



# Eye health measures for Aboriginal and Torres Strait Islander people 2024:

## Northern Territory

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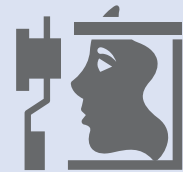
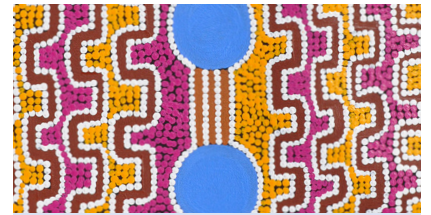
Eye health has a profound impact on a person's quality of life and ability to perform everyday activities. Lions Outback Vision notes that each year "thousands of Australians suffer from the debilitating effects of vision loss and blindness", yet 94% of vision loss is preventable or treatable ([Lions Outback Vision – Saving sight is our vision](#)).

Eye diseases and vision problems are the most common long-term health conditions reported by Aboriginal and Torres Strait Islander (First Nations) people affecting an estimated 45% of the population (ABS 2019). The main eye health conditions affecting First Nations people are refractive error, cataract and diabetic retinopathy. 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 ([Box 1](#)).

There is a substantial gap in access to eye health services between rural and remote areas and urban areas. Although vision impairment is similar across remoteness areas for non-Indigenous Australians, the age adjusted prevalence of vision impairment for First Nations Australians is higher in *Outer regional* areas and *Very remote* areas (Health Connect Consulting 2020). Because of this variability in access to services, measures in this report are examined by remoteness within the Northern Territory using The Roadmap to Close the Gap for Vision regions ([Box 2](#)) where possible. Roadmap regions were assigned to one of 3 'predominant remoteness' categories (*Major cities, Inner and outer regional, or Remote and very remote*) based on the estimated distribution of First Nations people across Remoteness Areas (Edition 3) in 2021.

Across a continuum of care, eye health services cover prevention, screening, diagnosis and treatment services. This report presents eye health and eye health service measures across the continuum of care for the First Nations population in Northern Territory and compares this with the total national First Nations population. Comparisons with the non-Indigenous population are also presented in the report. All rates referred to in the text or presented in figures and tables in this report are crude rates, unless specified otherwise.

This report is part of a series of reports, one for each state and territory. This report highlights programs particular to the Northern Territory that aim to improve access to services and outcomes.



**1 in 11**

First Nations people in the Northern Territory had an eye examination by an optometrist or ophthalmologist in 2022–23.



**1.6 per 1,000** First Nations people in the Northern Territory were screened for diabetic retinopathy with a retinal camera in 2022–23.



In 2021–23, **30%** of First Nations people's need for cataract surgery in the Northern Territory was met.

## Main Findings

- In 2018–19, in the Northern Territory, 20,150 (39%) First Nations people aged 15 years and over reported eye and sight problems. This was lower than the national First Nations proportion, 52%.
- During the 2022–23 financial year, 7,091 (8.9%) First Nations people in the Northern Territory had an eye examination by an optometrist or ophthalmologist. The comparable rate for the total First Nations population was higher, 14% (126,816).
- In 2022–23, in the Northern Territory, there were 79 First Nations people (1.0 per 1,000) who were screened for diabetic retinopathy with a retinal camera. The comparable rate for the total First Nations population was 0.9 per 1,000 population (802).
- In 2021–23, the hospitalisation rate for First Nations people living in the Northern Territory for diseases of the eye was 4.6 per 1,000 population. The comparable rate for the total First Nations population was 7.4 per 1,000 population.
- In 2021–23 the number of hospitalisations for cataract surgery for First Nations people in the Northern Territory (457 hospitalisations) was below the estimated number of people needing cataract surgery (1,501). Therefore, only 30% of the need for cataract surgery was met. The comparable number of hospitalisations for the total First Nations population was 8,008 people which was also below the estimated number of people needing cataract surgery (17,031), only 47% of need met nationally.

# Northern Territory population

The Northern Territory population has the highest proportion of First Nations people of all states and territories and contains 5 Roadmap regions (Figure 1).

On 30 June 2021, the estimated resident population of First Nations people in the Northern Territory was around 76,000 or 31% of the territory's population (ABS 2023). This represents 8% of the total First Nations population in 2021 (983,700 population).

This was similar to the 2011 census (ABS 2013) and the 2016 census (ABS 2018), which showed the estimated resident First Nations population was 30% of the Northern Territory population.

In 2021, among the total population living in each remoteness area of the Northern Territory, the proportion of people who were First Nations increased with remoteness:

- 13.1% (19,464) of people living in Northern Territory *Outer regional* areas were First Nations
- 38% (19,819) in *Remote* areas
- 77.5% (37,204) in *Very remote* areas.

In 2023, the Greater Darwin Roadmap region had the highest proportion of the total Northern Territory population who were First Nations people, followed by Central Australia (Figure 2).

Figure 1: Northern Territory-Roadmap regions

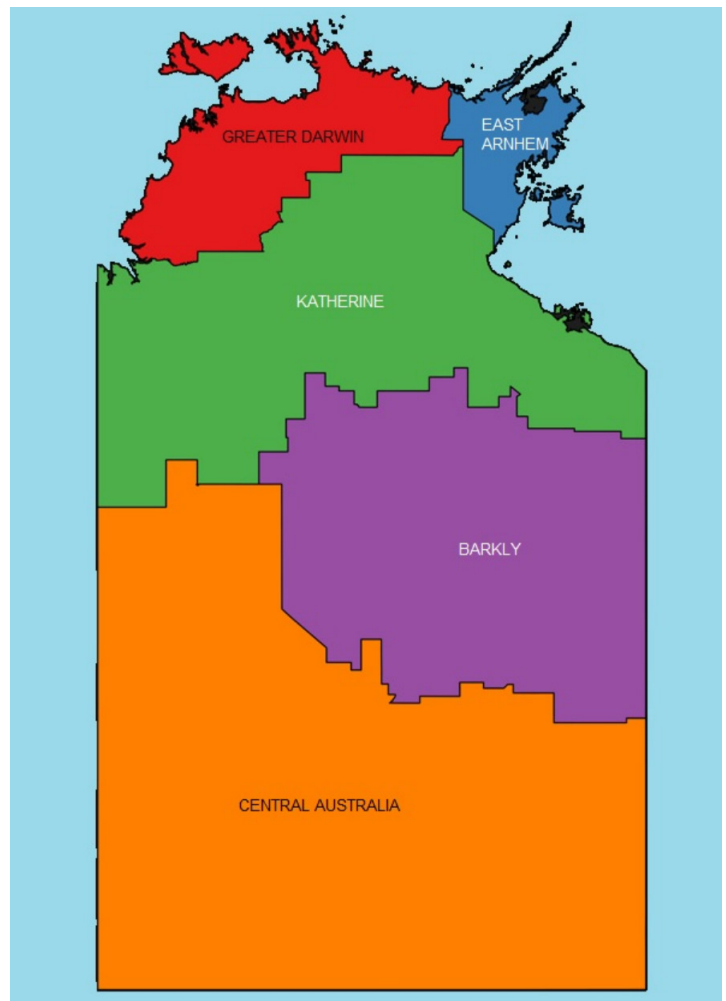
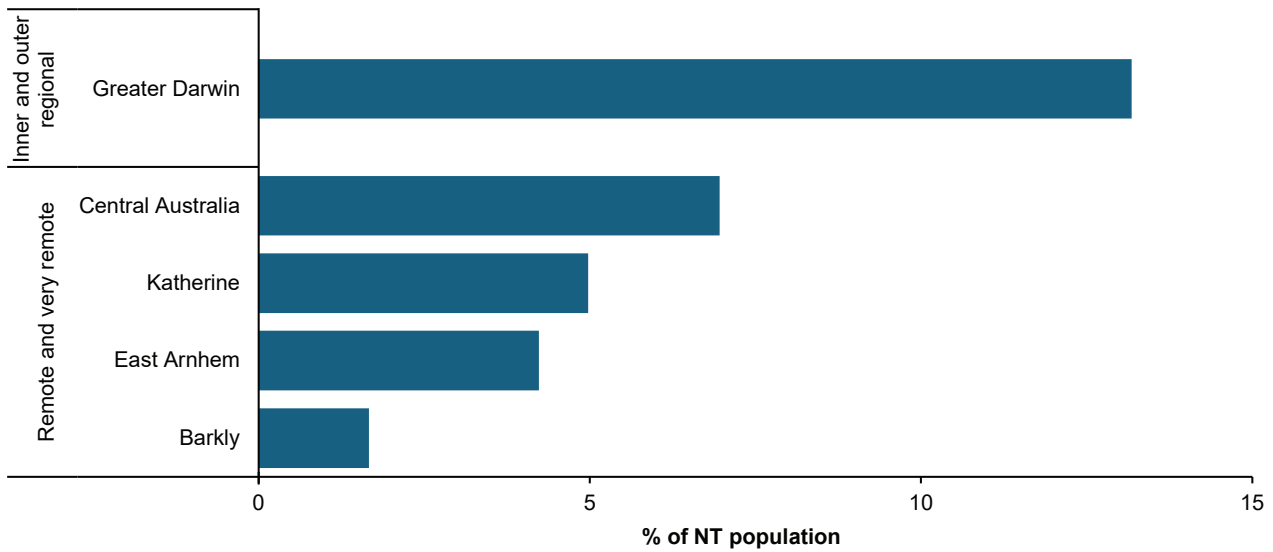


