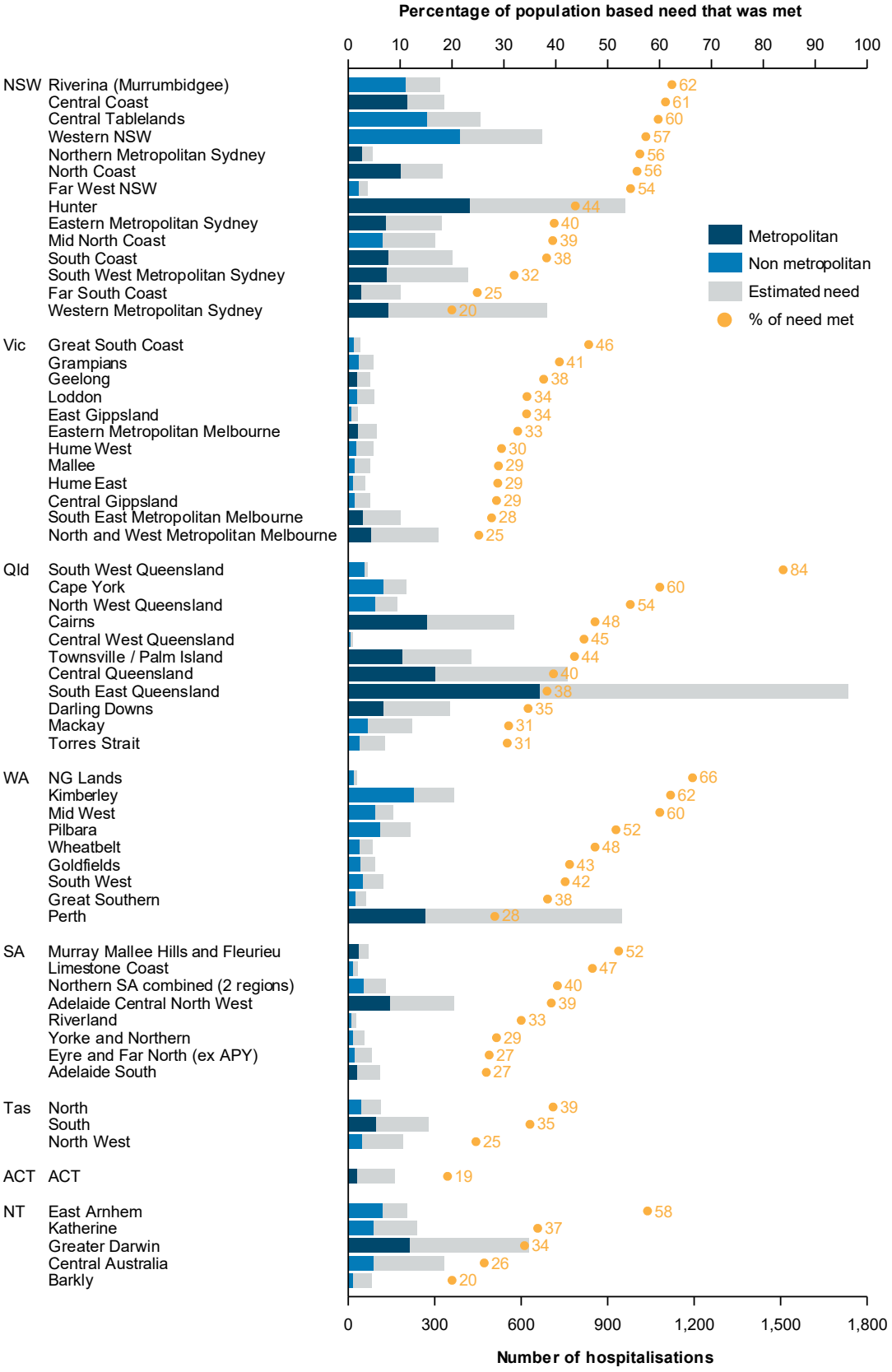


Notes

1. The percentages in brackets beside the jurisdiction labels relate to the overall crude rate of hospitalisation for eye procedures in that jurisdiction.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.4h: Hospitalisations and estimated need for cataract surgery, First Nations people, by Roadmap region, 2019–21

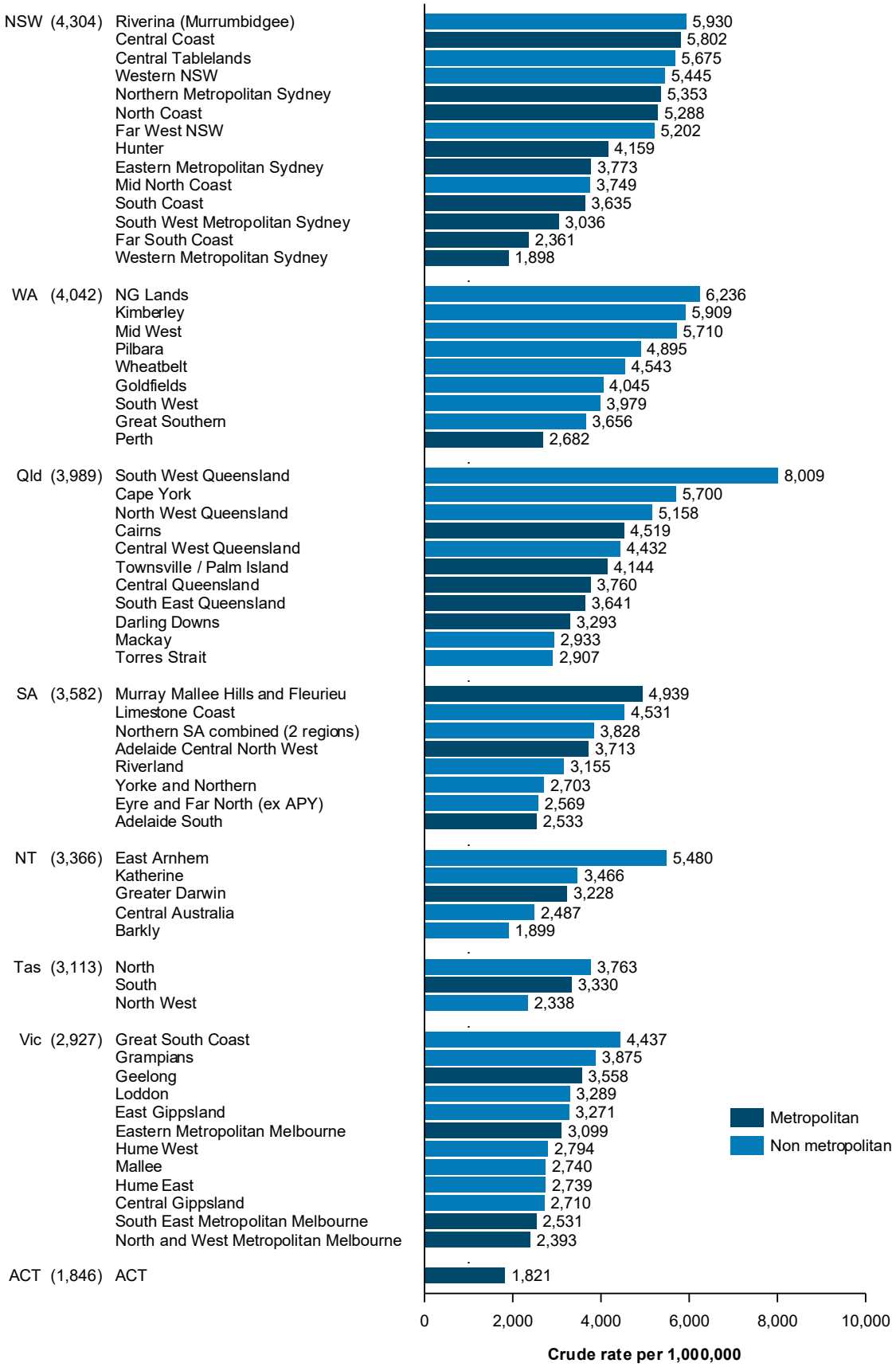


Notes

1. South coast region includes Jervis Bay.
2. Data for this figure are available in the online data tables.

Sources: AIHW analysis of National Hospital Morbidity Database, and AIHW analysis of calculator for the delivery and coordination of eye care services (IEHU).

Figure 3.4i: Hospitalisations for cataract surgery, First Nations people, by Roadmap region, 2019–21

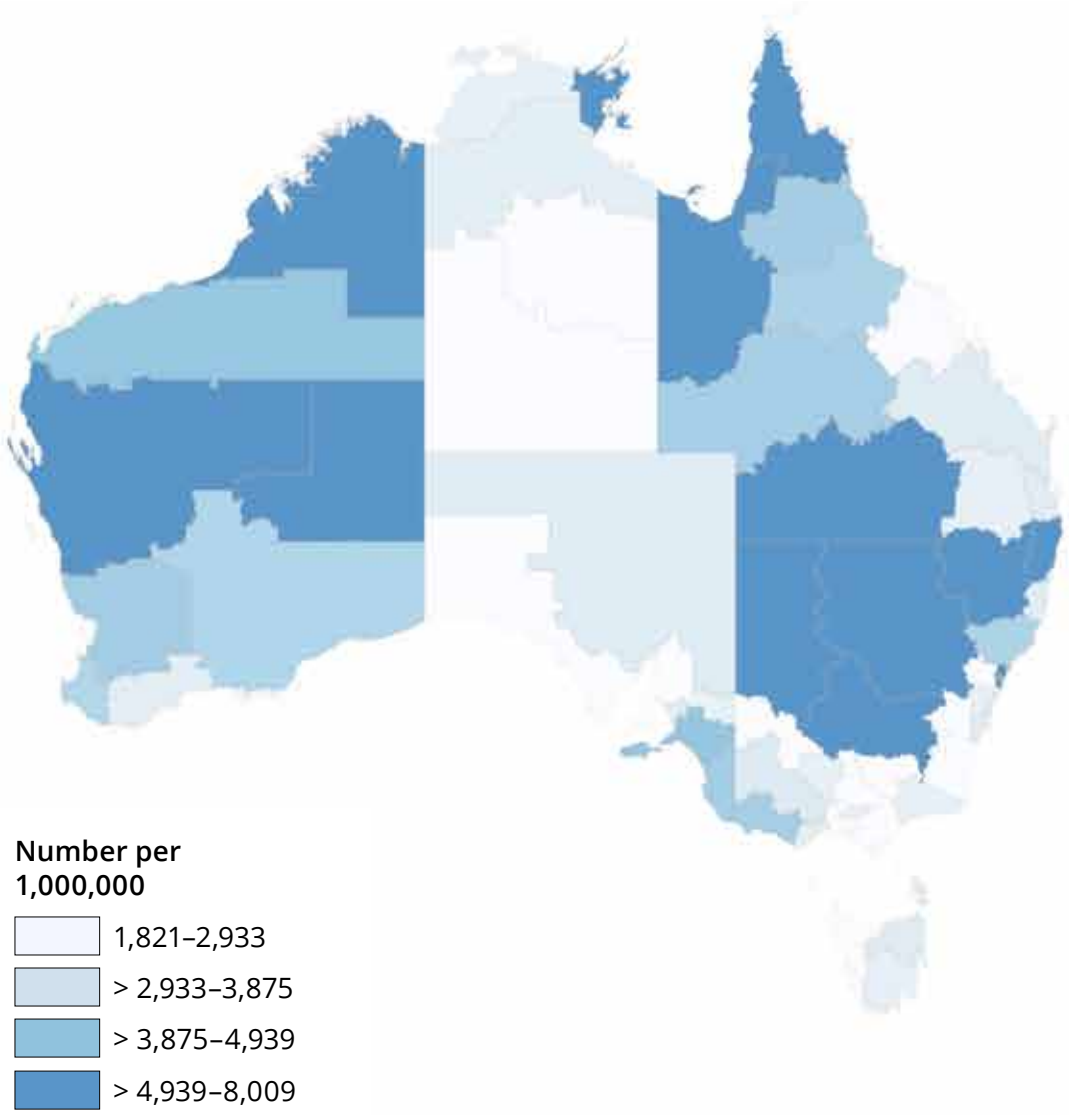


Notes

1. Data are crude rates.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

Figure 3.4j: Hospitalisations for cataract surgery, First Nations people, by Roadmap region, 2019–21



Note: The Roadmap region data for this map are available in the online data tables.
Source: AIHW analysis of National Hospital Morbidity Database.

Measure 3.5: Cataract surgical coverage rate

Key finding: In 2016, the NEHS cataract surgical coverage rate for First Nations people was 59%. This was significantly lower than the rate for non-Indigenous Australians (89%).

3.5.1 NEHS coverage rate

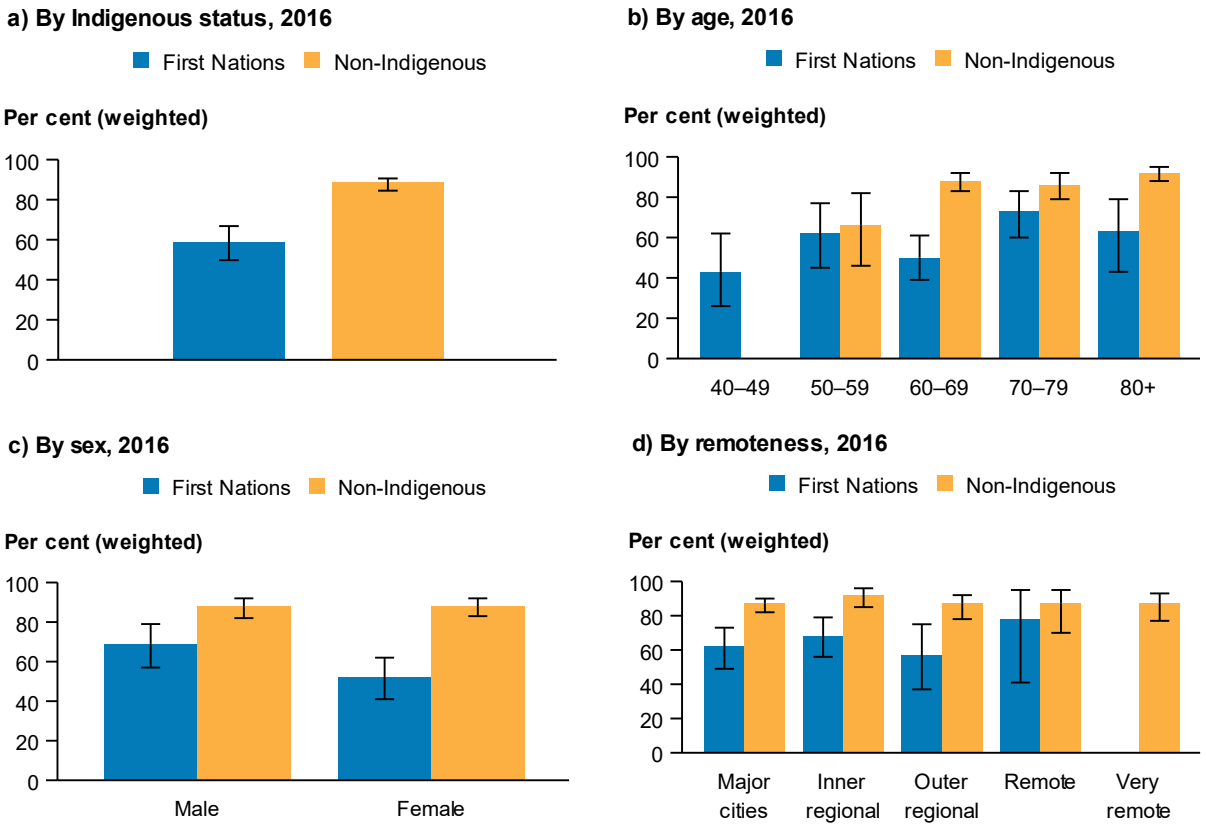
Overall: Based on the latest available NEHS data, in 2016, cataract surgical coverage rate for First Nations people was 59%. This was significantly lower than the rate for non-Indigenous Australians (89%) (Figure 3.5.1a).

Age and sex: In 2016, the estimated cataract surgical coverage rate for First Nations people was lowest for those aged 40–49 (43%) and highest for those aged 70–79 (73%). The surgical coverage rate for non-Indigenous Australians was significantly higher than that for First Nations people for those aged 60–69 (88%, CI 83%–92%; and 50%, CI 39%–61%, respectively) and for those aged 80 or over (92%, CI 88%–95%; and 63%, CI 43%–79%, respectively) (Figure 3.5.1b).

Cataract surgical coverage rates for First Nations people did not differ significantly by sex (Figure 3.5.1c).

Remoteness: Cataract surgical coverage rates for First Nations participants did not differ significantly by remoteness (Figure 3.5.1d).

Figure 3.5.1: Cataract surgery coverage, NEHS definition, by various characteristics



Notes

1. Cataract surgery coverage using the NEHS definition was calculated as the number of those who have had cataract surgery as a proportion of those who have had cataract surgery plus the number with bilateral presenting visual acuity worse than 6/12 with cataract in 1 or both eyes.
2. Data have been survey weighted to account for sampling protocol.
3. Error bars show 95% confidence intervals.
4. Data for non-Indigenous Australians were not collected for those aged 40–49.
5. Data for these figures are available in the online data tables.

Sources: AIHW analysis of National Eye Health Survey data 2016; Foreman et al. 2017.

3.5.2 WHO coverage rate

Overall: Based on the latest available NEHS data, in 2016, the cataract surgical coverage rate for First Nations people was 93% (CI 75%–98%). This was lower than the estimated rate for non-Indigenous Australians of 99% (CI 97%–100%), although not statistically significant (Figure 3.5.2a).

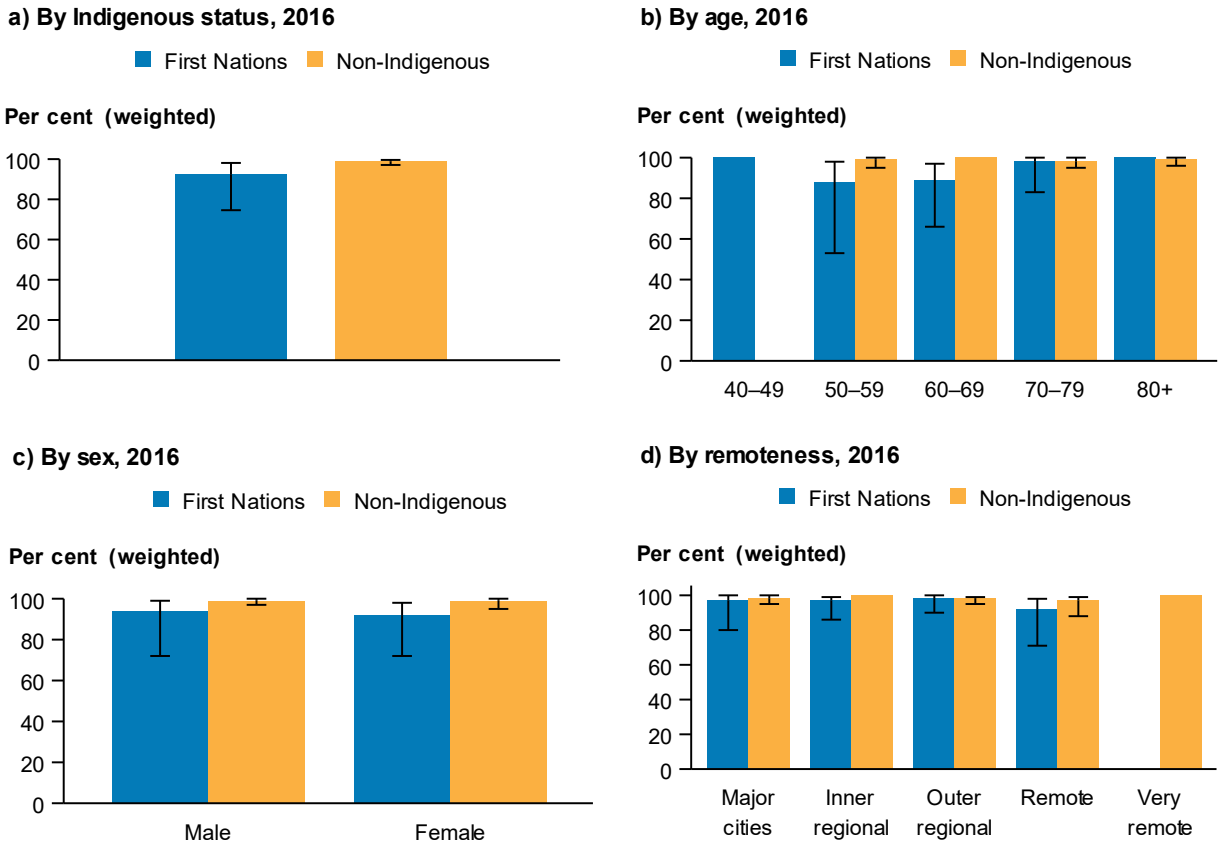
Age and sex: In 2016, cataract surgical coverage rates did not differ significantly by age or sex for First Nations people or for non-Indigenous Australians (figures 3.5.2b and 3.5.2c).

Remoteness: In 2016, cataract surgical coverage rates did not differ significantly by remoteness, for First Nations people or for non-Indigenous Australians (Figure 3.5.2d).

Things to consider

- Data are from the 2016 NEHS, a sample survey of 1,738 First Nations people aged 40 and over and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The results reported are survey weighted to account for the sampling protocol. These results are subject to sampling errors, so the 95% CIs are provided to indicate the reliability of the estimates reported.
- Under the WHO definition, the sample size for eligible patients with unoperated cataracts was very small (9 non-Indigenous Australians and 16 First Nations people).

Figure 3.5.2: Cataract surgery coverage, WHO definition, by various characteristics



Notes

1. Cataract surgery coverage using the WHO definition was calculated as the number of those who have had cataract surgery as a proportion of the number who have had cataract surgery plus the number of participants with best corrected visual acuity worse than 6/18 with cataracts in both eyes.
2. Data have been survey weighted to account for sampling protocol.
3. Error bars show 95% confidence intervals.
4. Data for non-Indigenous Australians were not collected for those aged 40–49.
5. Data for these figures are available in the online data tables.

Sources: AIHW analysis of National Eye Health Survey data 2016; Foreman et al. 2017.

Measure 3.6: Waiting times for elective cataract surgery

Key findings: In 2020–21, the median waiting time for elective cataract surgery for First Nations people was the same as that for non-Indigenous Australians (167 days). From 2012–13 to 2020–21, the median waiting time for elective cataract surgery for First Nations people rose from 140 days to 152 days (in 2015–16); it then dropped to 124 days in 2018–19 before increasing to 167 days in 2020–21.

