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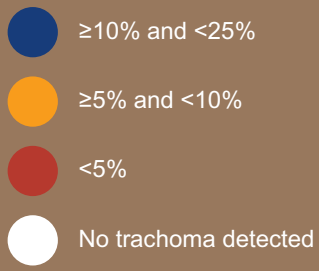

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Australian Trachoma Surveillance Report 2019

The Kirby Institute, UNSW Sydney
WHO Collaborating Centre in Trachoma, 2019*

Prepared by the National Trachoma Surveillance and Reporting Unit at the Kirby Institute, UNSW Sydney on behalf of Australian organisations involved in trachoma control activities, under a funding agreement with the Australian Government

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Acknowledgements

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- Midwest Population Health Unit
- Pilbara Population Health Unit

Technical terms and definitions

Definitions are from the Communicable Diseases Network Australia's (CDNA) 2014 *National guidelines for the public health management of trachoma in Australia*.

Active trachoma :
The presence of chronic inflammation of the conjunctiva caused by infection with *Chlamydia trachomatis*; includes World Health Organization simplified grading: trachomatous inflammation - follicular (TF) and trachomatous inflammation - intense (TI).

At-risk communities :
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 years 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.

Clean face :
Absence of nasal and ocular discharge on the face.

Community-wide treatment :
The antibiotic treatment of all people in the community who weigh more than 3 kg living in houses with children under 15 years of age.

Contacts :
Anyone who is living and sleeping in the same house as a child with trachoma. If the child lives or sleeps in multiple households, then all members of each household are regarded as contacts.

Endemic trachoma :
Prevalence of active trachoma of 5% or more in children aged 1-9 years or a prevalence of trichiasis of at least 0.1% in the adult population.

Hyperendemic trachoma :
Prevalence of active trachoma of 20% or more in children aged 1-9 years.

Prevalence of active trachoma :
Proportion of people found in a screening program to have active trachoma.

Screening coverage :
Proportion of Aboriginal and Torres Strait Islander children aged 5-9 years in a community who were screened for trachoma at the time of community screening.

Trachomatous inflammation - follicular (TF) :
Presence of five or more follicles in the central part of the upper tarsal conjunctiva, each at least 0.5 mm in diameter, as observed through a magnified loupe.

Trachomatous inflammation - intense (TI) :
Pronounced inflammatory thickening of the upper tarsal conjunctiva that obscures more than half of the normal deep tarsal vessels.

Trachomatous trichiasis (TT) :
Evidence of the recent removal of in-turned eyelashes or at least one eyelash rubbing on the eyeball.

Treatment coverage :
Proportion of Aboriginal and Torres Strait Islander people in a community who weigh more than 3 kg and live in a house with one or more children aged below 15 years who were treated for trachoma during an episode of community-wide treatment.

Abbreviations

ABS	Australian Bureau of Statistics
ABS	Australian Bureau of Statistics
APY	Anangu Pitjantjatjara Yankunytjatjara
ACCHS	Aboriginal Community Controlled Health Service
AHCSA	Aboriginal Health Council of South Australia
CDC	Centre for Disease Control, NT Department of Health
CDNA	Communicable Diseases Network Australia
EH&CDSSP	Eye Health and Chronic Disease Specialist Support Program
MBS	Medicare Benefits Schedule
NSW	New South Wales
NT	Northern Territory
NTSCRG	National Trachoma Surveillance and Control Reference Group
NTSRU	National Trachoma Surveillance and Reporting Unit
PCR	Polymerase chain reaction
QLD	Queensland
SA	South Australia
SAFE	Surgery, Antibiotics, Facial cleanliness and Environment
WA	Western Australia
WACHS	WA Country Health Service
WHO	World Health Organization

Preface

This report was prepared by the National Trachoma Surveillance and Reporting Unit (NTSRU) in collaboration with the National Trachoma Surveillance and Control Reference Group (NTSCRG) and jurisdictional health departments funded to undertake trachoma control activities by the Australian Government Department of Health, which also funds the NTSRU.

Trachoma program data for 2019 were provided by the Northern Territory (NT), Queensland (QLD), South Australia (SA) and Western Australia (WA). Program activities, including data collection and analysis, were guided by the *CDNA National guidelines for the public health management of trachoma in Australia*.[1]

The report contains a short description of methods used by the jurisdictions to undertake trachoma surveillance and control, and the methods of data analysis used by the NTSRU. The main findings of the report are presented as tables and figures, with supporting text.

The report is available online at https://kirby.unsw.edu.au/report-type/australian-trachoma-surveillance-reports

Executive summary

Trachoma prevalence in children aged 5-9 years in 2019 increased in all jurisdictions except SA where there has been a steady decrease to 0%. There was a decrease in 2019 in the number of communities designated at risk for trachoma, as well as the number of communities with endemic trachoma (45 in 2019 compared to 63 in 2018), however an increase in the number of communities with hyperendemic endemic levels of trachoma was reported (24 in 2019 compared to 13 in 2018). While the proportion of children with clean faces increased in 2019 in all jurisdictions except QLD, facial cleanliness remains a problem with only 42% of regions (6/14) and 45% of communities screened (51/113) reaching the goal of clean faces in 85% of children in the 5-9 age group.

Endemic levels of trachoma and poor facial cleanliness can only be addressed by comprehensively implementing all aspects of the SAFE strategy by strengthening of health promotion strategies, environmental health improvements and health service activities.

Summary of findings

Trachoma program coverage

- In 2019, jurisdictions designated 115 remote Indigenous communities as at risk of endemic trachoma (Table 1.1).
- The number of communities at risk of trachoma in Australia has continued to decline since 2009. From 2017 to 2019 the number of at-risk communities declined from 130 to 115 (Figure 1.2).
- Of the 115 communities designated by jurisdictions to be at risk at the start of 2019, 113 (98%) were determined to require screening, antibiotic distribution or both according to the Guidelines (Table 1.1).
- The remaining 2 at-risk communities did not require screening or treatment as there were no children in the community at the time of screening.
- Of the communities that required screening, treatment or both, 98% (111/113) received the required screening, treatment or both (Table 1.1).
- In the NT 2 communities that required screening did not receive the appropriate services due to logistical issues.

Screening coverage

- Jurisdictions undertook screening for 98% (111/113) of the communities determined to require screening in 2019 (Table 1.1, Table 1.2).
- Within the screened communities, 3154 (92%) of an estimated 3433 resident children aged 5-9 years were screened (Table 1.2).
- Screening coverage of children aged 5-9 years in the screened communities was 94% for the NT, 88% for SA, 93% for WA and 75% for QLD (Table 1.2, Figure 1.4).

Facial cleanliness

- A total of 3,236 children aged 5-9 years in at-risk communities were examined for clean faces (Table 1.2).
- The overall prevalence of clean faces in children aged 5-9 years was 75%, with 75% in the NT, 87% in SA, 66% in WA and 74% in QLD, with the prevalence of clean faces increasing in 2019 since 2018 in all jurisdictions except QLD (Table 1.2, Figure 1.5). These rates however vary widely at the regional level ranging from 61% to 100% (Tables 2.2, 3.1, 4.2 and 5.2).

Trachoma prevalence

- Overall trachoma prevalence in 5-9-year olds has increased slightly, from 3.9% in 2018 to 4.5% 2019 (Table 1.2, Figure 1.6c).
- The overall prevalence of active trachoma in children aged 5-9 years in jurisdictions was 5.2% in the NT, 0% in SA, and 6.4% in WA.
- Observed prevalence of clinical signs consistent with TF in children aged 5-9 years in QLD was 7.4%.
- No trachoma was reported in children aged 5-9 years in 52% (58/111) of the at-risk communities screened in 2019 (Table 1.3). This rate was an increase from 2018 with no trachoma reported in 30% of at-risk communities screened.
- Trachoma was at endemic levels (prevalence at or above 5% in 5-9-year olds) in 41% (45/111) of the at-risk communities screened in 2019 (Table 1.3). This was a decrease from 2018 where 56% of at-risk communities had endemic levels of trachoma.
- Hyperendemic levels of trachoma (at or above 20%) were found in 22% (24/111) of at-risk communities screened in 2019 (Table 1.3). This is an increase from 2018 where 12% of at-risk communities reported hyperendemic levels of trachoma. Population sizes of these communities with hyperendemic levels of trachoma ranged from 4-102 children with 6 communities having fewer than 20 children and 18 having over 20 children in the community.

Antibiotic distribution and coverage

- Antibiotic distribution took place in all 66 communities that required antibiotics according to the Guidelines (Table 1.4).
- One community in the NT that was due for community-wide treatment did not receive the required treatment in 2019 due to time constraints. Cases and household contacts however were treated (Table 1.4).
- Treatment coverage for active cases detected in screening activities undertaken in 2019 was 100% with 291 active cases treated (Table 1.5).
- Treatment coverage for community members requiring treatment was 88% (compared to 79% in 2018) not including the community that did not receive the required treatment. This number also does not include communities that opted for case and household treatment, rather than community-wide treatment, with additional focus on health and environmental promotion and improvements.
- The jurisdictional trachoma programs delivered a total of 4,711 doses of azithromycin in 2019 (Table 1.5). Fewer doses of azithromycin were delivered in 2019 compared to 2018 (6576 doses).
- In 2019 202 (4%) community members declined antibiotic treatment.

Trachoma-related trichiasis

- Overall 12,977 adults aged 15 years and over in an estimated population of 39,027 were screened for trichiasis in 127 at-risk and previously at-risk communities (Table 1.6).
- The prevalence of trichiasis in screened adults aged 15 years and older was 0.08% and 0.14% in adults aged 40 years and older, a decrease from 0.1% and 0.3% respectively in 2018 (Table 1.6).
- There were 11 cases of trichiasis detected in adults aged 15 years and older (Table 1.6).
- Surgery for trachoma-related trichiasis in the past 12 months was reported to have been undertaken for 6 people in 2019 (Table 1.6).

Health promotion and environmental health improvement activities

- Public health and environmental health teams conducted health promotion activities in at least 109 remote Indigenous communities. These included over 294 activities including school visits, soap distribution and bathroom assessments.

Background

Trachoma is a disease of the eye, caused by infection with the *Chlamydia trachomatis* bacteria, particularly its serovars A, B, Ba and C. It is the world's leading infectious cause of preventable blindness. Based on reporting by the World Health Organization (WHO) in March 2019, trachoma remains endemic in 44 countries in which approximately 1.9 million people have visual impairment due to trachoma, worsening the quality of life in those who are already disadvantaged. Transmission of ocular *C. trachomatis* occurs through close facial contact, hand-to-eye contact, via contamination of personal items such as towels, clothing and bedding and possibly by flies. Trachoma generally occurs in dry, dusty environments and is strongly associated with poor living conditions and sanitation. Crowding of households, limited water supply for bathing and general hygiene, poor waste disposal systems and high numbers of flies have all been associated with trachoma prevalence. Children have more frequent and longer-lasting episodes of infection than adults and are believed to be the main community reservoirs of infection.[2-4]

Infection with *C. trachomatis* causes inflammation of the conjunctival tissue in the eye, leading to clinically recognisable trachoma. Diagnosis is by visual inspection, and the detection of follicles (white spots) and papillae (red spots) on the inner upper eyelid. Repeated infections with *C. trachomatis*, especially during childhood, may lead to scarring of the eyelid, causing it to contract and distort, leading to the eyelashes turning inwards, trichiasis, and scratching of the outer surface of the cornea. The resulting damage to the cornea by trichiasis is the main pathway by which trachoma leads to vision loss and blindness. [1, 5, 6], Trichiasis scarring is irreversible but if early signs of in-turned eyelashes are found, surgery to the eyelid is usually effective in preventing further damage to the cornea.

WHO, through the Global Alliance for the Elimination of Trachoma by 2020 (GET 2020), advocates the SAFE strategy for trachoma control. The SAFE acronym highlights the key components of the strategy, which are Surgery for trichiasis, Antibiotic treatment regimens via the use of azithromycin at the individual, household or community levels, the promotion of Facial cleanliness and Environmental improvements. The strategy is designed to be implemented within a community health framework to ensure consistency and continuity of approach in the required screening, control measures, data collection and reporting, as well as building community capacity.[7-9]

WHO guidelines recommend that clinical trachoma is treated by a single dose of the antibiotic azithromycin. When prevalence exceeds 5% in children aged 1-9 years, guidelines recommend mass drug administration to the entire community on a regional or district basis. Australian guidelines differ slightly from WHO's recommendation, in that: Australia uses the trachoma prevalence of the 5-9 age group as a basis for treatment strategy; treatment is provided at the household level where trachoma prevalence is lower, and Australia defines community coverage based on the treatment of households with at least one child aged 15 or under.[10,11.]

Trachoma control in Australia

Australia is the only high-income country with endemic trachoma. It occurs primarily in remote and very remote Indigenous communities in the NT, SA and WA. In 2008, cases were also found in NSW and QLD, where trachoma was thought to have been eliminated. People with trichiasis are present in all jurisdictions.[10,12] The National Trachoma Management Program was initiated in 2006. In 2009, the Australian Government's *Closing the Gap - Improving Eye and Ear Health Services for Indigenous Australians* initiative committed $16 million over a 4-year period towards eliminating trachoma in Australia. In 2013, a further $16.5 million and in 2017 a further $20.8 million were committed by the Australian Government to continue, improve and expand trachoma control and health promotion initiatives in jurisdictions with endemic trachoma. Funding was also provided to jurisdictions with a previous history of trachoma to ascertain the need for control programs. Since 2006 the Australian Government has funded the National Trachoma Surveillance and Reporting Unit to provide a national mechanism for monitoring and evaluating trachoma control.[13]

The surveillance and management of trachoma in 2019 in all jurisdictions were guided by the CDNA 2014 *National guidelines for the public health management of trachoma in Australia*.1 The 2014 guidelines were an update to the 2006 version,[14] with one of the main changes being the option of not screening all endemic communities every year, so that jurisdictions could instead use resources for antibiotic distribution and health promotion activities. The guidelines were developed in the context of the WHO SAFE strategy and make recommendations for control strategies, data collection, reporting and analysis.

The National Trachoma Surveillance and Reporting Unit

NTSRU is responsible for data collection, analysis and reporting related to the ongoing evaluation of trachoma control strategies in Australia. The NTSRU has been managed by the Kirby Institute, UNSW Sydney since 2010,[15-22] with the Centre for Eye Research Australia[23-25] and the Centre for Molecular, Environmental, Genetic and Analytic Epidemiology at the University of Melbourne,[26,27] responsible for earlier years. The NTSRU operates under a contract between UNSW Sydney and the Australian Government Department of Health.

Methodology

To produce the data presented in this report, each jurisdiction undertook screening and antibiotic distribution for trachoma under the guidance of the 2014 *National Guidelines,* which recommend specific treatment strategies depending on the prevalence of trachoma detected through screening.[1]

In 2006, when the National Trachoma Management Program was initiated, each jurisdiction identified communities determined to be at risk of trachoma based on historical prevalence data and other sources of knowledge. Over time, additional communities have been classified as being at risk, while some others have been reclassified as not at risk. Trachoma control activities focus on the communities designated at risk, but a small number of other communities designated as not at risk have also been included in screening activities, generally if there is anecdotal information suggesting the presence of active trachoma, or close geographic or cultural proximity to endemic communities.

The WHO simplified trachoma grading criteria (see http://www.who.int/trachoma/resources/SAFE_documents/en/ were used to diagnose and classify individual cases of trachoma in all jurisdictions. Data collection forms for use at the community level were developed by the NTSRU, based on CDNA guidelines. Completed forms were forwarded by jurisdictional coordinators to the NTSRU for checking and analysis. Information provided to the NTSRU at the community level for each calendar year include:

- Number of Indigenous children aged 1-14 years screened for clean faces and the number with clean faces, by age group
- Number of Indigenous children aged 1-14 years screened for trachoma and the number with trachoma, by age group
- Number of episodes of treatment for active trachoma, household contacts and other community members, by age group
- Number of Indigenous adults screened for trichiasis, number with trichiasis, and the number who had surgery for trichiasis
- Community-level implementation of health promotion activities.

WHO elimination targets specify screening of children aged 1-9 years. However, the target group for screening activities in Australia since 2006 has been children aged 5-9 years. This narrower age group was chosen because of ready accessibility through schools, feasibility of eye examination and a presumption that prevalence in 5-9-year olds would be similar to prevalence in 1-4-year olds. Screening in communities has also included children 1-4 (as well as those 10-14) years but opportunistically rather than systematically. In 2018, in anticipation of WHO dossier preparation, a concerted effort was made to achieve high screening coverage in the 1-4 age group, to check the assumption that prevalence rates in the lower age group was similar to those in 5-9-year olds. The results, summarised in Appendix 1, showed that there was no evidence of higher prevalence in the younger age group and this finding was generally consistent between jurisdictions. Furthermore the finding of similar prevalence in the two age groups was observed both in communities that achieved high levels of screening in 1-4-year olds, and those that did not. On the basis of these results it was decided that screening in future could continue to focus on the 5-9 age group.

New South Wales

There were no communities designated at risk in NSW in 2019. Historical data provided derive from NSW Health, focused on screening in potentially at-risk communities in north western and far western NSW, with the most recent screening conducted in 2014. No trichiasis screening was conducted in NSW in 2019.

Northern Territory

From 2013, the NT followed the screening and treatment schedule that was recommended in the 2014 CDNA *National Guidelines*. Trachoma screening and management in the NT were undertaken through collaboration between the Department of Health (Centre for Disease Control and Primary Health Care [Outreach/Remote]); Department of Education (Remote Schools) and Aboriginal Community Controlled Health Services (ACCHS). Trachoma screening is generally undertaken as a stand-alone exercise by the trachoma team and program partners with some support from local primary health-care centres or community controlled services. The NT uses school enrolment lists, electronic health records and local knowledge to determine the number of children aged 5-9 years present in the community at the time of screening. Following screening, treatment is undertaken by the trachoma team and program partners with support from primary health-care services.

In 2019, screening for trichiasis was undertaken opportunistically primarily by clinic staff during adult health checks, or by optometrists or ophthalmologists from the regional eye health services.

South Australia

In SA, the Trachoma Elimination Program is coordinated by Eyre and Far North Local Health Network. The Program is overseen by the South Australian Trachoma Elimination Strategy Committee (SATESC). SATESC is jointly chaired by the Aboriginal Health Council of South Australia (AHCSA) and Eyre and Far North Local Health Network, and comprises both clinical and non-clinical members who are charged under the committee's Terms of Reference with identifying and developing strategies to improve activities and approaches to trachoma control, and with overseeing the quality of service delivery in SA.

A combination of opportunistic, community-wide and routine screening was undertaken. The Eye Health and Chronic Disease Specialist Support Program (EH&CDSSP), coordinated by AHCSA, provided opportunistic screening by visiting optometrists and ophthalmologists. AHCSA delivered community-wide screening in schools as well as routine screening through adult and child health checks. Embedding screening and treatment practices in local health services for the sustainable elimination of trachoma has been a key focus. Since 2014 the nine Anangu Pitjantjatjara Yankunytjatjara (APY) Lands communities have been aggregated and reported as a single community for the purpose of trachoma surveillance due to the small populations of each community and the kinship links resulting in frequent mobility between these communities.

Queensland

The Communicable Diseases Branch within the QLD Department of Health coordinates trachoma prevention and control activities across QLD in collaboration with Hospital and Health Services. In QLD, trachoma screening includes review by an ophthalmologist who conducts a more detailed examination beyond that required for the WHO simplified grading tool. This examination includes looking for Herbert's pits and corneal pannus and collecting conjunctival swabs for laboratory testing.

The remote communities of the Torres Strait Islands have had an uninterrupted ophthalmic service for the past 30 years. In addition to ophthalmic services, a visiting optometrist has been providing outreach optometry services to residents of the Torres Strait Islands for the past 11 years. The optometrist visits most communities twice a year performing comprehensive eye exams that include a check for trachomatous trichiasis.

In 2019, trachoma screening occurred in two communities in the north-western QLD region and three communities in the Torres Strait Islands.

Western Australia

Trachoma screening and management in WA is the responsibility of the WA Country Health Service (WACHS) Population Health Units in the Kimberley, Goldfields, Pilbara and Midwest health regions. An interagency State Trachoma Reference Group has been established to provide program oversight. The WA State Trachoma Reference Group has established a set of operational principles which guide the program and provide consistent practice across the four endemic regions.

In collaboration with local primary health-care providers, the WACHS Population Health Units screen communities in each region within a 4-week period in August and September. People identified with active trachoma are treated at the time of screening. In communities with a prevalence above 5%, treatment of household contacts (and, if indicated, the overall community) is carried out in line with WHO guidelines. In 2019, each region determined the screening denominator based on the school register, which was updated by removing names of children known to be out of the community and by adding names of children who were present in the community at the time of the screening. In conjunction with screening, an environmental assessment was carried out in the communities and, for some regions, health promotion activities were also included during the visit.

In 2011, WACHS amalgamated ten previously distinct communities in the Goldfields region and reported them as a single community for the purpose of trachoma surveillance because of the small populations and kinship links resulting in frequent mobility between these communities. Since 2016, four communities in the Pilbara region have been similarly reported as one. These reporting changes may influence trends presented in WA reports from 2010 – 2019.

Trichiasis methodology overview

The *2014 CDNA National guidelines for the public health management of trachoma* is the overarching guideline used for trichiasis screening with the WHO simplified trachoma grading criteria used to diagnose and classify individual cases of trachomatous trichiasis. Each of the four trachoma-endemic regions identified communities to be at risk of trichiasis based on both current and historical trachoma prevalence data. Screening occurs at different times of the year and is incorporated into other community programs such the annual influenza vaccination program. The priority target group for screening activities in the four regions is Aboriginal and Torres Strait Islander adults aged 40 years and over at the time of screening. Regional Population Health Units report on screening of children from 15 years of age, and the Aboriginal Medical Service (Adult Health Check MBS Item 715) and the Visiting Optometrist Service both report on adults aged 40 years and over.

Regional specific information

Kimberley: trichiasis screening is conducted by the Public Health Team before trachoma screening when in community to provide education during trachoma screening, during the influenza vaccination campaign and by visiting optometry services and health clinic staff in remote communities.

Clients are referred by the service provider to the ophthalmology clinics and regular optometrists. Trichiasis referrals to ophthalmology services are triaged by the optometrist service in liaison with the ophthalmologist who visits every 3 months. The visiting optometrist group manages the priority of recall, and specialist clerks use their individual recall systems.

For follow-up post-surgery, Lions Outback Vision (LOV) ensures that the information from specialists in Perth is conveyed to the appropriate community clinic, and adds this information to the optometric database for follow-up in communities.

Pilbara: screening is conducted by the Public Health Team at the time of trachoma screening, or during the influenza vaccination campaign or by the primary health-care provider during the Adult Health Check (MBS Item 715).

If required, referrals are made to the general practitioner (GP) or visiting specialists. The GP will also refer to a visiting specialist if required. The referring clinician is responsible for following up on the referral outcome.

Midwest: screening is conducted either by the Public Health Team earlier in the year or by the primary health-care provider during the Adult Health Check (MBS Item 715). Referrals to the ophthalmologist are made through the patient's primary health-care provider (Aboriginal Community Controlled Health Organisation [ACCHO] or private GP). The Public Health Unit does not have access to these referrals. If trichiasis is found during screening by a member of the Public Health team, the patient is referred to an ophthalmology service within the region.