Figure 2 : Northern Territory Roadmap regions, First Nations people, 2023



Remoteness <sup>1</sup>	Roadmap region	% of NT population <sup>2</sup>
Inner and outer regional	Greater Darwin	13.2
Remote and very remote	Central Australia	7.0
	Katherine	5.0
	East Arnhem	4.2
	Barkly	1.7
	<b>Sub-total</b>	<b>17.8</b>
<b>NT</b>		<b>31.0</b>

Notes:

1. Roadmap regions were assigned to one of 3 'predominant remoteness' categories (*Major cities, Inner and outer regional, or Remote and very remote*) based on the estimated distribution of First Nations people across Remoteness Areas (Edition 3) in 2021. The geographic area of a Roadmap region may differ from the boundary of the remoteness area to which it is assigned.
2. Roadmap region populations were modelled by the AIHW using 2016 ABS population estimates and projections (series B).

## Eye health measures

### Eye health prevalence

In 2018–19, in the Northern Territory, 20,150 (39%) First Nations people aged 15 and over reported eye and sight problems. This was lower than the national First Nations proportion, 52%.

In 2018–19, in the Northern Territory, after adjusting for age differences between the First Nations and non-Indigenous populations, the proportion of self-reported eye or sight problems for First Nations people was 39%. This was lower than the age adjusted proportion for non-Indigenous Australians in the Northern Territory, 51% (rate ratio of 0.8). This was also lower than the national First Nations proportion, 49% (AIHW 2023).

## Eye health diagnosis and screening

Primary health care providers, such as general practitioners and pharmacists, play a key role in detecting and diagnosing problems, treating minor eye conditions and referring patients to more specialised care. They also conduct annual health assessments. Optometrists provide more dedicated eye specific primary care, vision and refraction assessment and eye health screening services including screening for diabetic retinopathy. Ophthalmologists provide medical and surgical eye specialist care and treatment for eye conditions including cataract surgery and treatments for diabetic retinopathy.

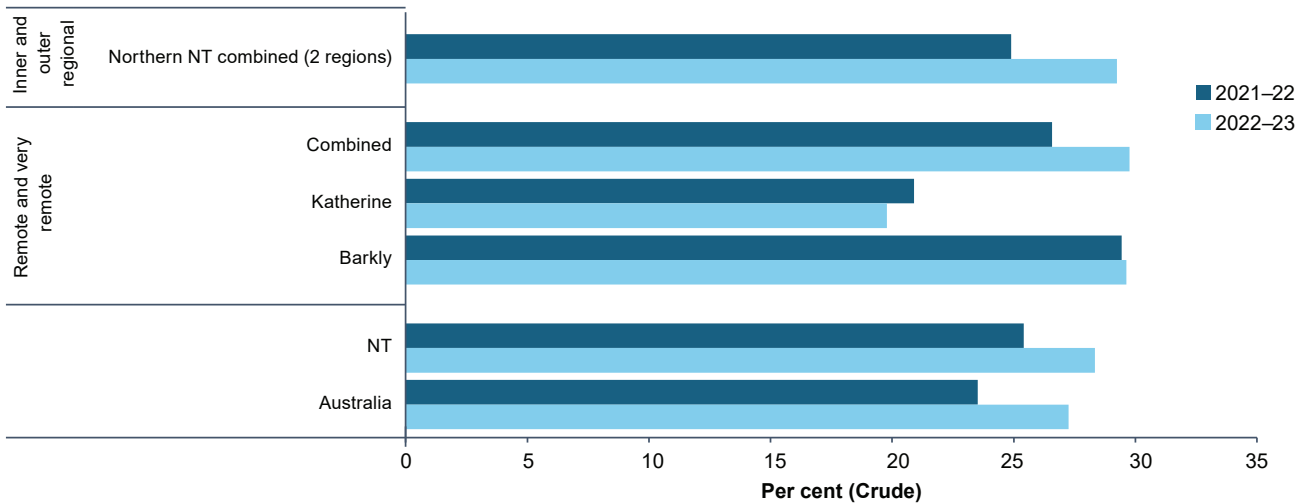
### Annual health assessments

First Nations people can receive an annual health assessment, designed specifically for First Nations people, and funded through Medicare. A basic eye check is a mandatory part of the assessment and may include examining the eye, checking visual acuity, and referring the patient to an optometrist or ophthalmologist for comprehensive eye care if necessary.

In 2022–23, 28% (more than 22,000) First Nations people in the Northern Territory had an annual health check, slightly higher than the national proportion (27%). In 2021–22, the proportion of health checks in the Northern Territory was lower, around one in four (25%, around 20,000 people), again higher than the national rate (24%) (Figure 3).

The proportion of general MBS annual health assessments for First Nations people in the Northern Territory was highest in the Barkly Roadmap region (1,258 or 30% in 2022–23 and 1,238 or 29% in 2021–22). Rates of annual health assessments in all Northern Territory Roadmap regions (except Katherine) increased between 2021–22 and 2022–23 (Figure 3).

**Figure 3: Annual health assessments, by Roadmap Region, the Northern Territory and Australia, First Nations people**



Remoteness	Roadmap region	2021–22		2022–23	
		Number of people	Per cent	Number of people	Per cent
Inner and outer regional	Northern NT combined (2 regions)	10,985	24.9	13,025	29.2
Remote and very remote	Combined	5,738	26.6	6,496	29.8
	Katherine	2,638	20.9	2,520	19.8
	Barkly	1,238	29.4	1,258	29.6
NT		19,983	25.4	22,477	28.3
Australia		208,759	23.5	246,707	27.3

Notes:

1. *Northern NT combined* includes Greater Darwin and East Arnhem (See Appendix B)
2. *Combined* includes Central Australia (NT), Ngaanyatjarra Lands (WA) and APY Lands (SA) (See Appendix B)

Source: AIHW analysis of MBS data.

## Eye examinations by an eye care professional (optometrists and ophthalmologists)

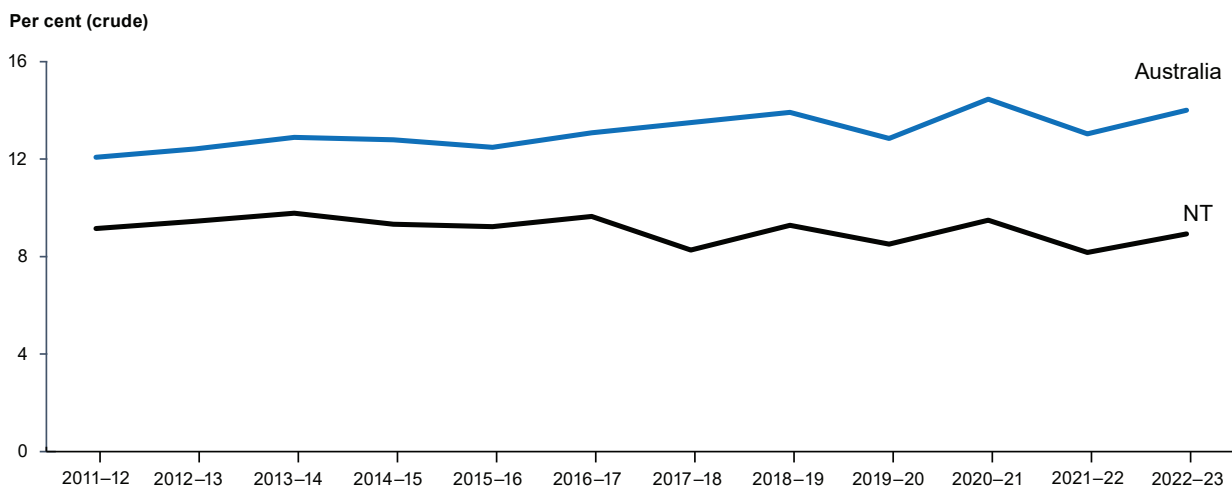
Patients may have one or a series of appointments with an optometrist or ophthalmologist. This measure includes only the first appointment.