3.6.1 Median and 90th percentile waiting times

Overall: In 2020–21, there were 2,137 admissions for First Nations people from public hospitals waiting lists for elective cataract surgery. The median waiting time for elective cataract surgery for First Nations people was the same as that for non-Indigenous Australians (167 days). The time waited at the 90th percentile for First Nations people who were admitted for cataract surgery was longer than that for nonIndigenous Australians, though the difference between the 2 groups was not as large (395 days and 388 days, respectively).

Remoteness: In 2019–21, the median number of days waited was longest in *Inner regional* areas, 218 days for First Nations people and 223 days for non-Indigenous Australians. By comparison, median waiting times for First Nations people were shortest in *Major cities* (105 days) and shortest for non-Indigenous Australians in *Remote* areas (76 days) (Figure 3.6.1a).

The amount of time within which 90% of patients were admitted for elective cataract surgery was longest for First Nations people in *Very remote* areas (401 days) and shortest for those in *Major cities* (357 days). For non-Indigenous Australians, waiting times were longest in *Outer regional* areas (399 days) and shortest in *Remote* areas (344 days) (Figure 3.6.1b).

Jurisdiction: In 2019–21, median waiting times were longest for First Nations people and nonIndigenous Australians in New South Wales (258 days and 291 days, respectively). (Figure 3.6.1c).

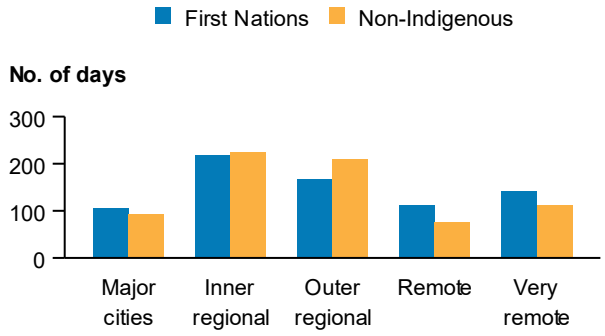
At the 90th percentile, waiting times were longest for First Nations people and non-Indigenous Australians in Tasmania (705 days and 729 days, respectively). (Figure 3.6.1d).

Time trend: From 2012–13 to 2020–21, the median waiting time for elective cataract surgery for First Nations people rose from 140 days to 152 days (in 2015–16), and then dropped to 124 days in 2018–19 before rising again to 167 days in 2020–21. Over the same period, the median waiting time for non-Indigenous Australians rose from 88 days to 93 days, then fell to 82 days before rising again to 167 days (Figure 3.6.1e).

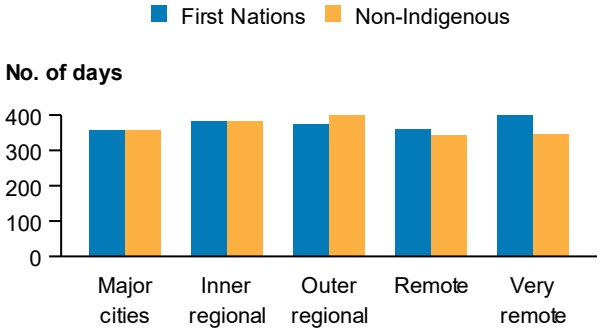
From 2012–13 to 2020–21, the number of days waited at the 90th percentile was similar for First Nations people and non-Indigenous Australians and rose similarly over the period(Figure 3.6.1f).

Figure 3.6.1: Waiting times for elective cataract surgery (days waited at the 50th and 90th percentiles), by various characteristics

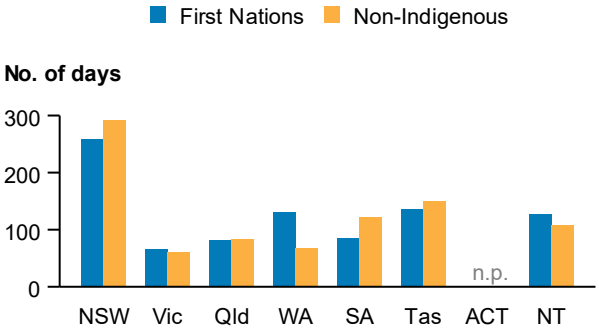
a) By remoteness, days waited, 50th percentile, 2019–21



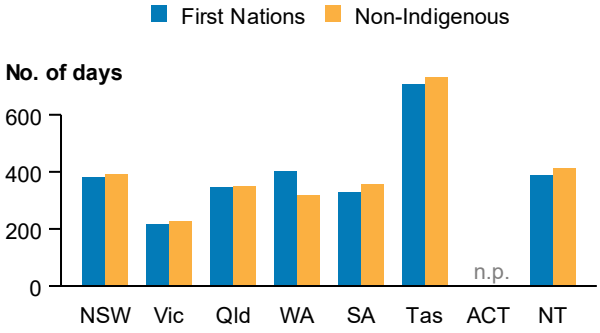
b) By remoteness, days waited, 90th percentile, 2019–21



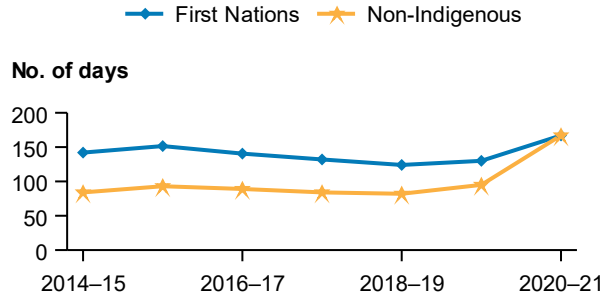
c) By jurisdiction, days waited, 50th percentile, 2019–21



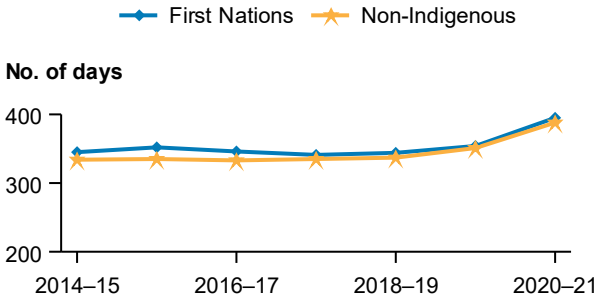
d) By jurisdiction, days waited, 90th percentile, 2019–21



e) Time trend, days waited at the 50th percentile, 2014–15 to 2020–21



f) Time trend, days waited at the 90th percentile, 2014–15 to 2020–21



Note: Data for these figures are available in the online data tables.

Source: AIHW analysis of National Hospital Morbidity Database.

3.6.2 Proportion of patients treated within 90 days, and within 365 days

Overall: In 2020–21, the proportion of First Nations people who had elective cataract surgery and were treated within 90 days was similar to that for non-Indigenous Australians treated within this time (both 38% when rounded).

The proportion of First Nations people treated within 365 days for cataract surgery was slightly lower than that for non-Indigenous Australians treated within this time (84% and 85%, respectively).

Remoteness: In 2019–21, the proportion of First Nations people treated within 90 days for elective cataract surgery was highest in *Major cities* (45%) and highest for nonIndigenous Australians in *Remote* areas (54%). Proportions were lowest for First Nations people and non-Indigenous Australians in *Inner regional* areas (34% and 32%, respectively) (Figure 3.6.2a).

The proportion of First Nations people treated within 365 days was lowest in *Very remote* areas (86%) and highest in *Major cities* (94%). For non-Indigenous Australians, the proportion was lowest in *Outer regional* areas (84%) and highest in *Remote* areas (93%) (Figure 3.6.2b).

Jurisdiction: In 2019–21, the proportion of First Nations people and non-Indigenous Australians treated within 90 days for elective cataract surgery was highest in Victoria (66% and 65%, respectively) (Figure 3.6.2c).

Victoria, Queensland and South Australia treated 96% or more of First Nations people within 365 days (Figure 3.6.2d).

Time trend: Between 2012–13 and 2020–21, the proportion of First Nations people treated within 90 days for elective cataract surgery remained relatively stable while the proportion of non-Indigenous Australians treated dropped over this period (from 50% to 38%) (Figure 3.6.2e).

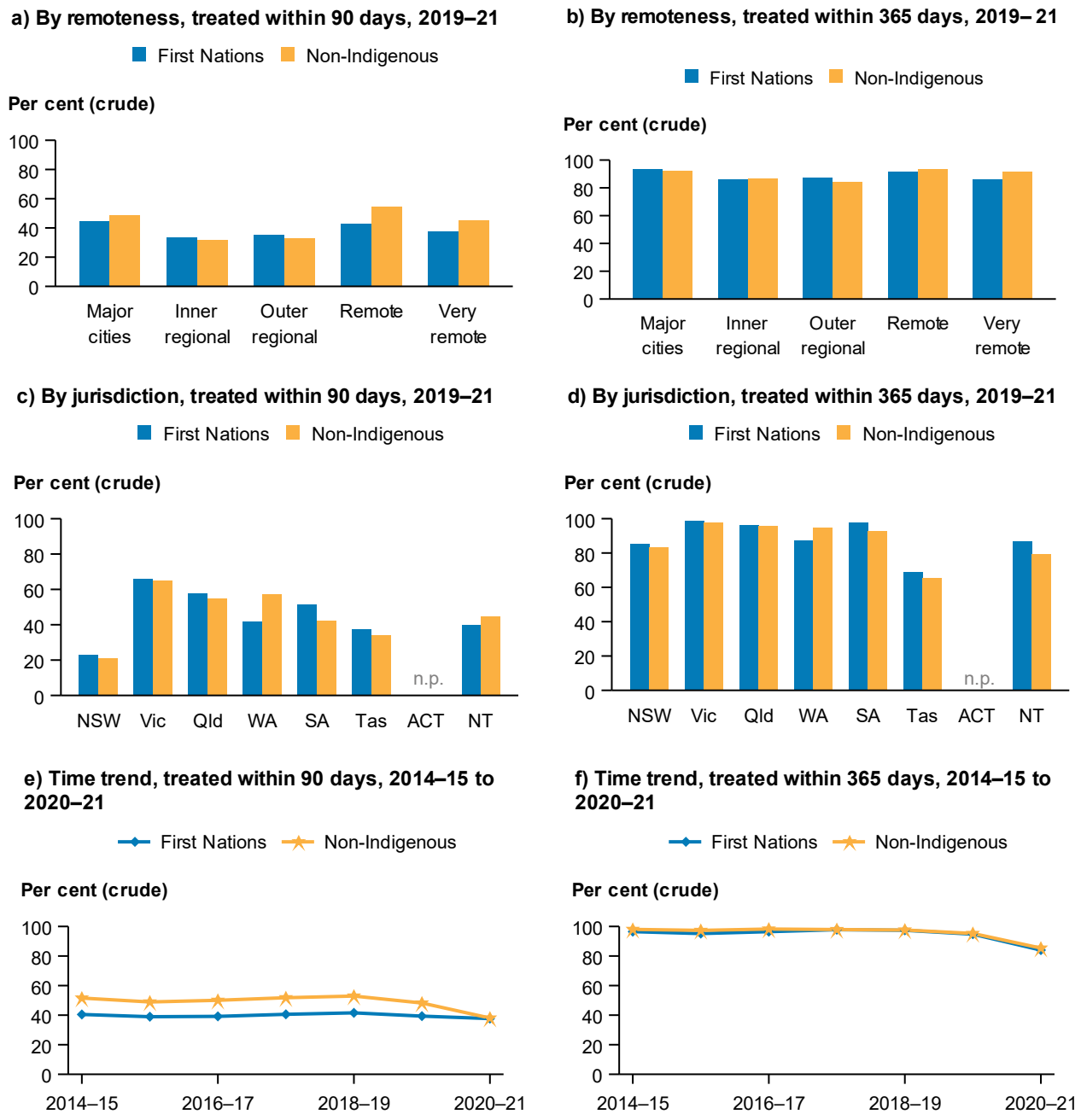
The proportion of First Nations people and non-Indigenous Australians treated within 365 days dropped between 2012–13 and 2020–21 (from 93% to 84% and from 97% to 85%, respectively) (Figure 3.6.2f).

Things to consider

- This sub-measure includes data for waiting lists managed by public hospitals – and may include public patients admitted to private hospitals from public hospital waiting lists.
- There are no nationally agreed benchmarks for waiting times for cataract surgery, and there are notable variations across jurisdictions. Waiting times depend on the urgency of the referral and specific functional indicators (for example, one functional eye).
- The Queensland Health Clinical Prioritisation Criteria for cataract referrals provides 3 categories of appointment times for cataract surgery: within 30, 90 or 365 days, depending on the severity of the cataract and the impact on the patient's daily living activities <https://cpc.health.qld.gov.au/Condition/132/cataracts>.
- The number of days waited does not include the time waited for the initial appointment with the specialist (from the time of referral by the patient's GP), because this information is not currently available.

- Under the National Elective Surgery Urgency Categorisation Guidelines, cataract surgery is elective (clinical urgency category 3), so the procedure is clinically indicated within 365 days (AHMAC 2015).
- The data may underestimate the number of procedures provided, as they do not include those undertaken on an outpatient basis.
- The quality of data provided for First Nations status varies.
- Time series analyses may be affected by changes in the quality of First Nations identification over time.

Figure 3.6.2: Waiting times for elective cataract surgery (percentage of patients treated within 90 days and within 365 days), by various characteristics



Note: Data for these figures are available in the online data tables.
Source: AIHW analysis of National Hospital Morbidity Database.

Measure 3.7: Treated for diabetic retinopathy among target population

Key finding: In 2021–22, 510 (3.8%) First Nations people screened for diabetic retinopathy underwent treatment, a slight increase from 3.3% in 2010–11.

3.7.1 Treated for diabetic retinopathy among those screened for diabetic retinopathy

Overall: In 2021–22, 510 First Nations people screened for diabetic retinopathy underwent treatment–3.8% of those screened. In 2021–22, the agestandardised proportion treated was similar for First Nations people and non-Indigenous Australians (2.8% and 2.9%, respectively) (Figure 3.7.1a).

Age and sex: In 2021–22, the number and proportion of First Nations males and females treated for diabetic retinopathy increased steadily with age, to a peak of 4.7% (102 males) in those aged 65 and over and 4.6% (107 females), in those aged 65 and over. Across all age groups, a higher proportion of males than females underwent treatment (Figure 3.7.1b).

Remoteness: In 2021–22, the proportion of First Nations people who received treatment for diabetic retinopathy was highest in *Major cities* and *Inner regional* areas (4.3% and 3.9%, respectively). The rate was lowest in *Remote* areas (1.9%) (Figure 3.7.1c).

Jurisdiction: In 2021–22, the proportion of First Nations people who received treatment for diabetic retinopathy ranged from 0.7% in the Northern Territory to 4.8% and 5.8% in New South Wales and the Australian Capital Territory, respectively (Figure 3.7.1d).

Time trend: Between 2010–11 and 2021–22, the number of First Nations people screened for diabetic retinopathy who underwent treatment increased from 349 to 510. The proportion who underwent treatment rose from 3.3% in 2010–11 to 3.8 in 2021–22 (Figure 3.7.1e).

Figure 3.7.1: Population treated for diabetic retinopathy among those screened for diabetic retinopathy, by various characteristics

ASR = age-standardised rate.

Notes

1. All figures, except (a), show crude rates.
2. Data for these figures are available in the online data tables.
3. The population screened for diabetic retinopathy comes from Measure 2.3.

Source: AIHW analysis of Medicare Benefits Schedule data.

3.7.2 Treated for diabetic retinopathy among those tested for diabetes

Overall: In 2021–22, there were 510 First Nations people screened for diabetes who underwent treatment for diabetic retinopathy. This was 1.8% of those screened for diabetes. The age-standardised proportion of those treated was slightly lower for First Nations people (1.3%) than for non-Indigenous Australians (1.4%) (Figure 3.7.2a).

Age and sex: In 2021–22, the number and proportion of First Nations males and females treated for diabetic retinopathy increased steadily with age, to a peak of 3.0% (107 males) and 2.6% (102 females) in those aged 65 and over. Across all age groups a higher proportion of males than females underwent treatment (Figure 3.7.2b).

Remoteness: In 2021–22, the proportion of First Nations people screened for diabetes who received treatment for diabetic retinopathy was highest in *Major cities* (2.1%), followed by *Inner regional* areas (2.0%). The rate was lowest in *Remote* areas (0.7%) (Figure 3.7.2c).

Jurisdiction: In 2021–22, the proportion of First Nations people screened for diabetes who received treatment for diabetic retinopathy ranged from 0.2% in the Northern Territory to 2.4% in New South Wales and the Australian Capital Territory (Figure 3.7.2d).

Time trend: Between 2010–11 and 2021–22, the estimated proportion of First Nations people screened for diabetes who underwent treatment rose from 1.3% in 2010–11 to 1.8% in 2021–22 (Figure 3.7.2e). The number screened increased from 26,822 to 29,015 over this same period.

Things to consider

- MBS data reflect billing practices, and not necessarily all services received. For example, MBS data do not generally capture equivalent services provided by jurisdiction-funded primary health care or by public hospitals – for example, eye examinations undertaken by salaried ophthalmologists in public hospitals or intravitreal or laser procedures in outpatient settings or state facilities. Notably, in the Northern Territory, almost all treatment of diabetic retinopathy is done in public hospitals so most treatment services provided in the territory will not be captured.
- First Nations people screened for diabetes or diabetic retinopathy may not be found to have diabetes or diabetic retinopathy, so treatment rates for diabetic retinopathy may be an underestimate.
- Equivalent or similar care may also be billed as a different MBS item (such as a standard consultation).
- MBS data shown for this sub-measure were adjusted for First Nations under-identification.

Figure 3.7.2: Population treated for diabetic retinopathy among those tested for diabetes, by various characteristics

Notes

1. All figures, except (a), show crude rates.
2. ASR refers to the age-standardised rate.
3. Data for these figures are available in the online data tables.
4. The population screened for diabetes was calculated as the number who had a diabetes test within the past 2 years.

Source: AIHW analysis of MBS data.

Measure 3.8: Trachoma and trichiasis treatment coverage

Key findings: In 2022, in communities where active trachoma was identified, a total of 829 (95%) community members received treatment, increasing from 65% in 2011. In 2022, in the 3 jurisdictions with at-risk communities, 4 First Nations adults aged 40 years and over with trichiasis had surgery in the past 12 months.

3.8.1 Trachoma

Overall: In 2022, in communities where active trachoma was identified, a total of 829 community members received treatment, a rate of 95% (Figure 3.8.1b). This included 84 children aged 0–4 years (94%), 187 aged 5–9 years (98%), 106 aged 10–14 years (97%) and 452 (93%) community members aged 15 years and over (Figure 3.8.1a).

Jurisdiction: In 2022, in communities where active trachoma was identified, the proportion of community members who received treatment was 97% in Western Australian (304 community members treated) and 94% in the Northern Territory (525). No active trachoma cases were identified in South Australia. In Queensland, screening for trachoma was not undertaken in 2022 (Figure 3.8.1b).

Time trend: Between 2011 and 2022, in communities where active trachoma was identified, the proportion of community members who received treatment rose from 65% in 2011 to 90% in 2014, declined to 69% in 2020 and then rose to 95% in 2022 (Figure 3.8.1c).

Things to consider

- Trachoma treatment strategies were applied in 34 communities.
- The 5–9 year-age group is the target group for screening programs in all regions.
- There were notably fewer people treated for trachoma in 2022 as more communities are opting for case and household management strategies rather than community-wide strategies.

3.8.2 Trichiasis

Overall: In 2022, in the 3 jurisdictions with at-risk communities, 4 First Nations adults aged 40 years and over with trichiasis had surgery in the past 12 months. Two of the 4 surgeries took place in Western Australia (Figure 3.8.2a).

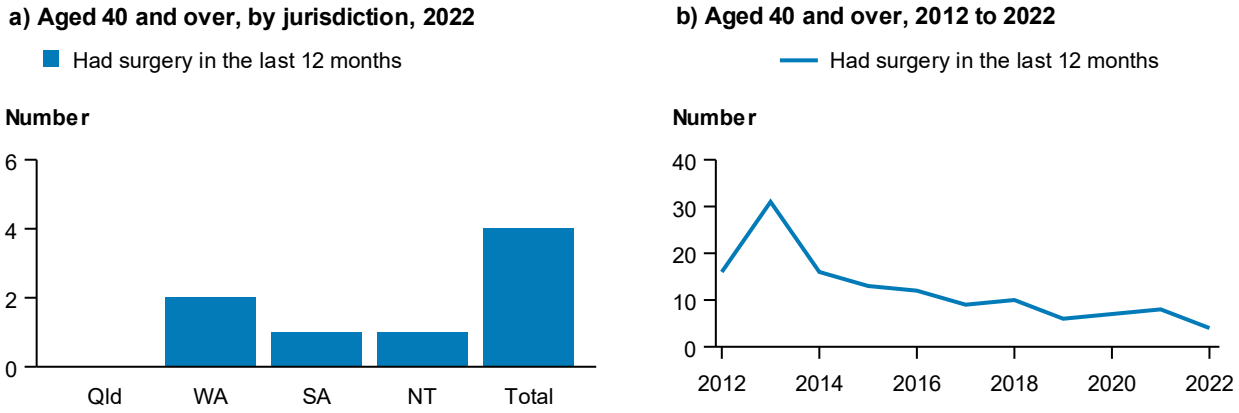
Time trend: Between 2012 and 2022, the number of First Nations adults aged 40 years and over who had surgery for trichiasis rose from 16 in 2012 to 31 in 2013. The number of surgeries has generally fallen over time since then, to 4 in 2022 (Figure 3.8.2b).

Things to consider

- Screening for trichiasis is undertaken opportunistically, such as during adult health checks.
- The reporting of trichiasis data on referral and surgery undertaken is limited due to incomplete data collection and compilation.

Figure 3.8.1: Community members treated in communities where active trachoma was identified, by various characteristics

Figure 3.8.2: Trichiasis treatment coverage, by various characteristics



Notes

1. All figures show crude rates. 'Per cent' relates to percentage of community members treated in communities where active trachoma was identified.
2. Figures 3.8.1 a–c include data from the 34 communities that required treatment for trachoma.
3. Figures 3.8.2 a and b include data from the 120 at-risk communities that screened for trichiasis, though data may be incomplete.
4. Data for these figures are available in the online data tables.