Goldfields: screening is conducted by the Public Health Team at the time of trachoma screening or a health promotion visit, or during the influenza vaccination campaign or by the primary health-care provider during the Adult Health Check (MBS Item 715).

If trichiasis is suspected during screening by a member of the Public Health team, patients are referred to their local primary health-care provider for referral to an ophthalmology service (or through another preferred pathway such as a client's optometrist). All suspected cases found by primary health-care services are referred to the ophthalmology service for review. Referrals to the ophthalmologist are made via the patient's primary health-care provider (ACCHO] or private GP or optometrist). The Public Health Unit does not have access to these referrals nor the outcome of the consultation.

Data analysis

For the purpose of this report, a community is defined as a geographic location where people reside and where there is at least one school. Community coverage is defined as the number of communities screened for trachoma as a proportion of those that were identified as at risk. Individual screening coverage is the proportion of resident children in the target age group who were screened.

Data on resident population numbers were derived by each jurisdiction using enrolment lists from schools and health clinics and from local advice. This method has been used since 2012. For 2007 to 2011 estimates were projected from the 2006 Australian census using Australian Bureau of Statistics (ABS) standard estimates of population increase (1.6%, 1.8% and 2.1% in the NT, WA and SA, respectively). The prevalence of active trachoma was calculated using the number of children screened as the denominator.

Trachoma data were analysed in the age groups 1-4, 5-9 and 10-14 years. Comparisons over time were limited to the group aged 5-9 years. Data from 2006 were excluded from assessment of time trends as collection methods in this first year differed substantially from those subsequently adopted.

Calculations for trachoma prevalence

Three distinct methods were used to calculate trachoma prevalence. The observed prevalence, estimated prevalence and overall prevalence reported in subsequent sections of the document were calculated as follows. The *observed prevalence* of active trachoma was calculated using only the data from screening activities undertaken during the reporting year. Since implementation of the 2014 *National Guidelines*, at-risk communities have not been required to undertake annual screening for trachoma. Therefore, for communities not screened in 2019 an *estimated prevalence* of active trachoma was calculated by carrying forward the most recent prevalence data, following a method endorsed by the NTSCRG. This method is likely to result in an over-estimate of current prevalence, particularly for communities receiving community-wide treatment with antibiotics. Finally, the *overall prevalence* of active trachoma was calculated by combining data from at-risk communities screened during 2019, the most recent prevalence from at-risk communities that did not screen in 2019 and the most recent prevalence carried forward from communities that were judged by jurisdictions to have eliminated trachoma and were therefore removed from the at-risk register. Community-specific data for communities amalgamated for reporting purposes were used or carried forward until the year of amalgamation.

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Findings and interpretation

In 2019, findings from trachoma screening in Australia were mixed. Of the 13 regions identified as being at risk since the beginning of Australia's national response to trachoma in 2006, eight were found to have non-endemic levels of trachoma with six regions seeing a continued decrease in prevalence. In five regions, prevalence has increased since 2018, generating an overall increase in prevalence in the NT and WA. It has become clear that, while repeated rounds of community treatment have been effective in reducing trachoma prevalence from the very high levels seen in the early years, they are not on their own sufficient to reach targets in all regions. Continued strengthening of health promotion and environmental improvements must become the mainstay of control in communities with continuing endemic levels of trachoma.

Despite these ongoing areas of concern, Australia has made huge strides towards the elimination of trachoma by 2020. Continuing efforts will ensure that targets are met not only at the jurisdictional level, but also within regions and down to the community level.

Screening coverage

Screening coverage has been presented in this report as both the proportion of at-risk communities screened, and the proportion of children aged 5-9 years screened in these communities. Before the revision of the guidelines in 2014, jurisdictions were encouraged to screen all at-risk communities annually, so the proportion of communities screened provided an indication of how well this goal had been achieved. Under the revised guidelines, jurisdictions can choose to focus resources on control activities, including antibiotic distribution, rather than repeated annual screening in high prevalence communities. At the other end of the spectrum, communities with low levels of trachoma do not require annual screening. Therefore the proportion of communities screened should be viewed as an indicator of process, and not of the quality or success of the program. In 2019, 96% (111/115) of at-risk communities were screened for trachoma, an increase from 2018 when 78% (94/120) of at-risk communities were screened.

The proportion of children aged 5-9 years assessed for trachoma in communities that have undertaken screening is an important performance measure, with the guidelines aiming for coverage of at least 85%. Compared to 2018 the overall screening coverage in all screened communities increased to 92% from 89%, however the proportion of communities reaching at least 85% coverage decreased to 74% from 89%.

Facial cleanliness

The proportion of screened children aged 5-9 years who had clean faces has remained at similar levels to previous years, with 75% in 2019 compared to 73% in 2018. There was a slight increase in facial cleanliness rates in all jurisdictions except QLD. Although much has been done to promote normalisation of facial cleanliness in communities, more work is needed to ensure that children have access to safe and functional washing facilities, and health promotion messaging continues.

Trachoma prevalence

Trachoma prevalence at a regional and jurisdictional level was calculated by including all communities considered at risk at any time since 2007, and using the most recently available prevalence estimate from each community. Across all four jurisdictions (NT, SA, WA and QLD), the overall prevalence of trachoma among children 5-9 years in 2019 was 4.5%, an increase from 3.9% in 2018. At the regional level, the prevalence of trachoma in children aged 5-9 years in at-risk communities ranged from 0% to 18.3%.

The overall prevalence of trachoma increased in 2019, even though the number of endemic communities decreased from 63 in 2018 to 45 in 2019, primarily because the number of communities with hyper-endemic trachoma (over 20% prevalence) increased from 13 in 2018 to 24 in 2019. Furthermore, several of these communities were among the larger ones of their regions.

Localised increases in prevalence in the context of long-term decreases seen in Australia's remote communities may be due to a range of factors. Most likely they demonstrate that housing and environmental health are yet to achieve the standards needed to maintain the desired levels of hygiene in communities, and require ongoing investment to do so. Other contributors may be population movement to and from cultural and community events, and lack of water resources in some drought-affected communities. A continuing focus on health hygiene promotion is also important for the control of trachoma as well as a range of other hygiene-related diseases.

Trachoma control programs in Australia in all jurisdictions except QLD undertook trachoma grader training to ensure rigorous and accurate trachoma grading. This continued training is particularly important in communities where trachoma

prevalence is decreasing, with fewer children affected, and an increased likelihood of false-positive findings. Ongoing attention to training graders is required to ensure the integrity of future screening activities. A register for trained graders is being developed to provide a mechanism to document the training process for the WHO dossier and transferability of staff between jurisdictions.

Antibiotic distribution and coverage

Antibiotic distribution is a major component of the SAFE strategy. Coverage in 2019 remained high at 89% of active cases and community members requiring treatment under the guidelines. This coverage rate is an increase from 79% in 2018. The number of those declining treatment in 2019 was 202, corresponding to 4% of community members considered to require treatment. This percentage however does not include the four communities in the NT and WA that declined community-wide treatment, opting instead for case and household treatment and intensifying focus on health promotion and environmental improvements. The implications of undertaking this strategy for trachoma control is not yet understood and therefore ongoing surveillance is imperative.

Trachoma-related trichiasis

Overall 6,244 adults aged 40 years and older were reported to be screened for trichiasis compared to 7,993 in 2018 and 8,206 in 2017. Among those screened in 2019 aged over 15 years, 11(0.08%) were found to have trichiasis, and 6 underwent trichiasis surgery. Trichiasis surgeries may be cases identified in previous years.

Data from Visiting Optometrist Services (VOS) were also received from WA illustrating a high level of population outreach with referral systems in place. One case of trichiasis was detected through this service which screened over 1,900 adults in 2019.

Health promotion and environmental health activities

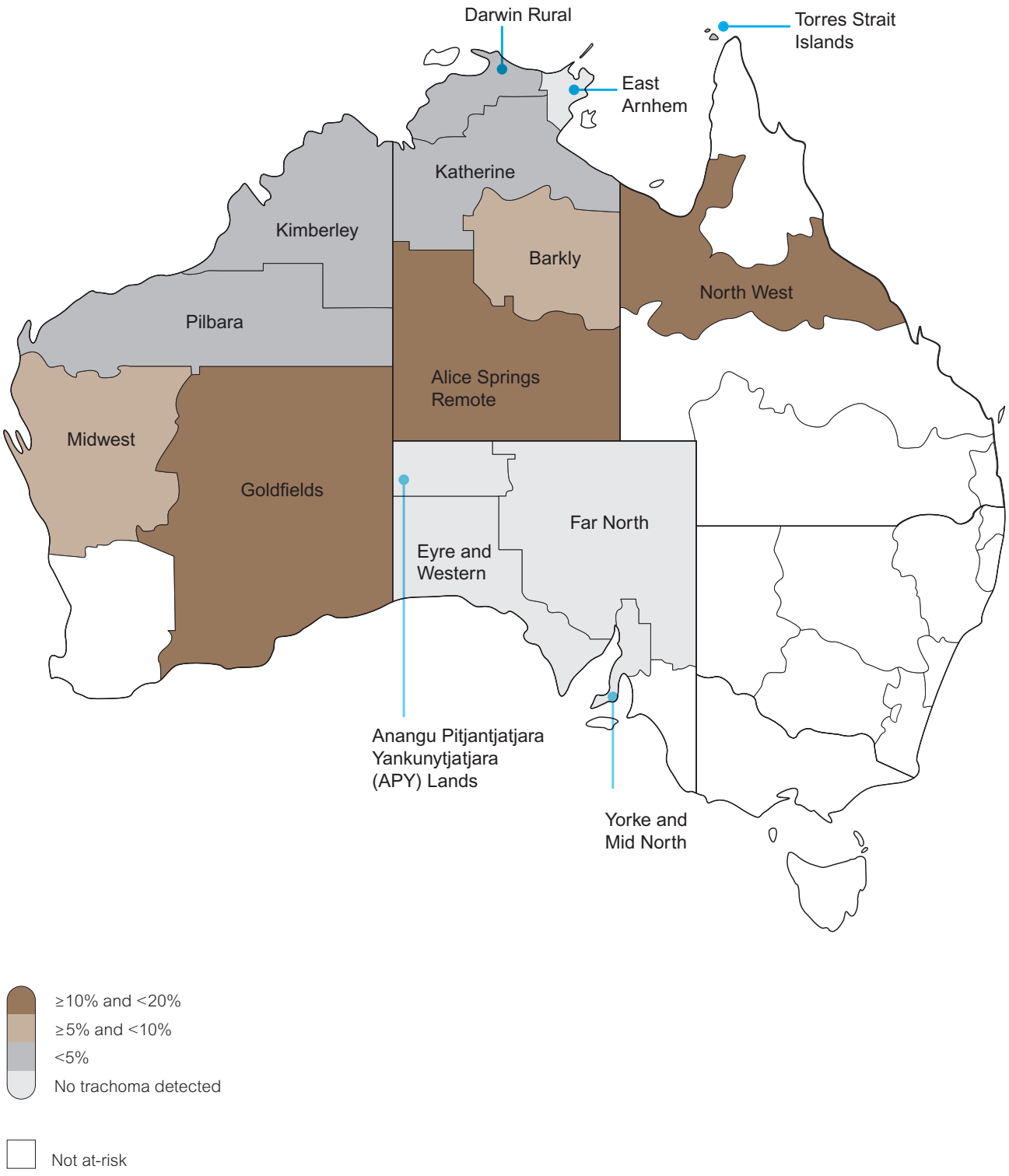
Jurisdictions have continued to support and report health promotion activities that focus on improving hygiene-related practices, particularly facial cleanliness and general hygiene in children. The Australian Government Department of the Prime Minister and Cabinet has initiated discussions and forums collaborating with jurisdictional departments of health, housing and education to improve availability of functioning washing facilities in remote communities and the promotion of facial cleanliness. The Project Agreements for Australian Government funding of jurisdictional trachoma control activities for 2017-18 to 2020-21 require the monitoring of all of the SAFE strategy elements including environmental health improvement activities.

WA reported on broad activities undertaken in remote communities including providing housing maintenance, the provision of soap and localising health promotion messaging in communities identified as hot spots for trachoma. No jurisdiction or organisation has as yet reported a standardised mechanism for reporting and evaluating environmental health improvements at the community or regional level. The NTSCRG recognises that improvements in this area, and their monitoring, cannot be driven by the trachoma program alone and will require a concerted effort across relevant disease areas as well as sectors beyond health.

National results

Figures and Tables

Figure 1.1 Overall trachoma prevalence in children aged 5-9 years in all at-risk communities by region, Australia 2019*



* Most recent estimates carried forward in communities that did not screen in 2019.

Figure 1.2 Number of communities designated at risk by jurisdiction, Australia 2007 – 2019

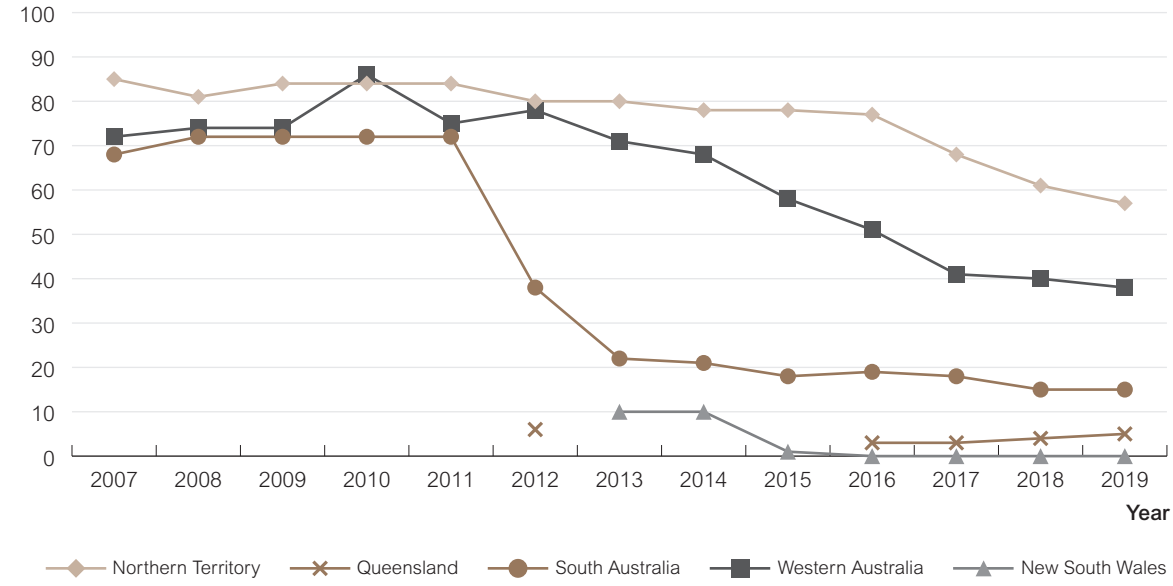


Figure 1.3 Number of at-risk communities according to trachoma control strategy implemented by jurisdiction, Australia 2019

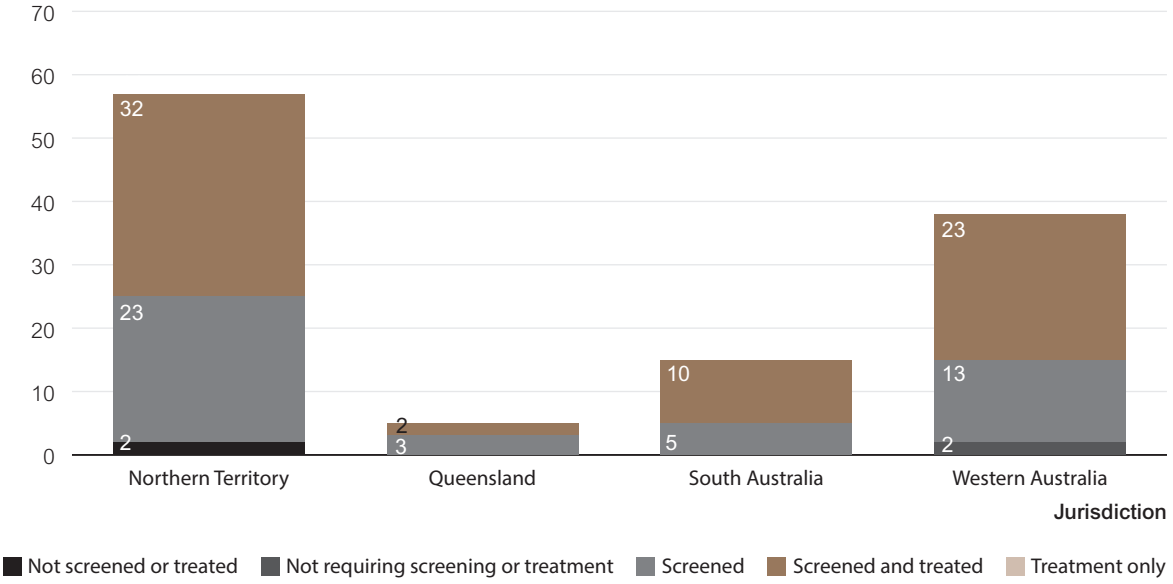


Figure 1.4 Population screening coverage in children aged 5-9 years in communities that were screened for trachoma by jurisdiction, Australia 2019

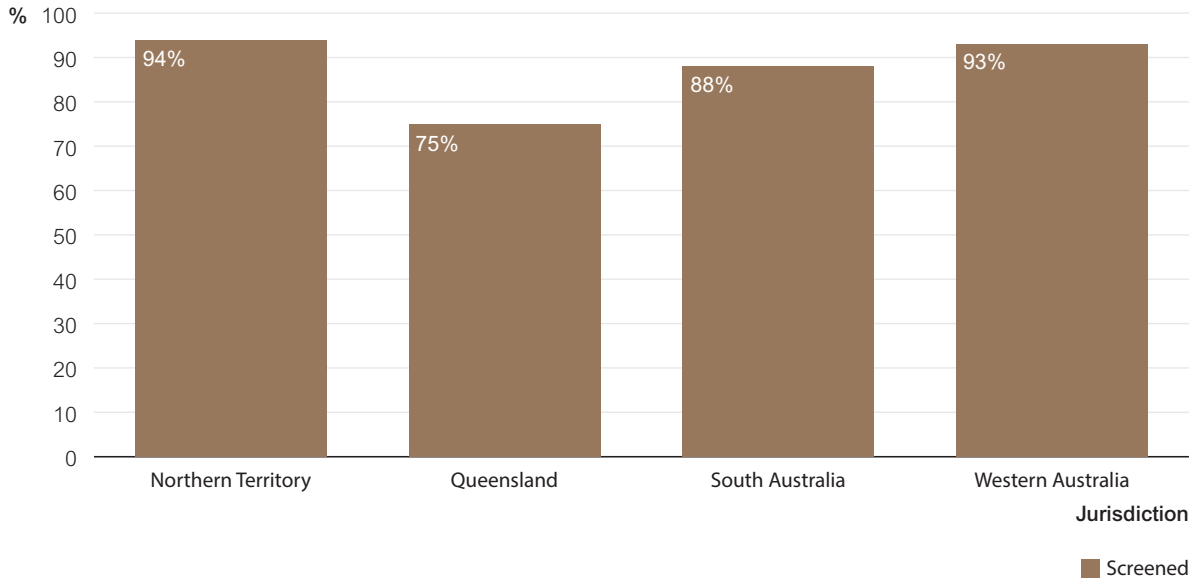


Figure 1.5 Proportion of screened children aged 5-9 years who had a clean face by jurisdiction, Australia 2007 – 2019

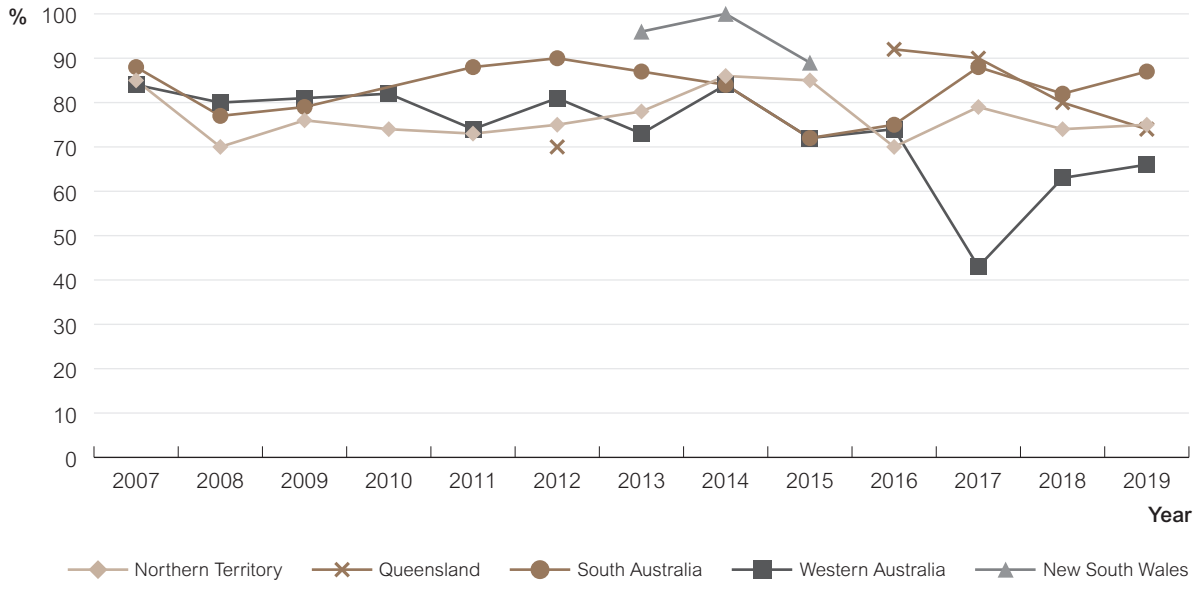


Figure 1.6a. Observed prevalence of active trachoma among screened children aged 5-9 years by jurisdiction, Australia 2007 – 2019