The proportion of initial eye examinations for First Nations people in the Northern Territory have fluctuated over time and was 9.1% in 2011–12 and 8.9% in 2022–23. The proportion of eye examinations for First Nations people in the Northern Territory has been consistently lower than for First Nations people nationally, over this period (Figure 4).

**Optometrists** – primary eye care professionals who perform eye examinations, vision tests for refractive error to prescribe glasses and critical screening for other eye conditions, some are therapeutically endorsed for limited prescribing rights

**Ophthalmologists** – medical eye specialists who provide diagnostic, treatment and preventive medical services related to diseases, injuries and deficiencies in the human eye, such as cataract surgery.

**Figure 4: Eye examinations by an eye care professional, Northern Territory and Australia, First Nations people**



Year	Northern Territory		Australia	
	Number of patients	Per cent	Number of patients	Per cent
2011-12	6,303	9.1	87,929	12.1
2012-13	6,637	9.5	92,393	12.4
2013-14	6,988	9.8	97,873	12.9
2014-15	6,787	9.3	99,155	12.8
2015-16	6,823	9.2	98,683	12.5
2016-17	7,231	9.7	105,430	13.1
2017-18	6,261	8.3	110,951	13.5
2018-19	7,095	9.3	116,560	13.9
2019-20	6,573	8.5	109,709	12.8
2020-21	7,395	9.5	125,862	14.5
2021-22	6,427	8.2	115,735	13.0
2022-23	7,091	8.9	126,816	14.0

Source: AIHW analysis of MBS data.

The age adjusted proportion of the national population who had an initial eye examination by an optometrist or ophthalmologist has been consistently lower for First Nations people than for non-Indigenous Australians from 2011–12 to 2022–23. The First Nations age adjusted national proportion ranged from 18% to 20%, over this period, while the non-Indigenous proportion ranged from 22% to 27%, over the same period. In 2021–22, after adjusting for differences in age structure, First Nations people were less likely than non-Indigenous Australians to have an eye examination (rate ratio of 0.7, rate difference of -7.5).

## Screening for diabetic retinopathy

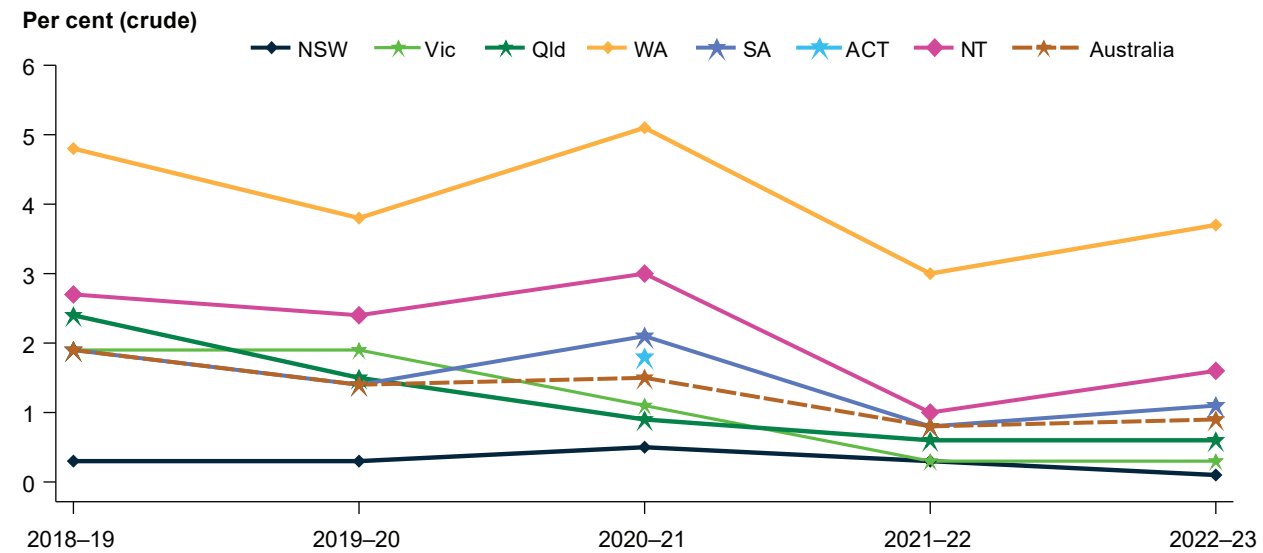
Diabetic retinopathy is an eye condition that can cause vision loss and blindness in people who have diabetes. Current guidelines recommend that First Nations people with diabetes have an annual eye examination to screen for diabetic retinopathy (National Health and Medical Research Council).

In the 2016 National Eye Health Survey, just over half (53%) of First Nations participants aged 40 and over with self-reported diabetes had a diabetic eye examination in the preceding 12 months. This varied by remoteness, with participants in *Very remote* areas having the lowest rate (35%)

More recent Medicare data of rates of eye examinations among those tested for diabetes indicated whether people who may have diabetes are accessing eye examinations and retinopathy screening. Not all people who have diabetes test have diabetes so this measure may be an underestimate.

In 2022–23, the screening rate for diabetic retinopathy with a retinal camera for First Nations people living in the Northern Territory was 1.6 per 1,000 population (126 people). From 2018–19 to 2022–23, screening rates in the Northern Territory were consistently higher than in all other states and territories and nationally, apart from Western Australia (Figure 5).

**Figure 5: Screened for diabetic retinopathy with a retinal camera, by state/territory, First Nations people**



	2018-19		2019-20		2020-21		2021-22		2022-23	
	Number of patients	Rate per 1,000	Number of patients	Rate per 1,000	Number of patients	Rate per 1,000	Number of patients	Rate per 1,000	Number of patients	Rate per 1,000
NSW	93	0.3	88	0.3	140	0.5	99	0.3	35	0.1
Vic	115	1.9	121	1.9	73	1.1	20	0.3	23	0.3
Qld	566	2.4	354	1.5	231	0.9	152	0.6	150	0.6
WA	512	4.8	403	3.8	557	5.1	329	3.0	418	3.7
SA	85	1.9	65	1.4	98	2.1	40	0.8	50	1.1
Tas	—	—	n.p.	n.p.	—	—	n.p.	n.p.	—	—
ACT	—	—	n.p.	n.p.	15	1.8	n.p.	n.p.	—	—
NT	211	2.7	186	2.4	234	3.0	79	1.0	126	1.6
Australia	1,582	1.9	1,225	1.4	1,348	1.5	721	0.8	802	0.9

Note: n.p. = not published due to small numbers. — = Number of patients and rate was 0.

Source: AIHW analysis of MBS data.