Sources: Australian Trachoma Surveillance reports (Kirby Institute 2013, 2014, 2015, 2016, 2018, 2019a, 2019b, 2020, 2021, 2022, in press)).

Measure 3.9: Treatment of refractive error

Key finding: In 2016, 82% of First Nations participants in the NEHS had refractive error.

Overall: Based on the latest available NEHS data, in 2016, treatment rates for refractive error were higher for non-Indigenous Australians than for First Nations people, at 94% and 82%, respectively (Figure 3.9a).

Age and sex: In 2016, treatment rates for refractive error for First Nations people did not differ significantly by age group. The treatment rate for those aged 60–69 was significantly higher for non-Indigenous Australians than for First Nations people (95%, CI 93%–97%; and 80%, CI 67%–88%, respectively) (Figure 3.9b).

Treatment rates for First Nations people did not differ significantly by sex (Figure 3.9c).

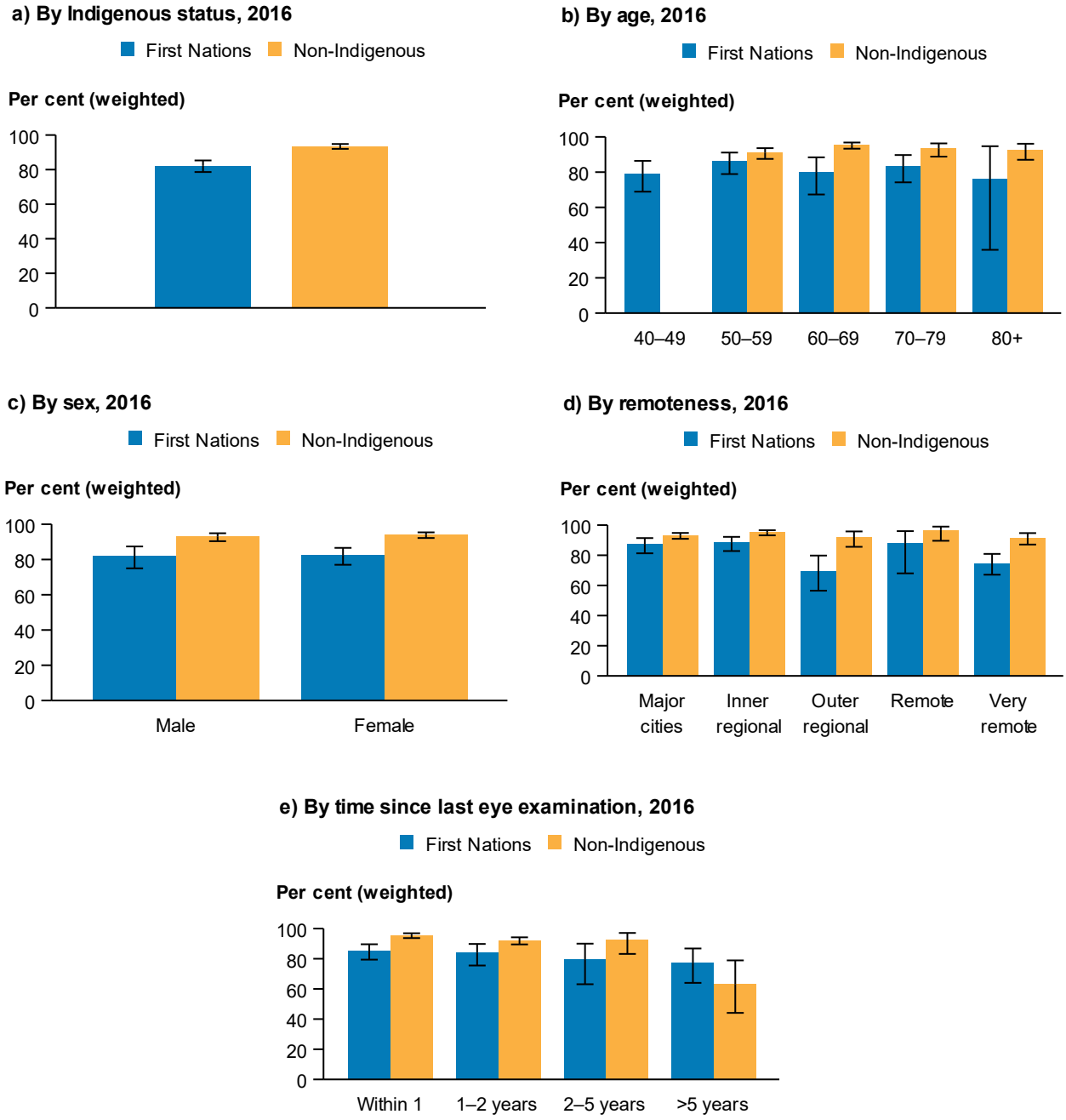
Remoteness: In 2016, treatment rates for refractive error for First Nations people in *Outer regional* (70%) and *Very remote* (75%) areas were significantly lower than in *Major cities* (87%), the reference region. The treatment rate for non-Indigenous Australians was significantly higher than for First Nations people in *Inner regional*, *Outer regional* and *Very remote* areas (Figure 3.9d).

Time since last eye examination: In 2016, treatment rates for refractive error for First Nations people did not differ significantly by time since the last eye examination (Figure 3.9e).

Things to consider

- Data are from the 2016 NEHS – a sample survey of 1,738 First Nations people aged 40 and over, and 3,098 non-Indigenous Australians aged 50 and over. The survey included an eye examination.
- The results reported are survey weighted to account for the sampling protocol. These results are subject to sampling errors, so the 95% CIs are provided to indicate the reliability of the estimates reported.
- These proportions were estimates only as refractive error was not measured as part of the survey testing protocol in participants without vision impairment or blindness.

Figure 3.9: Treatment of refractive error, by Indigenous status, by various characteristics



Notes

1. Data have been survey weighted to account for sampling protocol.
2. Error bars show 95% confidence intervals.
3. Data for these figures are available in the online data tables.

Sources: AIHW analysis of National Eye Health Survey data 2016; Foreman et al. 2017.

Measure 3.10: Spectacles dispensed under state schemes

Key finding: In 2021–22, across the 5 jurisdictions able to provide data (New South Wales, Victoria, Queensland, South Australia and Tasmania), around 17,500 spectacles were provided to First Nations people.

Overall: In 2021–22, around 6,200 spectacles were provided to First Nations people under the New South Wales scheme (21 per 1,000), around 2,500 under the Victorian scheme (39 per 1,000), 7,300 under the Queensland scheme (30 per 1,000), 1,100 under the South Australian scheme (23 per 1,000) and 500 under the Tasmanian scheme (16 per 1,000) (Figure 3.10a).

Victoria was closest to meeting the estimated number of glasses needed by First Nations people aged over 40 (2,496 dispensed compared with 4,230 needed). In the other jurisdictions, the estimated number needed was considerably greater than the number dispensed:

- 18,840 needed (6,198 dispensed) in New South Wales
- 15,987 needed (7,299 dispensed) in Queensland
- 3,005 needed (1,058 dispensed) in South Australia
- 1,988 needed (496 dispensed) in Tasmania (Figure 3.10b).

Age and sex: In New South Wales in 2021–22, higher rates of glasses were dispensed under the spectacle programs to First Nations females than males in all age groups. The highest rates were for First Nations males and females aged 65 and over (86 and 89 per 1,000, respectively) (Figure 3.10c).

In Victoria in 2021–22, the Australian College of Optometry dispensed 1,040 glasses (mainly in metropolitan areas), the largest number and highest rate being for First Nations people aged 61 and over (26,953 per 1,000) (Figure 3.10d). A network of rural providers dispensed 1,456 glasses.

In Queensland in 2021–22, 7,299 glasses were dispensed to First Nations clients. The largest number was for First Nations people aged 50 to 64 (2,444, 87 per 1,000) while the highest rate was for those aged 65 and over (2,025, 167 per 1,000) (Figure 3.10e).

In South Australia in 2021–22, the number of glasses dispensed to First Nations people was highest among people aged 45–64 (427), while the rate was highest among First Nations males and females aged 65 and over (55 per 1,000 and 72 per 1,000, respectively) (Figure 3.10f).

In Tasmania in 2021–22, 496 glasses were dispensed to First Nations clients, the highest number being to people aged 45–64 (192), while the rate was highest for males and females aged 65 and over (78 and 129 per 1,000, respectively) (Figure 3.10g).

Time trend: The rate per 1,000 population of spectacles dispensed to First Nations people:

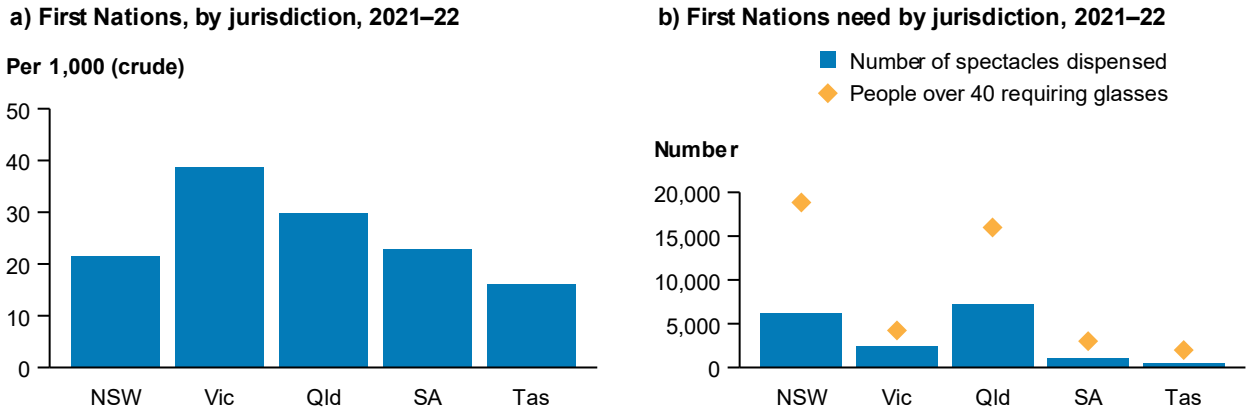
- increased in New South Wales from 27.9 to 31.1 between 2014–15 and 2017–18, before declining to 21.4 in 2021–22
- fell in Victoria from a high of 44.4 in 2014–15 to 38.7 in 2021–22
- increased in Queensland from 10.7 in 2014–15 to 29.9 in 2021–22
- increased in South Australia from 82 per 1,000 in 2017–18 to 1,058 in 2021–22 (South Australia only had data available only from 2017–18).

- fell in Tasmania from 17.4 in 2019–20 to 16.2 in 2021–22 (Tasmania had data available only from 2019–20) (Figure 3.10h).

Things to consider

- The eligibility criteria and entitlements provided by the state schemes vary across jurisdictions.
- The estimated annual number of First Nations people needing spectacles was derived from the calculator for the delivery and coordination of eye care services developed by the IEHU at the University of Melbourne (see <http://drgrading.iehu.unimelb.edu.au/ecwc/>). The calculations are first-order estimates based on condition prevalence rates from the National Indigenous Eye Health Survey (2009) and models of service delivery developed in The Roadmap to Close the Gap for Vision (Taylor et al. 2012), and should be interpreted with caution.
- The IEHU calculator estimates the need for spectacles for those aged over 40, while the data on spectacles dispensed provided by jurisdictions cover all age groups.
- Data analysed in this report underestimate the number of spectacles provided to First Nations people. For example, jurisdictions such as Western Australia, the Northern Territory and the Australian Capital Territory currently do not routinely collect First Nations identification data, so data on the spectacles dispensed to First Nations people in these jurisdictions cannot be reported.

Figure 3.10: State spectacles schemes, First Nations people, by various characteristics

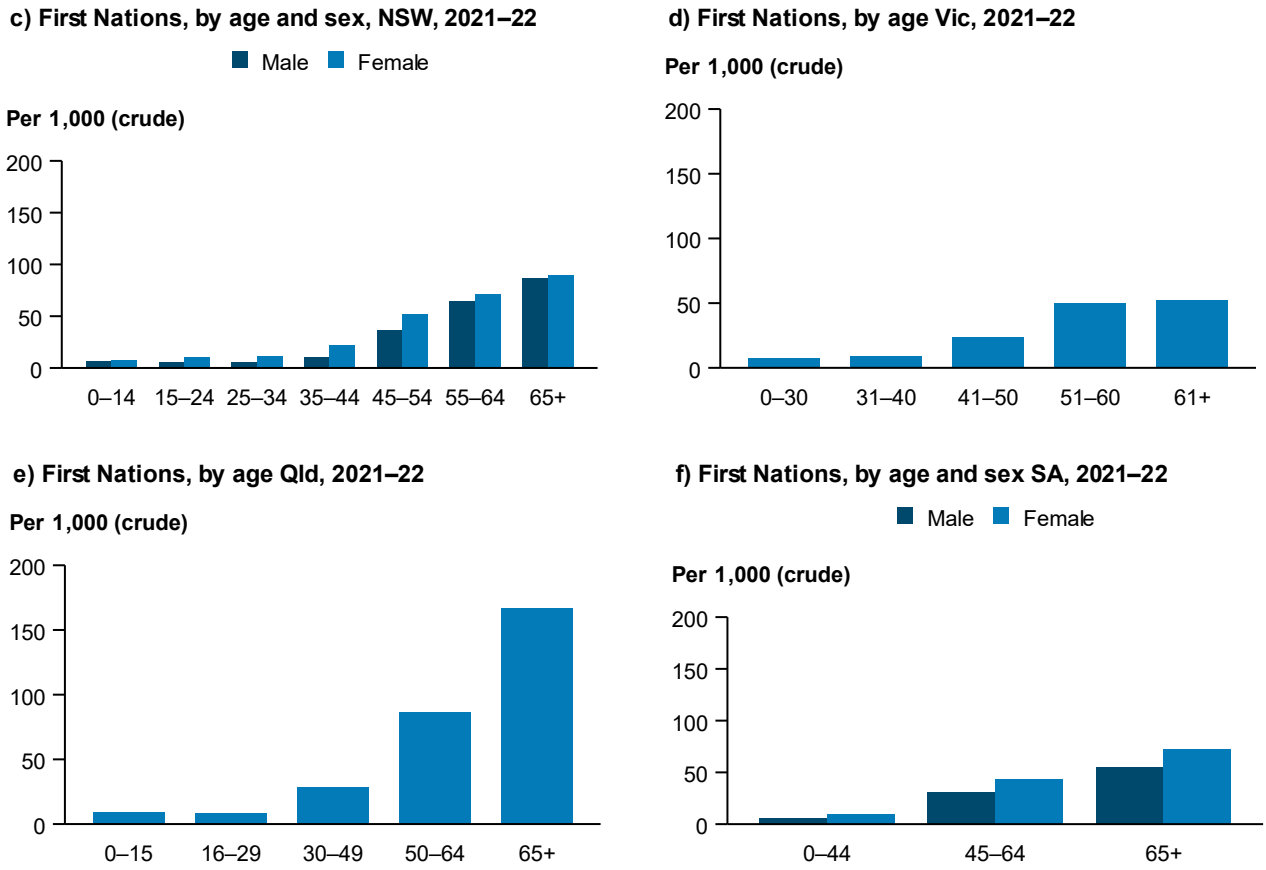


Notes

1. All figures show crude rates.
2. The estimated number of people needing spectacles was derived from the calculator for the coordination and delivery of eye care services.
3. Age groups vary by jurisdiction due to differences in the data provided.
4. Data for these figures are available in the online data tables.

Sources: AIHW analysis of Australian College of Optometry Victorian data (unpublished), Calculator for the delivery and coordination of eye care services (IEHU), NSW Department of Family and Community Services data (unpublished), Queensland Health data (unpublished), SA Department of Human Services (unpublished), Tasmania Health Service data (unpublished).

Figure 3.10 (continued): State spectacles schemes, First Nations people, by various characteristics

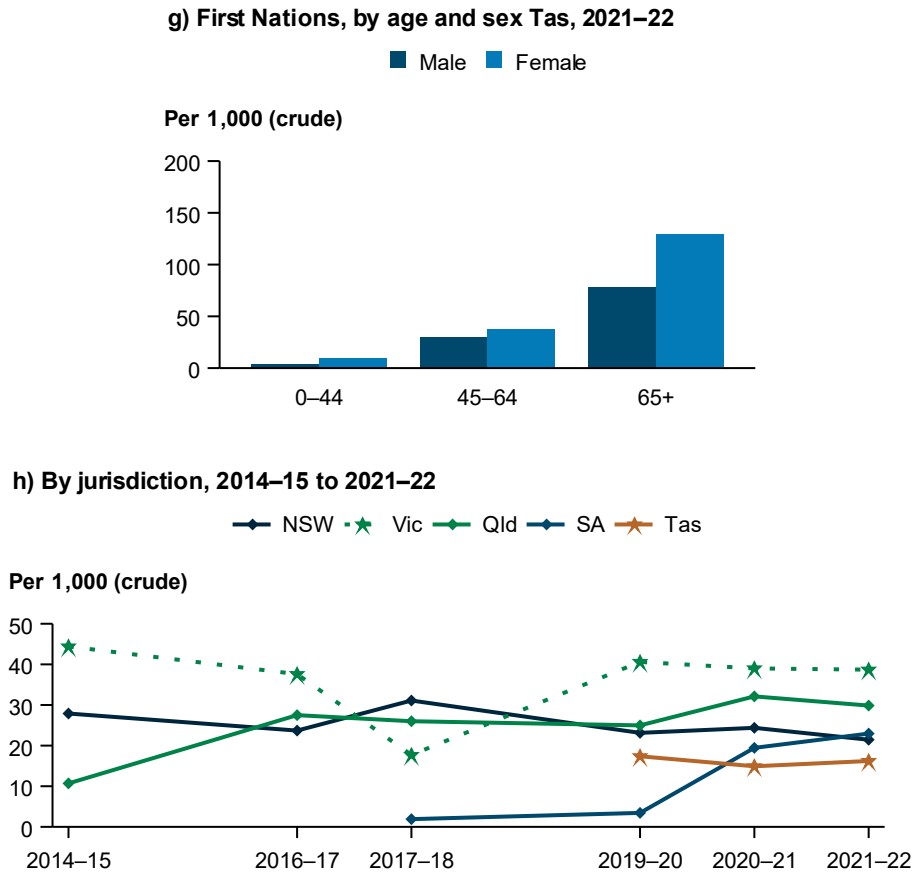


Notes

1. All figures show crude rates.
2. Data for Figure (d) include only spectacles dispensed by the Australian College of Optometry, mainly in metropolitan areas.
3. Age groups vary by jurisdiction due to differences in the data provided.
4. Data for these figures are available in the online data tables.

Sources: AIHW analysis of Australian College of Optometry Victorian data (unpublished), NSW Department of Family and Community Services data (unpublished), Queensland Health data (unpublished), SA Department of Human Services (unpublished).

Figure 3.10 (continued): State spectacles schemes, First Nations people, by various characteristics



Notes

1. All figures show crude rates.
2. Age groups vary by jurisdiction due to differences in the data provided.
3. Years not shown in figure (h) are years when spectacles data was not able to be reported on by AIHW.
4. Data for these figures are available in the online data tables.

Sources: AIHW analysis of Australian College of Optometry Victorian data (unpublished), NSW Department of Family and Community Services data (unpublished), Queensland Health data (unpublished), SA Department of Human Services (unpublished), Tasmania Health Service data (unpublished).

Case study: National Subsidised Spectacles Scheme Project – improving access to spectacles and other vision aids for First Nations people

The Department of Health and Aged Care funded Vision 2020 Australia to develop the National Subsidised Spectacles Scheme Project (NSSS) in partnership with the National Aboriginal Community Controlled Health Organisation (NACCHO).

The NSSS project aimed to improve access to eye health care and spectacles for First Nations people and is largely completed. It consisted of a number of elements including:

- undertaking the 2022 PrioritEYES survey of Aboriginal Community Controlled Health Organisations (ACCHOs) to understand what First Nations communities and ACCHOs see as priorities for eye health and vision care. Funding was later provided to NACCHO to implement the key survey findings–namely–development of eye health workforce development modules for ACCHO staff, and development of activities and resources to assist ACCHOs to promote eye health and prevent vision impairment and blindness. This work will continue until December 2023, given that COVID delayed the implementing elements of the NSSS.
- embedding eye health care in First Nations communities around Australia; for example, by funding a number of ACCHOs to engage with their communities to enhance community understanding of and connection to existing spectacles subsidy schemes. This undertaking included a pilot initiative of community-led models to improve access to spectacles in the Northern Territory, Western Australia and Tasmania. Approximately 1,400 spectacles were distributed as a result of these pilots.
- working with state and territory governments to improve access to existing jurisdictional subsidised spectacles schemes. This also included funding to support the provision of spectacles to First Nations people in six jurisdictions (New South Wales, Victoria, Queensland, South Australia, Tasmania and the Australian Capital Territory), enabling these states and territories to distribute additional spectacles. At the conclusion of the project in February 2023, approximately 10,000 additional pairs of glasses had been delivered.

Further information is available at <www.vision2020australia.org.au>.

4

Workforce and outreach services

The size and location of the eye health workforce (see Box 4.1) broadly indicates levels of access to specialists and eye services. Specialist eye health practitioners, such as optometrists and ophthalmologists, are required to treat more serious eye problems and to undertake more complex procedures, such as cataract surgery. There are relatively few First Nations specialist eye health practitioners working in Australia. In 2021, 11 First Nations people identified as optometrists and fewer than 5 First Nations people identified as ophthalmologists.

Australian Government outreach programs play an important role in eye health for First Nations people. Outreach services are primarily provided in regional and remote areas where there are low numbers of registered optometrists and ophthalmologists. These services are intended to compensate for the uneven distribution of the health workforce and to improve access to health services across Australia. Several Australian Government outreach programs provide specialist eye health services:

- The Visiting Optometrists Scheme (VOS) supports optometrists in delivering outreach services to all Australians in regional, rural and remote locations. Of the total funding, 40% is allocated to services for First Nations patients. From July 2015, new guidelines expanded the program to include urban locations for First Nations Australian patients. Many of the services for First Nations people are delivered by visiting optometrists in ACCHOs.
- The Rural Health Outreach Fund (RHOF) supports the delivery of medical specialities, GPs and allied and other health outreach services in regional, rural and remote areas. These include eye health services.
- The Medical Outreach Indigenous Chronic Disease Program (MOICDP) improves access to medical specialists, GPs, nurses, allied health and other health professionals for First Nations people living with chronic disease. As part of this program, eye health services can be provided to those suffering from chronic conditions such as diabetes.
- The Eye and Ear Surgical Support Program (EESS) program expedites access to surgery for First Nations people with diagnosed eye and ear conditions who are on public surgery waiting lists. The program prioritises those living in rural and remote locations. The program facilitates a culturally safe surgical support pathway, access to hospital theatre time and access to bulk-billing surgeons. The program also arranges travel and accommodation for the surgical patient and carer (where needed).