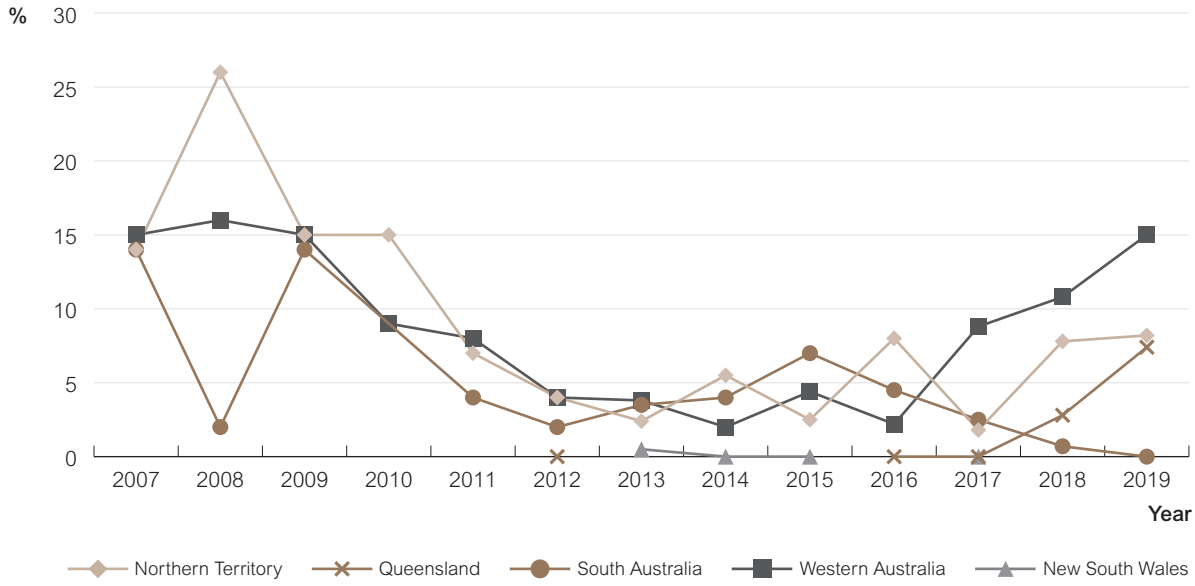
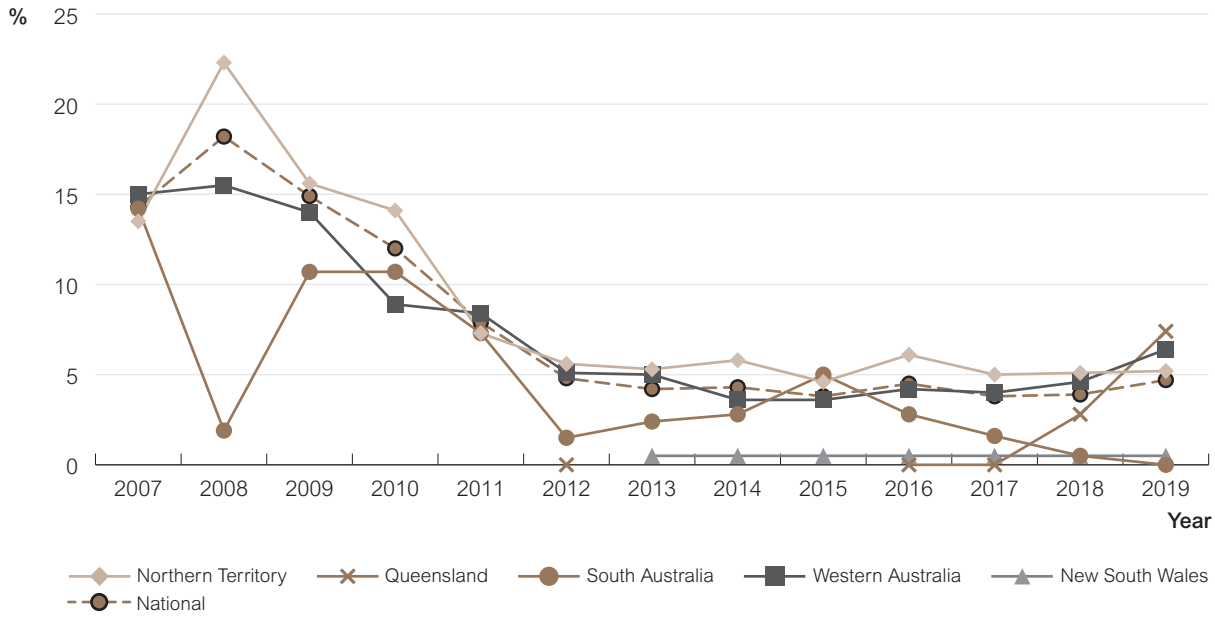


Figure 1.6b. Estimated prevalence of active trachoma among children aged 5-9 years by jurisdiction, Australia* 2007 – 2019.

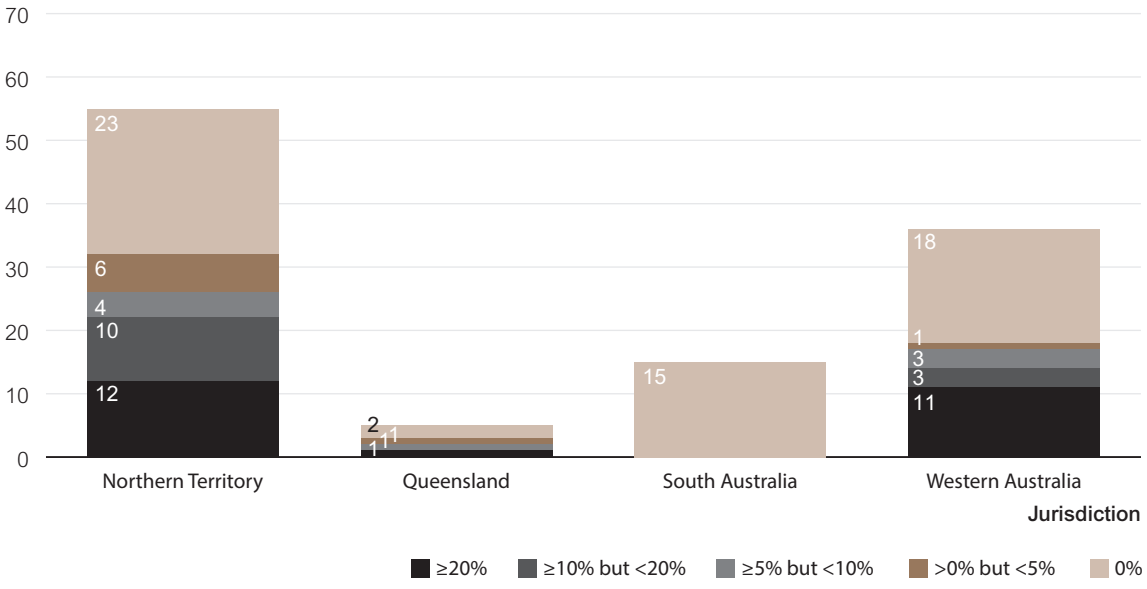
* Most recent estimates carried forward in at-risk communities that did not screen in 2019.

Figure 1.6c. Overall prevalence of active trachoma among children aged 5-9 years by jurisdiction, Australia* 2007 – 2019



* Most recent estimates carried forward in all communities that were considered at risk at some time since 2007.

Figure 1.7 Number of at-risk communities* according to level of trachoma prevalence in children aged 5-9 years by jurisdiction, Australia 2019



* Including at-risk communities that did and did not screen in 2019.

Figure 1.8 Proportion of at-risk communities with zero prevalence of trachoma by jurisdiction, Australia 2007 – 2019

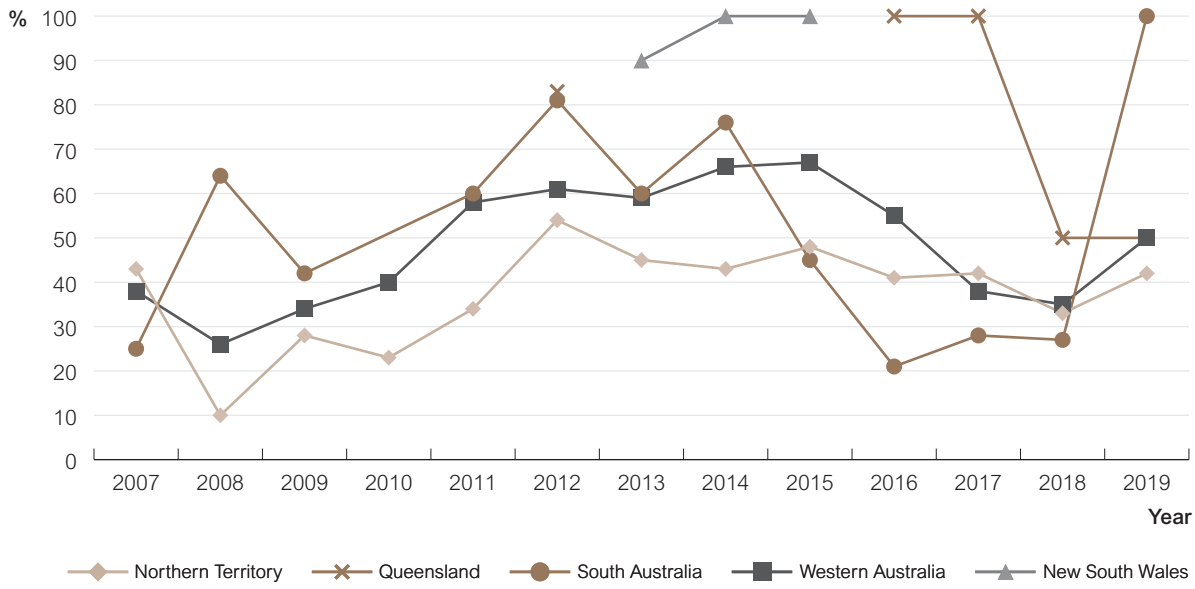


Figure 1.9 Proportion of at-risk communities with endemic (> 5%) levels of trachoma by jurisdiction, Australia 2007 – 2019

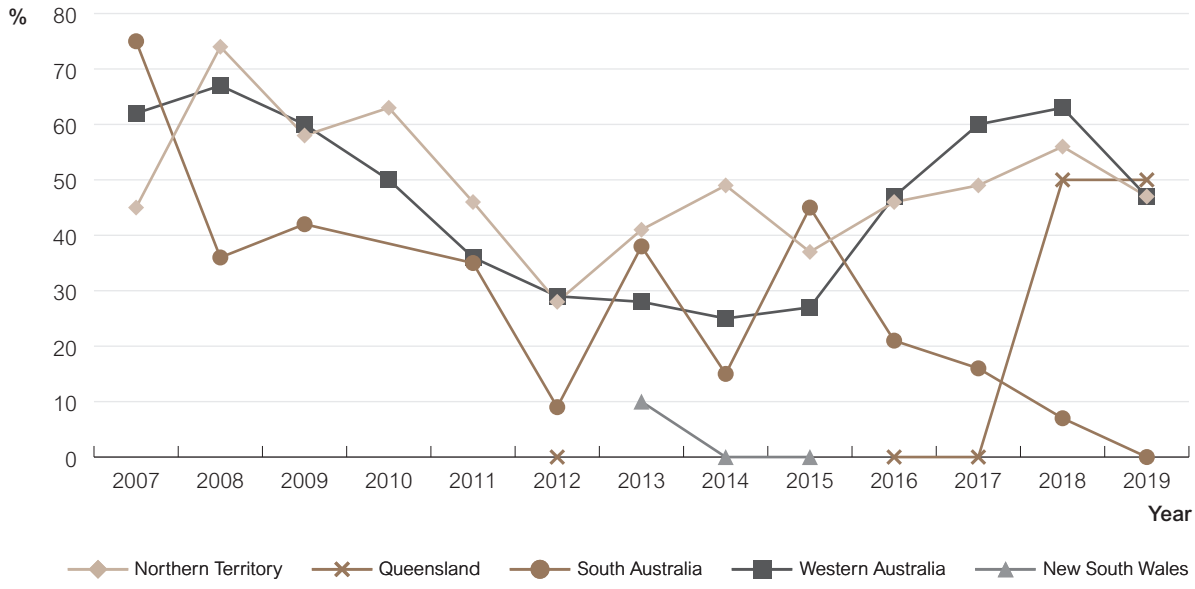


Figure 1.10 Figure 1.10 Number of doses of azithromycin administered for the treatment of trachoma by jurisdiction, Australia 2007 – 2019

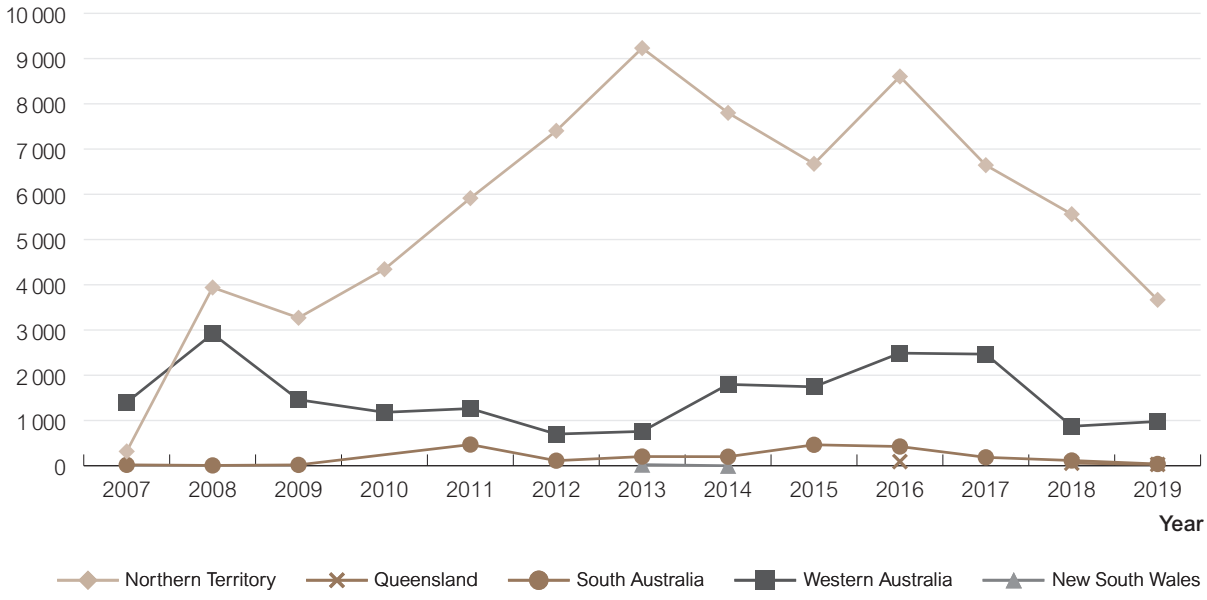


Table 1.1 Trachoma control delivery in at-risk* communities by jurisdiction, Australia 2019

Number of communities	Northern Territory	Queensland	South Australia	Western Australia	Total
At risk * (A)	57	5	15	38	115
Requiring screening for trachoma (B)	57	5	15	36	113
Screened for trachoma (C)	55	5	15	36	111
Requiring treatment without screening (D) †	0	0	0	0	0
Received treatment without screening (E) †	0	0	0	0	0
Screened and/or treated for trachoma (F = C+E)	55	5	15	36	111
Requiring neither screening or treatment for trachoma (G=A-B-D)	0	0	0	0	0

* As defined by each jurisdiction.
† As per Guidelines.

Table 1.2 Trachoma screening coverage, trachoma prevalence* and clean face prevalence in children aged 5-9 years by jurisdiction, Australia 2019

	Northern Territory	Queensland	South Australia	Western Australia	Total
Number of communities screened	55	5	15	36	111
Children examined for clean face	2118	175	392	551	3236
Children with clean face	1585	130	340	363	2418
Clean face prevalence (%)	*75*	*74*	*87*	*66*	*75*
Estimated number† of Indigenous children in communities‡	2178	234	437	584	3433
Children screened for trachoma	2049	175	385	545	3154
Trachoma screening coverage (%)	*94*	*75*	*88*	*93*	*92*
Children with active trachoma	168	13	0	82	263
Observed prevalence of active trachoma (%)§	*8.2*	*7.4*	*0.0*	*15.0*	*8.3*
Estimated prevalence of active trachoma (%)§	*8.2*	*7.4*	*0.0*	*15.0*	*8.3*
Overall prevalence of active trachoma (%)§	*5.2*	*7.4*	*0.0*	*6.4*	*4.5*

* The QLD data in this table refers to children with upper eyelid follicles consistent with the definition of trachomatous inflammation — follicular. Children found to have this condition are further tested for the presence of Chlamydia trachomatis via ocular swab specimens. The findings of this test are presented in the QLD section.
† Jurisdictional estimate.
‡ Communities that were screened for trachoma in 2019.
§ Methods of calculating prevalence rates on page 16

Table 1.3 Number and proportion* of at-risk communities according to level of trachoma prevalence in children aged 5-9 years, Australia 2007 – 2019

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Communities at risk†	229		233		232		244		203		196		183		177		157		150		130		120		115	
Communities not screened‡	106		102		116		89		51		9		20		0		8		8		1		8		4	
Number of communities§	123		121		116		152		152		187		163		177		149		142		129		112		111	
≥20%	32	26%	54	45%	26	22%	44	29%	21	14%	15	8%	14	9%	17	10%	16	11%	15	11%	17	13%	13	12%	24	22%
≥10% but <20%	22	18%	14	12%	13	11%	23	15%	20	13%	13	7%	20	12%	36	20%	27	18%	29	20%	30	23%	34	30%	13	12%
≥5% but <10%	11	9%	14	12%	12	10%	15	10%	20	13%	20	11%	21	13%	12	7%	16	11%	12	8%	13	10%	16	14%	8	7%
>0% but <5%	7	6%	12	10%	24	21%	16	11%	19	13%	24	13%	17	10%	13	7%	16	11%	21	15%	19	15%	15	13%	8	7%
0%	51	41%	27	22%	41	35%	54	36%	72	47%	115	61%	91	56%	99	56%	74	50%	65	46%	50	39%	34	30%	58	52%

* Based on current or most recent year.
† As defined annually by each jurisdiction.
‡ Or treated as required per Guidelines.
§ Screened or receiving ongoing annual treatment as per Guidelines.

Table 1.4 Treatment strategies by jurisdiction, Australia 2019

Number of communities	Northern Territory	Queensland	South Australia	Western Australia	Total
Required treatment for trachoma	32	2	10	22	66
Treated for trachoma	32	2	10	22	66
Screened and treated	32	2	10	22	66
Received treatment only	0	0	0	0	0
Received 6-monthly treatment	0	0	0	0	0
Did not require treatment	25	3	5	16	49
Treated active trachoma and households	19	2	10	19	50
Community-wide treatment	13	0	0	3	16
Not treated according to CDNA guidelines	1	0	0	0	1

Table 1.5 Trachoma treatment coverage, Australia 2019

	Northern Territory					Queensland					South Australia					Western Australia					Total				
Age group (years)	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*
Requiring treatment for active trachoma	13	168	14	0	195	0	3	1	0	4	0	0	4	0	4	4	82	3	0	89	17	253	22	0	292
Received treatment for active trachoma	13	168	14	0	195	0	3	1	0	4	0	0	4	0	4	4	82	3	0	89	17	253	22	0	292
Received treatment for active trachoma (%)	*100*	*100*	*100*		*100*		*100*	*100*	*NA*	*100*	*100*	*100*	*100*		*100*	*100*	*100*	*100*		*100*	*100*	*100*	*100*		*100*
Estimated community members* requiring treatment	451	477	427	2679	4034	0	7	3	15	25	1	2	13	19	35	91	129	109	582	911	543	615	552	3292	5002
Number of community members* who received treatment	402	458	392	2220	3472	0	7	3	15	25	1	2	13	19	35	89	126	107	568	890	492	593	515	2819	4419
Estimated community members who received treatment (%)	*89*	*96*	*92*	*83*	*86*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*91*	*96*	*93*	*86*	*88*
Number of community members that refused treatment	23	4	6	169	202	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	4	6	169	202
Total number of doses of azithromycin delivered	415	626	406	2220	3667	0	10	4	15	29	1	2	17	19	39	93	208	110	568	979	509	846	537	2819	4711
Estimated overall treatment coverage (%)	*89*	*97*	*92*	*83*	*87*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*98*	*99*	*98*	*98*	*98*	*91*	*97*	*94*	*86*	*89*

* Estimated as per Guidelines.

Table 1.6 Trachoma-related trichiasis screening coverage, prevalence and treatment among Indigenous adults, Australia 2019

	Northern Territory		Queensland		South Australia		Western Australia		Total		
Number of communities screened for trichiasis	**71**		**5**		**15**		**36**		**127**		
Age group	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15+***
Estimated population in region*	15314	8745	726	465	2642	1778	5943	3414	24625	14402	39027
Adults examined†	5731	4962	113	146	709	662	180	474	6733	6244	12977
With trichiasis	1	0	0	2	1	3	0	4	2	9	11
With trichiasis (%)	*0.02*	*0*	*0*	*1.37*	*0.1*	*0.5*	*0*	*0.8*	*0.03*	*0.14*	*0.08*
Surgery in past 12 months	0	4	0	0	0	1	0	1	0	6	6

* Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions.
† Number of adults examined limited to numbers reported. This number may not account for all adults who may be examined in routine adult health checks, and may also include multiple screening.
‡ Surgery cases may include cases identified in previous years.

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Jurisdictional-specific results

Northern Territory results

Trachoma program coverage

- In 2019, the NT identified 57 communities across 5 regions as being at risk of trachoma (Table 2.1, Figure 2.2).
- Of these at-risk communities 100% required screening or treatment for trachoma according to current guidelines (Table 2.1, Figure 2.3).
- Of the communities that required screening and treatment 96% (55/57) received the required service (Table 2.1).
- Logistical issues in the Darwin Rural region led to 2 communities that required screening not receiving these services. These communities were scheduled to be screened early in 2020.

Screening coverage

- In 2019, the NT identified 57 communities in the 5 regions requiring screening for trachoma with 55 of those screened (Table 2.1).
- The proportion of children aged 5-9 years screened in the 55 communities was 94%, ranging from 91% in the Katherine region to 98% in the Barkly region (Table 2.2, Figure 2.4).

Facial cleanliness

- Clean face prevalence was assessed in all communities that were screened in 2019.
- The overall prevalence of clean faces among children aged 5-9 years in the communities assessed was 75%, ranging from 61% in the Alice Springs Remote region, to 90% in East Arnhem region (Table 2.2, Figure 2.5).

Trachoma prevalence

- The observed and estimated prevalence of active trachoma in those aged 5-9 years in 55 communities that were screened in 2019 was 8.2% (168/2049). Prevalence ranged from 0% in Darwin Rural and East Arnhem Regions to 18.9% in the Alice Springs Remote region (Table 2.2, Figure 2.6a).
- The overall prevalence of active trachoma in those aged 5-9 years was 5.2%, ranging from 0% in East Arnhem to 18.3% in Alice Springs Remote region (Table 2.2, Figure 2.6c).
- No trachoma was reported in 42% (23/55) of the screened at-risk communities (Table 2.3).
- Endemic levels of trachoma (≥ 5%) were reported in 47% (26/55) of the at-risk communities (Table 2.3).
- Hyperendemic levels of trachoma (≥ 20%) were reported in 22% (12/55) of the at-risk communities (Table 2.3).

Treatment delivery and coverage

- Trachoma treatment strategies were applied in 32 communities (Table 2.4).
- Treatment was delivered to active trachoma cases and household contacts in 19 communities, and community wide in 13 communities as per CDNA Guidelines (Table 2.4).
- Total treatment coverage for those with active trachoma and community members, and community-wide treatment in all regions requiring treatment was 87% with 3,667 doses of azithromycin delivered (Table 2.5, Figure 2.8).
- In 2019 the NT recorded 202 people who declined treatment with 166 in the Alice Springs Remote region, 16 in the Barkly region and 20 in the Katherine region (Table 2.5).

Trichiasis

- Reporting for trichiasis screening was available for 71 communities (Table 2.6).
- Overall 10,693 adults aged 15 years and older were reported to be screened (Table 2.6).
- The prevalence of trichiasis in adults aged 15 years and over was 0.01%, and 0% in adults aged 40 years and over (Table 2.6).
- Surgery for trichiasis was reported to be undertaken for 4 adults (Table 2.6).