## Eye health treatment

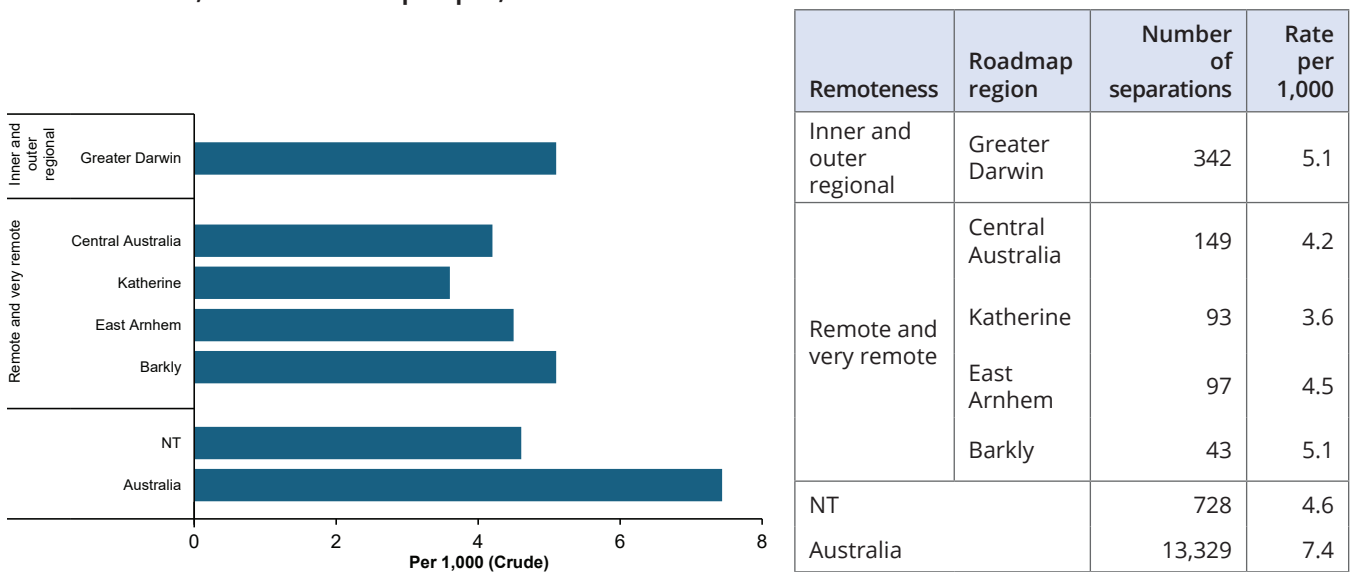
Different eye problems require different treatments. For example, surgery is required to remove cataracts while refractive error is treated by using visual aids, such as glasses and contact lenses.

### Hospitalisations for diseases of the eye

In the 2-year period, 2021–23, there were 728 hospitalisations (4.6 per 1,000) for First Nations people for diseases of the eye in the Northern Territory.

In 2021–23, for First Nations people in the Northern Territory, hospitalisation rates for eye diseases were highest in the Roadmap region of Greater Darwin (5.1 per 1,000 or 342 hospitalisations) followed by Barkly (5.1 per 1,000 or 43 hospitalisations). In all Roadmap regions of Northern Territory, the hospitalisation rates for diseases of the eye for First Nations people were lower than the Australian rate (Figure 6).

**Figure 6 : Hospitalisation rates for diseases of the eye, by Roadmap region, Northern Territory and Australia, First Nations people, 2021–23**



Source: AIHW analysis of NHMD.

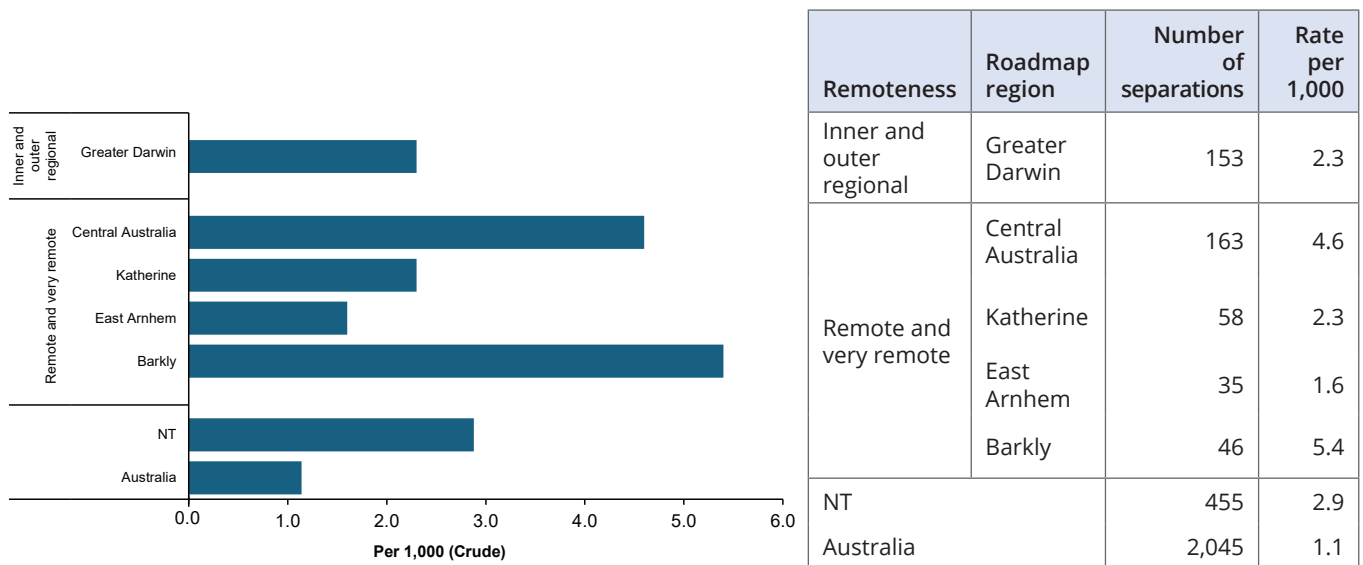
In 2021–23, in the Northern Territory, after adjusting for age differences between the First Nations and non-Indigenous populations, the hospitalisation rate for First Nations people for diseases of the eye (7.2 per 1,000 population) was lower than the non-Indigenous hospitalisation rate (10.2 per 1,000 population); rate ratio of 0.7, rate difference of -3.

### Hospitalisations for injuries to the eye

In the 2-year period, 2021–23 for First Nations people nationally, the most common principal diagnosis for hospitalisations for injury to the eye were an open wound of eyelid and periocular area, periorbital fracture and superficial injuries of eyelid and periocular area. In 2021–23, in the Northern Territory, there were 455 hospitalisations (2.9 per 1,000) for First Nations people for injuries to the eye. This rate was higher than the national rate for First Nations people (1.1 per 1,000 population).

In 2021–23, across the Northern Territory Roadmap regions, hospitalisation rates for eye injuries ranged from 1.6 to 5.4 per 1,000 population. In all five of the Roadmap regions in the Northern Territory, hospitalisation rates for injuries to the eye for First Nations people were higher than the Australian rate (Figure 7).

**Figure 7: Hospitalisation rates for injuries to the eye, by Roadmap region, Northern Territory and Australia, First Nations people, 2021–23**



Source: AIHW analysis of NHMD.

In 2021–23 in the Northern Territory, after adjusting for age differences between the First Nations and non-Indigenous populations, the hospitalisation rate for First Nations people for injuries to the eye (3.0 per 1,000 population) was notably higher than the non-Indigenous hospitalisation rate (0.6 per 1,000 population); rate ratio of 4.9, rate difference of 2.4.