Funding provisions differ under the various outreach programs. For example, the RHOF provides funding for the costs of travel and accommodation for a variety of medical specialities, including eye health services. Under the MOICDP, eye health services can be provided to those suffering from chronic conditions such as diabetes. The EESS supports access to surgical services, including for First Nations people who require eye surgery.

This means jurisdictions will access outreach services differently, depending on their needs. For example, some jurisdictions use the RHOF or the EESS chiefly for eye services while others use the RHOF for specialties apart from eye services. This should be kept in mind when comparing jurisdictional differences in the use of outreach services for eye health.

Workforce and outreach services – measures and data sources

There are 3 measures reported on workforce and outreach services in this chapter:

Measure 4.1: Number and rate of optometrists – the number of employed optometrists, full-time equivalent (FTE) per 100,000 Australian population.

Measure 4.2: Number and rate of ophthalmologists – the number of employed ophthalmologists, FTE per 100,000 Australian population.

The data for both these measures come from the NHWDS. These annual data are derived from the annual registration process required for health workforce professionals.

Measure 4.3: Number and rate of allied ophthalmic personnel – the number and rate of allied ophthalmic personnel, FTE per 100,000 Australian population.

The data for this measure come from the ABS 2016 and ABS 2021 Census of Population and Housing.

The final measure relates to eye health services provided under outreach programs:

Measure 4.4: Occasions of eye health services provided under outreach and other programs – the number of occasions of service for First Nations people with eye health professionals, per 1,000 population, under the:

- Visiting Optometrists Scheme (VOS)
- Rural Health Outreach Fund (RHOF)
- Medical Outreach Indigenous Chronic Disease Program (MOICDP)
- Eye and Ear Surgical Support Program (EESS).

These services were provided under the Australian Government outreach programs – VOS, RHOF, MOICDP and EESS. The outreach data do not include outreach services funded by state governments or other sources.

Box 4.1: Eye health workforce

Optometrists are eye care professionals who perform eye examinations and vision tests to determine the presence of visual, ocular and other abnormalities; ocular diseases; and systemic diseases with ocular manifestations. They also prescribe lenses, other optical aids, therapy and medication to correct and manage vision problems and eye diseases.

Ophthalmologists are medical doctors who provide diagnostic, treatment and preventive medical services related to diseases, injuries and deficiencies of the human eye and associated structures.

Optical dispensers fit and service optical appliances such as spectacle frames and lenses.

Orthoptists diagnose and manage eye movement disorders and associated sensory deficiencies.

- **Optical mechanics** operate machines to grind, polish and surface optical lenses to meet prescription requirements and to fit lenses to spectacle frames.
- **Orientation and mobility specialists** assist people who are experiencing difficulties in moving about due to vision loss.
- **Occupational therapists** who specialise in eye health assess the functional limitations of people resulting from eye illnesses and disability and provide therapy to enable them to perform their daily activities and occupations.
- **Ophthalmic nurses** are people who have completed general nurse training as well as specialist training in the nursing care of patients with eye problems, whether in hospital, clinics or the community. These nurses test vision and perform other eye tests under medical direction.

Source: AIHW 2016a.

Measure 4.1: Number and rate of optometrists

Key finding: In 2021, around 5,700 (19 FTE per 100,000) optometrists were employed in Australia. Of these, 11 identified as First Nations people.

Overall: In 2021, 5,686 optometrists were employed in Australia (19.4 FTE per 100,000). Of these, 11 identified as First Nations people.

Remoteness: In 2021, *Major cities* had the highest number (4,481) and rate (20.9 FTE per 100,000) of employed optometrists, followed by *Inner regional* areas (895, or 17.8 FTE per 100,000) and *Outer regional* areas (266, or 12.2 FTE per 100,000). The numbers and rates of optometrists were lowest in *Remote* and *Very remote* areas (Figure 4.1a).

Jurisdiction: In 2021, the number and rate of employed optometrists varied across states and territories. New South Wales had the highest number (1,856) and rate (19.8 FTE per 100,000) of employed optometrists (Figure 4.1b).

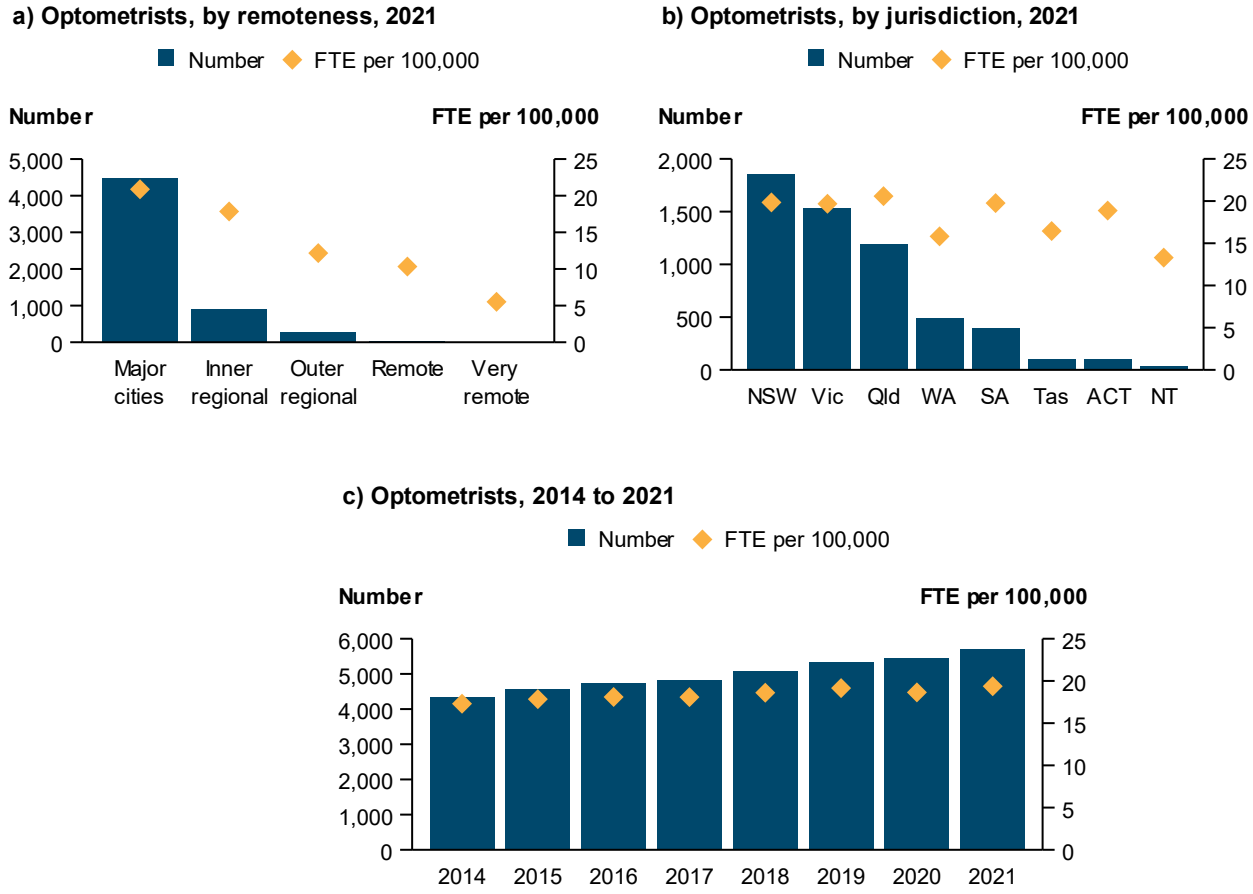
Time trend: Between 2014 and 2021, the number and rate of optometrists increased from 4,322 (17.3 FTE per 100,000) to 5,686 (19.4 FTE per 100,000) (Figure 4.1c).

PHN: In 2021, the highest numbers and rates of optometrists were in metropolitan areas. The PHN with the highest number and rate of employed optometrists was Central and Eastern Sydney (539, or 27.7 FTE per 100,000). The number of optometrists was too low to calculate FTE rates in one PHN. (Figure 4.1d).

Things to consider

- The data come from the Department of Health's NHWDS. The data set includes optometrists who register with their respective health practitioner board via the National Registration and Accreditation Scheme and are employed in Australia.
- Optometrists can include details of only one site in their registration, so multiple sites are not captured in the data.
- The FTE rate takes into account both the number of practitioners and the hours they work. It is based on the hours worked in a standard working week (38 hours for all practitioners, except medical practitioners where it is 40 hours), which is equivalent to 1 FTE. The FTE is calculated as the number of FTE practitioners divided by the relevant population count, multiplied by 100,000.

Figure 4.1: Optometrists, by various characteristics

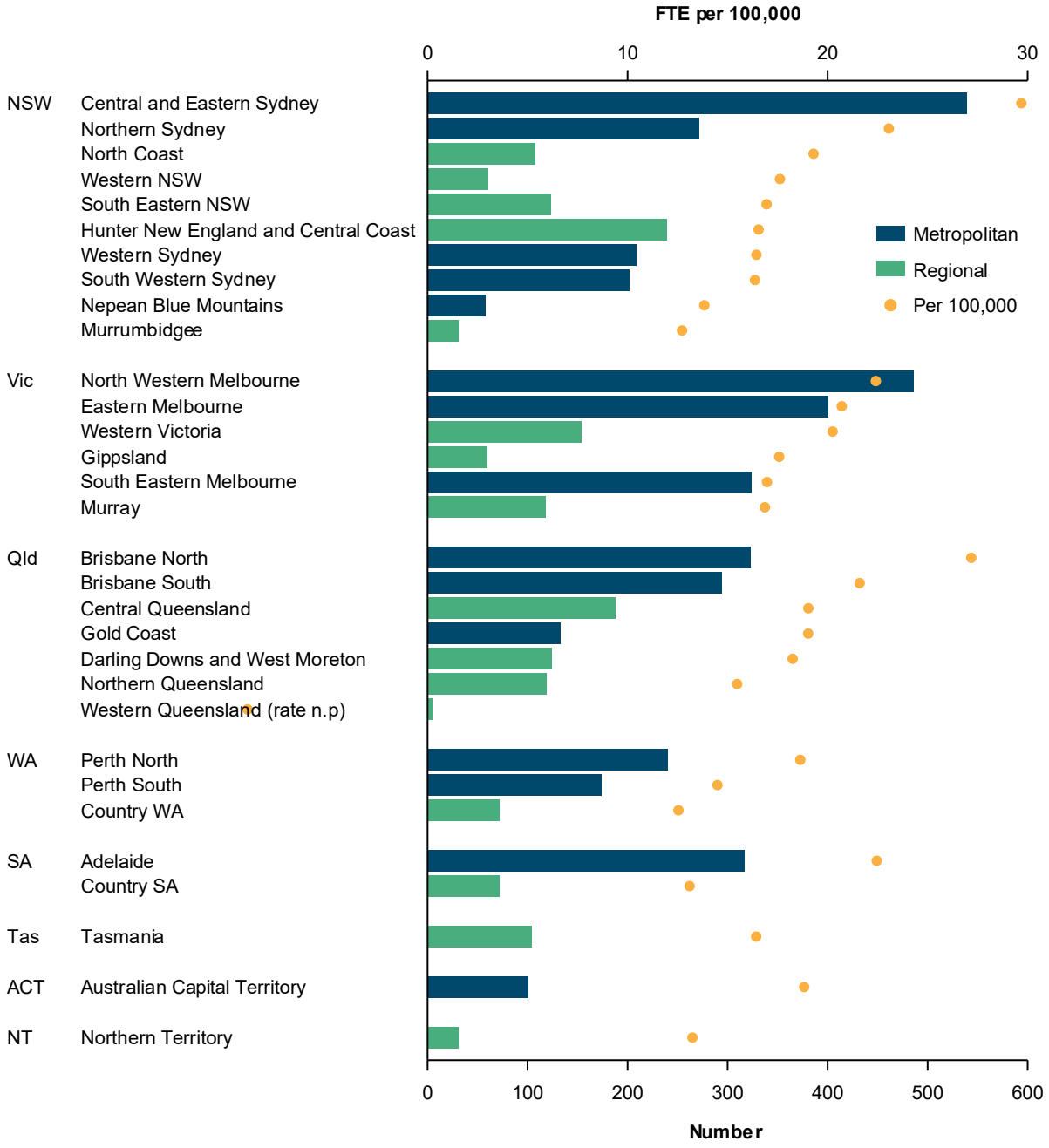


Notes

1. Data are based on optometrists employed in Australia working in their registered profession.
2. FTE per 100,000 population are based on a 38-hour work week.
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Health Workforce Dataset.

Figure 4.1d: Optometrists, by PHN, 2021



Notes

1. Data are based on optometrists employed in Australia working in their registered profession.
2. FTE per 100,000 population are based on a 38-hour work week.
3. Rates have not been published where the number employed for any occupation was fewer than 10 people.
4. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Health Workforce Dataset.

Measure 4.2: Number and rate of ophthalmologists

Key finding: In 2021, around 1,000 (4 FTE per 100,000 population) ophthalmologists were employed in Australia. Fewer than 5 First Nations people identified as ophthalmologists.

Overall: In 2021, 1,003 ophthalmologists were employed in Australia (3.9 FTE per 100,000). Fewer than 5 First Nations people identified as ophthalmologists.

Remoteness: In 2021, *Major cities* had the highest number (847) and rate (4.6 FTE per 100,000) of employed ophthalmologists, followed by *Inner regional* areas (129, 2.8 FTE per 100,000) and *Outer regional* areas (24, or 1.3 FTE per 100,000). There were insufficient numbers of ophthalmologists to calculate rates in other areas (Figure 4.2a).

Jurisdiction: In 2021, the number and rate of employed ophthalmologists varied across states and territories. New South Wales had the highest number (371) and rate (4.4 FTE per 100,000) of employed ophthalmologists, and Victoria the next highest (255). The FTE rate of ophthalmologists in Victoria and the Australian Capital Territory was the same– 3.8 per 100,000. (Figure 4.2b).

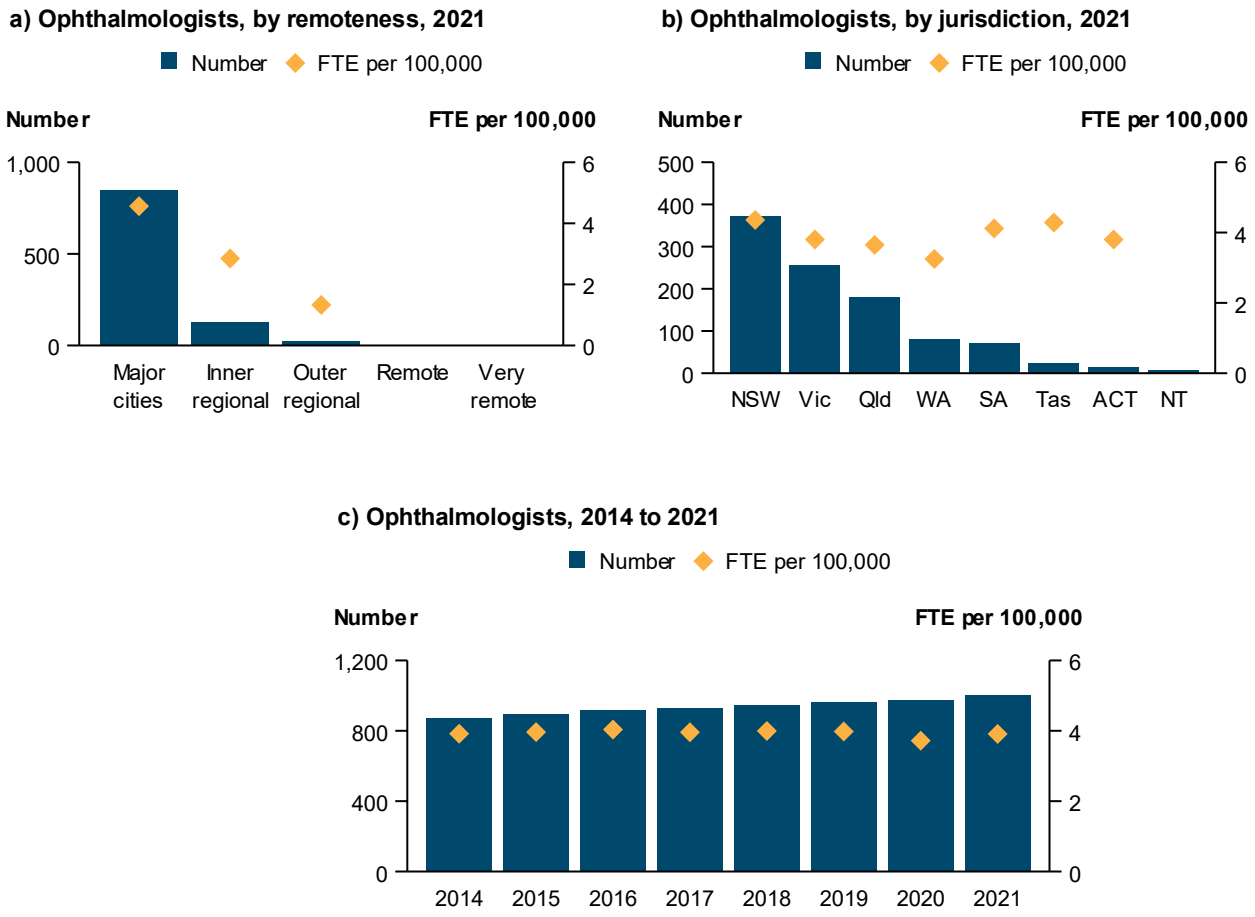
Time trend: Between 2014 and 2021, the number of employed ophthalmologists increased slightly, while the rate remained fairly constant. In 2014, there were 872 employed ophthalmologists (3.9 FTE per 100,000). By 2021, the number and rate of employed ophthalmologists had risen to 1,003 (3.9 FTE per 100,000) (Figure 4.2c).

PHN: Central and Eastern Sydney had the highest number (144) and rate (8.5 FTE per 100,000) of employed ophthalmologists. The PHNs with the next highest rates were Northern Sydney (70, or 7.5 FTE per 100,000) and Brisbane North (67, or 6.5 FTE per 100,000). The number of ophthalmologists was too low to calculate FTE rates in 6 PHNs. (Figure 4.2d).

Things to consider

- The data come from the Department of Health's NHWDS. The data set includes ophthalmologists who register with their respective health practitioner board via the National Registration and Accreditation Scheme and are employed in Australia.
- Ophthalmologists can include details of only one site in their registration, so multiple sites are not captured in the data.
- FTE is a measure calculated by dividing an estimate of the total hours worked by employees in an occupation in a week by an estimate of the standard hours worked for ophthalmologists (40 hours per week). The FTE measure is then compared with the size of the relevant population to calculate the FTE per 100,000 population.

Figure 4.2: Ophthalmologists, by various characteristics

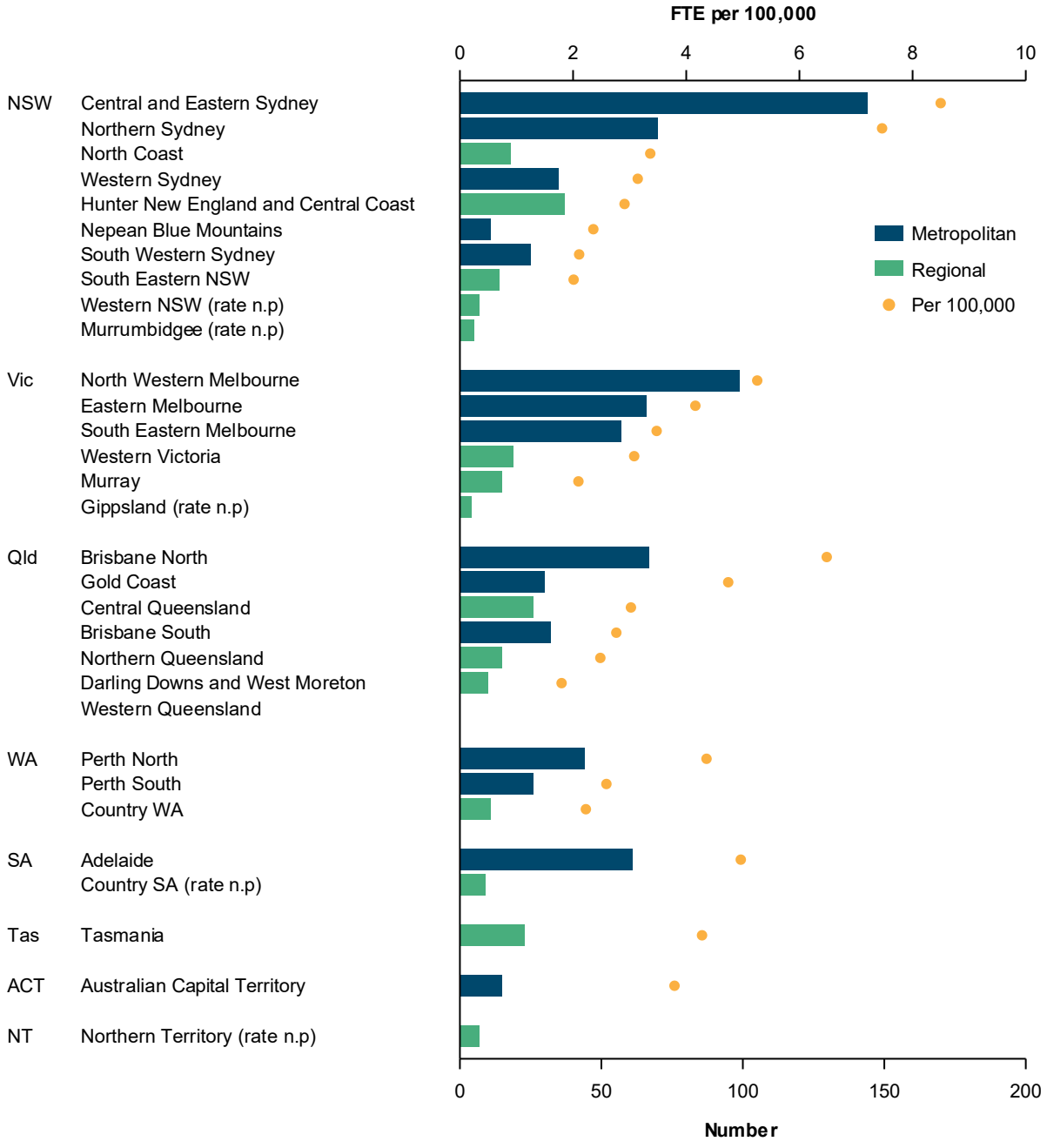


Notes

1. Data are based on ophthalmologists employed in Australia working in their registered profession.
2. FTE per 100,000 population are based on a 40-hour work week.
3. Rates have not been published where the number employed for any occupation was fewer than 10 people.
4. Data for these figures are available in the online data tables.