Health promotion

- Health promotion activities were reported to have occurred in 42 communities in the Alice Springs Remote, Barkly, Darwin Rural, East Arnhem, and Katherine regions (Table 2.7).
- A total of 135 health promotion activities were reported (Table 2.7).
- Health promotion activities and resources featuring Milpa and the Clean Faces, Strong Eyes message were promoted throughout the NT communities. A number of four-wheel drive vehicles with Milpa branding were driven by Melbourne University, Indigenous Eye Health (IEH) and NT Public Health staff around Central Australia. These vehicles are well recognised by many people and provide a mobile link to the posters, music, community service announcements to raise awareness. IEH worked with Indigenous Hip Hop Projects to deliver Milpa dance tours and hygiene lessons to five schools in Central Australia. Melbourne Football Club partnered with IEH and Milpa to conduct community football clinics in two remote communities in Central Australia and visited schools in Darwin around the AFL football matches. Three new community service announcements were created with Melbourne Football Club featuring Milpa and five male and one female Indigenous players and these were broadcast on Imparja and Indigenous Community Television (ICTV).
- Seventy-four Trachoma Story Kits were ordered for the NT in 2019 along with a range of other resources. Social media was used as a large part of the campaign and there were 916 followers of clean faces strong eyes on Facebook. Six popular trachoma music videos, produced in previous years in partnership with communities, continued to be played (four produced in the NT) with a combined total of 123 157 plays on YouTube and Vimeo.

Health Hardware and Hygiene Network

- The Health Hardware and Hygiene Network established in 2017 continues to work towards the following objectives:
- To provide leadership and advocacy in promoting the importance of safe hygiene behaviours and functioning house health hardware (e.g. wet areas – bathrooms, toilets, kitchens and laundries) on remote Aboriginal communities.
- To engage Aboriginal people in the development of an evidence-based hygiene strategy for remote Aboriginal communities.
- To facilitate communication and enhance collaboration between government departments, Non-Government Organisations and Aboriginal peak bodies.
- To advocate for long-term sustained investment in and support for a skilled, community-based Aboriginal Environmental Health workforce.

The network is comprised of stakeholders across a broad range of NT government and non-government organisations. The network is co-chaired by the Fred Hollows Foundation and the Aboriginal Medical Services Northern Territory.

Get Grubby program

NT Environmental Health Program supports MacDonnell Regional Council to implement a Healthy Communities Program including strategic planning for health and wellbeing and planning, delivery and evaluation of an annual whole of community health promotion event including visits by the Get Grubby (https://www.mememe.com.au/campaign-3) and Bush Wok http://www.ethicalnutrition.com.au/BushWok.htm) teams. The events are interactive and focused on the promotion of health and hygiene messages. The aim of the program is:

- to increase community awareness, knowledge and understanding of environmental health issues in the community, in particular in the home, which contribute to the spread of infectious diseases.
- to empower Aboriginal families to improve their living environments.
- to assist Aboriginal families to teach children how to perform safe hygiene practices including handwashing with soap, face washing to remove nasal and ocular discharge and regular body washing especially when skin sores are present.

Milpa's Six Steps to Stop Germs

While Milpa and his key tagline Clean Faces, Strong Eyes continued to be promoted there was a need to ensure this message was part of a broader approach for preventing infectious diseases common in remote Indigenous communities. In 2019 IEH widely consulted about six hygiene steps that were based on the accepted prevention strategies to reduce the risk of trachoma and common infections. The aim was to create a unified approach to use in community education about hygiene-related illness that could help lead to sustainable elimination of trachoma and reduce the burden of other infections. The consultation was conducted with 32 groups and four individuals including Indigenous community members and both Indigenous and non-Indigenous staff members from health, environmental health, education, language and community services and networks in SA, WA and the NT. The contribution of the Indigenous community and staff was to ensure the message was kept simple and described in everyday language. Indigenous voices were privileged over those of non-Indigenous participants.

The preferred name became Milpa's Six Steps to Stop Germs which linked the materials to the popular No Germs on Me social marketing campaign by the NT's Department of Health and Families. This unified hygiene approach means many programs are using the same messaging and partnerships can be formed with other hygiene-related health programs including dental, ear, skin and rheumatic heart. In 2019 oral health and trachoma programs successfully collaborated to provide sessions with schools in a region in the NT. For further information about Milpa's Six Steps to Stop Germs and acknowledgements please visit https://mspgh.unimelb.edu.au/centres-institutes/centre-for-health-equity/research-group/ieh/trachoma/six-steps#intro

Environmental Health

The NT Trachoma Environmental Working group was established after a workshop was held in Alice Springs in February 2018. The advocacy group meets bimonthly with around 20 participants representing multiple stakeholders. The group facilitates communication across sectors and services and is focused on improving access to washing facilities, improving environmental health and advancing policy. The group is chaired and supported by IEH. In 2019 there were discussions and agreement with Outback Stores about the supply of personal hygiene and household cleaning products in their new discount store in Alice Springs.

ESPACE

The ESPACE project is implemented by the NT Environmental Health team with the aim to prevent childhood hygiene-related infections. This is a two-pronged project focusing on:

- standardised hygiene messaging across the community by community members, primary health centres, stores, councils and youth programs (see detail below in Hygiene Messaging – Remote Community Service Providers).
- installation of hygiene hardware in five services across the community.

The project relies heavily on community engagement and is supported by Rotary End Trachoma by 2020, regional councils and local service providers. The project is being undertaken in one community with plans to expand to others once evaluation is completed.

Amenities for Community Events (ACE) project

The Amenities for Community Events working group has been developed to provide leadership and advice regarding the development of the pilot project for provision of mobile toilet amenities at sporting and cultural events in remote indigenous communities in the NT with the aim of improving access to hygiene infrastructure and reducing rates of communicable diseases. The working group will provide specific advice in relation to the following:

- Identification of potential risks and benefits of the pilot project to help inform a Health Impact Assessment
- Establishing and conducting appropriate community consultation
- Exploring regulatory requirements
- Concept design leading to detailed design.

The pilot project relies heavily on community consultation and engagement with public health (environmental and disease control) and the Power and Water Corporation.

Education

The NT Department of Education is in its third year of implementing a Clean Faces Strong Eyes and Ears Continuum – a systematic approach to increase health hardware infrastructure and build the capacity of staff to conduct hygiene practices in schools. The NT Department of Education continued to work with IEH and Public Health to support the trachoma program in various ways. A workshop was held in Alice Springs with 11 staff members of Families as First Teacher (FaFT) from Central Australia and the Barkly in March 2019 to discuss Milpa's Six Steps to Stop Germs and hygiene routines in FaFT programs.

NT Department of Education completed infrastructure upgrades to washing facilities in nine remote schools with one school producing a video showcasing their new wash facilities and promoting good hygiene. Following the upgrades, IEH received orders for trachoma resources to support hygiene programs from all nine schools. Approximately 36 / 42 schools in Central Australia have had one form of engagement or another around the Continuum project to promote hygiene routines in 2019.

National Eye Health Conference

The Close the Gap for Vision by 2020 national conference was held in Alice Springs in March. It was organised by IEH and co-hosted by Aboriginal Medical Services Northern Territory. One highlight was the Alice Springs declaration on housing. Delegates unanimously endorsed a declaration urging governments to work together in housing, a key determinant of Indigenous health and wellbeing. http://go.unimelb.edu.au/6erj.

A lack of housing maintenance has serious impacts for health including for trachoma. Presentations at the conference on Education and Environmental Health were some of the other trachoma related highlights. Attended by approximately 170 people from around Australia, it was an important gathering for the eye-care sector. The Central Australian Aboriginal Media Association (CAAMA) radio sponsored the conference and conducted interviews with participants and reported on the conference.

Online modules

Remote Area Health Corps (RAHC) and IEH developed two new eye health modules as part of an extensive suite of continuing professional development approved health modules for health professionals undertaking placements in remote Indigenous health settings. The trachoma and trichiasis modules were added to the RAHC and IEH websites. Primary health and other staff completed 438 trachoma, 127 trachoma grading and 89 trichiasis grading modules in 2019.

Partnerships

Rotary Clubs of Australia supported trachoma efforts in 2019 in many different ways through the EndTrachoma by 2020 program. Activities included building a community laundry, personal care packs, hygiene kits, mirrors and towel hooks and manufacturing a portable water trailers. https://www.endtrachoma2020.org.au/projects

Life Education continued to partner with Katherine West Health Board using Healthy Harold and Milpa to promote good hygiene and healthy living throughout the Katherine West communities. Soap Aid, IEH, CDC, Katherine West Health Board and Central Australian Aboriginal Health Congress worked together to deliver 23,000 bars of Milpa soap with resources to communities in the NT in 2019.

Figures and Tables – Northern Territory

Figure 2.1 Overall trachoma prevalence in children aged 5-9 years in all at-risk communities by region, Northern Territory 2019

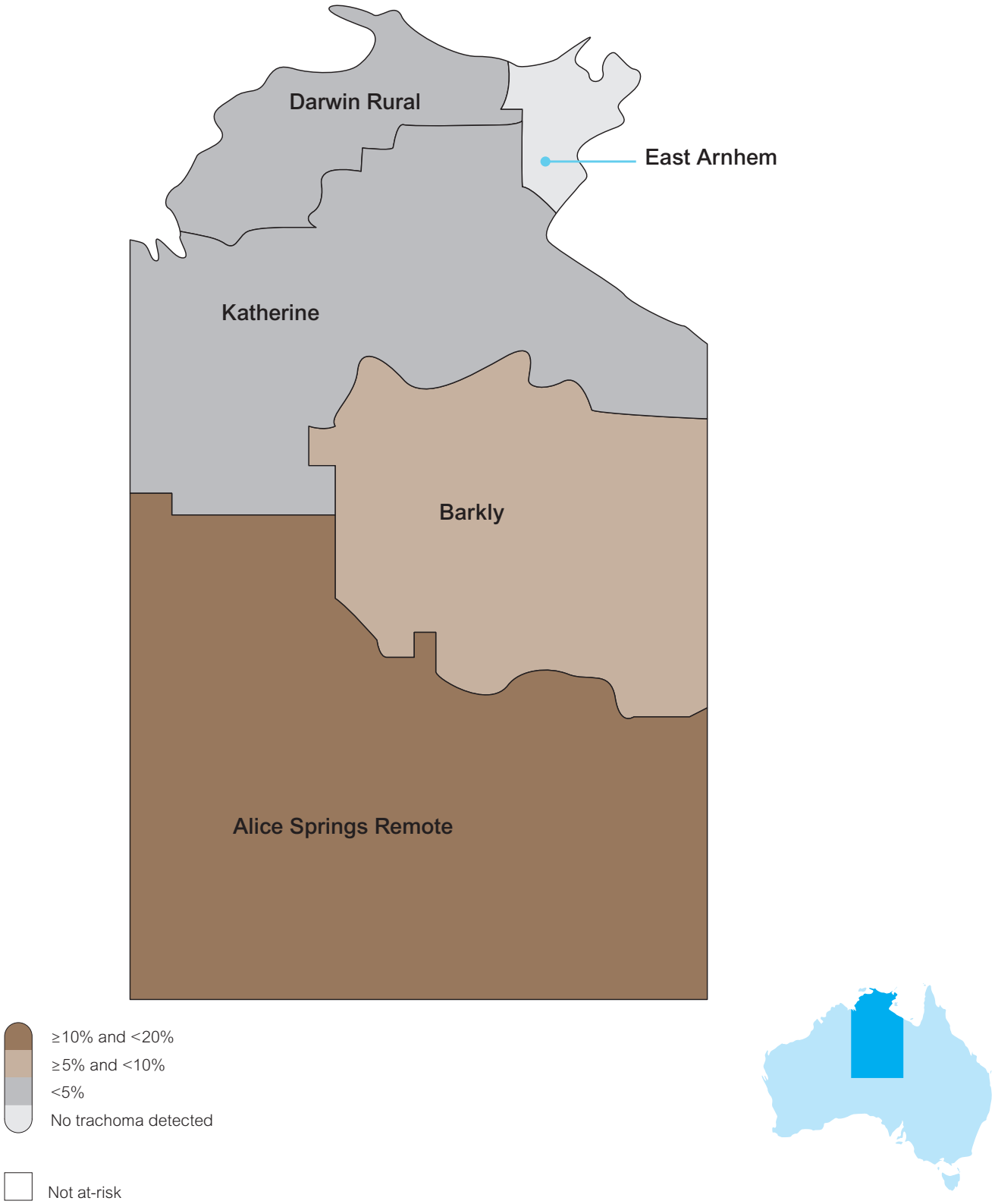


Figure 2.2 Number of at-risk communities by region, Northern Territory 2007 – 2019

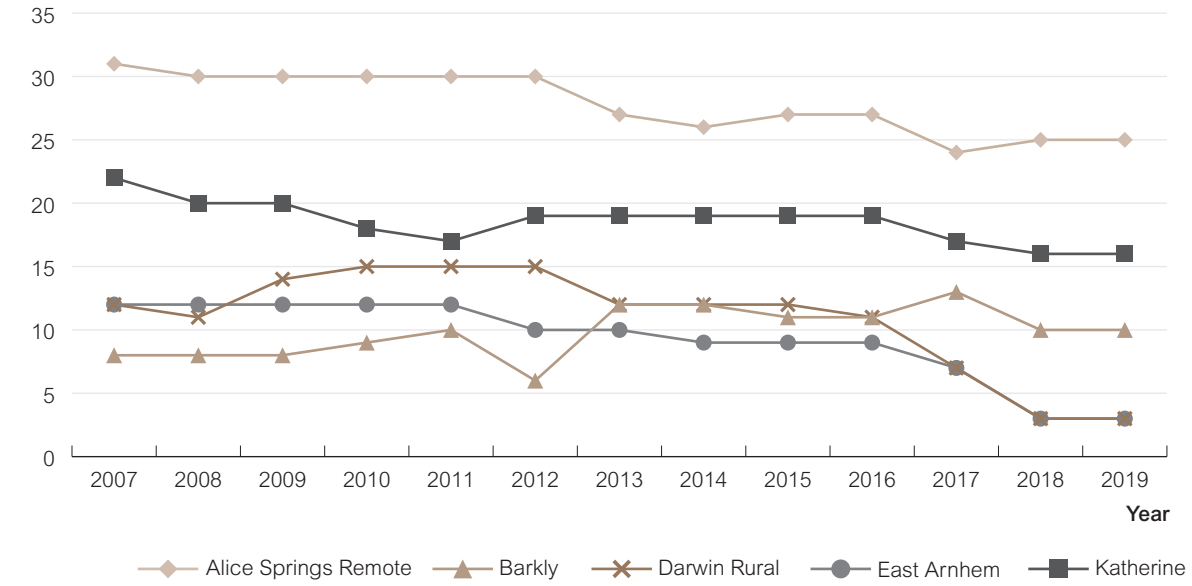


Figure 2.3 Number of at-risk communities by region and trachoma control strategy, Northern Territory 2019

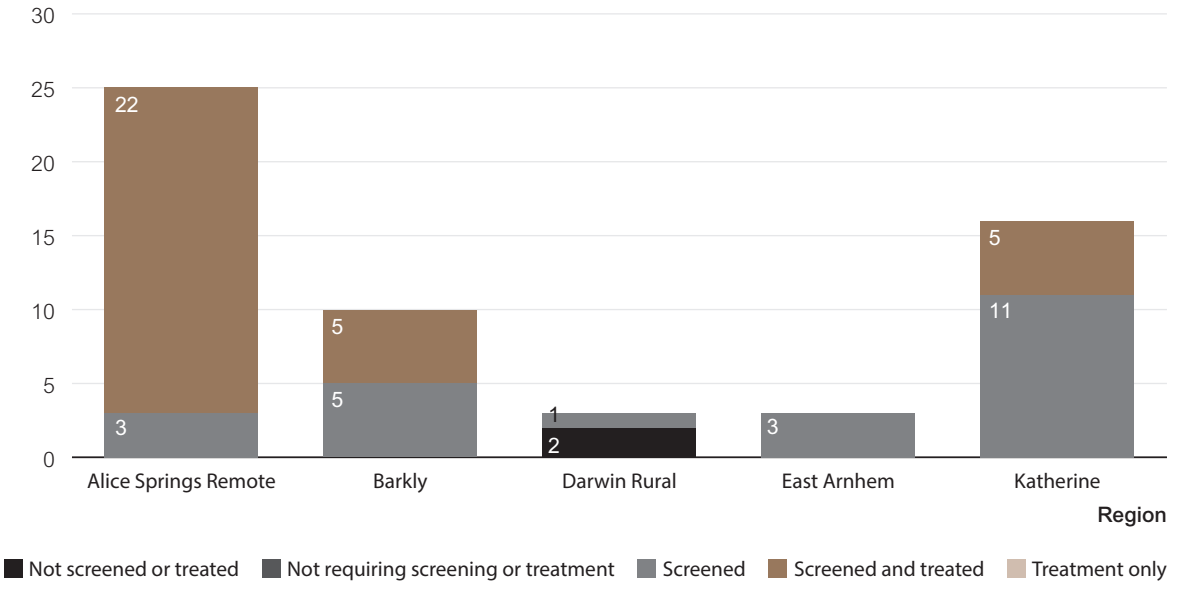


Figure 2.4 Population screening coverage of children aged 5-9 years in communities that required screening for trachoma by region, Northern Territory 2019

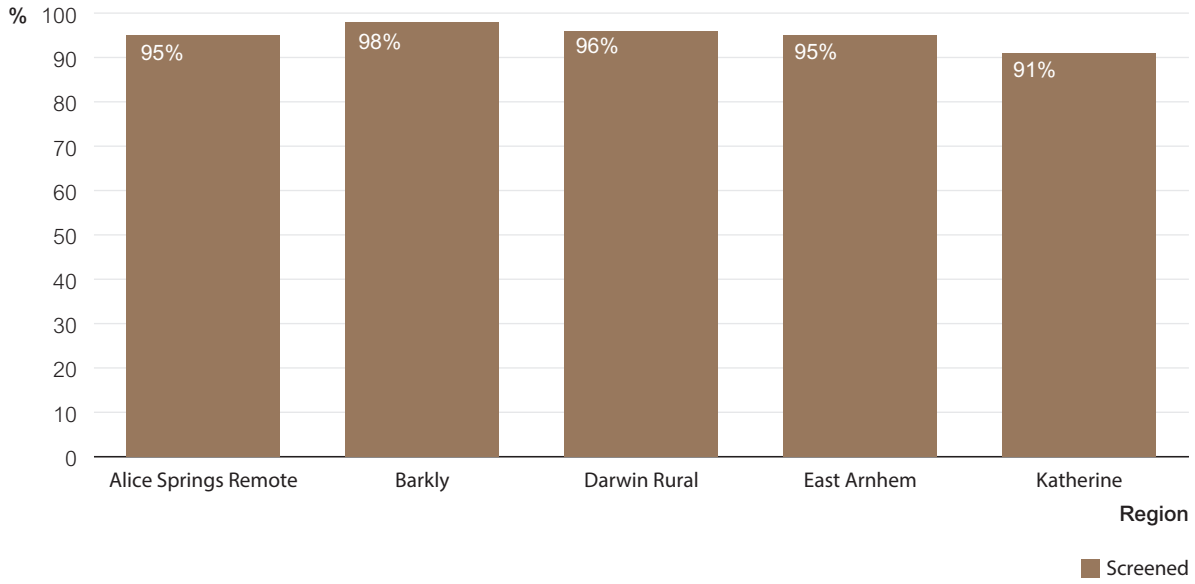


Figure 2.5 Proportion of screened children aged 5-9 years who had a clean face by region, Northern Territory 2007 – 2019

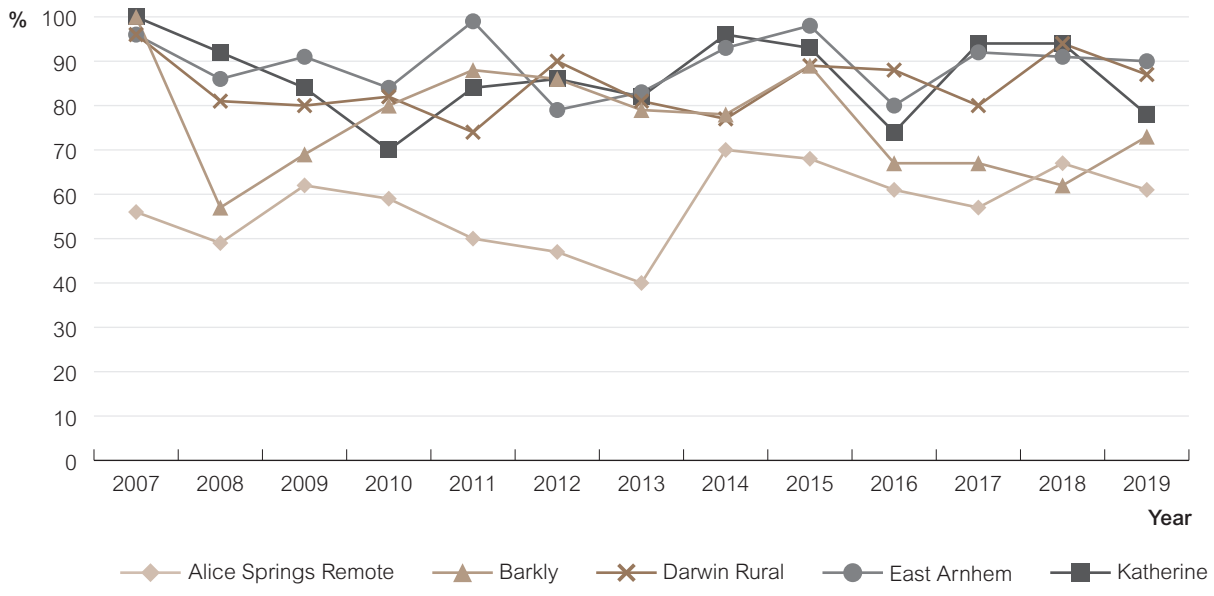


Figure 2.6a. Observed prevalence of active trachoma among children aged 5-9 years in communities that were screened by region, Northern Territory 2007 – 2019