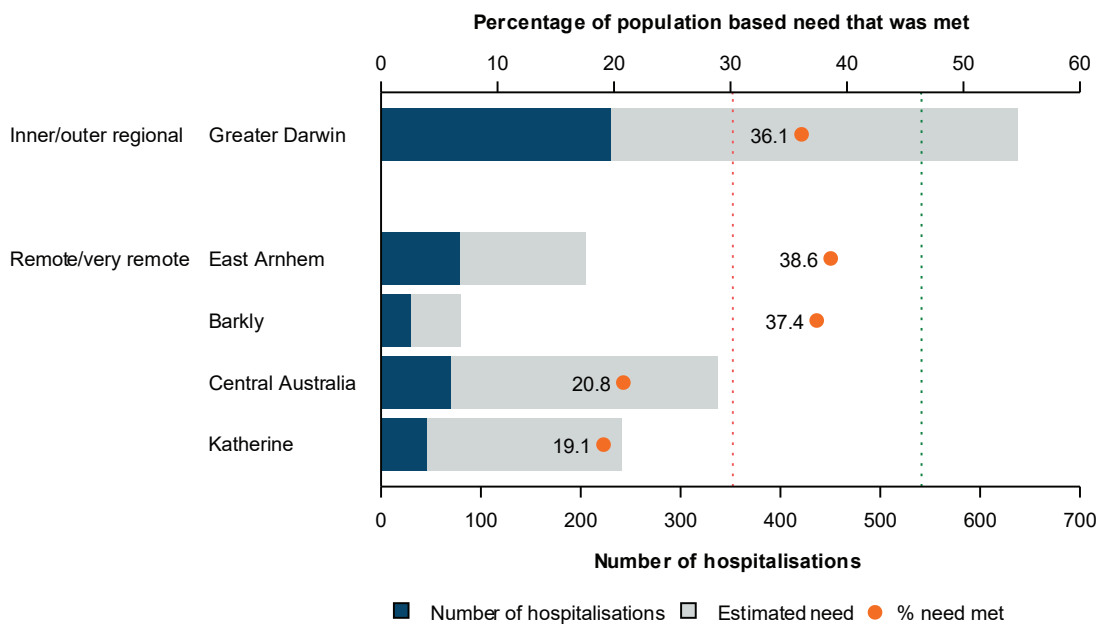
## Cataract surgery

In the 2-year period, 2021–23, there were 457 hospitalisations for First Nations people for cataract surgery in the Northern Territory (2,893 per 1,000,000). In 2021–23, the number of hospitalisations for cataract surgery for First Nations people in the Northern Territory was below the estimated number of people needing cataract surgery (1,501) (IEHU 2017). The data do not include outpatient surgery and may underestimate the number of procedures and, therefore, the percentage of need for cataract surgery that was met

The number of people needing cataract surgery was calculated using the University of Melbourne IEHU ‘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.

In 2021–23, in the Northern Territory, rates of hospitalisations for cataract surgery ranged from 1,804 to 3,655 per 1,000,000 population. In 2021–23, in all the five roadmap regions in the Northern Territory, a lower proportion of First Nations people’s need for cataract surgery that was met than was met nationally (Figure 8).

**Figure 8: Hospitalisation rates, need for cataract surgery and proportion of need that was met, by Roadmap Region, Northern Territory and Australia, First Nations people, 2021–23**



Remoteness	Roadmap region	Hospitalisations	Rate per 1,000,000	Hospitalisations need	Percentage of need that was met
Inner and outer regional	Greater Darwin	230	3,425	638	36.1
Remote and very remote	Central Australia	70	1,972	337	20.8
	Katherine	46	1,812	241	19.1
	East Arnhem	79	3,671	205	38.6
	Barkly	30	3,550	80	37.4
NT		457	2,893	1,501	30.4
Australia		8,008	4,467	17,031	47.0

Source: AIHW of NHMD, and AIHW analysis of calculator for the delivery and coordination of eye care services (IEHU).

In 2021–23 in the Northern Territory, after adjusting for age differences between the First Nations and non-Indigenous populations, the hospitalisation rate for First Nations people for cataract surgery (5,000 per 1,000,000 population) was lower than the non-Indigenous hospitalisation rate (7,787 per 1,000,000 population); rate ratio of 0.6, rate difference of -2,787. The cataract surgery rate was calculated per 1,000,000 to align with international standards (WHO 2013).

## Trachoma and trichiasis

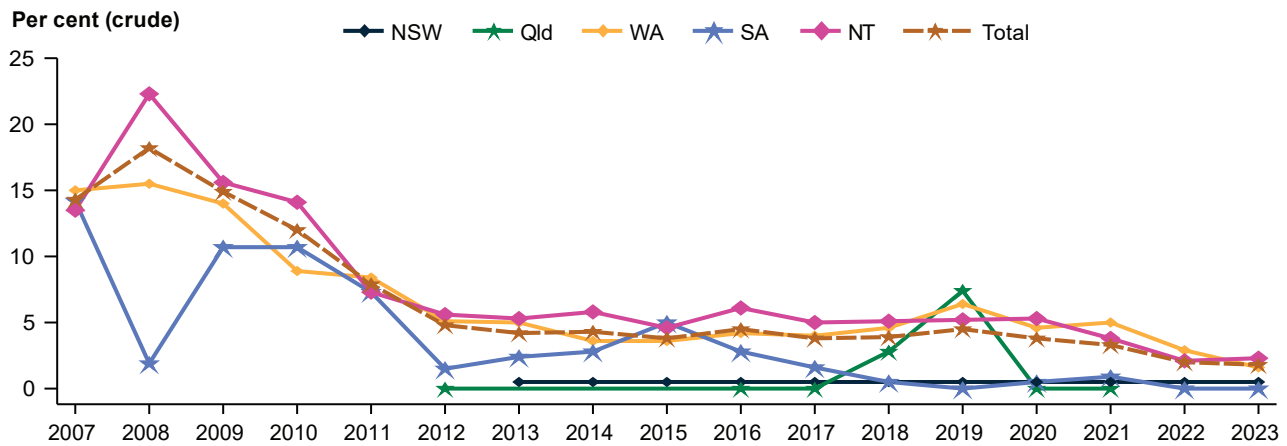
Trachoma is the world's leading infectious cause of preventable blindness, caused by the bacteria *Chlamydia trachomatis*. Australia is the only high-income country in which trachoma has remained endemic. Trachoma is primarily found in remote Aboriginal and Torres Strait Islander communities in Western Australia, South Australia and the Northern Territory. Antibiotics, facial cleanliness and environmental improvements are used to control the spread of trachoma. Surgery is required to correct trachomatous trichiasis, an advanced sequela of multiple trachoma infections that lead to vision loss and blindness (WHO Alliance for the global elimination of Trachoma, 2023).

In 2023, 31 communities in the Northern Territory were screened for trachoma (Kirby Institute, in press). Clean face prevalence was assessed in all communities that were screened and the overall prevalence of clean faces among children aged 5–9 years in the communities assessed was 74% (Kirby Institute, in press). The Northern Territory Trachoma Program works in partnership with the University of Melbourne Indigenous Eye Health (IEH) Unit and Northern Territory government departments to deliver health hygiene promotion and activities, such as providing soap, hand sanitiser and screening visits to schools. The program also sets up health promotion stalls in communities and builds awareness about the links between diseases, prevention, and housing and environmental factors. Several Northern Territory schools have incorporated the Clean Faces Strong Eyes routine. The Clean Faces Strong Eyes activity positively reinforces the importance of clean faces and schools are implementing this activity prior to the start of school (Kirby Institute 2023).

## Trachoma and trichiasis, prevalence and treatment

In 2023, jurisdictions designated 67 remote Indigenous communities in the Northern Territory, South Australia and Western Australia as at risk of endemic trachoma. New South Wales and Queensland were declared non endemic for trachoma in 2017 and 2022 respectively. Nationally, the overall prevalence of trachoma in children aged 5–9 years fell from 14% in 2007 to 1.8% in 2023. Overall prevalence was 2.3% in the Northern Territory, 0% in South Australia, and 1.6% in Western Australia and 0.5 in New South Wales in 2023 (Table 1 and Figure 9). Eighteen communities nationally received antibiotic treatment for chlamydial infection in 2023. Treatment coverage for cases detected in screening activities was 99%, with 81% of household and community contacts also treated. (Figure 9).

**Figure 9: Overall trachoma prevalence among Aboriginal children aged 5–9 years in all current and former at-risk communities**



Note: Overall prevalence was calculated using the most recent data for all at-risk communities screened in 2022, as well as the most recent data carried forward from at-risk communities that did not screen, and communities removed from the at-risk register. More information can be found in Table 1.2 [Australian Trachoma Surveillance Reports | Kirby Institute \(unsw.edu.au\)](#)

Sources: Kirby Institute 2011, 2012, 2013, 2014, 2015, 2016, 2018, 2019a, 2019b, 2020, 2021, 2022, 2023, in press.

**Table 1: Trachoma screening coverage, trachoma prevalence and clean face prevalence in children aged 5–9 years by jurisdiction, Australia, 2023**

	Northern Territory	South Australia	Western Australia	Total
Number of communities screened	31	11	25	67
Estimated number* of Aboriginal children in communities	753	240	443	1436
Children examined for clean face	711	213	411	1335
Children with clean face	523	181	288	992
Clean face prevalence (%)	74	85	70	74
Children screened for trachoma	684	213	403	1300
Trachoma screening coverage (%)	91	89	91	91
Children with active trachoma	57	0	17	74
Observed prevalence of active trachoma (%)†	8.3	0	4.2	5.7
Overall prevalence of active trachoma (%)‡	2.3	0	1.6	1.8

† Includes only communities that were screened for trachoma in 2023

‡ Calculated carrying forward most recent data in all communities considered at-risk of trachoma at some time since 2007

Source: Kirby Institute in press.