Source: AIHW analysis of National Health Workforce Dataset.

Figure 4.2d: Ophthalmologists, by PHN, 2021



Notes

1. Data are based on ophthalmologists employed in Australia working in their registered profession.
2. FTE per 100,000 population are based on a 40-hour work week.
3. Rates have not been published (n.p.) where the number employed for any occupation was fewer than 10 people.
4. Data for this figure are available in the online data tables.

Source: AIHW analysis of National Health Workforce Dataset.

Measure 4.3: Number and rate of allied ophthalmic personnel

Key finding: In 2021, there were around 6,200 optical dispensers (14 FTE per 100,000), 400 optical mechanics (1.3 FTE per 100,000) and 1,100 orthoptists (3.0 FTE per 100,000) in Australia.

Overall: The biggest category of allied ophthalmic personnel in Australia is optical dispensers. In 2021, there were 6,162 optical dispensers (14.2 FTE per 100,000), 401 optical mechanics (1.3 FTE per 100,000) and 1,069 orthoptists (3.0 FTE per 100,000) in Australia (Figure 4.3a).

Time trend: From 2016 to 2021, the FTE rate of all allied ophthalmic personnel remained relatively constant, from 15.1 to 14.4 FTE per 100,000 for optical dispensers, and from 4.5 to 4.4 FTE per 100,000 for optical mechanics and orthoptists combined (Figure 4.3b).

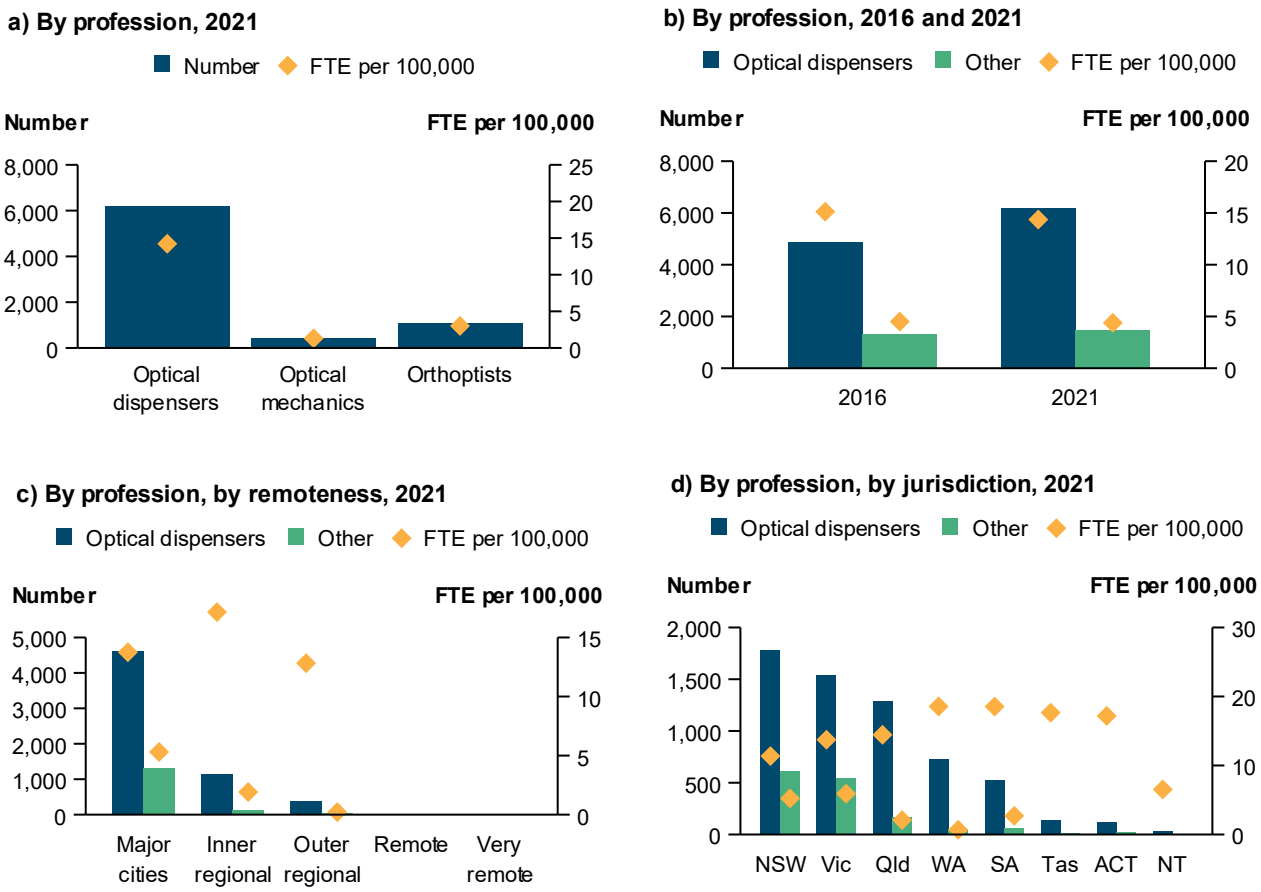
Remoteness: In 2021, *Major cities* had the highest number (4,604) of optical dispensers and the highest number and rate of other allied ophthalmic personnel (1,299, or 5.3 FTE per 100,000). *Inner regional* areas had the highest rate of optical dispensers (17.1 FTE per 100,000) and 141 other allied ophthalmic personnel (1.9 FTE per 100,000). There were insufficient numbers of optical dispensers and other allied ophthalmic personnel in *Remote* and *Very remote* areas to calculate rates (Figure 4.3c).

Jurisdiction: In 2021, New South Wales had the highest number (1,784) of optical dispensers and of other allied ophthalmic personnel (615). Western Australia had the highest rate of optical dispensers (18.6 FTE per 100,000), and Victoria had the highest rate of optical mechanics and orthoptists (5.9 FTE per 100,000) (Figure 4.3d). There were insufficient numbers of optical mechanics and orthoptists in Tasmania, the Australian Capital Territory and the Northern Territory to report rates.

Things to consider

See Box 4.1 for information on the eye health workforce and the roles of various allied ophthalmic personnel.

Figure 4.3: Allied ophthalmic personnel, by various characteristics



Notes

1. 'Other' includes orthoptists and optical mechanics.
2. FTE per 100,000 population are based on a 38-hour week.
3. Rates have not been published where the number employed for any occupation was fewer than 30 people.
4. Data for these figures are available in the online data tables.

Sources: AIHW analysis of 2016 and 2021 Census.

Measure 4.4: Occasions of eye health services provided under outreach and other programs

Key finding: In 2021–22, eye health professionals provided around 34,000 occasions of service for First Nations patients under combined outreach services (VOS, RHOF and MOICDP).

4.4.1 Visiting Optometrists Scheme

Overall: In 2021–22, there were 24,992 occasions of service for First Nations patients and 21,401 for other patients under the VOS.

Remoteness: The rate of First Nations occasions of service under the VOS in 2021–22 was highest in *Remote and very remote* areas (combined) (102.2 per 1,000) followed by *Inner and outer regional* areas (combined) (19.9 per 1,000) (Figure 4.4.1a).

Jurisdiction: In 2021–22, the rate of First Nations occasions of service under the VOS differed by jurisdiction. Rates were highest in the Northern Territory (57.6 per 1,000) and South Australia (37.0 per 1,000). (Figure 4.4.1b). The number of First Nations occasions of service was highest in Queensland (8,752), followed by New South Wales and the Australian Capital Territory (combined) 5,889. (Figure 4.4.1c).

Time trend: In 2009–10, there were around 6,975 occasions of service for First Nations patients under the VOS. This increased to 29,161 in 2017–18 before falling to 22,089 in 2019–20 and then increasing to 24,992 in 2021–22 (Figure 4.4.1d). In 2021–22, First Nations people had around 3,600 more occasions of service under the VOS than other Australian patients. VOS occasions of service have been higher for First Nations people than nonIndigenous Australians since 2016–17.

VOS occasions of service for First Nations people:

- increased in New South Wales, Western Australia and the Northern Territory, between 2014–15 and 2017–18 before declining between 2017–18 and 2021–22
- increased in Victoria between 2014–15 and 2016–17 before declining between 2016–17 and 2021–22
- fell in Queensland between 2014–15 and 2019–20 before increasing in 2021–22
- increased in South Australia and Tasmania between 2014–15 and 2021–22 (Figure 4.4.1e).

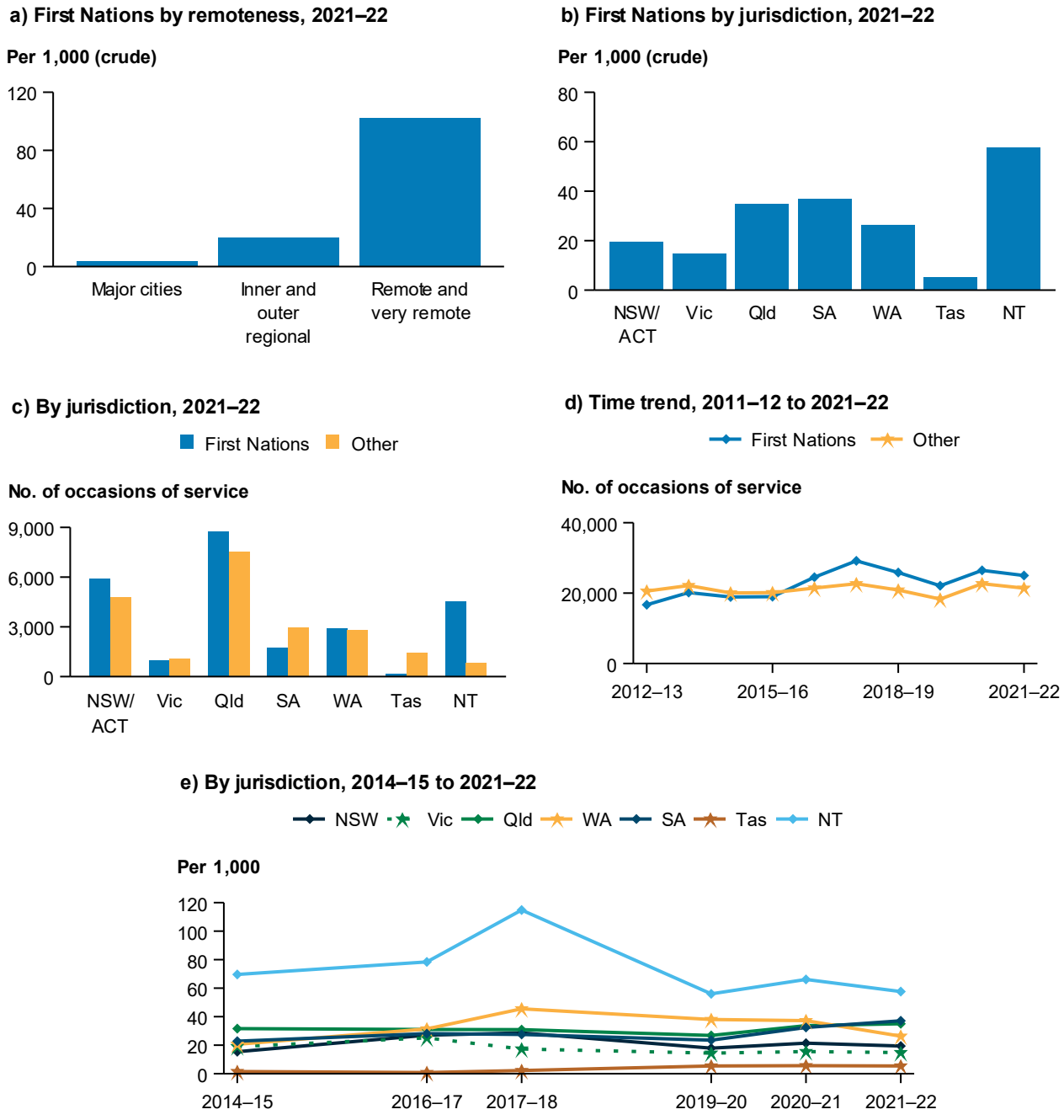
PHN: In 2021–22, the number of occasions of service for First Nations patients under the VOS ranged from 0 in Gold Coast, Brisbane South and Brisbane North to 4,533 in the Northern Territory. The rate of occasions of service ranged from 0 per 1,000 in Gold Coast, Brisbane South and Brisbane North to around 240 per 1,000 in Western Queensland (Figure 4.4.1f).

Things to consider

- Patients may have more than 1 occasion of service.
- The identification of First Nations patients varies between practitioners, so the number of occasions of service for First Nations patients may be understated.

- The rates by PHN should be interpreted with caution, as these services are predominantly provided in non-metropolitan areas. Rates were calculated for some metropolitan areas for comparison purposes, as these areas were included in the program only from 2014–15, and only a small number of services were provided there.
- These data include outreach services funded by the Australian Government and not those funded by state governments or other providers.

Figure 4.4.1: VOS occasions of service, by various characteristics

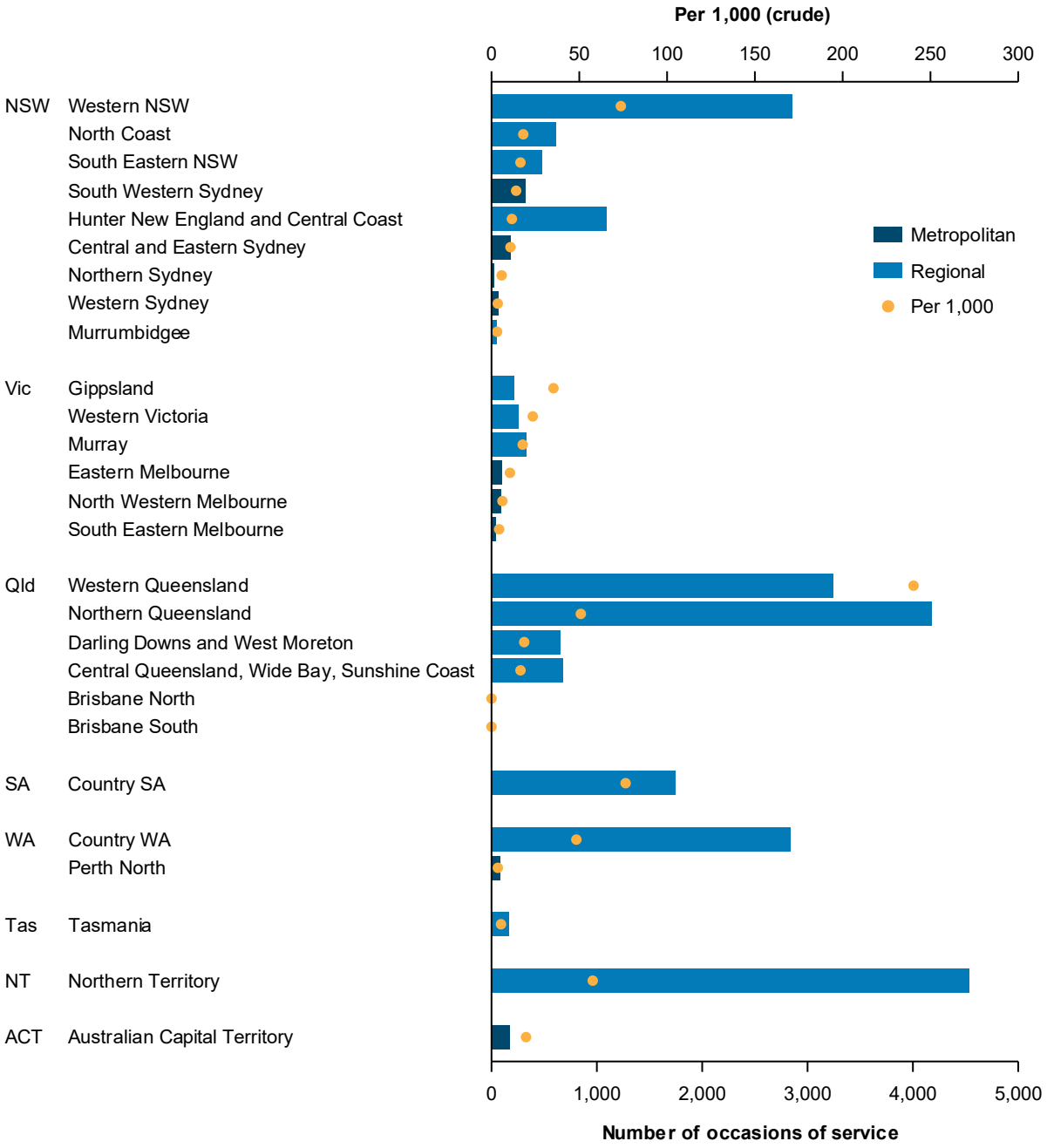


Notes

1. 'Other' includes occasions of service for non-Indigenous patients and patients with 'not stated' Indigenous status.
2. Years not shown in figure (e) are years when VOS data was not able to be reported on by AIHW.
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

Figure 4.4.1f: VOS occasions of service, by PHN, 2021–22



Notes

1. These services are mainly provided in non-metropolitan areas so are not delivered in all PHNs.
2. Data for this figure are available in the online data tables.

Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

4.4.2 Rural Health Outreach Fund

Overall: In 2021–22, 1,796 occasions of eye health services for First Nations patients were provided under the RHOF.

Remoteness: In 2021–22, the number of First Nations occasions of eye health services under the RHOF was highest in *Inner and outer regional* areas (combined) (1,167) and lowest in *Remote and very remote* areas (combined) (629). The rate was highest in *Remote and very remote* areas (combined (4.1 per 1,000) and lowest in *Inner and outer regional* areas (combined) (3.0 per 1,000) (Figure 4.4.2a).

Jurisdiction: In 2021–22, the number of First Nations eye health occasions of service under the RHOF was highest in New South Wales (684), followed by Western Australia (589). The rate was highest in Western Australia (9.2 per 1,000) followed by New South Wales (4.3 per 1,000) (Figure 4.4.2b).

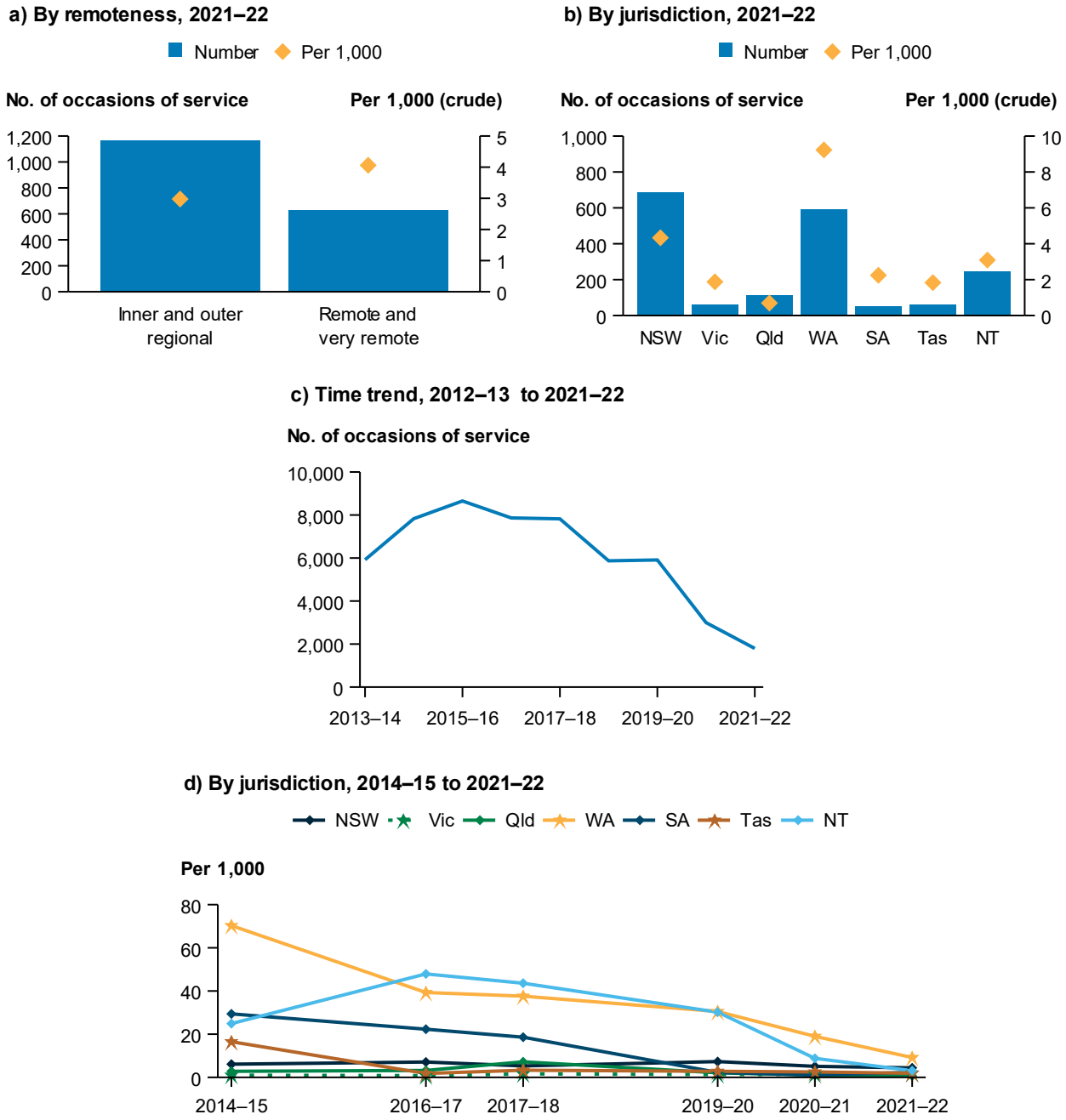
Time trend: In 2013–14, there were 5,920 First Nations eye health occasions of service under the RHOF. This number increased each year to reach 8,652 in 2015–16, before declining to 1,796 in 2021–22 (Figure 4.4.2c).