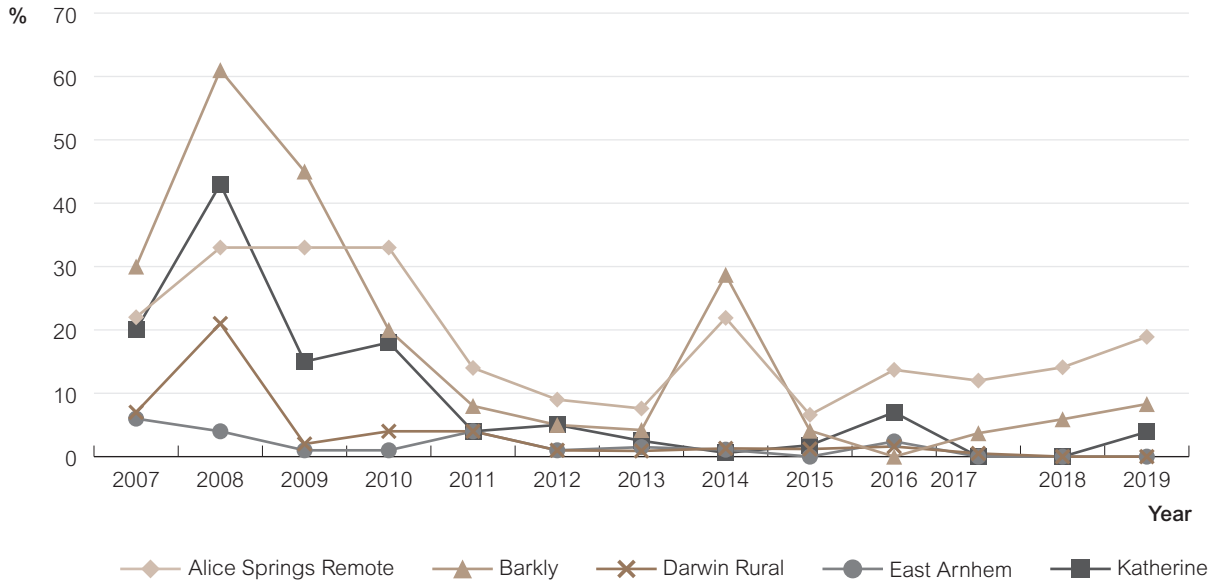
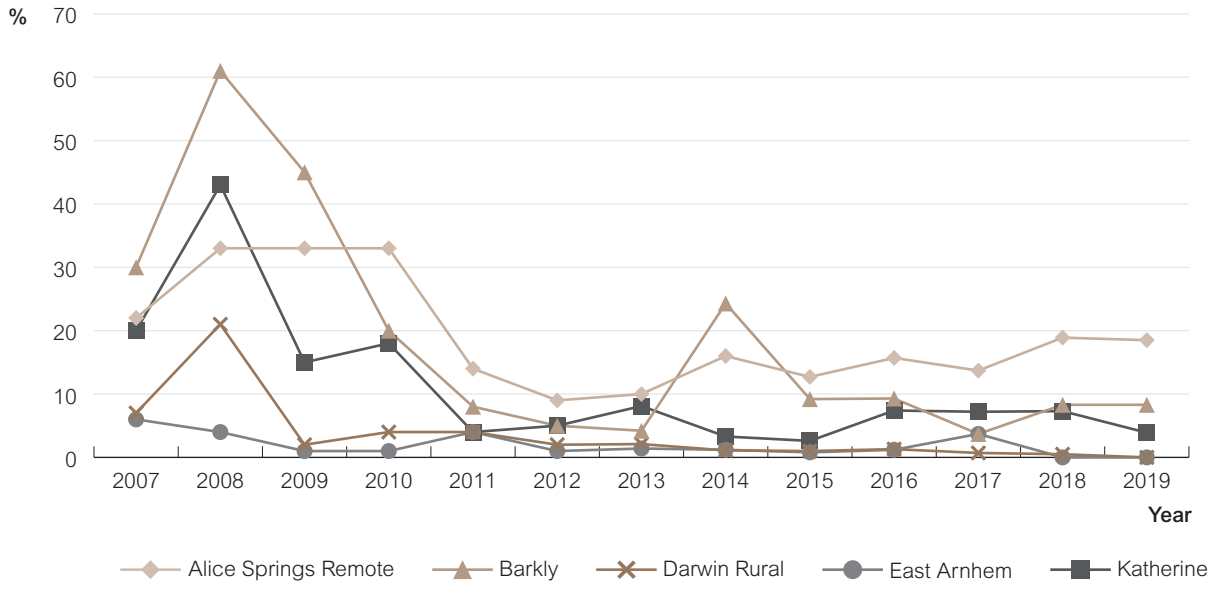
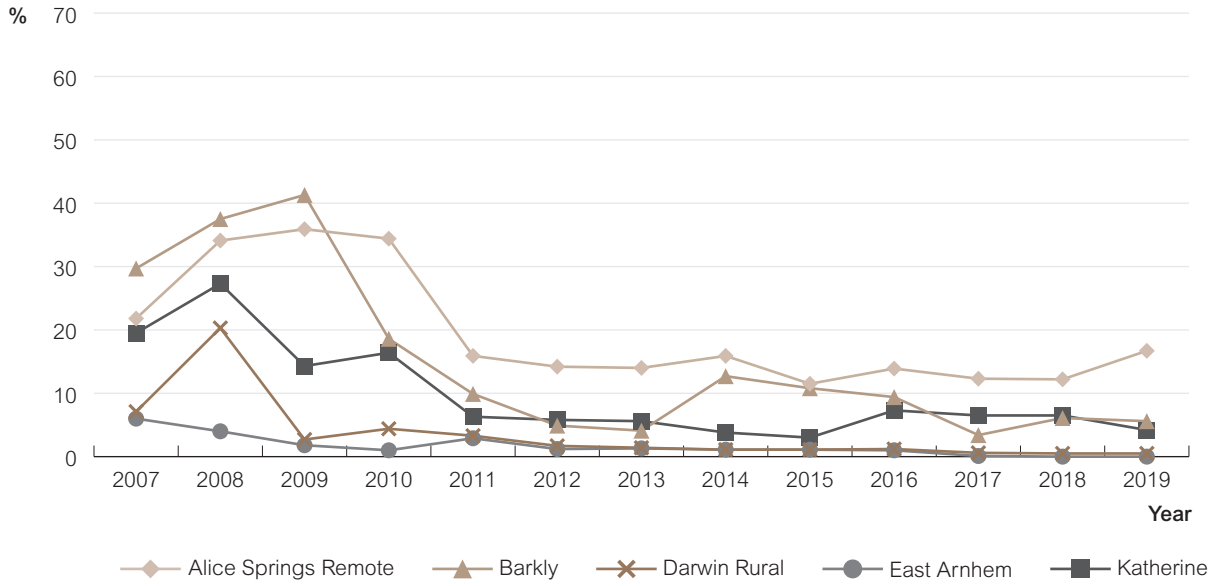


Figure 2.6b. Estimated prevalence of active trachoma among children aged 5-9 years in all at-risk communities* by region, Northern Territory 2007 – 2019



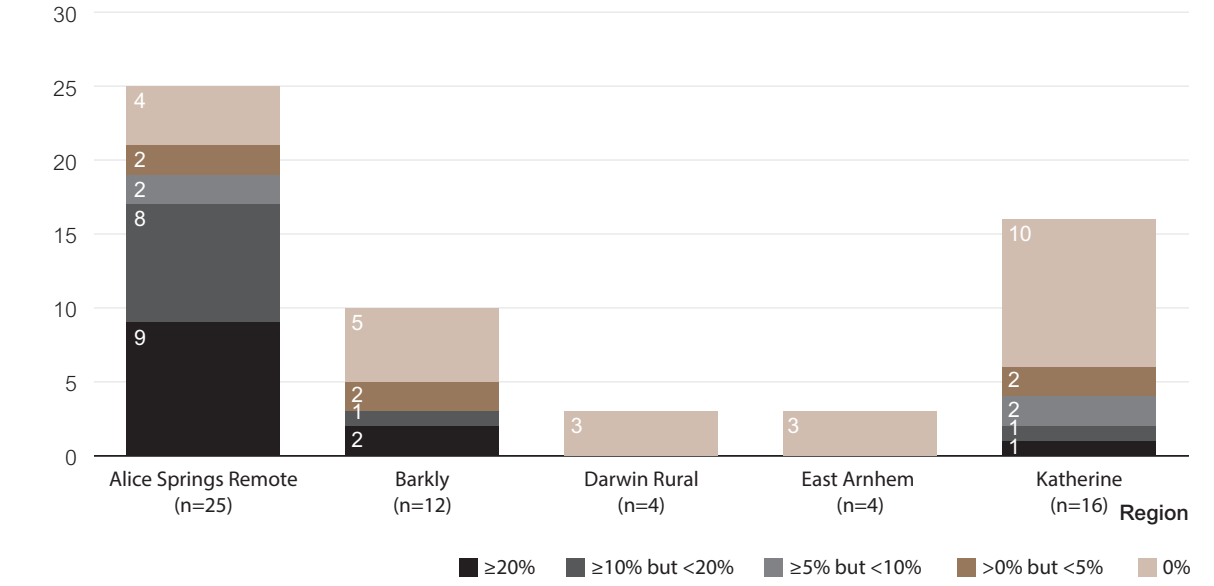
* Most recent estimates carried forward in at-risk communities that did not screen in 2019.

Figure 2.6c. Overall prevalence of active trachoma* among children aged 5-9 years by region, Northern Territory 2007 – 2019



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

Figure 2.7 Number of at-risk communities* according to level of trachoma prevalence in children aged 5-9 years by region, Northern Territory 2019



* Most recent estimates carried forward in at-risk communities that did not screen in 2019.

Figure 2.8 Number of doses of azithromycin administered for the treatment of trachoma by region, Northern Territory 2007 – 2019

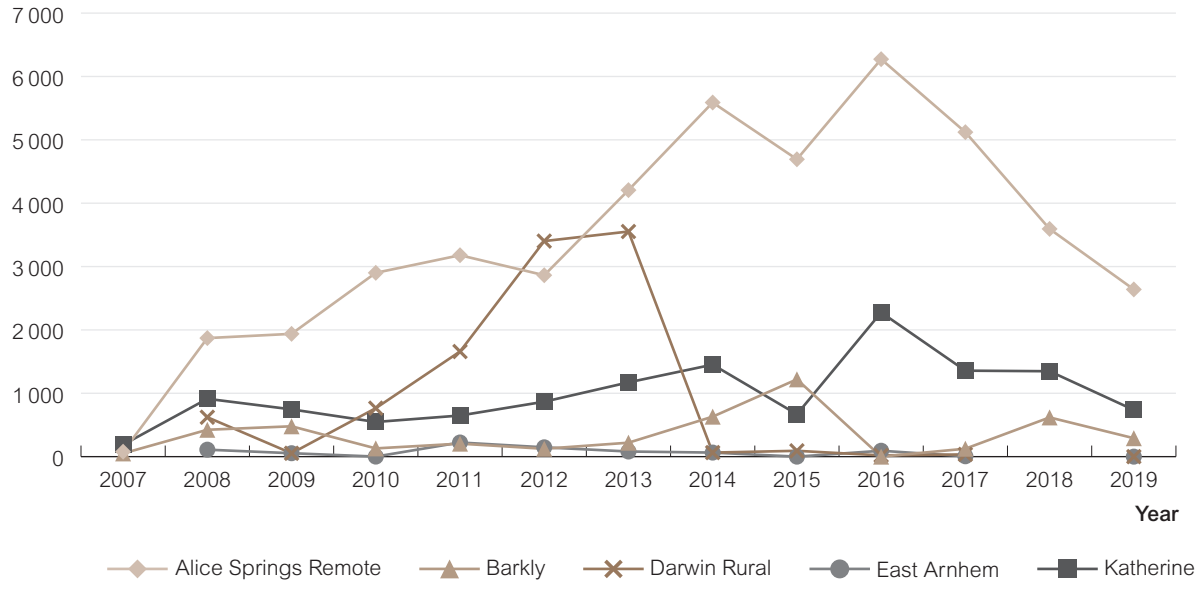


Table 2.1 Trachoma control delivery in at-risk* communities by region, Northern Territory 2019

Number of communities	Alice Springs Remote	Barkly	Darwin Rural	East Arnhem	Katherine	Total
At risk * (A)	25	10	3	3	16	57
Requiring screening for trachoma (B)	25	10	3	3	16	57
Screened for trachoma (C)	25	10	1	3	16	55
Requiring treatment without screening† (D)	0	0	0	0	0	0
Received treatment without screening† (E)	0	0	0	0	0	0
Screened and/or treated for trachoma (F = C+E)	25	10	1	3	16	55
Requiring neither screening or treatment for trachoma (G=A-B-D)	0	0	0	0	0	0

* As defined by each jurisdiction.
† As per Guidelines.

Table 2.2 Trachoma screening coverage, trachoma prevalence and clean face prevalence by region, Northern Territory 2019

	Alice Springs Remote				Barkly				Darwin Rural				East Arnhem				Katherine				Total			
Number of communities screened	25				10				1				3				16				55			
Age group (years)	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***
Children examined for clean face	267	**673**	262	1,202	46	**257**	39	342	8	**199**	18	225	5	**342**	9	356	354	**647**	41	1,042	680	**2,118**	369	3,167
Children with clean face	97	**411**	244	752	8	**187**	36	231	2	**174**	16	192	4	**309**	9	322	259	**504**	40	803	370	**1,585**	345	2,300
Clean face prevalence (%)	*36*	***61***	*93*	*63*	*17*	***73***	*92*	*68*	*25*	***87***	*89*	*85*	*80*	***90***	*100*	*90*	*73*	***78***	*98*	*77*	*54*	***75***	*93*	*73*
Estimated number* of Indigenous children in communities†	477	**688**	582	1,747	118	**257**	200	575	95	**203**	260	558	136	**355**	131	622	495	**675**	133	1,303	1,321	**2,178**	1,306	4,805
Children screened for trachoma	21	**652**	77	750	4	**252**	13	269	8	**195**	18	221	5	**336**	9	350	312	**614**	41	967	350	**2,049**	158	2,557
Trachoma screening coverage (%)	*4*	***95***	*13*	*43*	*3*	***98***	*6*	*47*	*8*	***96***	*7*	*40*	*4*	***95***	*7*	*56*	*63*	***91***	*31*	*74*	*26*	***94***	*12*	*53*
Children with active trachoma†	11	**123**	11	145	1	**21**	1	23	0	**0**	0	0	0	**0**	0	0	1	**24**	2	27	13	**168**	14	195
Observed prevalence of active trachoma‡ (%)	*52.4*	***18.9***	*14.3*	*19.0*	*25.0*	***8.3***	*7.7*	*8.6*	*0.0*	***0.0***	*0.0*	*0.0*	*0.0*	***0.0***	*0.0*	*0.0*	*0.3*	***3.9***	*4.9*	*2.8*	*3.7*	***8.2***	*8.9*	*7.6*
Estimated prevalence of active trachoma‡ (%)		***18.9***				***8.3***				***0.0***				***0.0***				***3.9***				***8.2***		
Overall prevalence of active trachoma‡ (%)		***18.3***				***6.4***				***0.4***				***0.0***				***4.7***				***5.2***		

* Jurisdiction provides estimate for children aged 5-9 years only; number of children in communities aged 0-4 and 10-14 years are based on convenience sampling.
† In communities that were screened for trachoma in 2019.
‡ Methods of calculating prevalence rates on page 16

Table 2.3 Number and proportion of at-risk communities according to level of trachoma prevalence* in children aged 5-9 years, Northern Territory 2007 – 2019

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Communities at risk†	89		87		86		86		86		82		80		78		78		77		68		61		57	
Communities not screened‡	25		25		33		21		19		4		12		0		8		8		1		8		2	
Number of communities§	60		43		53		64		65		76		68		78		70		69		67		53		55	
≥20%	12	20%	25	58%	19	36%	27	42%	9	14%	5	7%	5	7%	14	18%	11	16%	11	16%	10	15%	7	13%	12	22%
≥10% but <20%	8	13%	6	14%	8	15%	4	6%	9	14%	9	12%	14	21%	14	18%	11	16%	13	19%	12	18%	21	40%	10	18%
≥5% but <10%	4	7%	4	9%	3	6%	9	14%	11	17%	9	12%	9	13%	10	13%	7	10%	8	12%	9	13%	7	13%	4	7%
>0% but <5%	7	12%	4	9%	9	17%	9	14%	14	22%	13	17%	9	13%	6	8%	10	14%	9	13%	8	12%	4	8%	6	11%
0%	29	48%	4	9%	14	26%	15	23%	22	34%	40	53%	31	46%	34	44%	31	44%	28	41%	28	42%	14	26%	23	42%

* Based on current or most recent year.
† As defined annually by each jurisdiction.
‡ Or treated as required per Guidelines.
§ Screened or receiving ongoing annual treatment as per Guidelines.

Table 2.4 Treatment strategies by region, Northern Territory 2019

	Alice Springs Remote	Barkly	Darwin Rural	East Arnhem	Katherine	Total
Required treatment for trachoma	22	5	0	0	5	32
Treated for trachoma*	22	5	0	0	5	32
Screened and treated	22	5	0	0	5	32
Received treatment only	0	0	0	0	0	0
Received 6-monthly treatment	0	0	0	0	0	0
Did not require treatment	3	5	3	3	11	25
Treated active trachoma and households	12	4	0	0	3	19
Community-wide treatment	10	1	0	0	2	13
Not treated according to CDNA Guidelines*	1	0	0	0	0	1

* One community in the Alice Springs Remote region did not receive the treatment which was required by the CDNA Guidelines due to time constraints.

Figures and Tables – Northern Territory

Table 2.5 Trachoma treatment coverage by region,* Northern Territory 2019

	Alice Springs Remote					Barkly					Darwin Rural					East Arnhem					Katherine					Total				
	0-4	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*
Requiring treatment for active trachoma	11	123	11		145	1	21	1		23	0	0	0		0	0	0	0		0	1	24	2		27	13	168	14	0	195
Received treatment for active trachoma	11	123	11		145	1	21	1		23	N/A	N/A	N/A		N/A	N/A	N/A	N/A		N/A	1	24	2		27	13	168	14	0	195
Received treatment for active trachoma (%)	100	100	100		100	100	100	100		100	N/A	N/A	N/A		N/A	N/A	N/A	N/A		N/A	100	100	100		100	100	100	100		100
Estimated community members* requiring treatment	318	310	319	1,872	2,819	42	35	29	190	296	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	91	132	79	617	919	451	477	427	2,679	4,034
Number of community members* who received treatment	296	305	305	1,588	2,494	37	32	28	171	268	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	69	121	59	461	710	402	458	392	2,220	3,472
Estimated community members who received treatment (%)	*93*	*98*	*96*	*85*	*88*	*88*	*91*	*97*	*90*	*91*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*76*	*92*	*75*	*75*	*77*	*89*	*96*	*92*	*83*	*86*
Number of community members who declined treatment	20	2	6	138	166	3	2	0	11	16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0	0	0	20	20	23	4	6	169	202
Total number of doses of azithromycin delivered	307	428	316	1,588	2,639	38	53	29	171	291	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70	145	61	461	737	415	626	406	2,220	3,667
Estimated overall treatment coverage (%)	*93*	*99*	*96*	*85*	*89*	*88*	*95*	*97*	*90*	*91*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	*76*	*93*	*75*	*75*	*78*	*89*	*97*	*92*	*83*	*87*

* Includes household contacts and community members requiring and receiving mass drug administration (MDA).

Table 2.6 Trichiasis screening coverage, prevalence and treatment among Indigenous adults by region, Northern Territory 2019

	Alice Springs Remote		Barkly		Darwin Rural		East Arnhem		Katherine		Total		
Number of communities screened for trichiasis	22		6		15		10		18		71		
Age group (years)	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15+***
Estimated population in region*	2,325	1,475	641	321	4,926	2,760	4,598	2,611	2,824	1,578	15,314	8,745	24,059
Number of adults examined†	1,132	967	332	243	2,683	1,836	901	694	683	1,222	5,731	4,962	10,693
Number with trichiasis	1	0	0	0	0	0	0	0	0	0	1	0	1
Proportion with trichiasis (%)	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.02*	*0.00*	*0.01*
Surgery in past 12 months‡§	0	4	0	0	0	0	0	0	0	0	0	4	4

* Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions.
† Surgery cases may include cases identified in previous years.

Table 2.7 Health promotion activities by region, Northern Territory 2019

	Alice Springs Remote	Barkly	Darwin Rural	East Arnhem	Katherine	Total
Number of communities that reported health promotion activities	**21**	**8**	**1**	**3**	**9**	**42**
Total number of programs reported	**80**	**19**	**2**	**12**	**22**	**135**
Methods of health promotion						
One-on-one discussion	30	6		5	20	61
Presentation to group	56	11	2	8	3	80
Interactive group session	28	12	5	4	3	52
Social marketing	1	1	0	0	0	2
Print material/mass media	30	13	0	4	22	69
Sporting/community events	2	3	4	0	0	9
Other	2	0	0	0	2	4
Target audience						
Health professionals/staff	5	6	0	4	1	16
Children	17	29	9	4	22	81
Youth	1	7	4	0	0	12
Teachers/childcare/preschool staff	19	28	5	4	22	78
Caregivers/parents	12	16	2	7	3	40
Community members	4	17	4	5	0	30
Community educators/health promoters	1	7	0	0	0	8
Interagency members	1	7	0	2	1	11
Frequency of health promotion activities						
Once	23	1	6	11	22	63
Occasional*	2	31	3	0	0	36
Regular†	0	0	0	0	0	0
ºOngoing/routine	0	0	0	1	0	1

* 2-4 times per year.
† 5-12 times per year.

Queensland Results

Trachoma program coverage

- In 2019 QLD undertook further mapping exercises in 2 communities in North West QLD and 3 communities in the Torres Strait Islands identified as being potentially at risk of trachoma (Table 3.1).

Screening coverage

- Population screening coverage of children aged 5-9 years was 75% (Table 3.1).

Facial cleanliness

- The prevalence of clean faces among children aged 5-9 years was 74% (Table 3.1).

Presence of upper eyelid follicles meeting the definition for Trachomatous inflammation — follicular (TF)

- The observed prevalence of clinical signs consistent with follicular trachomatous inflammation (TF) in children aged 5-9 years in the 5 communities that were screened in 2019 was 7.4%. (Table 3.1).
- In the Torres Strait Islands, 4 children aged 5-9 years met the WHO simplified grading system for TF, however no other features of trachoma were found and PCR results were negative for *C. trachomatis*.
- In North West QLD 9 children aged 5-9 years met the WHO simplified grading system for TF, and 1 child tested PCR positive for *C. trachomatis*.

Treatment delivery and coverage

- Trachoma treatment strategies were undertaken in 2 communities. Cases and household contacts were treated (Table 3.2).
- Total treatment coverage for TF cases and community members, and community-wide treatment in all regions requiring treatment was 100% with 29 doses of azithromycin delivered (Table 3.2).

Trichiasis

- Trichiasis screening was undertaken in 5 communities in 2019 with 259 adults screened for trichiasis (Table 3.3).
- Two cases of trichiasis were detected in North West QLD region.
- Further to the communities reported, the optometrist who services the Torres Strait Islands visits most communities twice a year performing comprehensive eye exams, including trichiasis evaluation.
- No cases of trachoma-related trichiasis in an individual whose childhood was spent in the Torres Strait Islands have been detected in the last 13 years.

Health promotion

- Health promotion activities occurred in 5 communities in the north-western region of QLD and in the Torres Strait Islands (Table 3.4).
- A total of 17 health promotion activities were reported (Table 3.4).