Nationally, in 2023, 13,219 adults aged 15 years and over in 150 at risk and previously at risk communities were screened for trichiasis. There were 9 cases of trichiasis detected in persons aged 15 years and older, with a prevalence in screened persons of 0.07%. Surgery for trachoma related trichiasis was reported by jurisdictional teams to have been undertaken for 7 adults in 2023.

### Subsidised spectacles

All states and territories have schemes that provide eye care and visual aids, including glasses, to eligible people at low or no cost. In 2022–23, across the 4 states able to provide data (New South Wales, Victoria, Queensland, and South Australia), around 21,900 spectacles were provided to First Nations people through the schemes. The Northern Territory currently does not routinely collect information on Indigenous status so data on the spectacles dispensed to First Nations people in the Northern Territory cannot be reported yet.

## Eye health workforce

The size and location of the eye health workforce gives a broad indication of access to specialists and eye services.

### Eye Health Workforce:

**Optometrists** - primary eye care professionals - described above

**Ophthalmologists** - medical eye specialists - described above

**Allied ophthalmic personnel** include:

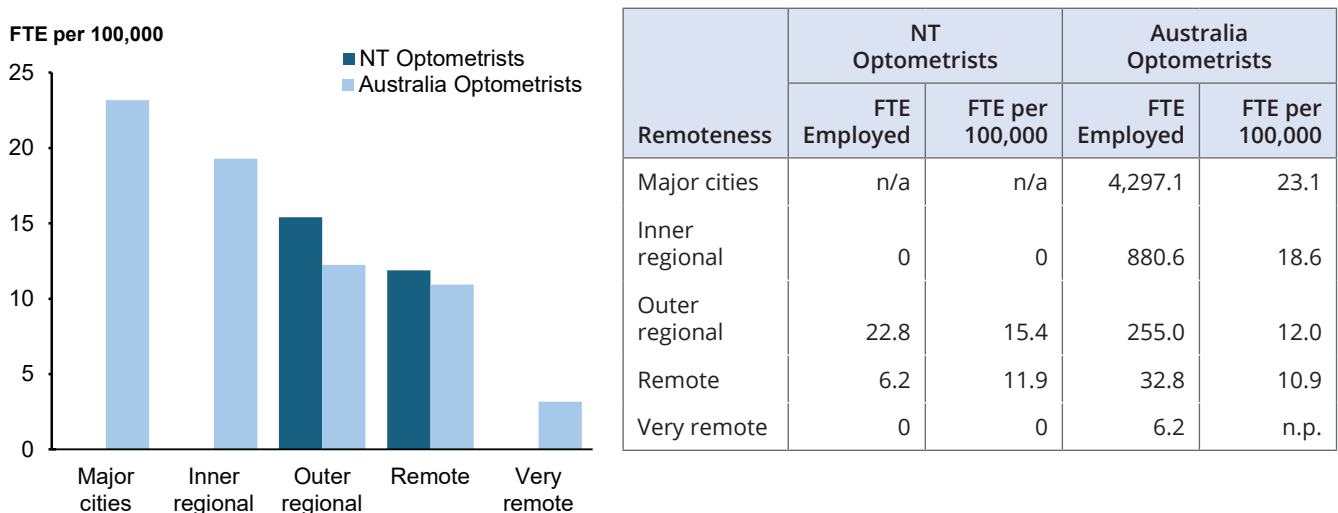
- **optical dispensers** who supply and manage spectacles and contact lenses
- **opticians** who fit glasses and contact lenses
- **ophthalmic nurses** who test vision and provide other eye tests under medical direction
- **orthoptists** who diagnose and manage eye movement disorders

**Full-time equivalent (FTE)** The FTE is a measure used to present data on the eye health workforce. It is calculated by dividing the total hours worked by employees in an occupation, by the standard hours worked.

**Full-time equivalent (FTE) rate** (number of FTE practitioners per 100,000 population) is a measure of workforce supply.

There were 29 optometrists (11.6 FTE optometrists per 100,000 population) employed in 2022 and 7 ophthalmologists employed in 2023 in the Northern Territory. In 2021, there were 33 optical dispensers (6.5 FTE optical dispensers per 100,000 population) employed in the Northern Territory. There are no *Major cities* or *Inner regional* areas in the Northern Territory. The FTE rate per 100,000 population of optometrists in the Northern Territory was highest in *Outer regional* areas and nationally was highest in *Major cities* (Figure 10).

Figure 10: Optometrists, by remoteness, Northern Territory and Australia, 2022



Notes:

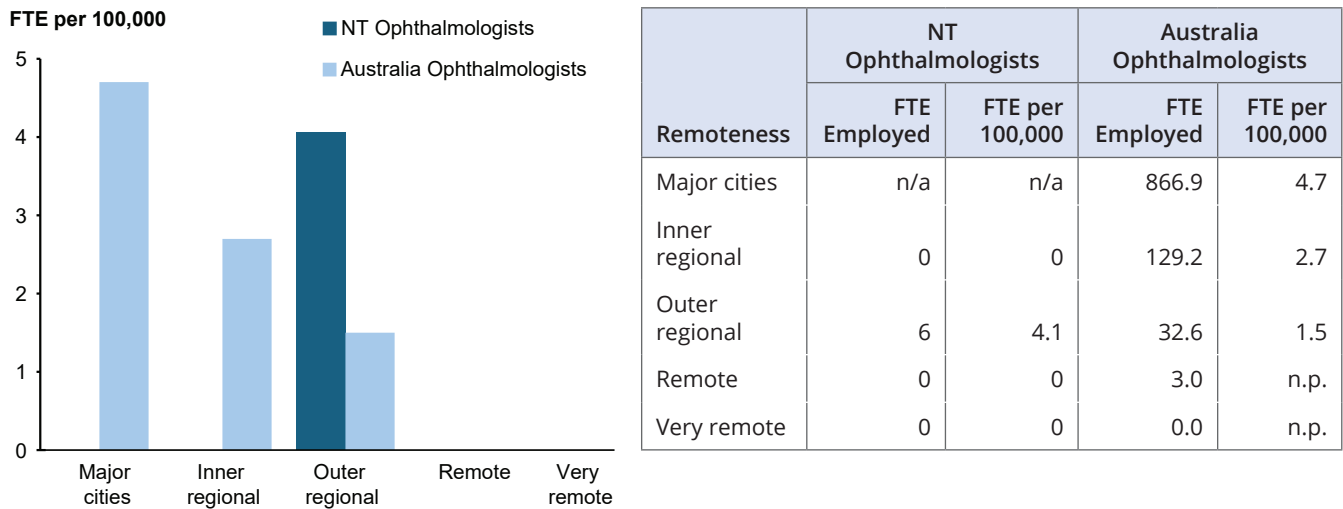
1. Data for optometrists are based on those employed in Australia working in their registered profession.

2. FTE per 100,000 population are based on a 38-hour week.

Sources: AIHW analysis of National Health Workforce Dataset.

The Australian ophthalmology workforce is skewed toward metropolitan areas. The FTE rate per 100,000 population of ophthalmologists was highest in the Northern Territory in *Outer regional* areas, higher than that of the national FTE rate. As with optometrists, it was not possible to calculate FTE rates for ophthalmologists in *Major cities* and *Inner regional* areas. There were no ophthalmologists employed full time in the Northern Territory and nationally in *Remote* and *Very remote* areas (Figure 11).

Figure 11: Ophthalmologists, by remoteness, Northern Territory and Australia, 2023



Notes:

1. Data for ophthalmologists are based on those employed in Australia working in their registered profession.

2. FTE per 100,000 population are based on a 38-hour week.

Sources: AIHW analysis of National Health Workforce Dataset.