In all states, apart from Victoria, occasions of service under the RHOF fell between 2014–15 and 2021–22. The decline in occasions of service was particularly steep in Western Australia, from 70.3 per 1,000 in 2014–15 to 9.2 per 1,000 in 2021–22. In Victoria, occasions of service increased marginally from 1.0 per 1,000 in 2014–15 to 2.0 per 1,000 in 2021–22 (Figure 4.4.2d).

Things to consider

- Patients may have more than 1 occasion of service.
- Numbers reflect First Nations RHOF patient contacts with all health professionals in relation to their eye health, and include those patients seen by ophthalmologists, optometrists, orthoptists, retinal photographers, ophthalmic assistants, ophthalmic nurses and Aboriginal health workers.
- RHOF services are provided only in non-metropolitan areas.
- These data include outreach services funded by the Australian Government and not those funded by state governments or other providers.

Figure 4.4.2: RHOF occasions of eye health service, First Nations people, by various characteristics



Notes

1. RHOF services are provided in Inner regional, Outer regional, Remote and Very remote areas only.
2. Years not shown in figure (d) are years when RHOF data was not able to be reported on by AIHW
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

4.4.3 Medical Outreach Indigenous Chronic Disease Program

Overall: In 2021–22, eye health professionals provided a total of 7,663 occasions of service for First Nations patients under the MOICDP.

Remoteness: In 2021–22, the number of First Nations occasions of eye health services under the MOICDP was highest in *Remote and very remote* areas (combined) (4,038) and lowest in *Major cities* (912). The rate was highest in *Remote and very remote* areas (combined 260.7 per 10,000) and lowest in *Major cities* (26.8 per 10,000) (Figure 4.4.3a).

Jurisdiction: Services were provided to First Nations patients in 7 jurisdictions. The highest rate of First Nations occasions of service provided by professionals for eye health under the MOICDP was in Western Australia (315.3 per 10,000) (Figure 4.4.3b).

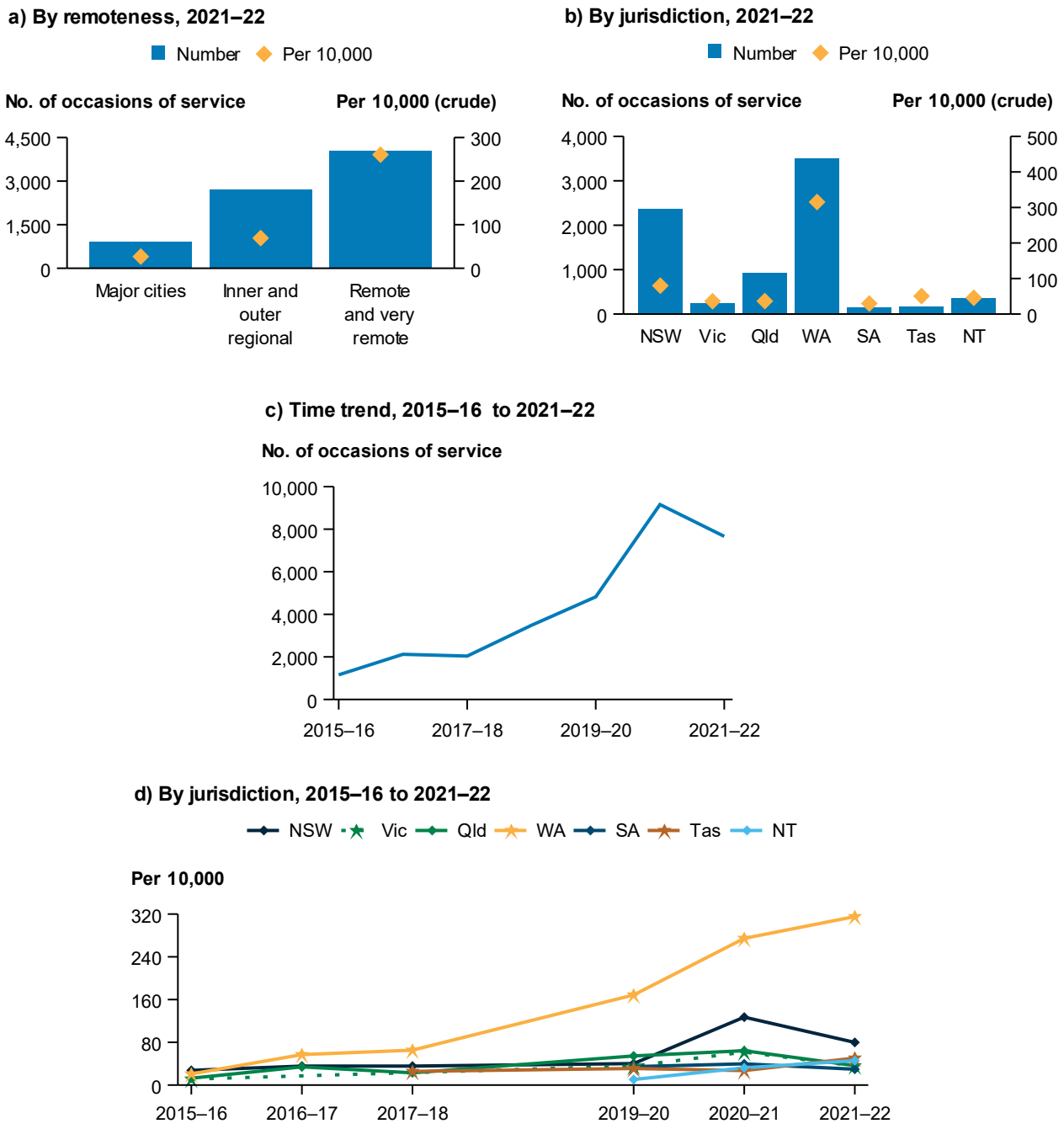
Time trend: In 2014–15, around 550 First Nations occasions of services were provided by health professionals for eye health under the MOICDP. This number increased to 9,158 in 2020–21 before declining to 7,663 in 2021–22 (Figure 4.4.3c).

In New South Wales, Victoria and Queensland, occasions of service under the MOICDP increased between 2015–16 and 2020–21 and then declined between 2020–21 and 2021–22. Western Australia had the largest increase in occasions of service under the MOICDP, from 20.8 per 10,000 in 2015–16 to 315.3 per 10,000 in 2021–22. South Australia had data available from 2019–20 and showed a decline in occasions of service to 2020–21. Tasmania had data available from 2017–18 and the Northern Territory from 2019–20; both showed an increase in the rate of occasions of service to 2021–22 (Figure 4.4.3d).

Things to consider

- Patients may have more than 1 occasion of service.
- The numbers show occasions of service provided to First Nations patients by all health professionals in relation to eye health, including ophthalmologists, ophthalmic assistants, ophthalmic nurses and Aboriginal health workers.
- These data include outreach services funded by the Australian Government and not those funded by state governments or other providers.

Figure 4.4.3: MOICDP, occasions of eye health service, First Nations people, by various characteristics



Notes

1. Data include patients seen by the following types of health professionals: Aboriginal health worker – eye health, optometrist, physician – ophthalmology, and surgeon – retinal.
2. Years not shown in figure (d) are years when MOICDP data was not able to be reported on by AIHW
3. Data for these figures are available in the online data tables.

Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

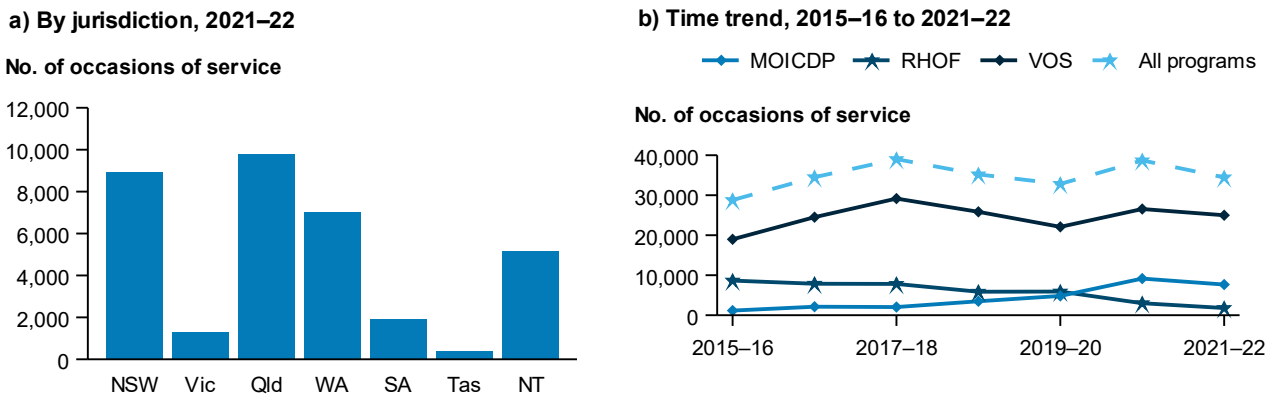
4.4.4 Combined outreach programs

Overall: In 2021–22, eye health professionals provided a total of 34,451 occasions of service for First Nations patients under all the outreach programs combined (VOS, RHOF and MOICDP).

Jurisdiction: In 2021–22, the highest number of First Nations occasions of service provided by an eye health professional under the combined outreach programs was in Queensland (9,774) followed by New South Wales (8,925) (Figure 4.4.4a).

Time trend: In 2014–15, health professionals provided around 27,300 First Nations occasions of services in relation to eye health under the combined outreach programs. This number increased to 34,451 in 2021–22 (Figure 4.4.4b).

Figure 4.4.4: Combined outreach programs, First Nations people, number of occasions of service



Note: Data for these figures are available in the online data tables.
Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

4.4.5 Eye and Ear Surgical Support Program

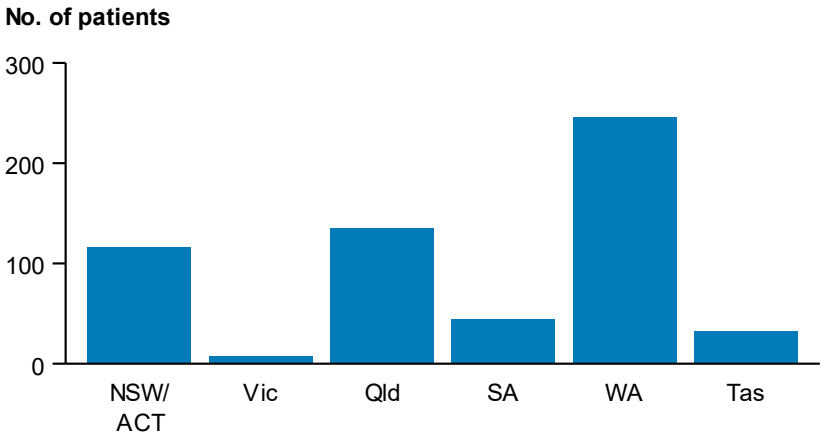
Overall: In 2021–22, eye health professionals provided a total of 580 occasions of service for First Nations patients under the EESS.

Jurisdiction: In 2021–22, the highest number of First Nations occasions of service provided by an eye health professional under the EESS was in Western Australia (246) followed by Queensland (135) (Figure 4.4.5).

Things to consider

- Patients may have more than 1 occasion of service.
- The identification of First Nations patients varies between practitioners, so the number of occasions of service for First Nations patients may be understated.

Figure 4.4.5: EESS, occasions of eye health service, First Nations people, by jurisdiction, 2021–22



Note: Data for these figures are available in the online data tables.
Source: AIHW analysis of Department of Health and Aged Care data (unpublished).

Case study: Indigenous Eye Health Coordination Program

The NSW Rural Doctors Network's Indigenous Eye Health Coordination Program is funded by the Department of Health and Aged Care's Coordination of Indigenous Eye Health (CIEH) program. It helps to improve access to eye care services for First Nations patients in Far West New South Wales through improved coordination of services, particularly the linkages between the range of different eye health services and the delivery of services (such as initial consultation, treatment, referral and continuity of care).

The program has been successful in establishing collaborative partnerships with the Rural Doctors Network, the Far West New South Wales Local Health District, the Maari Ma Health Aboriginal Corporation and the visiting optometrist providing regular services under the Rural Doctors Network's Outreach VOS program. This collaborative approach has enabled streamlined processes for First Nations patients accessing services, for example:

- fast-tracking referrals, appointments and surgeries where required
- arranging transportation for patients to access services
- providing regular, and locally delivered optometry clinics
- upskilling local GPs
- improving the referral pathway between optometrists and ophthalmologists to ensure prompt patient follow-up and referral to surgery.

The CIEH program is administered by a single funded organisation in each jurisdiction and operates in conjunction with the Australian Government's other outreach programs: the RHOF, MOICDP and VOS. The single funded organisation arrangement in each jurisdiction enables improved planning, coordination and integration of services that contribute to program efficiencies.

Appendix A: Data Sources

ABS population data

Population data are used for demographic analyses and as the denominator in calculating rates. The Australian, First Nations people and nonIndigenous population data used in this report were based on data from Australian Bureau of Statistics (ABS) publications as well as unpublished data from the ABS. ABS publications, include:

- National, state and territory population <https://www.abs.gov.au/statistics/people/population/national-state-and-territory-population/latest-release>
- Estimates of Aboriginal and Torres Strait Islander Australians <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/estimates-aboriginal-and-torres-strait-islander-australians/latest-release>
- Estimates and Projections, Aboriginal and Torres Strait Islander Australians <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/estimates-and-projections-aboriginal-and-torres-strait-islander-australians/latest-release>

The size of the First Nations population varies substantially by state and territory. In 2021, it ranged from about 9,500 in the Australian Capital Territory to about 340,000 in New South Wales (ABS 2022). The proportion of the total population who are First Nations people also varies by state and territory. In 2021, this proportion ranged from 1.2% in Victoria to 31% in the Northern Territory (ABS 2022).

Australian Aboriginal and Torres Strait Islander Health Survey

The ABS conducted the Australian Aboriginal and Torres Strait Islander Health Survey (AATSIHS) in the years 2012–13 and 2018–19 to report on the health of First Nations people in Australia. It provides information on long-term health conditions, health risk factors, selected social and emotional wellbeing indicators, health measurements, and health-related actions for First Nations people.

The AATSIHS forms part of the broader Australian Health Survey and is based on a nationally representative sample of around 10,600 First Nations people across the nation. It was conducted in remote and non-remote areas throughout Australia.

The AATSIHS is made up of 3 components:

- a National Aboriginal and Torres Strait Islander health survey (NATSIHS)
- a National Aboriginal and Torres Strait Islander nutrition and physical activity survey
- a National Aboriginal and Torres Strait Islander health measures survey that includes biomedical data.

Updated data are not available as data for these measures are based on the ABS 2018–19 NATSIHS. The next NATSIHS is visiting communities across the country between now and mid-2023 as part of the Intergenerational Health and Mental Health Study.

Australian Trachoma Surveillance reports

The Department of Health funds the National Trachoma Surveillance and Reporting Unit (NTSRU) of the Kirby Institute to undertake data collation, analysis and reporting related to the ongoing evaluation of trachoma control strategies in Australia. The Australian Trachoma Surveillance reports (ATSRs) are released annually (Kirby Institute 2015).

The primary focus of reporting by the NTSRU from 2006–2011 was on trachoma levels and trends in the 3 jurisdictions funded by the Australian Government to undertake trachoma control activities. In 2013, 2014 and 2015, the NSW Ministry of Health was funded to undertake a baseline screening of selected remote communities to establish whether trachoma was a public health concern in New South Wales. These data are included in the 2013, 2014 and 2015 reports, along with data from South Australia, Western Australia and the Northern Territory (Kirby Institute 2015). Each jurisdiction undertakes its own screening and treatment for trachoma according to its protocols, and in the context of the Communicable Diseases Network Australia (CDNA) National Guidelines for the Public Health Management of Trachoma in Australia. Before January 2014, these guidelines recommended that screening for trachoma be undertaken for all communities designated as being 'at-risk', or where there was anecdotal information suggesting the presence of active trachoma.

The revised guidelines state that not all 'at-risk' communities are required to screen for trachoma each year, as prevalence levels do not vary greatly from year to year. Instead, if trachoma is present in the community, communities are to focus their efforts on treatment. The frequency of screening recommended varies according to the prevalence and spread of active trachoma in the community (CDNA 2014).

The Northern Territory introduced this new approach in 2014 and the other jurisdictions in 2015. This means that, in order to calculate prevalence rates for communities that did not screen in the current year, the most recent prevalence data for that community is carried forward and added to the current year's data. This is likely to overestimate current levels of trachoma.

World Health Organization (WHO) trachoma grading criteria were used to diagnose and classify individual cases of trachoma in all jurisdictions. The forms for data collection at the community level were developed by the National Trachoma Surveillance and Control Reference Group, based on the CDNA guidelines. Completed forms are provided by jurisdictional coordinators to the National Trachoma Surveillance and Reporting Unit (NTSRU) for checking and analysis. While data may be collected for Aboriginal children aged 0–14, the focus age group in all regions is those aged 5–9, as required by state and territory project agreements (Kirby Institute 2016).

Interpretation of coverage data is limited by the accuracy of community population estimates, the school-based approach to screening, and the designation of communities as at-risk. Community population estimates are based on projections from the Census data. Although this approach is current best practice, the estimates may not accurately reflect populations at the time of screening, given the small size and mobility of some communities. Caution must be taken when quoting trachoma prevalence, as screening took place in predominantly *Remote* and *Very remote* communities designated as being at-risk of endemic trachoma. Designation of at-risk status does not appear to have been systematically reviewed in any jurisdiction (AIHW 2015).

Medicare Benefits Schedule data

The Medical Benefits Schedule (MBS) is a list of Medicare services subsidised by the Australian Government. It is part of the Medicare program, managed by the Department of Health and administered by the Department of Human Services. Through the Medicare program, all Australian residents and certain categories of visitors to Australia are entitled to benefits for medical and hospital services, based on fees determined for each service provided. These services are itemised, forming the schedule of fees. Statistics on each item are collected when benefits are claimed.

MBS data reflect MBS claims and not necessarily all the services received. A person may be provided with equivalent care from a health care provider who is not eligible to bill Medicare. The data are based on the date of processing of claims. While the data have been used to measure the level of specific activities, changes in the use of an MBS item over time can reflect changes in billing and claiming practices or the introduction of new items, and not necessarily changes in the health care provided.

Data presented by state and territory and by remoteness area are based on the address information recorded in the patient's Medicare record. Data presented by remoteness area were classified according to the Australian Standard Geographical Classification.

Indigenous identification

The identification of First Nations people in Medicare data is not complete. Since 2002, individuals who choose to identify as being of Aboriginal and/or Torres Strait Islander descent have been able to have this information recorded on the Medicare database through the Voluntary Indigenous Identifier (VII). VII enrolment is through either a VII enrolment form or a tick-box on a Medicare Australia enrolment form. Both methods of enrolment indicate that identifying as First Nations people is optional.

As at March 2016, an estimated 65% of the First Nations population had identified as being of Aboriginal and/or Torres Strait Islander origin through the VII process. VII coverage varies by age group and state and territory. The MBS data presented in this report have been adjusted for under-identification, except for data on MBS items for annual health assessments and the MBS item 12325 for diabetic retinopathy screening, which are specific for First Nations people. Before the current edition of this report, the scale-up factors were calculated by the Department of Health and Aged Care (DoHAC). For this report these have been calculated by the AIHW, however, the estimates obtained are consistent with those produced by the DoHAC.

National Eye Health Survey

The 2016 National Eye Health Survey (NEHS) was a nationwide population-based study designed to:

- provide estimates of the prevalence and causes of vision impairment and blindness in First Nations people and non-Indigenous Australians by gender, age and geographical area
- measure the treatment and coverage rate of major conditions and diseases.

It used a multi-stage, random-cluster sampling methodology to select 30 geographic areas stratified by remoteness to provide a representative target population of 3,000 nonIndigenous Australians aged 50 and older and 1,400 First Nations people aged 40 and older. Participants were primarily recruited by door-to-door knocking, with adjustments as required to adapt to local circumstances within diverse First Nations communities.

Over 85% of those eligible to enrol in the study did so. In total, the NEHS examined 3,098 non-Indigenous Australians aged 50 or older, and 1,738 First Nations people aged 40 or older. The survey achieved a response rate of 85%, with 72% having an eye examination. The testing protocol involved a general questionnaire, vision testing, anterior segment examination, visual field testing, fundus photography and intraocular pressure testing. Where possible, sampling adjusted rates were provided, though some of the survey results presented are crude unadjusted sample proportions. These results are subject to sampling error so 95% confidence intervals were provided to indicate the reliability of all estimates reported. Some of the estimates should be treated with caution due to large confidence intervals.

Updated data are not available as data for measures are based the NEHS. Due to COVID, the conduct of the next NEHS has been delayed. It is being conducted in 2023 and updated NEHS data should be available in 2024.

National Health Workforce Data Set

The Australian Health Practitioner Regulation Agency, in conjunction with the national health professional registration boards, is responsible for the national registration process for 14 health professions. The data from the annual registration process, together with data from a workforce survey that is voluntarily completed at the time of registration, form the Department of Health's National Health Workforce Data Set (NHWDS). Data in the NHWDS include demographic and employment information (for example, labour force status, location of main job, area of practice, work setting) for registered health professionals. In this report, the data on optometrists and ophthalmologists come from the NHWDS as reported by the Australian Institute of Health and Welfare (AIHW).

National Hospital Morbidity Database

Data about hospitalisations were extracted from the AIHW National Hospital Morbidity Database (NHMD), which is a compilation of episode-level records from admitted patient care data collection systems in Australian hospitals in each state and territory. Information on the characteristics, diagnoses and care of admitted patients in public and private hospitals is provided annually to the AIHW by state and territory health departments. Data are based on financial years.

Data are a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay, or a portion of a hospital stay that begins or ends in a change of type of care) and not of patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set. The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and by differing levels and patterns of service delivery.

Data on diagnoses are recorded using the International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM, 8th edition). Information on procedures was recorded using the Australian Classification of Health Interventions. The relevant diagnosis and procedure codes used in this report are outlined in the online Data tables: Eye health measures for Aboriginal and Torres Strait Islander people–Treatment.

NHMD data presented by state and territory and remoteness area in this report are based on the patient's place of usual residence. For some analyses by state and territory, data for the Australian Capital Territory were combined with those for New South Wales, and data for Tasmania were combined with those for Victoria, due to small numbers.