Figures and Tables – Queensland

Figure 3.1 Overall trachoma prevalence in children aged 5-9 years in all at-risk communities by region, Queensland 2019

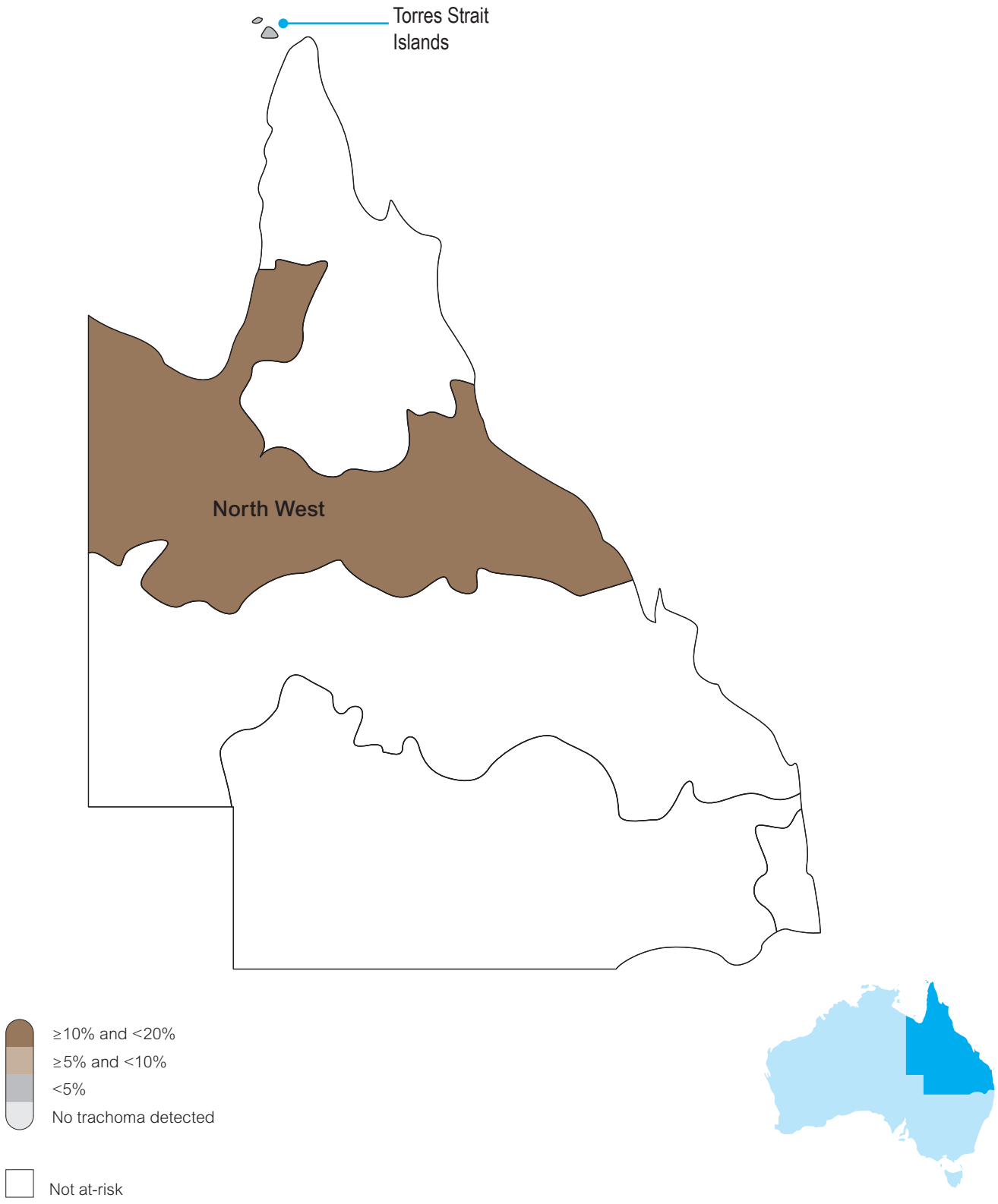


Table 3.1 Trachoma screening coverage, prevalence of clinical features consistent with TF and clean face prevalence, Queensland 2019

	Torres Strait Islands				North West Queensland				Total			
Number of communities screened	3				2				5			
Age group (years)	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***
Children examined for clean face	29	**98**	46	173	25	**77**	45	147	54	**175**	91	320
Children with clean face	27	**75**	45	147	11	**55**	45	111	38	**130**	90	258
Clean face prevalence (%)	*93*	***77***	*98*	*85*	*44*	***71***	*100*	*76*	*70*	***74***	*99*	*81*
Estimated number* of Aboriginal children in communities†	78	**104**	50	232	172	**130**	232	534	250	**234**	282	766
Children screened for trachoma	29	**98**	46	173	25	**77**	45	147	54	**175**	91	320
Trachoma screening coverage (%)	*37*	***94***	*92*	*75*	*14.5*	***59.2***	*19.4*	*27.5*	*21.6*	**75**	*32.3*	*41.8*
Children with clinical findings consistent with TF	4	**4**	1	9	2	**9**	1	12	6	**13**	2	21
Observed prevalence of clinical findings consistent with TF (%)	*13.8*	***4.1***	*2.2*	*5.2*	*8.0*	***11.7***	*2.2*	*8.2*	*11.1*	***7.4***	*2.2*	*6.6*
Estimated prevalence of clinical findings consistent with TF (%)		***4.1***				***11.7***				***7.4***		
Number of communities screened		**4.1**				**11.7**				**7.4**		

* Community population list not provided for the 1-4 and 10-14 age group in 1 one North West QLD community, therefore Census 2016 data were used as an approximate denominator for these age groups.

Table 3.2 Trachoma treatment coverage, Queensland 2019

	Queensland				
Numbers of communities treated for trachoma	2				
	0-4	***5-9***	***10-14***	***15+***	***All***
Requiring treatment for features consistent with TF	0	3	1	0	4
Received treatment for features consistent with TF	0	3	1	0	4
Received treatment for features consistent with TF (%)	*N/A*	*100*	*100*	*NA*	*100*
Estimated community members requiring treatment features consistent with TF	0	7	3	15	25
Number of community members who received treatment features consistent with TF	0	7	3	15	25
Estimated community members who received treatment (%) features consistent with TF	*100*	*100*	*100*	*100*	*100*
Number of community members that refused treatment	0	0	0	0	0
Total number of doses of azithromycin delivered	0	10	4	15	29
Estimated overall treatment coverage (%)	*100*	*100*	*100*	*100*	*100*

Table 3.3 Trichiasis screening coverage, prevalence and treatment among Indigenous adults, Queensland 2019

	Torres Strait Islands		North west Queensland*		Total		
Number of communities screened for trichiasis	3		2		5		
Age group (years)	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15+***
Estimated population in region†	217	189	509	276	726	465	1,191
Number of adults examined‡	53	56	60	90	113	146	259
Number with trichiasis	0	0	0	2	0	2	2
Proportion with trichiasis (%)	*0.0*	*0.0*	*0.0*	*2.2*	*0.0*	*1.4*	*1.0*
Surgery in past 12 months§	0	0	0	0	0	0	0

* No population numbers were available for these age groups in one of the communities in North West Queensland, therefore Census 2016 data used as an approximate denominator for these age groups.
† Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions.
‡ Number of adults examined limited to numbers reported. This number may not account for all adults who may be examined in routine adult health checks, and may also include multiple screening.
§ Surgery cases may include cases identified in previous years.

Table 3.4 Health promotion activities Queensland 2019

	Queensland
Number of communities that reported health promotion activities	5
Total number of programs reported	17
Method of health promotion activities	
One-on-one discussion	12
Presentation to group	11
Interactive group session	0
Social marketing	0
Print material/mass media	10
Sporting/community events	1
Other	1
Target audience	
Health professional/staff	11
Children	4
Youth	0
Teachers/childcare/preschool staff	12
Caregivers/parents	6
Community members	12
Community educators/health promoters	5
Interagency members	3
Frequency of health promotion activities	
Once	5
2-4 times per year	12
5-12 times per year	0
Ongoing/routine	0

South Australia results

Trachoma program coverage

- In 2019 SA identified 15 communities in three regions as being at risk of trachoma (Table 4.1, Figure 4.2).
- Due to no evidence of active trachoma since 2007, Yorke and Mid North region is no longer considered at risk of trachoma (Figure 4.2).
- All at-risk communities that required screening were screened for trachoma (Table 4.1).

Screening coverage

- Trachoma screening coverage of children aged 5-9 years in the 15 at-risk communities screened was 88%, ranging from 87% in the APY Lands, 88% in Far North to 91% in the Eyre and Western region (Table 4.2, Figure 4.4).

Facial cleanliness

- Clean face prevalence was assessed in all communities that were screened.
- The overall prevalence of clean faces among children aged 5-9 years in the screened communities was 87%, ranging from 78% in the APY Lands region to 100% in the Far North region (Table 4.2, Figure 4.5).

Trachoma prevalence

- The observed and overall prevalence of active trachoma in children aged 59 years screened was 0%.
- No trachoma was reported in the 5-9 age group in 100% of the at-risk communities (Table 4.3, Figure 4.7).
- Three cases of trachoma were detected in the 10-14 age group in the APY Lands and 1 in the Far North Region (Table 4.2).

Treatment delivery and coverage

- Trachoma treatment strategies were applied in the APY Lands and Far North Region with active cases and household contacts treated (Table 4.4).
- Total treatment coverage for active trachoma cases and community members requiring treatment was 100% with 39 doses of azithromycin delivered (Table 4.5, Figure 4.8).

Trichiasis

- Screening for trichiasis was undertaken in 15 communities (Table 4.6).
- Overall 1,371 adults aged 15 years and over were screened (Table 4.6).
- The prevalence of trichiasis in adults aged 15 years and over was 0.3%, and 0.5% in adults aged 40 years with 4 cases of trichiasis detected (Table 4.6).
- Surgery for trichiasis was reported to be undertaken for 1 adult (Table 4.6).

Health promotion

- Health promotion activities occurred in all 10 communities with a total of 17 health promotion activities were reported (Table 4.7).

Health promotion and environmental health activities

Eyre and Far North Local Health Network is working in partnership across all levels of government to establish a uniform approach to the management of the environmental and education health programs. The collaborative effort aims to minimise the risk of infectious diseases by improving health literacy and creating health-supportive environments in rural and remote Aboriginal communities in SA.

The SA Department of Education and Child Development have incorporated the health promotion and education activities into their curriculum through consistent hygiene practices and appropriate washing facilities at schools in rural and remote Aboriginal communities. Community education and prevention strategies with a focus on clean faces and clean hands are being implemented across high-risk communities in SA by the Aboriginal Community Control Health Organisations (ACCHOs), Aboriginal Health Council SA (AHCSA), and Aboriginal Community Care (ACC).

The South Australia Aboriginal Environmental Health Working Group steering committee was formed to design an environmental health action plan to be implemented in rural and remote Aboriginal communities. In addition, the SA Department for Health and Wellbeing continues to deliver the Indigenous Environmental Health Program which is in place in rural and remote communities. This program is delivering environmental health training activities, as well as funding and supporting the ACCHOs with the implementation of evidence-based environmental improvements measures.

Eyre and Far North Local Health Network signed new agreements with AHCSA, ACCHOs and ACC to continue with the delivery of the trachoma elimination program in at-high-risk communities until June 2021. The agreements included new environmental health improvement activities designed and agreed for implementation in each of the communities classified as being at higher risk of trachoma. The aim is to implement sustainable and coordinated environmental health improvement measures to better health outcomes, health-hardware assessment and fast track access to repairs and maintenance.

AHCSA has been funded to design an Aboriginal Environmental Health Workforce model with a focus on addressing barriers to undertaking healthy living (health hygiene) practices within the home. Activities will include the targeted delivery of health promotion and education, assessment of heath hardware and facilitation of repairs and the improved access to household hygiene products.

The model's development will involve reviewing current and past Aboriginal Environmental Health Worker workforce models and programs in SA and nationally, stakeholder engagement and defining the training, supervision and resourcing needs for such a position(s).

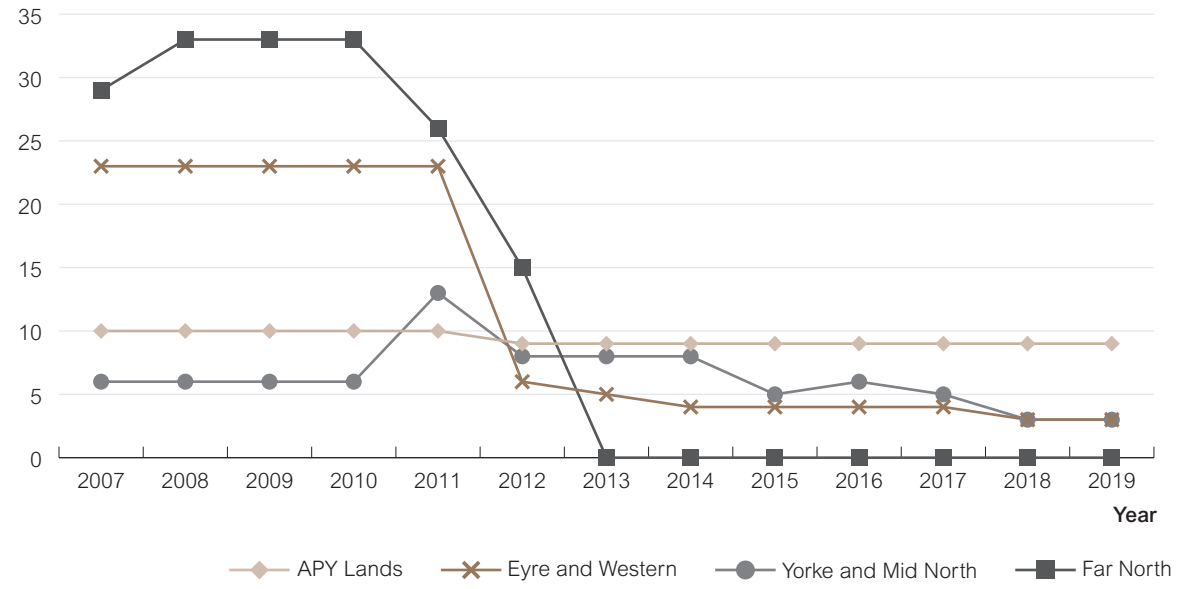
ACTIVITIES UNDERTAKEN

- The Department for Health and Wellbeing (Public Health) continues to deliver environmental health activities across regional SA such as human waste and wastewater control, health risk assessments and remediation measures.
- Eyre and Far North Local Health Network funded five schools in rural and remote communities to enhance the healthy hygiene practices among students, families and the general community.
- A communication strategy has been implemented using television and radio as well as electronic Community Bulletin Boards to provide a trachoma prevention awareness campaign promoting eye health, and healthy living practices across country SA.
- The Kuru Malpa Program is being implemented on the APY Lands to increase community engagement and eye health awareness to promote health-enhancing behaviours within households.
- Promotional materials have been developed using the Guidelines for the Public Health Management of Trachoma in Australia e.g. ACC SAFE Strategy and Kuru Pikatjara.
- Three advisory committees have been established at the APY Lands - monthly meetings are conducted.
- Other strategies and programs include Yamba and Milpa Trachoma and Healthy Living Roadshows, Good Hygiene Bags and Safety Mirrors, Hip Hop Music Video Production, Clean Faces and Constant Hygiene Messages at Schools, Television and Radio Advertising, Schools Sport Carnivals, the Fun face washing and drinking water trailer, and trachoma Expo.
- 785 households received environmental health education activities and 157 dwellings received health hardware assessment, fast track repairs and maintenance.

Figures and Tables – South Australia

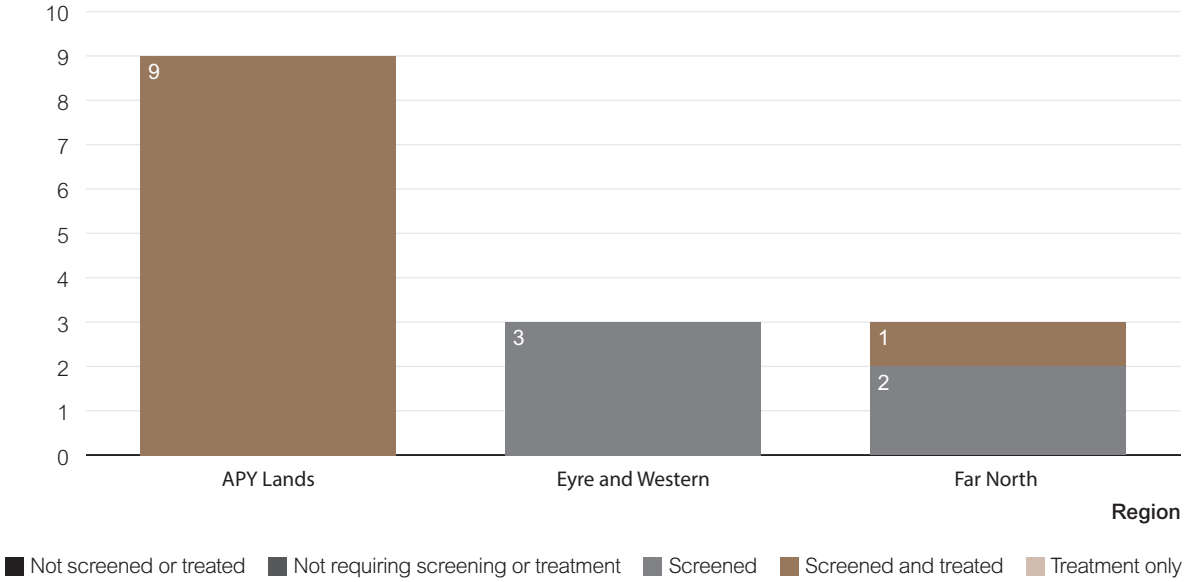
Figure 4.1 Trachoma prevalence in children aged 5-9 years in all at-risk communities by region, South Australia, 2019

Figure 4.2 Number of at-risk communities by region, South Australia 2007 – 2019



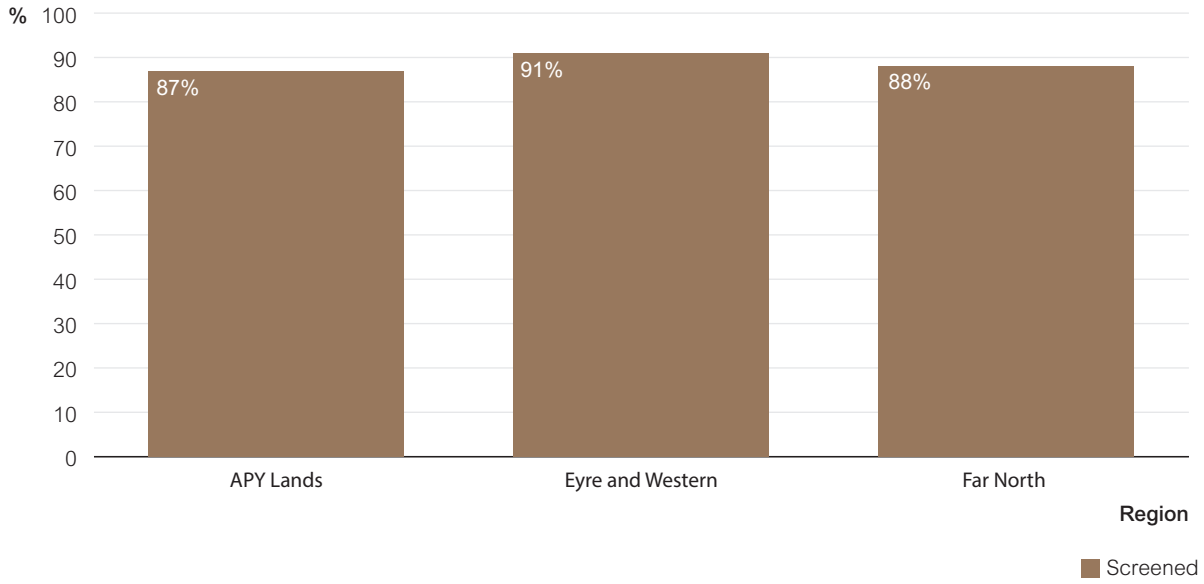
APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.3 Number of at-risk communities according to trachoma control strategy implemented by region, South Australia 2019



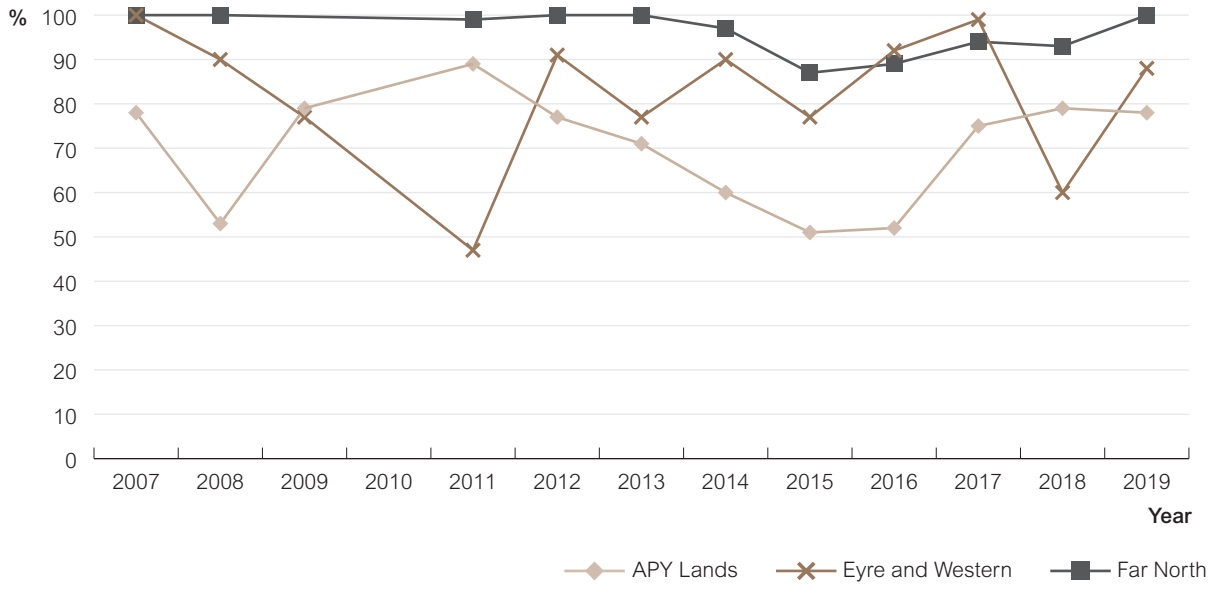
APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.4 Population screening coverage of children aged 5-9 years in at-risk communities that required screening for trachoma by region, South Australia 2019