## Outreach and other programs

Australian Government outreach programs are designed to address the uneven distribution of the health workforce and to improve access to eye health services across Australia. For example, the Indigenous and Remote Eye Health Service, funded by the Australian Government, provides essential eye surgery and local on-the-ground services in Indigenous and remote communities across Australia, including the Northern Territory. The Indigenous and Remote Eye Health Service provides care as close to home as possible and directly in the communities where the patients live (Gallagher and Meier 2023).

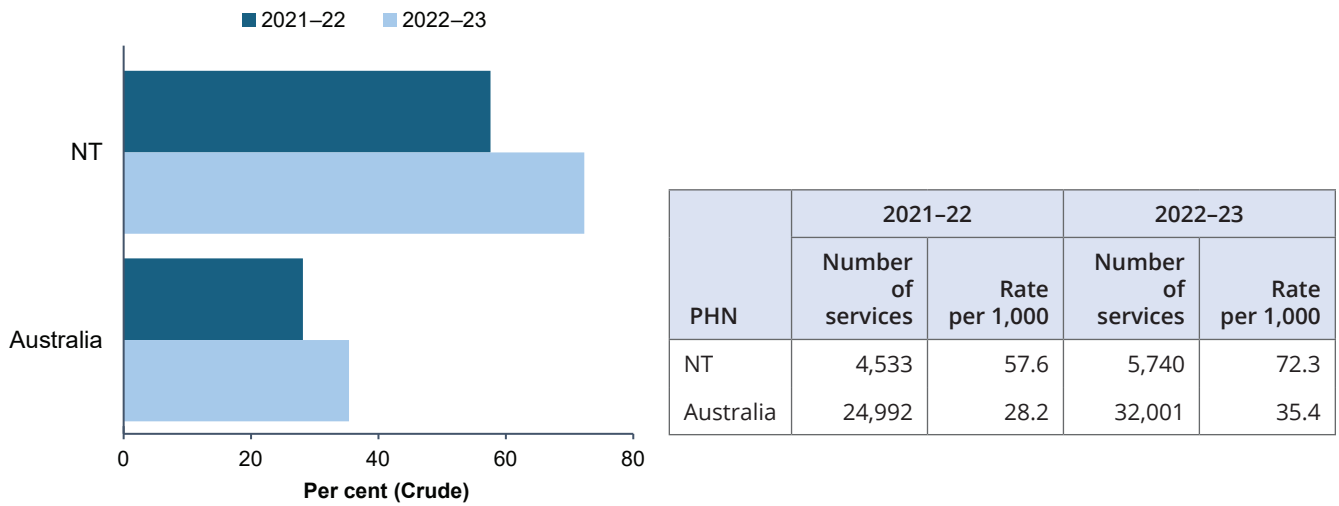
In addition, several programs provide specialist eye health services, primarily in regional and remote areas of Australia. The outreach programmes include the Visiting Optometrists Scheme (VOS), the Rural Health Outreach Fund (RHOF), the Medical Outreach Indigenous Chronic Disease Program (MOICDP), the Eye and Ear Surgical Support Program (EESS) program and the Coordination of Indigenous Eye Health.

This section focusses on eye health services provided through the VOS in the Northern Territory. Data on the other outreach programs are available in [Eye Health measures for Aboriginal and Torres Strait Islander people 2024](#).

Organisations supported through outreach programs are referred to as fundholders. Fundholders make effective use of available funding to identify and meet community needs. The jurisdictional fundholders liaise regularly to monitor and evaluate workforce needs and service delivery to make best-practice improvements (RWAV 2017). There are seven jurisdictional fundholders for the Australian Government's eye health outreach programs. In the Northern Territory this is the Northern Territory Primary Health Network.

In 2022–23 there were 5,740 (72.3 per 1,000 population) VOS occasions of service provided to First Nations patients in the Northern Territory. This was a rise from 2021–22, where there were 4,533 (57.6 per 1,000 population) VOS occasions of service (Figure 12).

**Figure 12: VOS occasions of service, by PHN, Northern Territory and Australia, First Nations people**



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

## Box 1

### Main eye health conditions affecting First Nations people

**Refractive error** refers to problems with the focusing of light and causes long- or short- sightedness. It can generally be corrected with spectacles, contact lenses or laser surgery (National Eye Institute 2010)

**Cataract** is a degenerative condition when the lens of the eye clouds over obstructing the passage of light to the retina and causing vision impairment or eventually blindness

**Diabetic retinopathy** is a complication of diabetes and involves damage to the blood vessels of the retina. All diabetics can eventually develop diabetic retinopathy, even with good diabetic control, and suffer visual disturbance and vision loss, if diabetes is poorly managed, diabetic retinopathy can result in blindness (Healthinfonet 2016)

**Trachoma** is an infectious disease of the eye caused by the bacterium *Chlamydia trachomatis*. Repeated episodes of infection can eventually cause loss of vision and blindness.

## Box 2

### Area classifications

Data for some measures are reported for smaller geographic areas, including PHNs and Roadmap regions:

**Primary Health Networks (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 that live there and by the proportion of the total population that is First Nations. Data relate to the services provided to those living in these areas, and not to whether the PHNs provided the services. The Northern Territory constitutes a whole PHN. A map and list of PHN areas are available in [Appendix A](#).

**Roadmap to close the gap for vision regions** evolved out of the University of Melbourne's Indigenous Eye Health Unit (IEHU) Roadmap to Close the Gap for Vision project to review health service provision for First Nations people and to 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 which have a 'surgical hub' or hospital where cataract surgery can be performed and a network of stakeholders, mostly centred around Aboriginal Community Controlled Health Services, who contribute to improved pathways of care and outcomes. There are five Roadmap Regions in the Northern Territory: Greater Darwin, East Arnhem, Katherine, Barkly and Central Australia. A map and list of Roadmap regions are available in [Appendix B](#).

## Box 3

### Data gaps and limitations

#### Prevalence

**Eye health prevalence** Data on self-reported eye or sight problems come from 10,579 Aboriginal and Torres Strait people in Australia included in the 2018–19 NATSIHS (ABS 2019). Self-reported data on various health conditions, including diseases of the eye/adnexa – referred to as ‘eye or sight problems’ in this report were collected. As data are self-reported they have not necessarily been diagnosed by a health professional and do not include eye conditions that respondents are unaware that they have. 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 health diagnosis and screening

**Eye examinations by an eye care specialist** (optometrist or ophthalmologist) 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, GP’s, nurses, health workers 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).