For analyses by remoteness area, the NHMD data for 2012–13 onwards were classified according to the Australian Statistical Geography Standard, while earlier years were classified according to the Australian Standard Geographical Classification.

A data quality statement for the NHMD is available at <http://meteor.aihw.gov.au/content/index.phtml/itemId/611030>.

Indigenous identification

There is some under-identification of First Nations people in the NHMD, but NHMD data for all states and territories are considered to have adequate First Nations identification from 2010–11 onwards (AIHW 2013). An AIHW study found that, in 2011–12, the number of hospitalisations nationally for First Nations people was about 9% higher than reported (AIHW 2013). In 2013–14, about 408,000 hospitalisations were recorded as being for First Nations people. Based on the level of under-identification suggested by the AIHW study, the number of hospitalisations for First Nations people in 2013–14 was estimated to have been about 445,000 (AIHW 2015). NHMD data presented in this report have not been adjusted for under-identification, so are likely to underestimate the level of First Nations hospitalisations.

Changes in the accuracy of First Nations identification in hospital records will result in changes in the reported number of hospitalisations for First Nations people. Caution should be used when interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisations is due to changes in the accuracy of First Nations identification and/or to real changes in the rates at which First Nations people were hospitalised. An increase in hospitalisation rates for a particular population might also reflect higher use of admitted patient hospital services – as opposed to other forms of health care –rather than a worsening of health. Likewise, a decrease in hospitalisation rates might not necessarily indicate better health. It should also be noted that the levels of underidentification vary with state and remoteness and it is not known whether they also vary by reason for hospitalisation.

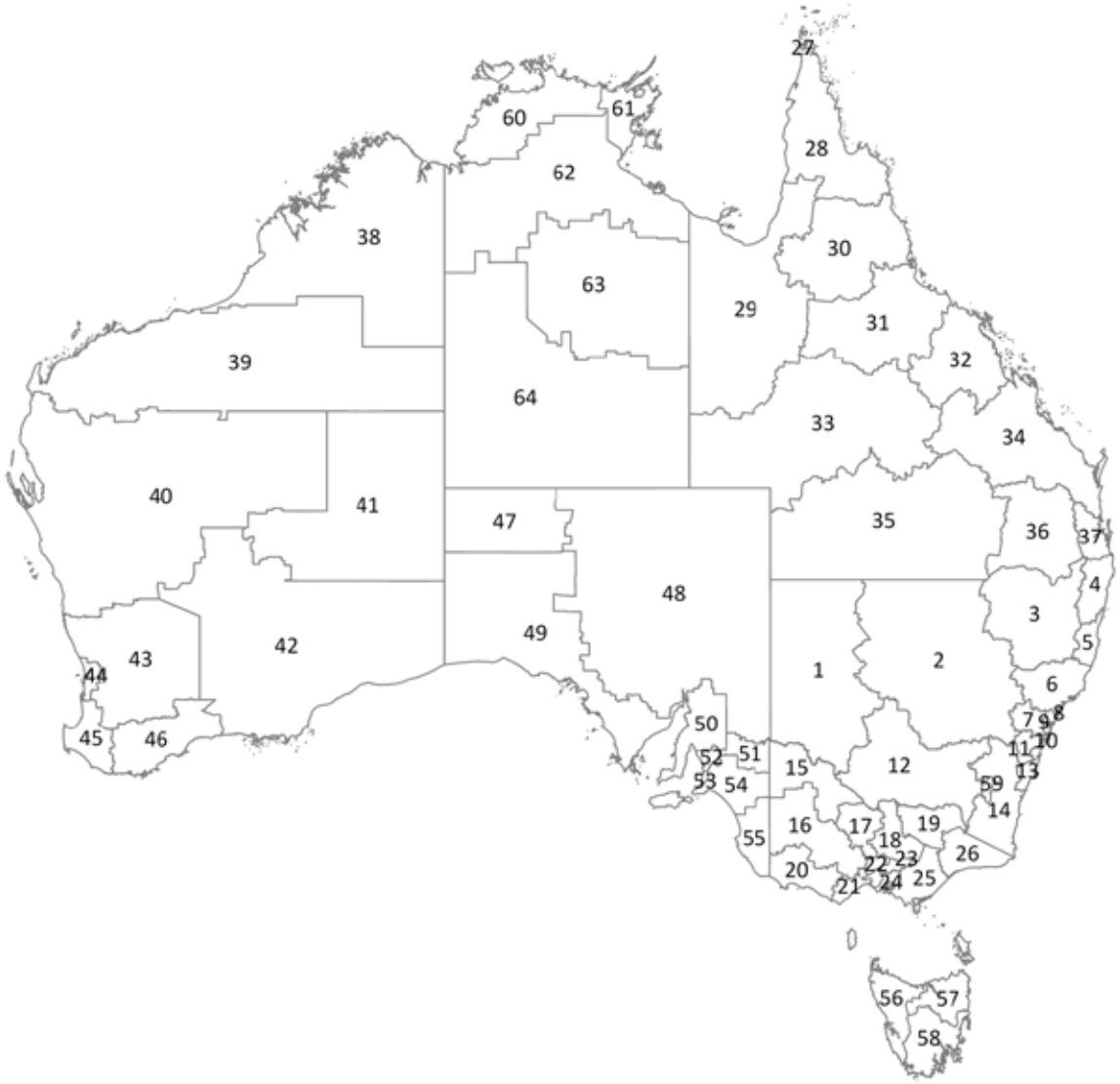
Except for data from hospitals in Western Australia, hospitalisations where the person's Indigenous status was not stated were excluded from analyses that compare First Nations and non-Indigenous rates. In 2011–14, there were about 618,000 hospitalisations for which Indigenous status was not stated, representing around 2% of all hospitalisations in that period. For hospitals in Western Australia, records with an unknown Indigenous status are reported as non-Indigenous, so are included in the 'non-Indigenous' data in these analyses.

Appendix B: PHN and Roadmap regions

Figure B1: PHN – locations

No.	State	PHN	No.	State	PHN
1	NSW	Central and Eastern Sydney	17	QLD	Brisbane North
2	NSW	Northern Sydney	18	QLD	Brisbane South
3	NSW	Western Sydney	19	QLD	Gold Coast
4	NSW	Nepean Blue Mountains	20	QLD	Darling Downs and West Moreton
5	NSW	South Western Sydney	21	QLD	Western Queensland
6	NSW	South Eastern NSW	22	QLD	Central Queensland, Wide Bay, Sunshine Coast
7	NSW	Western NSW	23	QLD	Northern Queensland
8	NSW	Hunter New England and Central Coast	24	WA	Perth North
9	NSW	North Coast	25	WA	Perth South
10	NSW	Murrumbidgee	26	WA	Country WA
11	VIC	North Western Melbourne	27	SA	Adelaide
12	VIC	Eastern Melbourne	28	SA	Country SA
13	VIC	South Eastern Melbourne	29	Tas	Tasmania
14	VIC	Gippsland	30	ACT	Australian Capital Territory
15	VIC	Murray	31	NT	Northern Territory
16	VIC	Western Victoria			

Figure B2: Roadmap regions – locations



No.	State	Roadmap region	No.	State	Roadmap region	No.	State	Roadmap region
1	NSW	Far West NSW	23	VIC	Eastern Metropolitan Melbourne	45	WA	South West
2	NSW	Western NSW	24	VIC	South East Metropolitan Melbourne	46	WA	Great Southern
3	NSW	Central Tablelands	25	VIC	Central Gippsland	47	SA	APY Lands
4	NSW	North Coast	26	VIC	East Gippsland	48	SA	Flinders and Upper North
5	NSW	Mid North Coast	27	QLD	Torres Strait	49	SA	Eyre and Far North (ex APY)
6	NSW	Hunter	28	QLD	Cape York	50	SA	Yorke and Northern
7	NSW	Western Metropolitan Sydney	29	QLD	North West Queensland	51	SA	Riverland
8	NSW	Central Coast	30	QLD	Cairns	52	SA	Adelaide Central North West
9	NSW	Northern Metropolitan Sydney	31	QLD	Townsville / Palm Island	53	SA	Adelaide South
10	NSW	Eastern Metropolitan Sydney	32	QLD	Mackay	54	SA	Murray Mallee Hills and Fleurieu
11	NSW	South West Metropolitan Sydney	33	QLD	Central West Queensland	55	SA	Limestone Coast
12	NSW	Riverina (Murrumbidgee)	34	QLD	Central Queensland	56	Tas	North West
13	NSW	South Coast	35	QLD	South West Queensland	57	Tas	North
14	NSW	Far South Coast	36	QLD	Darling Downs	58	Tas	South
15	VIC	Mallee	37	QLD	South East Queensland	59	ACT	Australian Capital Territory
16	VIC	Grampians	38	WA	Kimberley	60	NT	Greater Darwin
17	VIC	Loddon	39	WA	Pilbara	61	NT	East Arnhem
18	VIC	Hume West	40	WA	Mid West	62	NT	Katherine
19	VIC	Hume East	41	WA	NG Lands	63	NT	Barkly
20	VIC	Great South Coast	42	WA	Goldfields	64	NT	Central Australia
21	VIC	Geelong	43	WA	Wheatbelt			
22	VIC	North and West Metropolitan Melbourne	44	WA	Perth			

NG = Ngaanyatjarra, APY = Anangu Pitjantjatjara Yankunytjatjara

Appendix C: Technical specifications

Table C1: Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
1.1.1	Prevalence of vision impairment and blindness	Crude rate: Numerator ÷ denominator x 100 Age-standardised rate (ASR): $ASR = (\sum_i N_i p_i / \sum_i N_i)$ where: *pi* is the agespecific rate for age group *i* in the population being studied *Ni* is the population of age group *i* in the standard population	Number of participants with: i) bilateral vision impairment (<6/12–6/60) ii) bilateral blindness (<6/60)	Number of participants responding to NEHS		NEHS
1.1.2	Proportion of target population with self-reported eye or sight problems,	Numerator ÷ denominator x 100	Number of participants who reported that they had an eye or sight problem	Number of participants responding to AATSIHS		AATSIHS
1.2.1	Main cause of vision impairment and blindness	Numerator ÷ denominator x 100	Number of participants with bilateral vision impairment caused by: a) refractive error b) cataract c) age-related macular degeneration d) diabetic retinopathy e) glaucoma f) combined mechanisms g) other h) not determinable	Number of participants with bilateral vision impairment (<6/12–6/60)	Numbers were too small to present for main causes of blindness	NEHS

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
1.2.2	Self-reported causes of eye or sight problems	Numerator ÷ denominator x 100	Number of participants who reported that they had an eye or sight problem caused by: a) cataract b) short-sightedness/ myopia c) long-sightedness/ hyperopia d) blindness (complete and partial) e) glaucoma f) macular degeneration g) other	Number of participants who reported that they had an eye or sight problem		AATSIHS
1.3.1	Prevalence of trachoma	Numerator ÷ denominator x 100	Number of children aged 5–9 with active trachoma	Number of children aged 5–9 screened for trachoma	Target age group is children aged 5–9	Trachoma Surveillance Report
1.3.2	Prevalence of trichiasis	Numerator ÷ denominator x 100	Number of adults aged 40 and over with trichiasis	Number of adults aged 40 and over screened for trichiasis	Target age group is those aged 40 and over, but data for those aged 15 and over are shown by age group	Trachoma Surveillance Report
2.1.1	Annual health assessments for First Nations people	Numerator ÷ denominator x 100 See calculation for Measure 1.1 for age-standardised rate	Number of First Nations people who had a face-to-face health assessment (MBS items 715,228, 93470 and 93479) or a Telehealth assessment (MBS items 92004, 92011) claimed in the financial year	First Nations population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		MBS, and ABS population data

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
2.1.2	Proportion of the population that had an annual health assessment and an initial eye examination by an optometrist	Numerator ÷ denominator x 100 See calculation for Measure 1.1 for age-standardised rate		First Nations population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		MBS, and ABS population data
2.2	Proportion of the population that had an eye examination by an eye care professional	Numerator ÷ denominator x 100 See calculation for Measure 1.1 for age-standardised rate	Number of people who had an eye examination (MBS items 11215, 11218, 10910–10916 or 10918 within the reference period) claimed in the financial year	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		MBS, VII and ABS population data
2.3.1	Eye examinations among those tested for diabetes	Numerator ÷ denominator x 100	Number of people who claimed MBS item 66551 in the financial year or year before, and who had an eye examination in the financial year: i) MBS group A10, Optometrical Services (except items 10921–10930) and/or ii) MBS group D1 subgroup 2: Miscellaneous Diagnostic Procedures and Investigations, Ophthalmology	Number of people who claimed MBS item 66551 (Quantitation of glycosylated haemoglobin performed in the management of established diabetes) in the financial year or year before		MBS and VII
2.3.2	Proportion of the target population screened for diabetic retinopathy (survey data)	Numerator ÷ denominator x 100	Number of participants responding to the NEHS with diabetes mellitus who have had a diabetic eye examination within the specified time categories	Number of participants responding to NEHS with diabetes mellitus		NEHS

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
2.3.3	Number and rate per 1,000 of the target population who were screened for diabetic retinopathy with a retinal camera	Numerator ÷ denominator x 1,000	Number of people who claimed MBS item 12325 in the financial year or the year before	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		MBS and ABS population data
2.4.1	Screening coverage for: trachoma	Numerator ÷ denominator x 100	Number of children aged 5–9 screened for trachoma	Estimated number of First Nations children aged 5–9 in at-risk communities that were screened for trachoma		Trachoma Surveillance Report
2.4.2	Screening coverage for: trachoma trichiasis	Numerator ÷ denominator x 100	Number of adults aged 40 and over screened for trichiasis	Estimated number of adults aged 40 and over in trachoma endemic region	Target age group is those aged 40 and over, but data for those aged 15 and over are shown by age group	Trachoma Surveillance Report
2.5	Undiagnosed eye conditions	Numerator ÷ denominator x 100	Number of participants with vision impairment or blindness attributed to each main cause who self-reported 'No' or 'Unsure' to the question 'Have you ever been told by a doctor that you have the following condition?' for that condition	Number of participants with vision impairment or blindness attributed to each main cause		NEHS

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.1	Hospitalisation rates for diseases of the eye	Numerator ÷ denominator x 1,000 (See calculation for Measure 1.1 for ASR)	Number of hospitalisations with a principal diagnosis of diseases of the eye and adnexa (International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification (ICD-10-AM) codes H00–H59) and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder'	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year	Includes hospitalisations in public and private hospitals	NHMD and ABS population data
3.2	Hospitalisation rates for injuries to the eye	Numerator ÷ denominator x 1,000 (See calculation for Measure 1.1 for ASR)	Number of hospitalisations with a principal diagnosis of injuries to the eye and adnexa (ICD-10-AM codes S001, S002, S011, S021, S023, S028, S040–S042, S044, S050–S059, T150, T151, T158, T159, T260–T264, T495, T904) and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder'	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year	Includes hospitalisations in public and private hospitals	NHMD and ABS population data

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.3	Hospitalisation rates for eye procedures	Numerator ÷ denominator x 1,000 (See calculation for Measure 1.1 for ASR)	Number of hospitalisations, that had a procedure on the eye or adnexa (Australian Classification of Health Interventions (ACHI) block codes 160–256) and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder' (For some analysis, the numerator is disaggregated by AR-DRG version 7.0)	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year	Includes hospitalisations in public and private hospitals Only includes patients who received acute care	NHMD and ABS population data
3.4	Cataract surgery rate	Numerator ÷ denominator x 1,000,000 Numerator ÷ estimated need x 100 (for analysis by roadmap region only) (See calculation for Measure 1.1 for ASR)	Number of hospitalisations that had a procedure related to cataract surgery (ACHI procedure blocks 193-203) and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder'	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year	Includes hospitalisations in public and private hospitals The estimated number of people requiring cataract surgery was derived from the Calculator for the co-ordination and delivery of eye care services developed by the IEHU at the University of Melbourne	NHMD and ABS population data

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.5.1	Cataract surgical coverage rate (NEH definition)	Numerator ÷ denominator x 100	Number of participants in the NEHS who have had cataract surgery	Number of participants in the NEHS who have cataracts and vision impairment or blindness + number of participants who have had cataract surgery	Cataract surgery coverage using the NEHS definition was calculated as the number who have had cataract surgery, as a proportion of those who have had cataract surgery, plus the number with bilateral presenting visual acuity worse than 6/12 with cataract in 1 or both eyes Data are weighted to account for sampling rate in each remoteness stratum	NEHS
3.5.2	Cataract surgical coverage rate (WHO definition)	Numerator ÷ denominator x 100	Number of participants in the NEHS who have had cataract surgery	Number of participants in the NEHS who have cataracts and vision impairment or blindness + number of participants who have had cataract surgery	Cataract surgery coverage using the WHO definition was calculated as the number who have had cataract surgery, as a proportion of the number who have had cataract surgery, plus the number of participants with best corrected visual acuity worse than 6/18 with cataracts in both eyes	NEHS

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
					Data are weighted to account for sampling rate in each remoteness stratum	
3.6.1	Waiting times for elective cataract surgery	i) 50th and 90th percentile: The 50th percentile (median waiting time) represents the number of days within which 50% of patients were admitted for elective cataract surgery The 90th percentile data represent the number of days within which 90% of patients were admitted for elective cataract surgery	The time elapsed in days for a patient on the public hospital elective surgery waiting list, from the date they were added to the waiting list for the procedure to the date they were removed from the waiting list for hospitalisations, that had a procedure related to cataract surgery (indicator procedure '01') and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder' (Based on first indicator procedure waiting time)	Number of hospitalisations for a patient on the public hospital elective surgery waiting list that had a procedure related to cataract surgery (indicator procedure '01') and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder'		NHMD

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.6.2	Proportion of hospitalisations for cataract surgery treated within 90 days, and within 365 days	ii) The proportion of patients: a) treated within 90 days b) treated within 365 days for elective cataract surgery: Numerator ÷ denominator x 100	Number of hospitalisations for a patient on the public hospital elective surgery waiting list that had a procedure related to cataract surgery (indicator procedure '01') and care type not 'new born – unqualified days only' or 'organ procurement – posthumous' or 'hospital boarder' for which the waiting time was: a) less than or equal to 90 days b) less than or equal to 365 days (Based on first indicator procedure waiting time)	Number of hospitalisations for a patient on the public hospital elective surgery waiting list that had a procedure related to cataract surgery (indicator procedure '01') and care type not 'new born – unqualified days only' or 'organ procurement –posthumous' or 'hospital boarder'		NHMD

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.7.1	Target population screened for diabetic retinopathy who underwent treatment for diabetic retinopathy	i) Numerator ÷ denominator x 100 (See calculation for Measure 1.1 for ASR)	Number of people who had a laser eye procedure (MBS item 42809) and/or Intravitreal injection (MBS items 42738 and 42739), and who claimed MBS item 66551 in the financial year or year before	Number of people who claimed MBS item 66551 in the financial year or year before, and who had an eye examination in the financial year: i) MBS group A10, Optometrical Services (except items 10921–10930) and/or ii) MBS group D1 subgroup 2, Miscellaneous Diagnostic Procedures and Investigations, Ophthalmology iii) Medical practitioner MBS item 12325		MBS and VII
3.7.2	Target population tested for diabetes who underwent treatment for diabetic retinopathy	ii) Numerator ÷ denominator x 100 (See calculation for Measure 1.1 for ASR)	Number of people who had a laser eye procedure (MBS item 42809) and/or Intra-vitreal injection (MBS items 42738 and 42739), and who claimed MBS item 66551 in the financial year or year before	Number of people who claimed MBS item 66551 in the financial year or year before		MBS and VII
3.8.1	Trachoma treatment coverage	Numerator ÷ denominator x 100	Number of community members treated in communities where active trachoma was identified	Estimated number of community members requiring treatment in communities with active trachoma		Trachoma Surveillance Report

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
3.9	Treatment of refractory error	Numerator ÷ denominator x 100	Number of participants who reported distance spectacle or contact lens correction and had visual acuity (VA)≥6/12	Number of participants who reported distance spectacle or contact lens correction and had VA≥6/12 + participants who had refractive error as their main cause of vision impairment or blindness	Data are weighted to account for sampling rate in each remoteness stratum	NEHS
3.10	Number and rate of glasses dispensed under state spectacle schemes	Numerator ÷ denominator x 1,000	Data are the number of spectacles provided to First Nations people	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year	Only 5 jurisdictions could provide data The estimated number of people requiring spectacles was derived from the Calculator for the co-ordination and delivery of eye care services developed by the IEHU at the University of Melbourne	NSW Depart of Family & Community Services; Australian College of Optometry Victorian; Queensland Health, SA Dept of Human Services, Tasmanian Health Service data (unpub-lished) and ABS population data
4.1	Number and rate of optometrists	Number	Number of registered optometrists employed in Australia working in registered profession	Population at 30 June	FTE based on a 38-hour work week	NHWDS and ABS population data

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
		FTE rate: Numerator (FTE) ÷ denominator x 100,000	FTE of registered optometrists employed in Australia working in registered profession			
4.2	Number and rate of ophthalmologists	Number	Number of registered ophthalmologists employed in Australia working in registered profession	Population at 30 June	FTE based on a 40-hour work week	NHWDS and ABS population data
		FTE rate: Numerator (FTE) ÷ denominator x 100,000	FTE of registered ophthalmologists employed in Australia working in registered profession			
4.3	Number and rate of allied ophthalmic personnel	Number	Number of allied ophthalmic personnel employed in the workforce	Population at 30 June	FTE based on a 38-hour work week	Census; professional associations and employer organisa-tions; and ABS population data
		FTE rate: Numerator (FTE) ÷ denominator x 100,000	FTE of allied ophthalmic personnel employed in the workforce			
4.4.1	Occasions of eye health services provided under Visiting Optometrist Scheme (VOS) outreach programs	Crude rate: Numerator ÷ denominator x 1,000	The number of occasions of service by eye health professionals under the VOS	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		Department of Health and ABS population data

(continued)

Table C1 (continued): Technical specifications for eye health measures for Aboriginal and Torres Strait Islander people

Measure	Description	Calculation	Numerator	Denominator	Notes and definitions	Data sources
4.4.2	Occasions of eye health services provided under Rural Health Outreach Fund (RHOF) outreach programs	Crude rate: Numerator ÷ denominator x 1,000	The number of First Nations occasions of service by eye health professionals under the RHOF	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year (Note that RHOF services are provided in Inner regional, Outer regional, Remote and Very remote areas only. Therefore populations used to calculate the rates for RHOF did not include Major cities)		Department of Health and ABS population data
4.4.3	Occasions of eye health services provided under Medical Outreach Indigenous Chronic Disease Program (MOICDP) outreach programs	Crude rate: Numerator ÷ denominator x 10,000	The number of First Nations occasions of service by eye health professionals under the MOICDP	Population at the middle of the financial year, calculated from the average of the populations at 30 June, at the beginning and end of the financial year		Department of Health and ABS population data
4.4.4	Combined outreach programs		The number of First Nations occasions of service by eye health professionals under the VOS, RHOF and MOICDP			Department of Health and ABS population data
4.4.5	Eye and Ear Surgical Support Program (EESS)		The number of First Nations occasions of service that received support from the EESS.			Department of Health and ABS population data

(continued)

Appendix D: Data gaps and limitations

National eye health survey

The NEHS was last conducted in 2016. The next NEHS will be conducted in 2023 and updated NEHS data should be available in 2024. The updated survey will enable monitoring of the change (compared with non-Indigenous Australians) in the prevalence of vision impairment due to uncorrected refractive error, cataract and diabetic retinopathy.