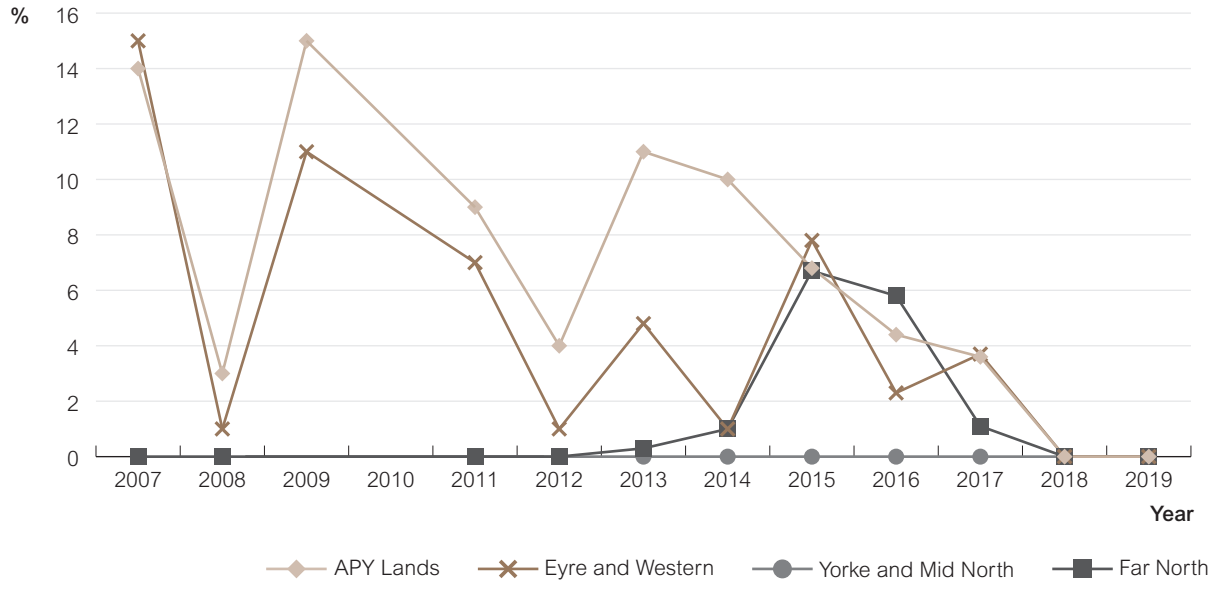
APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.5 Proportion of screened children aged 5-9 years who had a clean face by region, South Australia 2007 – 2019



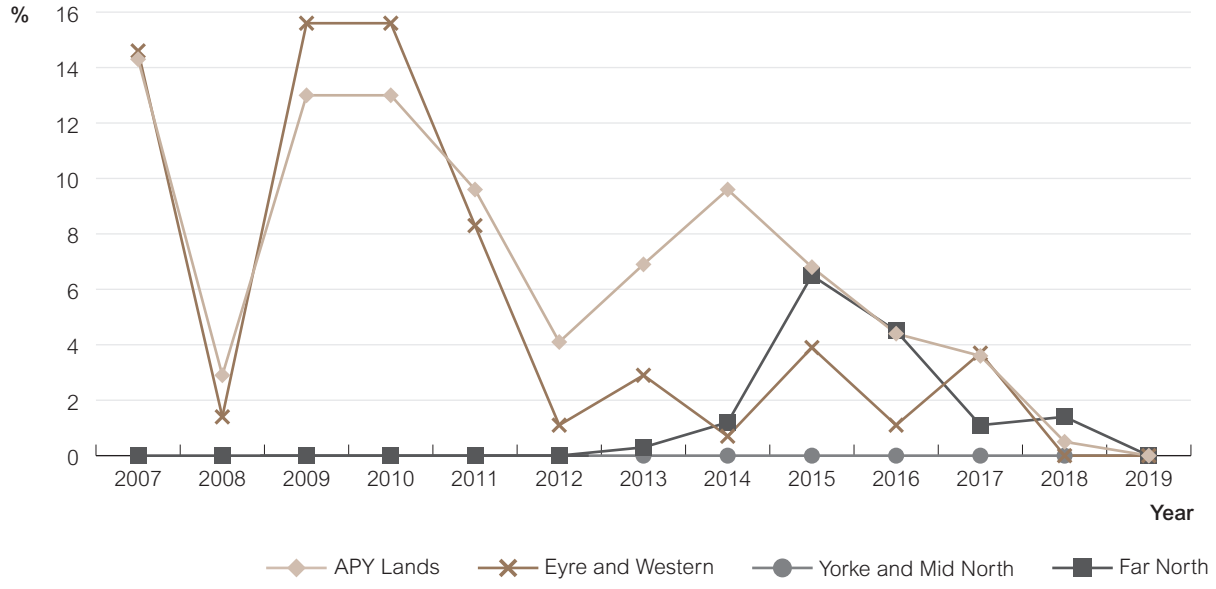
APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.6a. Observed prevalence of active trachoma among children aged 5-9 years in at-risk communities by region, South Australia 2007 – 2019



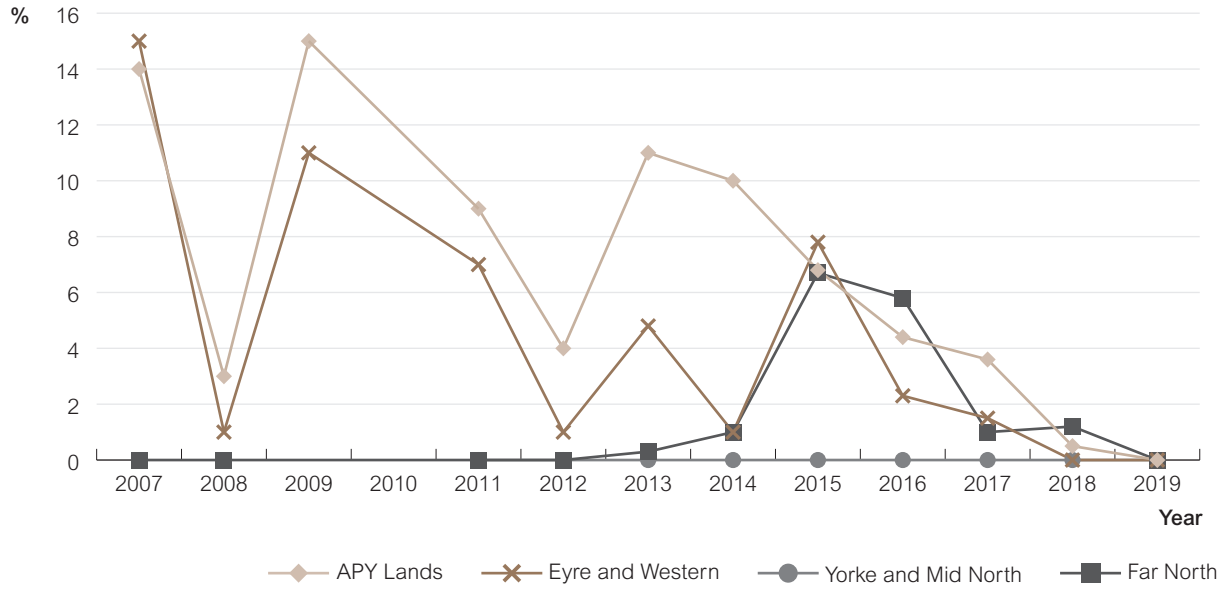
APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.6b. Estimated prevalence of active trachoma among children aged 5-9 years in all at-risk communities* by region, South Australia 2007 – 2019



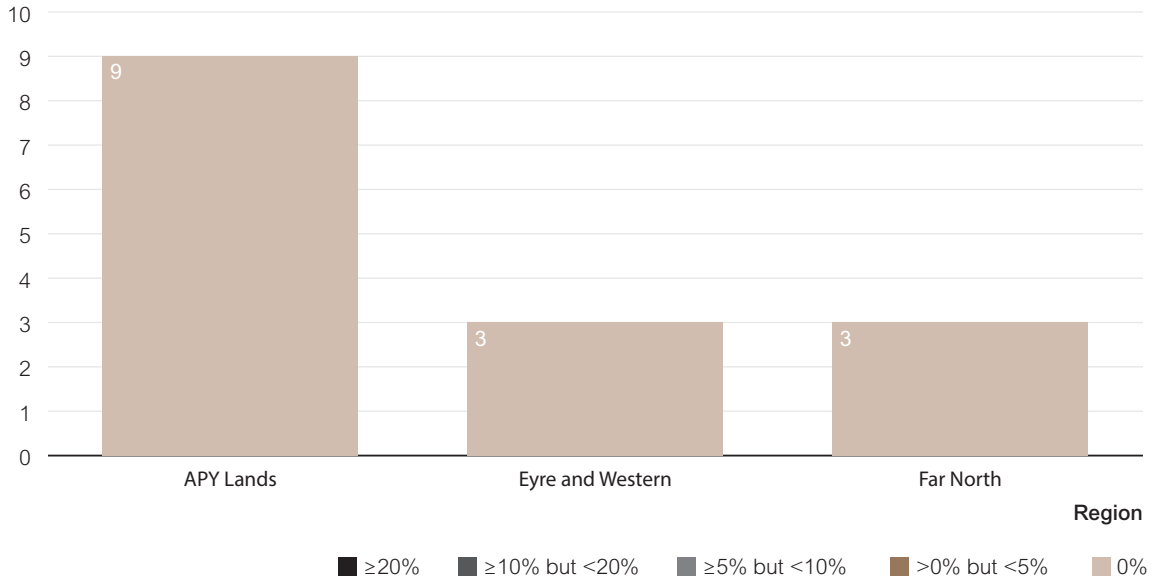
APY: Anangu Pitjantjatjara Yankunytjatjara.
* Most recent estimates carried forward in at-risk communities that did not screen in 2019.

Figure 4.6c. Overall prevalence of active trachoma among children aged 5-9 years in all communities* by region, South Australia 2007 – 2019



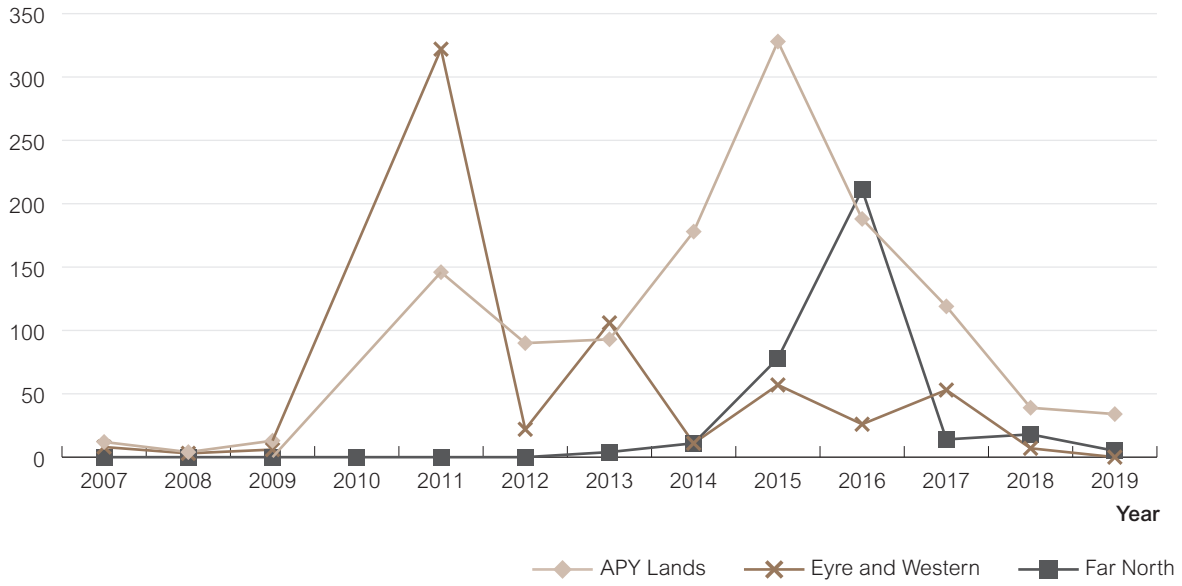
APY: Anangu Pitjantjatjara Yankunytjatjara.
* Calculated carrying forward most recent data in all communities considered at risk of trachoma at some time since 2007.

Figure 4.7 Number of at-risk communities according to level of trachoma prevalence in children aged 5-9 years by region, South Australia 2019



APY: Anangu Pitjantjatjara Yankunytjatjara.

Figure 4.8 Number of doses of azithromycin administered for the treatment of trachoma by region, South Australia 2007 – 2019



APY: Anangu Pitjantjatjara Yankunytjatjar.

Table 4.1 Trachoma control delivery in at-risk* communities by region, South Australia 2019

Number of communities	APY Lands	Eyre and Western	Far North	Total
At risk * (A)	9	3	3	15
Requiring screening for trachoma (B)	9	3	3	15
Screened for trachoma (C)	9	3	3	15
Requiring treatment without screening† (D)	0	0	0	0
Received treatment without screening† (E)	0	0	0	0
Screened and/or treated for trachoma (F = C+E)	9	3	3	15
Requiring neither screening or treatment for trachoma (G=A-B-D)	0	0	0	0

* As defined by each jurisdiction.
† As per guidelines.
APY: Anangu Pitjantjatjara Yankunytjatjara.

Table 4.2 Trachoma screening coverage, trachoma prevalence and clean face prevalence by region, South Australia 2019

	APY Lands				Eyre and Western				Far North				Total			
Number of communities screened	9				3				3				15			
Age group (years)	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***	***0-4***	***5-9***	***10-14***	***0-14***
Children examined for clean face	108	**216**	231	555	29	**32**	45	106	15	**144**	81	240	152	**392**	357	901
Children with clean face	72	**168**	224	464	26	**28**	45	99	15	**144**	81	240	113	**340**	350	803
Clean face prevalence (%)	*67*	***78***	*97*	*84*	*90*	***88***	*100*	*93*	*100*	***100***	*100*	*100*	*74*	***87***	*98*	*89*
Estimated number* of Indigenous children in communities†	258	**247**	252	757	39	**34**	57	130	18	**156**	161	335	315	**437**	470	1,222
Children screened for trachoma	108	**216**	231	555	25	**31**	44	100	14	**138**	80	232	147	**385**	355	887
Trachoma screening coverage (%)	*42*	***87***	*92*	*73*	*64*	***91***	*77*	*77*	*78*	***88***	*50*	*69*	*47*	***88***	*76*	*73*
Children with active trachoma†	0	**0**	3	3	0	**0**	0	0	0	**0**	1	1	0	**0**	4	4
Observed prevalence of active trachoma‡ (%)	*0.0*	***0.0***	*1.3*	*0.5*	*0.0*	***0.0***	*0.0*	*0.0*	*0.0*	***0.0***	*1.3*	*0.4*	*0.0*	***0.0***	*1.1*	*0.5*
Estimated prevalence of active trachoma‡ (%)		***0.0***				***0.0***				***0.0***				***0.0***		
Overall prevalence of active trachoma‡ (%)		***0.0***				***0.0***				***0.0***				***0.0***		

* ABS estimate.
† Communities that were screened for trachoma in 2019.
‡ Methods of calculating the different prevalence rates on page 16.
APY: Anangu Pitjantjatjara Yankunytjatjara.

Table 4.3 Number and proportion* of at-risk communities according to level of trachoma prevalence in children aged 5-9 years, South Australia 2007 – 2019

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Communities at risk†	68		72		72		72		46		38		22		21		19		19		18		15		15	
Communities not screened‡	60		61		60		60		27		2		6		0		0		0		0		0		0	
Number of communities§	8		11		12		11		19		36		16		21		19		19		18		15		15	
≥20%	2	25%	0	0%	3	25%	3	27%	2	11%	1	3%	2	13%	1	5%	2	11%	1	5%	1	5%	1	7%	0	0%
≥10% but <20%	2	25%	1	9%	2	17%	1	9%	3	16%	1	3%	3	19%	9	43%	3	16%	1	5%	1	6%	0	0%	0	0%
≥5% but <10%	2	25%	2	18%	1	8%	0	0%	2	11%	1	3%	1	6%	0	0%	9	47%	2	11%	3	17%	0	0%	0	0%
>0% but <5%	0	0%	1	9%	1	8%	0	0%	1	5%	4	11%	0	0%	1	5%	1	5%	11	58%	10	56%	10	66%	0	0%
0%	2	25%	7	64%	5	42%	7	64%	11	58%	29	81%	10	63%	10	48%	4	21%	4	21%	3	17%	4	27%	15	100%

* Based on current or most recent year.
† As defined annually by each jurisdiction.
‡ Or treated as required per Guidelines.
§ Screened or receiving ongoing annual treatment as per Guidelines.

Table 4.4 Treatment strategies by region, South Australia 2019

	APY Lands	Eyre and Western	Far North	Total
Required treatment for trachoma	9	0	1	10
Treated for trachoma*	9	0	1	10
Screened and treated	9	0	1	10
Received treatment only	0	0	0	0
Received 6-monthly treatment	0	0	0	0
Did not require treatment	0	3	2	5
Treated active trachoma and households	9	0	1	10
Community-wide treatment	0	0	0	0
Not treated according to CDNA Guidelines*	0	0	0	0

* In 2019 APY Lands aggregated 9 communities into one community for presentation of data; details of the specific number of communities requiring treatment or treated were not supplied
APY: Anangu Pitjantjatjara Yankunytjatjara.

Table 4.5 Trachoma treatment coverage by region, South Australia 2019

	APY Lands					Eyre and Western					Far North					Total				
	0-4	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*
Requiring treatment for active trachoma	0	0	3		3	0	0	0		0	0	0	1		1	0	0	4	0	4
Received treatment for active trachoma	0	0	3		3						0	0	1		1	0	0	4	0	4
Received treatment for active trachoma (%)			*100*		*100*								*100*		*100*	*100*	*100*	*100*		*100*
Estimated community members* requiring treatment	1	2	12	16	31						0	0	1	3	4	1	2	13	19	35
Number of community members* who received treatment	1	2	12	16	31						0	0	1	3	4	1	2	13	19	35
Estimated community members who received treatment (%)	*100*	*100*	*100*	*100*	*100*						*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Number of community members who declined treatment	0	0	0	0	0						0	0	0	0	0	0	0	0	0	0
Total number of doses of azithromycin delivered	1	2	15	16	34						0	0	2	3	5	1	2	17	19	39
Estimated overall treatment coverage (%)	*100*	*100*	*100*	*100*	*100*						*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

* Includes household contacts and community members requiring and receiving mass drug administration (MDA).
APY: Anangu Pitjantjatjara Yankunytjatjara.

Table 4.6 Trichiasis screening coverage, prevalence and treatment among Indigenous adults by region, South Australia 2019

	APY Lands		Eyre and Western		Far North		Total		
Number of communities screened for trichiasis	**9**		**3**		**3**		**15**		
Age group (years)	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15+***
Estimated population in region*	1,052	584	345	176	1,245	1,018	2,642	1,778	4,420
Number of adults examined†	492	353	77	95	140	214	709	662	1,371
Number with trichiasis	1	2	0	0	0	1	1	3	4
Proportion with trichiasis (%)	*0.2*	*0.6*	*0.0*	*0.0*	*0.0*	*0.5*	*0.1*	*0.5*	*0.3*
Surgery in past 12 months‡	0	1	0	0	0	0	0	1	1

* Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions.
† Number of adults examined limited to numbers reported. This number may not account for all adults who may be examined in routine adult health checks, and may also include multiple screening.
‡ Surgery cases may include cases identified in previous years.

Table 4.7 Health promotion activities by region, South Australia 2019

	APY Lands	Eyre and Western	Far North	Total
Number of communities that reported health promotion activities	9	3	3	15
Number of programs reported	5	11	1	17
Methods of health promotion				
One-on-one discussion		11	1	12
Presentation to group	9	2	1	12
Interactive group session	1	2	1	4
Social marketing	1	2	1	4
Print material/mass media	5	11	1	17
Sporting/community events		9	1	10
Other			0	0
Target audience				
Health professionals/staff	5	2	1	8
Children	9	9	1	19
Youth		10	1	11
Teachers/childcare/preschool staff	22	8	1	31
Caregivers/parents		11	1	12
Community members	3	11	1	15
Community educators/health promoters		1	0	1
Interagency members		3	1	4
Frequency of activities				
Once		0	1	1
Occasional *		5		5
Regular†		2		2
Ongoing/routine	5	4		9

* 2-4 times per year.
† 5-12 times per year.
APY: Anangu Pitjantjatjara Yankunytjatjara.

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Western Australia results

Trachoma program coverage

- In 2019 WA identified 38 communities in four regions as being at risk of trachoma (Table 5.1, Figure 5.2).
- Of these at-risk communities 36 communities required and received screening (Table 5.1, Figure 5.3).
- Two communities in the Goldfields region did not have children aged 5-9 in the community at time of screening.

Screening coverage

- The proportion of children aged 5-9 years screened in the 36 communities screened was 93%, ranging from 88% in the Midwest region to 100% in the Pilbara region (Table 5.2, Figure 5.4).

Facial cleanliness

- Clean face prevalence was assessed in all communities that were screened.
- The overall prevalence of clean faces among children aged 5-9 years was 66%, ranging from 56% in the Goldfields region to 85% in the Midwest region (Table 5.2, Figure 5.5).

Trachoma prevalence

- The observed prevalence of active trachoma in children aged 5-9 years in 36 communities that screened in 2019 was 15% (82/545). Prevalence ranged from 6.7% in the Pilbara region to 20.3% in the Goldfields region (Table 5.2, Figure 5.6a).
- The overall prevalence of active trachoma in children aged 5-9 years was 6.4% ranging from 3.7% in the Kimberley and Pilbara regions to 12.3% in the Goldfield region (Table 5.2, Figure 5.6c)
- No trachoma was reported in 50% (18/36) of the at-risk communities (Table 5.3, Figure 5.7).
- Endemic levels of trachoma (≥ 5%) were reported in 47% (17/36) of the at-risk communities (Table 5.3, Figure 5.7).
- Hyperendemic levels of trachoma (≥ 20%) were reported in 31% (11/36) of the at-risk communities (Table 5.3, Figure 5.7).

Treatment delivery and coverage

- Trachoma treatment strategies were required in 22 communities (Table 5.4).
- Treatment was delivered for active trachoma cases and household contacts in 19 communities, and community wide in 3 communities as per Guidelines (Table 5.4).
- Total treatment coverage for active trachoma cases and community members, and community-wide treatment in all regions requiring treatment was 98% with 976 doses of azithromycin delivered (Table 5.5, Figure 5.8).

Trichiasis

- Data for trichiasis screening was provided from 3 distinct sources. Public health units undertook opportunistic screening of adults in remote communities during trachoma screening and treatment and flu vaccinations activities. Outputs from the MBS Item 715 adult health checks and visiting optometrist services (VOS) are also presented.
- Four cases of trichiasis were detected in the Goldfields region (Table 5.6a).

Health promotion

Health promotion is a key component of the WA trachoma control program and is delivered as the Squeaky Clean Kids program. The program was first implemented in 2016 and is now part of core business in many communities in the four WA Country Health Service regions where trachoma is prevalent (Goldfields, Kimberley, Midwest and Pilbara). Squeaky Clean Kids supports remote Aboriginal communities to overcome barriers that contribute to the environmental and behavioural risk factors for trachoma transmission. The clean faces concept and practice are the main health promotion messages delivered as part of the overall message of the program. Squeaky Clean Kids has the following key objectives:

- Increase the availability of free bar soap for Aboriginal people living in trachoma-endemic communities and communities at risk of resurgence in WA.
- Increase education about hand hygiene and clean faces through delivery of hand hygiene promotion messages delivered in schools, communities and households.
- Strengthen environmental health actions through continuous quality improvement processes and working with regional environmental health practitioner groups and other key-stakeholder groups including public health teams, Aboriginal Community Councils and schools.

Goldfields

School-based education sessions were provided to 14 (100%) Aboriginal communities that are at risk of trachoma that have children aged 5–9 residing within the community. A further four communities at risk of trachoma resurgence also received school-based education sessions. Health promotion and education sessions were provided to settings outside of schools and were delivered to four communities at risk of trachoma or trachoma resurgence. These settings included clinics, home and community support services (HACC) and various community sites. Resources that have been used in the education sessions include soap, hand and face washing techniques, *Don't catch the germ, Milpa says* with costume, hand puppets, Indigenous Eye Health Unit (IEHU) resources including community and school flipcharts, interactive sessions using song, Germ UV light and Environmental Health hand and face washing stickers. The primary target group was children with over 450 interactions with students recorded. Further activities targeted groups outside of schools including 94 health professionals, environmental health practitioners and community members. Methods included 368 interactive group sessions, 56 individual consultations and the provision of resources including print material. Evaluation of activities occurred for most sessions and included observation of skills learnt and verbal comments.