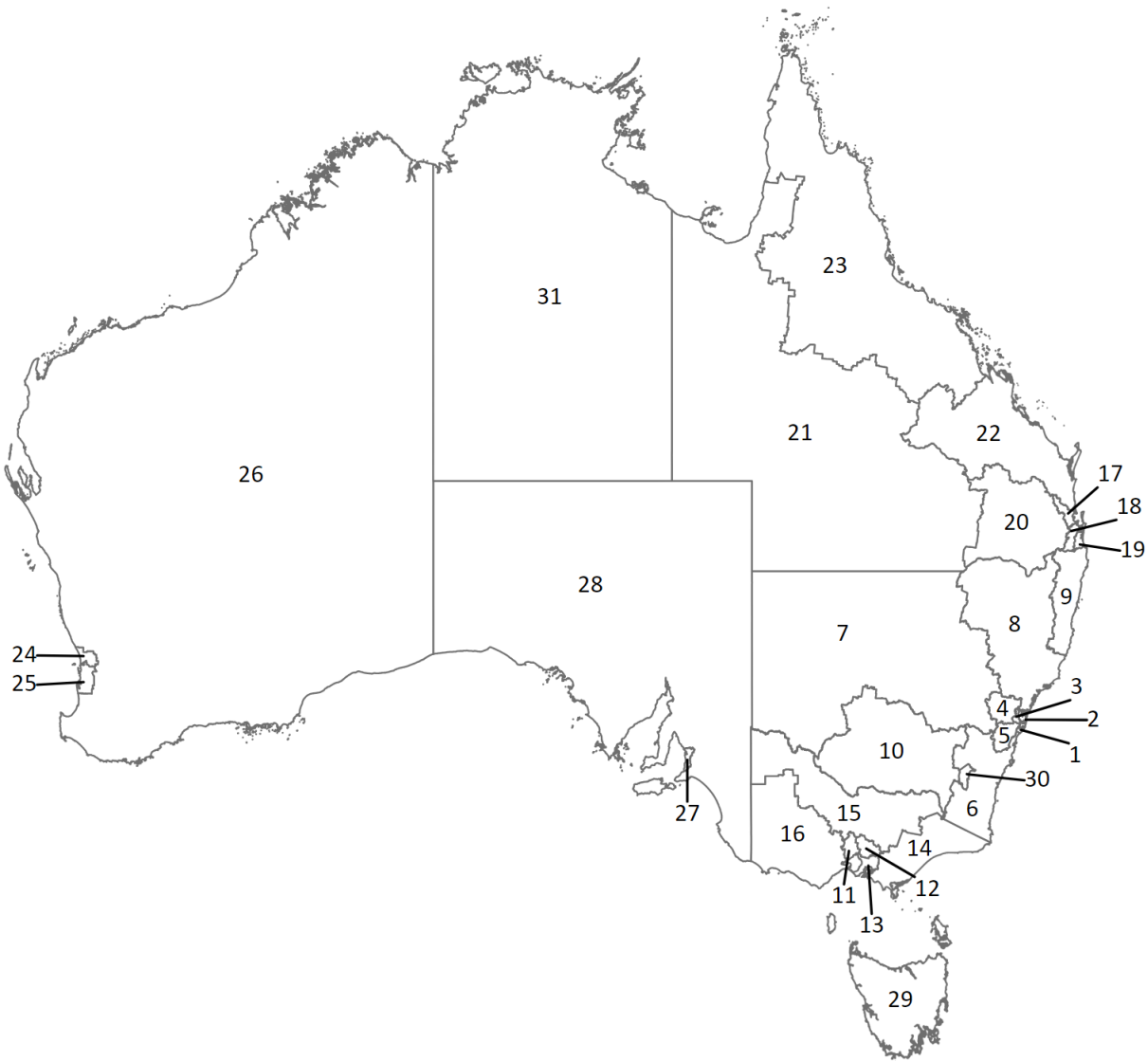
**Screening for diabetic retinopathy** Screening for diabetic retinopathy can be provided in several ways, including direct observations by a health professional during eye examinations or by using a retinal camera. MBS data reflect billing practices and not necessarily all services received. For example, 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.

#### Treatment

**Hospitalisation data** The data may underestimate the number of eye specialist clinical work provided, as it does not include those undertaken on an outpatient basis. This may also mean the percentage of need for cataract surgery that was met may also be an underestimate.

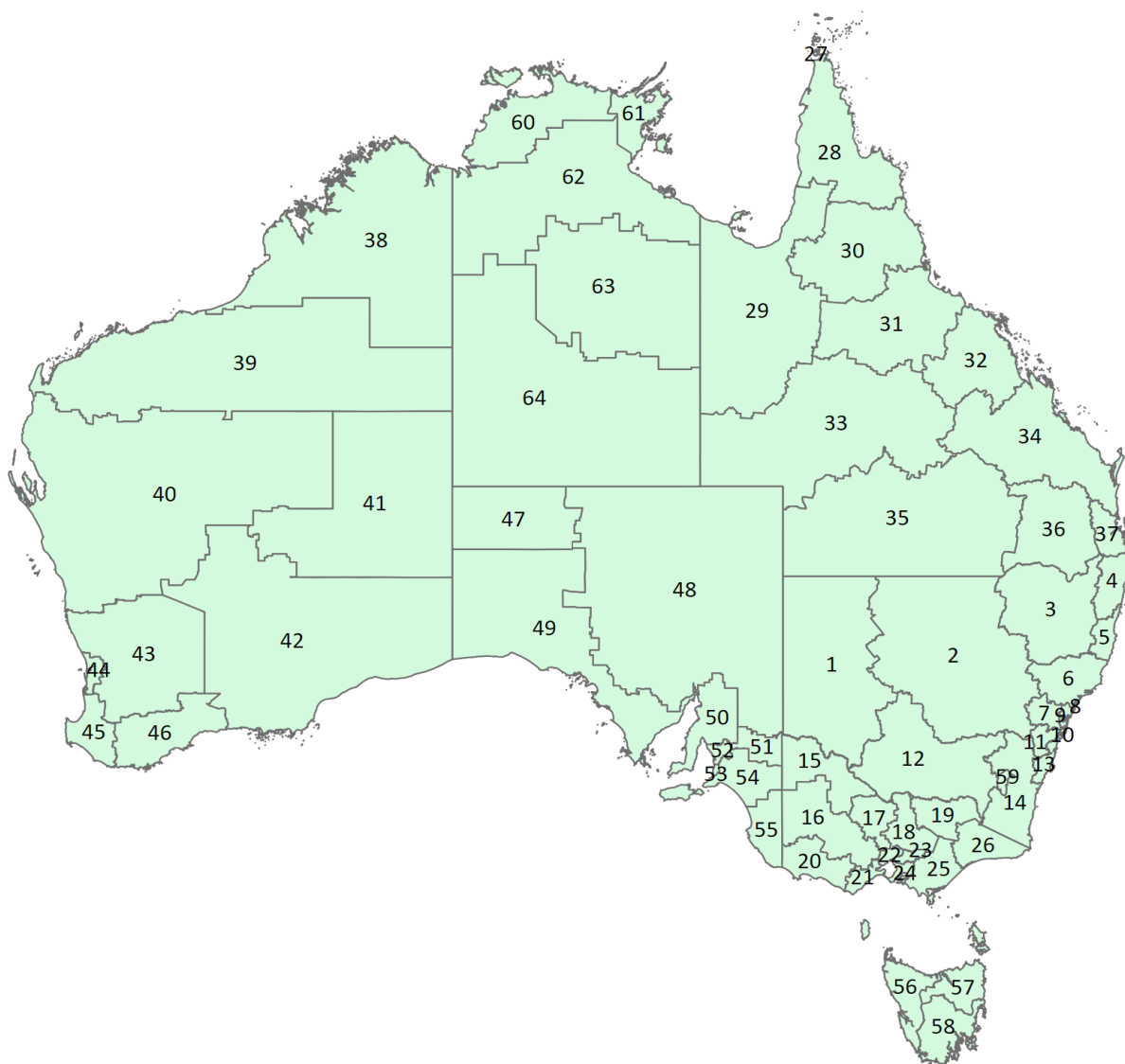
**Trachoma and trichiasis** Treatment strategies depend on the prevalence and extent of case clustering, such as treatment of active cases and contacts versus community-wide treatment. Screening coverage estimates are a guide only. Screening of Aboriginal and Torres Strait Islander adults for trichiasis may be undertaken opportunistically, such as during annual health assessments, and may not be included in the data. Data may also include multiple patient screenings. Coverage is derived from ABS census data and is linked to current trachoma endemic regions. Estimates do not consider changing endemic regions over time and transiency between regions. Trichiasis surgery cases may include cases identified in previous years.

# Appendix A: PHN regions



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			

## Appendix B: Roadmap regions



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			

# Glossary

**Aboriginal and Torres Strait Islander:** A person of Aboriginal and/or Torres Strait Islander descent who identifies as an Aboriginal and/or Torres Strait Islander. See also First Nations Australians.

**age adjustment/age-standardisation:** A set of statistical techniques used to remove, as far as possible, the effects of differences in age when comparing 2 or more populations.

**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.

**blindness:** Presenting visual acuity of  $<3/60$  in the better eye.

**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.

**First Nations people:** Used interchangeably with Aboriginal and Torres Strait Islander people in this report.

**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).

**non-Indigenous Australians:** People who indicated that they are not of Aboriginal or Torres Strait Islander descent. Compare with other Australians.

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

**periocular area** is the area surrounding the eyeball but within the orbit.

**periorbital** is a term that describes the tissue around the eye.

**separation:** See hospitalisation.

**trachoma treatment coverage:** The proportion of active cases and household and/or community contacts requiring azithromycin treatment according to CDNA National Guidelines for the public health management of trachoma (CDNA, 2014).

**trichomatous trichiasis (trichiasis):** at least one eyelash from the upper eyelid touches the eyeball, or evidence of recent epilation of in-turned eyelashes from the upper eyelid (World Health Organization, 2019).

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

**vision loss:** Vision impairment plus blindness.

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For more information, see [Eye Health measures for Aboriginal and Torres Strait Islander people 2024](#).