Primary health care

Primary health care is the entry level to the health system and, as such, is usually a person's first encounter with the health system. It includes a broad range of activities and services, from health promotion and prevention to treatment and management of acute and chronic conditions.

Currently, there is no national primary health care data collection in Australia. Bettering the Evaluation and Care of Health (BEACH) data provided an indication of problems managed by general practitioners (GPs) in Australia including problems related to eye health; however, this collection ceased in 2015. The Australian Institute of Health and Welfare (AIHW) is working to establish a primary health care data collection.

Primary health care data collection relevant to First Nations people are collected from Indigenous Specific Primary Health Care services, the majority of which are delivered by Aboriginal Community Controlled Health Organisations. The data collected from these services do not currently include any measures related to eye health.

Through Medicare, First Nations people can receive primary health care through regular health checks for First Nations people. The requirements of a health check for First Nations people, which are set out in the relevant sections of the MBS, include an assessment of the patient's problems related to eye health. The MBS data cover the total number and proportion of First Nations people for whom a health check was undertaken and not the specific conditions examined during each health check.

Medicare benefits schedule data

MBS data reflect MBS claims and not necessarily all the services received. A person may be provided with equivalent care from a health care provider who is not eligible to bill Medicare. The data are based on the date of processing of claims. While the data have been used to measure the level of specific activities, changes in the use of an MBS item over time can reflect changes in billing and claiming practices or the introduction of new items, and not necessarily changes in the health care provided.

The identification of First Nations people in Medicare data is not complete. Since 2002, individuals who choose to identify as being of Aboriginal and/or Torres Strait Islander descent have been able to have this information recorded on the Medicare database through the VII. VII enrolment is through either a VII enrolment form or a tick-box on a Medicare Australia enrolment form. Both methods of enrolment indicate that identifying as First Nations people is optional.

As at March 2016, an estimated 65% of the First Nations population had identified as being of Aboriginal and/or Torres Strait Islander origin through the VII process. VII coverage varies by age group and state and territory. The MBS data presented in this report have been adjusted for under-identification, except for data on MBS items for annual health assessments and the MBS item 12325 for diabetic retinopathy screening, which are specific for First Nations people. Before the current edition of this report, the scale-up factors were calculated by the DoHAC. For this report these have been calculated by the AIHW, however, the estimates obtained are consistent with those produced by the DoHAC.

MBS data presented for treatment for diabetic retinopathy may underestimate rates. The denominator for this measure, includes the total population who undergo a diabetes test regardless of whether they are diagnosed with diabetes.

National Hospital Morbidity Database

The NHMD is a count of hospital separations (episodes of admitted patient care, which can be a total hospital stay, or a portion of a hospital stay that begins or ends in a change of type of care) and not of patients. Patients who separated from hospital more than once in the year will be counted more than once in the data set. The number and pattern of hospitalisations can be affected by differing admission practices among the jurisdictions and from year to year, and by differing levels and patterns of service delivery.

There is some under-identification of First Nations people in the NHMD, but NHMD data for all states and territories are considered to have adequate First Nations identification from 2010–11 onwards (AIHW 2013). An AIHW study found that, in 2011–12, the number of hospitalisations nationally for First Nations people was about 9% higher than reported (AIHW 2013). In 2013–14, about 408,000 hospitalisations were recorded as being for First Nations people. Based on the level of under-identification suggested by the AIHW study, the number of hospitalisations for First Nations people in 2013–14 was estimated to have been about 445,000 (AIHW 2015). NHMD data presented in this report have not been adjusted for under-identification, so are likely to underestimate the level of First Nations hospitalisations.

Changes in the accuracy of First Nations identification in hospital records will result in changes in the reported number of hospitalisations for First Nations people. Caution should be used when interpreting changes over time, as it is not possible to ascertain whether a change in reported hospitalisations is due to changes in the accuracy of First Nations identification and/or real changes in the rates at which First Nations people were hospitalised. An increase in hospitalisation rates for a particular population might also reflect higher use of admitted patient hospital services – as opposed to other forms of health
care – rather than a worsening of health. Likewise, a decrease in hospitalisation rates might not necessarily indicate better health. It should also be noted that the levels of underidentification vary with state and remoteness and it is not known whether they also vary by reason for hospitalisation.

Except for hospitals in Western Australia, hospitalisations where the person's Indigenous status was not stated were excluded from analyses that compare First Nations and nonIndigenous rates. In 2011–14, there were about 618,000 hospitalisations for which Indigenous status was not stated,

representing around 2% of all hospitalisations in that period. For hospitals in Western Australia, records with an unknown Indigenous status are reported as non-Indigenous, so are included in the 'non-Indigenous' data in these analyses.

There are complexities and inconsistencies in the methodology of waiting time data capture and reporting. The number of people and waiting times for non-urgent outpatient appointments are not publicly reported in some jurisdictions (for example, New South Wales, Western Australia, the Australian Capital Territory and the Northern Territory). Where data are available, the reporting methods (measures and time periods) are inconsistent across the states and territories so comparisons should be interpreted with caution. There needs to be greater transparency and uniformity in reporting wait times for patients seeking care in public hospitals, potentially with standardised national reporting.

Australian Trachoma Surveillance Report

Interpretation of coverage data is limited by the accuracy of community population estimates, the school-based approach to screening and the designation of communities as being at-risk. Community population estimates are based on projections from the Census data. Although this approach is current best practice, the estimates may not accurately reflect populations at the time of screening, given the small size and mobility of some communities. Caution must be taken when interpreting trachoma prevalence, as screening took place in predominantly *Remote* and *Very remote* communities designated as being at-risk of endemic trachoma (AIHW 2017b). Designation of at-risk status does not appear to have been systematically reviewed in any jurisdiction.

Spectacles data

Data analysed in this report represent one aspect of a broader system through which First Nations people may receive subsidised spectacles.

In many instances, spectacles are received outside of jurisdictional spectacle schemes (for example, through philanthropic programs or private prescribers). Data received through the National Subsidised Spectacles Scheme (NSSS) Project indicate that, in some jurisdictions, the supply of subsidised spectacles may be significantly higher than captured in data presented in this report. As well, jurisdictions such as Western Australia, the Australian Capital Territory and the Northern Territory currently do not routinely collect First Nations identification data as part of their subsidised spectacles eligibility provisions, so the number of subsidised spectacles delivered to First Nations people in these jurisdictions cannot be presented in this report.

Workforce data

Eye health workforce data give a broad indication of access to specialists and eye services. However, current data provide an incomplete picture of the extent of First Nations eye health services. For example, data do not capture many ophthalmological services – for example, eye examinations undertaken by salaried ophthalmologists in public hospitals. As well, the extent to which First Nations patients are serviced by eye health professionals is not clear from the optometrist, ophthalmologist or allied ophthalmic personnel data. The data on allied ophthalmic personnel come from Census data so is updated infrequently. Data on outreach eye health services included in this report are fragmented and do not include those services funded by state governments or other providers.

There is also a need for more detailed information on:

- the training pathways for First Nations people entering the eye health workforce
- the extent to which the eye health workforce provides services in or near First Nations communities and partnerships with First Nations communities.

Further information is also needed on the cultural safety of the eye health care provided to First Nations people and the referral pathways of First Nations patients from health service providers to optometrists and ophthalmologists.

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Abbreviations

AATSIHS	Aboriginal and Torres Strait Islander Health Survey
ABS	Australian Bureau of Statistics
ACCHO	Aboriginal Community Controlled Health Organisations
AIHW	Australian Institute of Health and Welfare
APY	Anangu Pitjantjatjara Yankunytjatjara
AR-DRG	Australian Refined Diagnosis Related Group
ASR	age-standardised rate
ATSR	Australian Trachoma Surveillance reports
BEACH	Bettering the Evaluation and Care of Health
CDNA	Communicable Diseases Network Australia
Census	ABS Census of Population and Housing
CI	confidence interval
COVID-19	coronavirus 2019
DALY	disability-adjusted life years
DoHAC	Department of Health and Aged Care
DRG	diagnosis-related groups
EESS	Eye and Ear Surgical Support Services
FTE	full-time equivalent
EESS	Eye and Ear Surgical Support Scheme
GP	general practitioner
IEHU	Indigenous Eye Heath Unit
ICD-10-AM	International Classification of Diseases and Related Health Problems, 10th Revision, Australian Modification
IEHU	Indigenous Eye Health Unit
MBS	Medical Benefits Schedule
MOICDP	Medical Outreach Indigenous Chronic Disease Program
NACCHO	National Aboriginal Community Controlled Health Organisation
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NEHS	National Eye Health Survey
NG	Ngaanyatjarra
NHMD	National Hospital Morbidity Database

NHMRC	National Health and Medical Research Council
NHWDS	National Health Workforce Data Set
NSSS	National Subsidised Spectacles Scheme
NSW	New South Wales
NT	Northern Territory
NTSRU	National Trachoma Surveillance and Reporting Unit
PHN	Primary Health Network
Qld	Queensland
RHOF	Rural Health Outreach Fund
SA	South Australia
Tas	Tasmania
Vic	Victoria
VII	Voluntary Indigenous Identifier
VOS	Visiting Optometrists Scheme
WA	Western Australia
WHO	World Health Organization
YLD	years lived with disability

Symbols

n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data
>	greater than
<	less than

Glossary

Aboriginal or Torres Strait Islander: A person who identifies themselves as being of Aboriginal or Torres Strait Islander origin. See also **First Nations people** and **Indigenous**.

Aboriginal Health Worker: An Aboriginal and or Torres Strait Islander person who is in possession of a minimum qualification (Certificate III) within the fields of **primary health care** work or clinical practice.

Aboriginal and Torres Strait Islander health practitioner: A person who has completed a minimum Certificate IV program of study approved by the Aboriginal and Torres Strait Islander Health Practice Board of Australia and is registered with the Aboriginal and Torres Strait Islander Health Practice Board of Australia. The practitioner may undertake higher levels of clinical assessment and care within their agreed scope of practice.

admitted patient: A person who undergoes a public or private hospital's formal admission process to receive treatment and/or care. The types of care provided include surgical care, medical care, intensive care, newborn care, rehabilitation care, palliative care, and mental health care.

adnexa: Parts of the anatomy that are conjoined, subordinate, or associated.

age-specific rate: The number of events for a specified age group divided by the population in that age group.

age-standardised rates: The crude rates for different groups, such as for **First Nations** people and **non-Indigenous** Australians, applied to a standard population to produce a summary rate.

at-risk community (trachoma): Communities classified by jurisdictions as being at higher risk of trachoma based on: (1) no recent data, but historical evidence of endemicity (2) data of active trachoma prevalence of 5% or more in children aged 5–9 in the last 5 years, or (3) data of less than 5% active trachoma prevalence but with a recorded prevalence of active trachoma of 5% or above in the past 5 years

Australian Refined Diagnosis Related Groups (AR-DRGs): An Australian system of diagnosis-related groups (DRGs). DRGs provide a clinically meaningful way of relating the number and type of patients treated in a hospital (that is, its casemix) to the resources required by the hospital. Each AR-DRG represents a class of patients with similar clinical conditions requiring similar hospital services.

blindness: Presenting visual acuity of <6/60 in the better eye.

burden of disease and injury: The quantified impact of a disease or injury on a population, using the disability-adjusted life years (**DALY**) measure.

cardiovascular disease/condition: Any disease of the circulatory system, namely the heart (cardio) or blood vessels (vascular). Includes angina, heart attack, stroke and peripheral vascular disease. Also known as circulatory disease.

cataract: A cloudy or opaque area in the lens of the eye or the transparent membrane around it that prevents light passing through it properly, resulting in blurred vision.

choroid: Part of the vascular layer of the eye.

community-wide treatment (trachoma): The antibiotic treatment of all people in the community who weigh more than 3 kg living in houses with children aged under 15 (Kirby Institute 2020).

confidence interval: A range that indicates the uncertainty of an estimate from data analysis. A 95% confidence interval is a range of values that contain the true value with 95% confidence.

conjunctiva: A thin, protective mucous membrane that lines the insides of the eyelids and covers the white part of the eye.

cornea: a raised layer of clear, transparent tissue that covers the front part of the eye. As light passes through it, it helps the eye to focus.

COVID-19 (coronavirus disease 2019): A highly infectious disease caused by the SARS-CoV-2 virus.

crude rate: A rate derived from the number of events recorded in a population during a specified time period, without adjustments for other factors such as age.

disability-adjusted life year (DALY): A year of healthy life lost, either through premature death or equivalently through living with ill health due to illness or injury. It is the basic unit used in burden of disease and injury estimates.

diabetes (diabetes mellitus): A chronic condition where the body cannot properly use its main energy source – the sugar glucose. This is due to a relative or absolute deficiency in insulin, a hormone produced by the pancreas, which helps glucose enter the body's cells from the bloodstream and be processed by them. Diabetes is marked by an abnormal buildup of glucose in the blood; it can have serious short- and long-term effects. The 3 main types of diabetes are type 1 diabetes, type 2 diabetes and gestational diabetes.

diabetic retinopathy: A condition that can occur among people with **diabetes** where blood vessels in the retina grow abnormally and can cause vision loss and blindness.

elective surgery: Surgery that is planned in advance, following medical assessment. Though it may be optional in some cases, this is not always the case. Elective surgery contrasts with emergency surgery.

First Nations people: People who have identified themselves, or have been identified by a representative (for example, their parent or guardian), as being of **Aboriginal and/or Torres Strait Islander** origin. See also **Indigenous**.

full-time equivalent (FTE) workforce or workload: A standard measure of the size of a workforce that takes into account both the number of workers and the hours that each works. For an ophthalmologist, an FTE of 1 is assumed to be 40 hours in a week. For example, if a workforce comprises 2 people working full time 40 hours a week and 2 working half time, this is the same as 3 working full time – that is, an FTE of 3.

glaucoma: A set of eye diseases that occur when the optic nerve at the back of the eye is damaged. This damage may occur when fluid builds up in the eye, due to ineffective drainage, putting excessive pressure on the optic nerve.

hospitalisation: An episode of hospital care that starts with the formal admission process and ends with the formal **separation** process (synonymous with admission and separation). An episode of care can be completed by the patient's being discharged, being transferred to another hospital or care facility, or dying – or by a portion of a hospital stay starting or ending in a change of type of care (for example, from acute care to rehabilitation).

hypertension/ high blood pressure: The definitions vary but a well-accepted one is from the World Health Organization: a systolic blood pressure of 140 mmHg or more or a diastolic blood pressure of 90 mmHg or more, or [the person is] receiving medication for high blood pressure.

general practitioner (GP): A medical practitioner who provides primary, comprehensive and continuing care to patients and their families in the community.

hospitalisation (separation): An episode of care for an admitted patient that can be a total hospital stay (from admission to discharge, transfer or death), or a portion of a hospital stay beginning or ending in a change of care type (for example, from acute care to palliative care).

Indigenous: A person who identifies themselves as being of **Aboriginal and/or Torres Strait Islander** origin. See also **First Nations** people.

Indigenous-specific primary health care organisation: An organisation that receives funding from the Australian Government through the Indigenous Australians' Health Programme to provide comprehensive and culturally safe care to First Nations clients.

Indigenous status: A term used to describe whether or not a person identifies as being of **Aboriginal and/or Torres Strait Islander** origin.

intravitreal injection: An injection that deposits medication into the space (called the vitreous cavity) at the back of the eye.

lacrimal system: An interconnected system of ducts, glands and sacs around the eye that carry tears from the surface of the eye to the nasal cavity.

macular degeneration: An eye disorder more common among people aged over 50. Dry macular degeneration (the most common form) sees central vision reducing or becoming blurry as inner layers of the macula — the part of the retina that enables clear central vision – thin and break down. Wet macular degeneration – much less common and more serious – sees abnormal blood vessels growing under the macula which may leak, scarring the macula. The peripheral vision of people with macular degeneration generally remains normal.

Medicare: A national, government-funded scheme that subsidises the cost of personal medical services for all Australians and aims to help them afford medical care. The Medicare Benefits Schedule (MBS) is the listing of Medicare services subsidised by the Australian Government. The schedule is part of the wider Medicare Benefits Scheme (Medicare).

non-Indigenous: A term used to describe people who have indicated that they are not of **Aboriginal or Torres Strait Islander** origin. See also **First Nations people**.

ophthalmologist: A medical specialist who provides diagnostic, treatment and preventive medical services related to diseases, injuries and deficiencies of the human eye and associated structures.

optometrist: An eye care professional trained to perform eye examinations and vision tests to determine the presence of visual, ocular and other abnormalities; ocular diseases; and systemic diseases with ocular manifestations. They also prescribe lenses, other optical aids, therapy and medication to correct and manage vision problems and eye diseases.

other Australians: Includes both non-Indigenous people and those whose Indigenous status is not known. Compare with non-Indigenous Australians.

pandemic: The outbreak of a new infectious disease that spreads rapidly worldwide or throughout an entire country.

periorbital: A term that describes the tissue around the eye.

primary health care: Services delivered in general practices, community health centres, Aboriginal health services and allied health practices (for example, physiotherapy, dietetic and chiropractic practices) under numerous funding arrangements.

Primary Health Network: An administrative not-for-profit organisation set up under the Australian Government Primary Health Networks Program to commission **primary health care** services:

- to meet the identified and prioritised needs of people in their administrative health region
- to provide practice support to general practitioners (GPs)
- to integrate health services, including coordinating with local hospitals, to improve operational efficiency and provide a better experience for patients.

principal diagnosis: The diagnosis established, after study, to be chiefly responsible for occasioning an episode of admitted patient care, an episode of residential care or an attendance at the health care establishment. METeOR identifier: 514273.

procedure: A clinical intervention that is surgical in nature, carries a procedural risk, carries an anaesthetic risk, requires specialised training and/or requires special facilities or equipment available only in an acute care setting. METeOR identifier: 514040.

public patient: A person admitted to hospital who has agreed to be treated by doctors of the hospital's choice and to accept shared ward accommodation. Such patients are admitted and treated at no charge and are mostly funded through public sector health or hospital service budgets.

rate: One number (the numerator) divided by another number (the denominator). The numerator is commonly the number of events in a specified time. The denominator is the population 'at risk' of the event. Rates (**crude rates**, **age-specific rates** and **agestandardised rates**) are generally multiplied by a number such as 100,000 to create whole numbers.

rate difference: The literal, or absolute, gap between 2 population rates; for this report, it was calculated as the rate for First Nations people minus the rate for non-Indigenous Australians.

rate ratio: The relative difference between populations taking scale into account; for this report, it was calculated as the rate for First Nations people divided by the rate for non Indigenous Australians, and is interpreted as follows:

1. a rate ratio of 1 indicates there is no difference between the rates
2. a ratio less than 1 indicates the rate is lower in the First Nations population
3. a ratio greater than 1 indicates the rate is higher in the First Nations population.

remoteness areas: Regions defined by the Australian Statistical Geographical Standard and based on the Accessibility/Remoteness Index of Australia, which uses the road distance to goods and services (such as to general practitioners, hospitals and specialist care) to measure relative accessibility of regions around Australia.

remoteness classification: A classification that divides each state and territory into several regions based on their relative accessibility to goods and services (such as to **general practitioners**, hospitals and specialist care) as measured by road distance. These regions are based on the Accessibility/ Remoteness Index of Australia and defined as Remoteness Areas by either the Australian Standard Geographical Classification (before 2011) or the Australian Statistical Geographical Standard (from 2011 onwards) in each Census year. The 5 **Remoteness Areas** are *Major cities*, *Inner regional*, *Outer regional*, *Remote* and *Very remote*.

retina: The layer of tissue in the back of the eye that is sensitive to light.

separation: The formal process where a hospital records the completion of an episode of treatment and/or care for an admitted patient. See also **hospitalisation**.

telehealth: The remote delivery of health care services, such as health assessments or consultations, over the telecommunications infrastructure.

trachoma: A highly infectious disease of the eye caused by the bacterium *Chlamydia trachomatis*. The infection can eventually cause loss of vision and blindness.

trachoma treatment coverage: The proportion of First Nations people in an at-risk community who weigh more than 3 kg and live in a house with 1 or more children aged under 15 who were treated for trachoma during an episode of community-wide treatment (trachoma) (Kirby Institute 2020)

trichiasis: A condition where the eyelashes grow inwards, towards the eye. This may follow an eye infection or injury. As the eyelashes brush against the eye, they irritate the **cornea**, the **conjunctiva** and the inside of the eyelids.

wellbeing: A state of health, happiness and contentment. It can also be described as judging life positively and feeling good. For public health purposes, physical wellbeing (for example, feeling very healthy and full of energy) is also viewed as being critical to overall wellbeing. Because wellbeing is subjective, it is typically measured with self-reports, but objective indicators (such as household income, unemployment levels and neighbourhood crime) can also be used.

vision impairment: Presenting distance visual acuity of <6/12 in the better eye.

vision loss: vision impairment plus blindness.

Voluntary Indigenous Identifier: Data collected on people with a Medicare record who choose to have their Indigenous status recorded.

workforce: People who are employed or unemployed (not employed but actively looking for work). Also known as the labour force.

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Eye diseases and vision problems are the most common long-term health conditions reported by Aboriginal and Torres Strait Islander (First Nations) people. This is the seventh annual report to update the Eye health measures for Aboriginal and Torres Strait Islander people. The measures cover the prevalence of eye health conditions, diagnosis and treatment services, the eye health workforce and outreach services. The report provides an evidence base for monitoring changes in eye health amongst First Nations people over time, their access and use of eye health services, and for identifying gaps in service delivery. This report includes the latest available data against each measure where possible.

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