During 2019, 9,600 bars of hard soap and 30 liquid soap refills have been distributed to Aboriginal communities that are at risk of trachoma or trachoma resurgence.

Pilbara

School-based education sessions were provided to seven (100%) Aboriginal communities that are at risk of trachoma. A further eight communities at risk of trachoma resurgence also received school-based education sessions. Health promotion and education sessions were provided to settings outside of schools across six communities at risk of trachoma resurgence. Settings for health promotion activities included football carnivals (1), play groups (17), clinics (12), Community Resource Centres (2), community stores (5), and other activities such as participating in NAIDOC events (4). Resources used in the education sessions include soap, hygiene packs, hand and face washing, *No Germs on Me* resources – *Didya wash your hands*, *Healthy eyes* poster, *Germs in eyes* play dough, IEHU resources, Flubber soap exercises, soap making, spa tap or bucket sink hand washing, Germ UV light exercises, pre and post screening posters.

The primary target group was children, with over 923 interactions with students recorded. Further activities targeted groups outside of schools including older youth and community members. Methods included group presentations, interactive group sessions and the provision of resources including print material. Print materials were used in every group session and distributed to schools, clinics and other organisations. *No Germs On Me* – hand washing poster and the *Healthy eyes* poster were used repeatedly. The *Healthy eyes* poster is Pilbara-specific and is positively received throughout the region.

In addition to the these health promotion activities, during screening the Health Promotion team worked alongside the Public Health team and used the bucket sink resources to run hand and face washing, and facilitated discussion about how trachoma is prevented using print materials in all communities at risk of trachoma. All at-risk communities were visited post screening and provided with feedback about the rates of trachoma and clean faces.

During 2019, 7,560 bars of hard soap and 48 liquid soap refills have been distributed to Aboriginal communities that are at risk of trachoma or trachoma resurgence.

Kimberley

School-based education sessions were provided to five (100%) Aboriginal communities that are at risk of trachoma. A further six communities at risk of trachoma resurgence also received school-based education sessions. Health promotion and education sessions were provided to settings outside of schools, including one community at risk of trachoma and a further three communities at risk of trachoma resurgence. The settings varied and included community offices, HACC services and community stores. Resources that have been used in the education sessions include soap, *Germ UV light,* hand and face washing techniques, hygiene resources, healthy eye posters, IEHU flip charts (community and school) and trachoma story kits, and Environmental Health hand and face washing stickers. The primary target group was school-aged children with over 1,200 interactions with students and community members recorded.

Methods included group presentations, interactive group sessions and the provision of resources including print material. Evaluation of activities occurred for all activities and included participant surveys, verbal comments, observation of skills learnt and pre and post session knowledge questions

A total of 40 802 bars of hard soap and 598 liquid soap refills have been distributed to Aboriginal communities that are at risk of trachoma or trachoma resurgence.

Midwest

School-based education sessions were provided to six (100%) Aboriginal communities that are at risk of trachoma. One community at risk of trachoma resurgence also received school-based education sessions. Health promotion and education sessions were provided to settings outside of schools in four communities at risk of trachoma. The public health team visited all at-risk communities and visited 164 homes providing one-on-one positive hygiene messages to 70 adult community members and 140 students. The home visits were repeated 3 months after the initial visit to coincide with the screening program with further hygiene packs provided to homes with children under 15 years. Resources that have been used in the education sessions include soap, hygiene packs, hand and face washing techniques, Environmental Health hand and face washing stickers, IEHU resources (posters, school and community flip charts), Germ UV light exercises, Hip Hop video, *No Germs on Me* resources – *Didya wash your hands*. The primary target group was school-aged children with over 149 interactions with students recorded. Further activities targeted groups outside of schools including youth and community members.

Methods involved interactive group sessions, presentations to groups and the provision of resources including print material. Evaluation of activities occurred via verbal comments and engagement of community members.

During 2019, 5,736 bars of hard soap were distributed to Aboriginal communities at risk of trachoma or trachoma resurgence.

Environmental improvements

The WA Environmental Health Directorate supports additional trachoma control services and activities within the four trachoma endemic regions. The following range of activities was provided to support improved environmental health conditions in remote communities:

- The Squeaky Clean Kids messages and provision of soap to homes
- Bathroom audits as part of the Safe Bathroom initiative within Squeaky Clean Kids with a total of 716 bathroom assessments (28.5% increase from 2018) in 23 communities completed from 1 July to 31 December 2019
- Installation of mirrors in homes and community venues at heights suitable for both children and adults
- Minor plumbing work to ensure households have access to safe and functional bathrooms
- Housing inspections
- Household linen and mattresses
- Specific Environmental Health and health promotion activities to community members
- Opportunistic environmental health education to community members
- Advice on remediation measures and practical assistance to community members
- Training and support to Aboriginal Environmental Health staff , including development of a clinical orientation package
- Support to maintain rubbish tips / landfills
- Pest control treatments to communities including mosquito management
- Assisting with community-wide clean-up projects
- Consultation with Environmental Health Forums and subgroups as part of the planning for the Environmental Health Trachoma Program
- Review and updating of ten Community Environmental Health Action Plans in consultation with community members
- Submission of referrals to external agencies as required for housing maintenance outside of the scope of the environmental health practitioners
- Working in partnership with the trachoma screening activities to build capacity and leverage existing resources
- Membership to the WA Trachoma Reference Group and Squeaky Cleans Operational Leads group
- Development of two trachoma advertisements: Advert 1 shows how trachoma gets progressively worse through the life span if hands and faces are not kept clean, and Advert 2 shows how trachoma can be prevented by washing your hands and face with soap. The advertisements were filmed in the Kimberley region with Aboriginal Environmental Health Workers. The advertisements were designed for use in Aboriginal communities at events, in clinic waiting rooms and during bathroom assessments when undertaken by Aboriginal Environmental Health Workers
- Preliminary work to provide towels and hygiene products via community projects in 2020.

Public Health Units collaborate with the Environmental Health Directorate and their regionally based contract providers on initiatives and provide support directly to communities for environmental health programs. Examples of these are listed below.

Goldfields Public Health: as part of the invitation from a health service in a hot spot area a Trachoma Elimination Strategy focusing on environmental health was developed. This strategy included workshops and consultations that were carried out throughout 2019 with a plan to continue into 2020. These activities aimed to build the capacity of local environmental health staff to provide interventions effective in reducing prevalence for both trachoma and other childhood infections in the hot spot area. Other communities in the Goldfields identified as hot spot areas received dedicated trachoma environmental health promotion programs in addition to the Squeaky Clean Kids program.

Pilbara Public Health: provided one-to-one discussion and education around trachoma prevention and healthy hygiene habits to households that had children diagnosed with trachoma. Households that had children diagnosed with trachoma in the previous year's screening activities were also visited by the health promotion teams. Environmental Health referrals are a key discussion point.

Kimberley Public Health: partnered with Community Development Employment Project programs to work on environmental health improvements in trachoma communities, with preliminary work with the local store and artists for language-specific resources. Work included advocating and educating relevant stakeholders and community members on the environmental health referral systems and engaging with youth, families and communities with a focus on linking environmental health and trachoma.

Midwest Public Health: collaborated with regional environmental health practitioners and key contacts of the communities to ensure soap was more accessible by all households and identified home health hygiene issues including health hardware were remediated.

Figures and Tables – Western Australia

Figure 5.1 Overall trachoma prevalence in children aged 5-9 years in all at-risk communities by region, Western Australia 2019

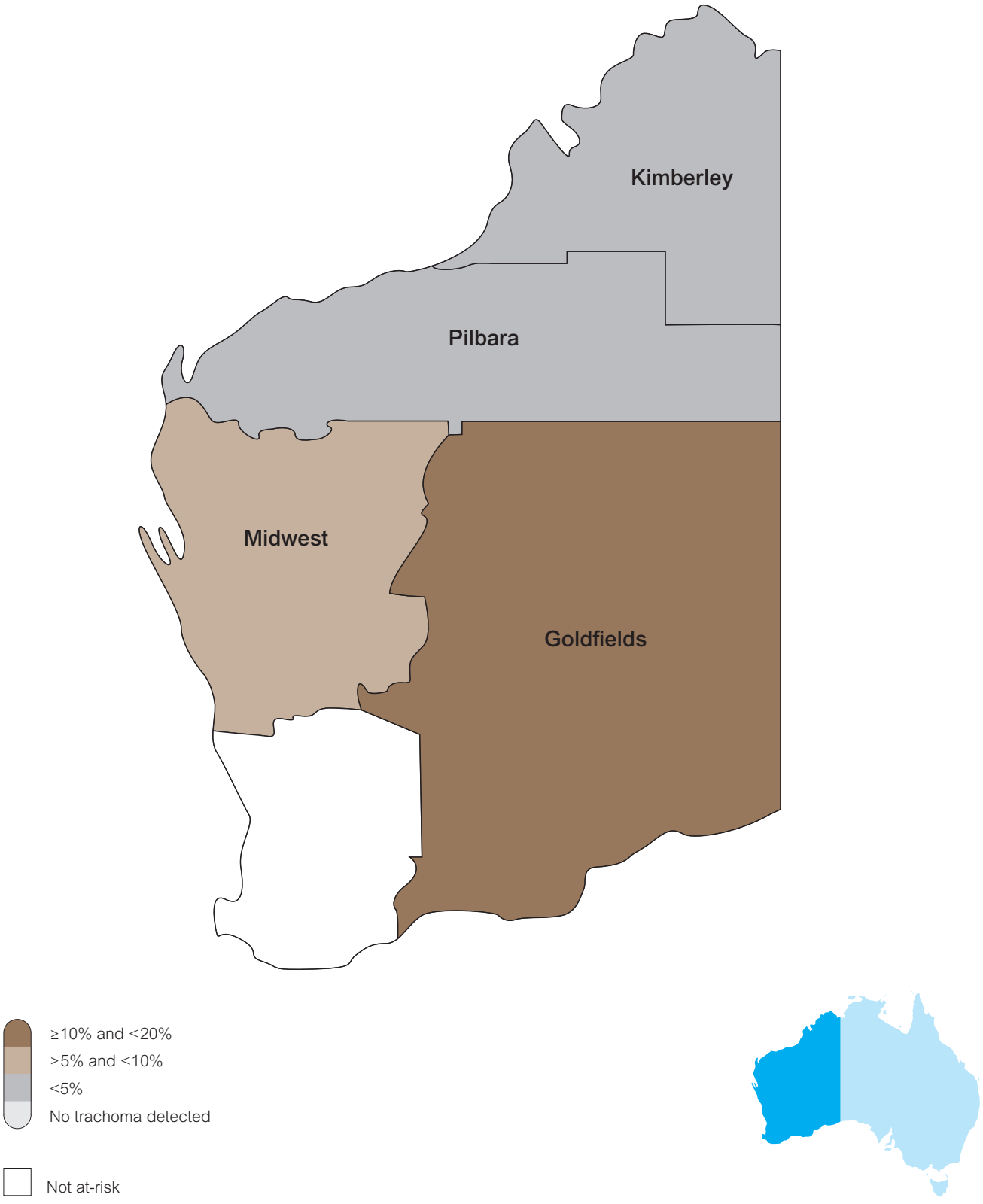


Figure 5.2 Number of at-risk communities by region, Western Australia 2007 – 2019

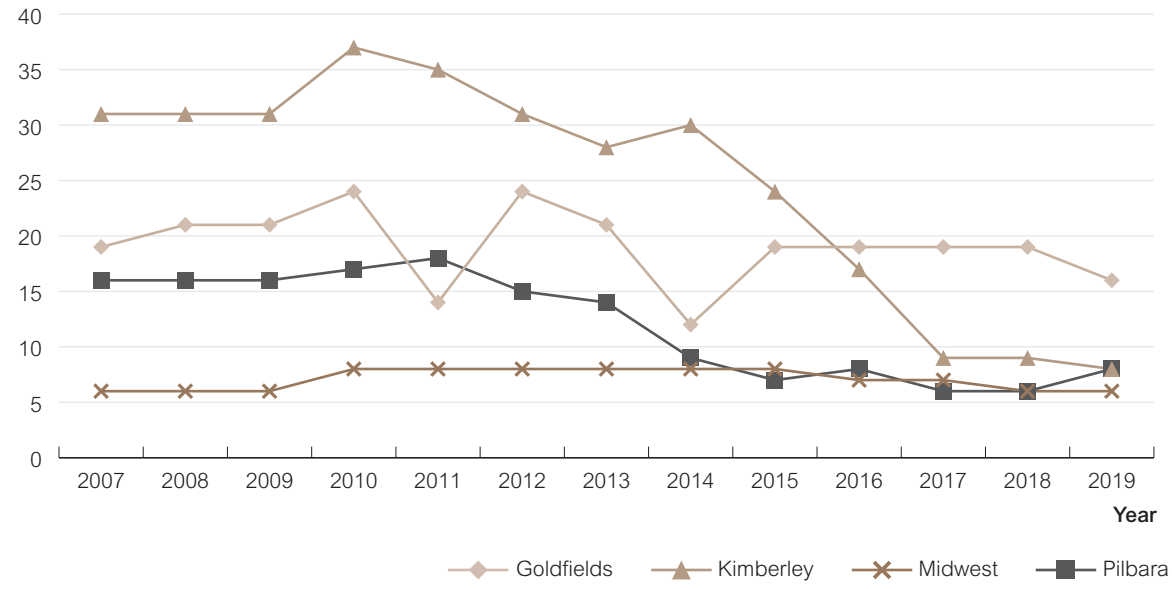


Figure 5.3 Number of at-risk communities according to trachoma control strategy implemented by region, Western Australia 2019

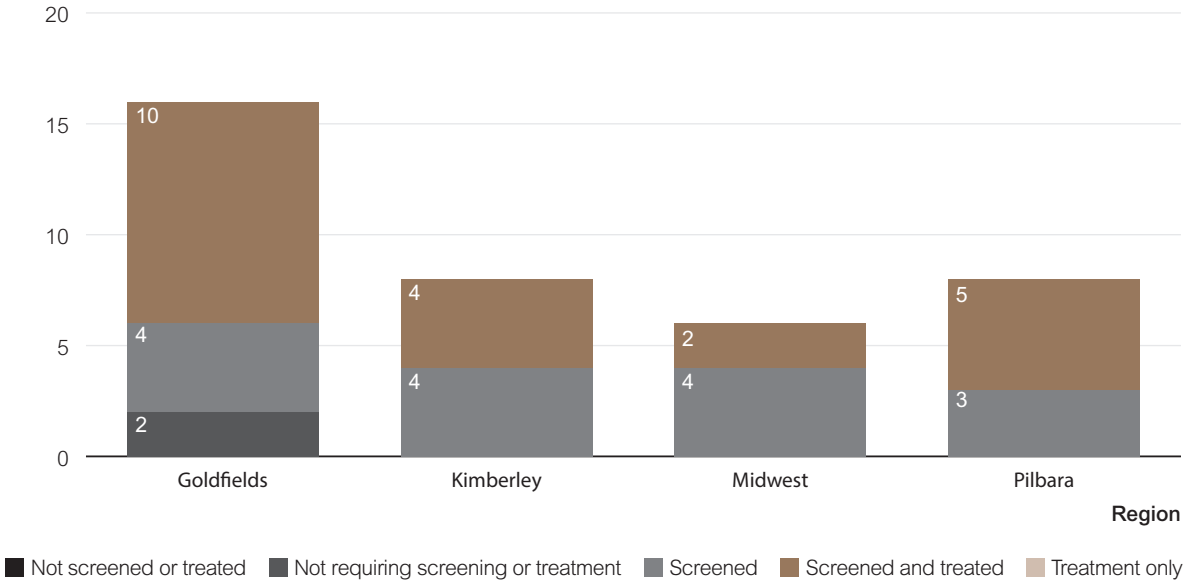


Figure 5.4 Population screening coverage in children aged 5-9 years in communities that required screening for trachoma by region, Western Australia 2019

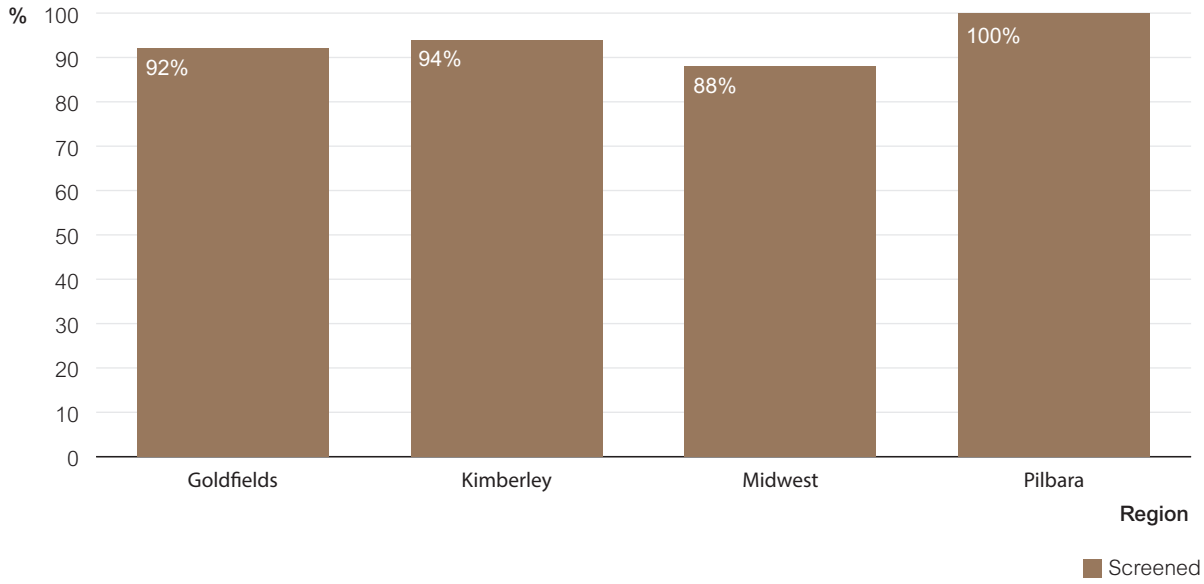


Figure 5.5 Proportion of screened children aged 5-9 years who had a clean face by region, Western Australia 2007 – 2019

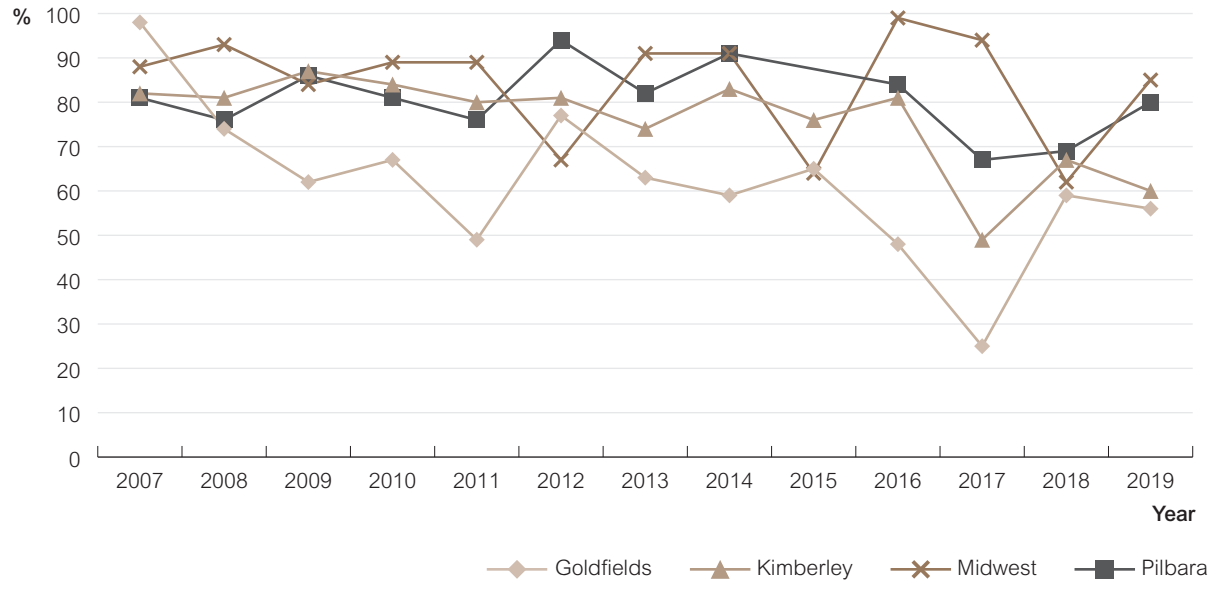


Figure 5.6a. Observed prevalence of active trachoma among children aged 5-9 years in communities that were screened by region, Western Australia 2007 – 2019

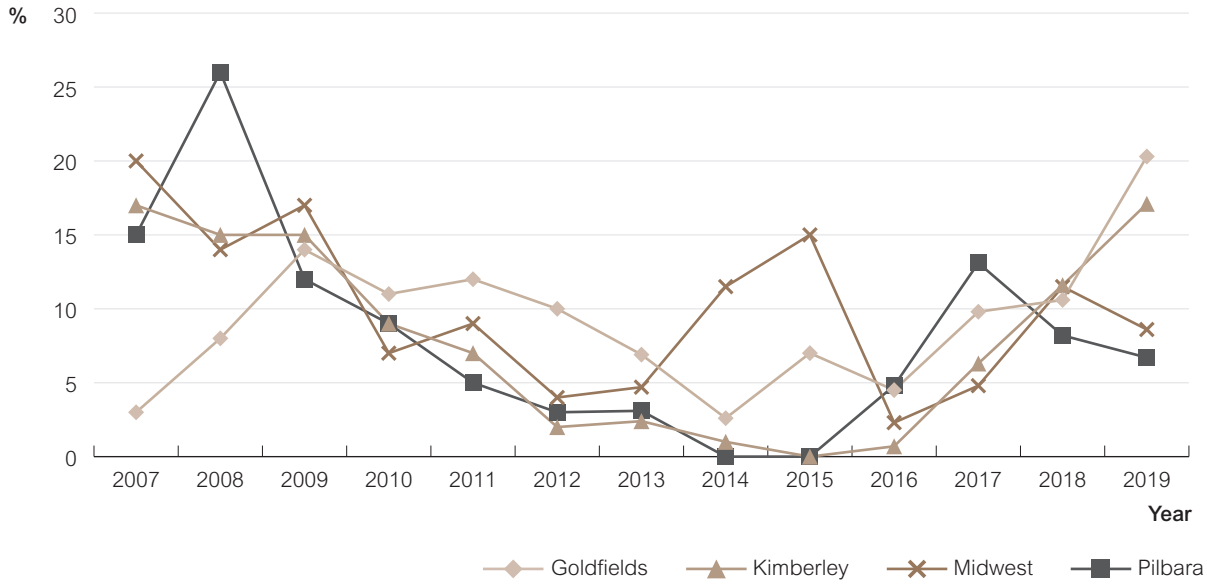
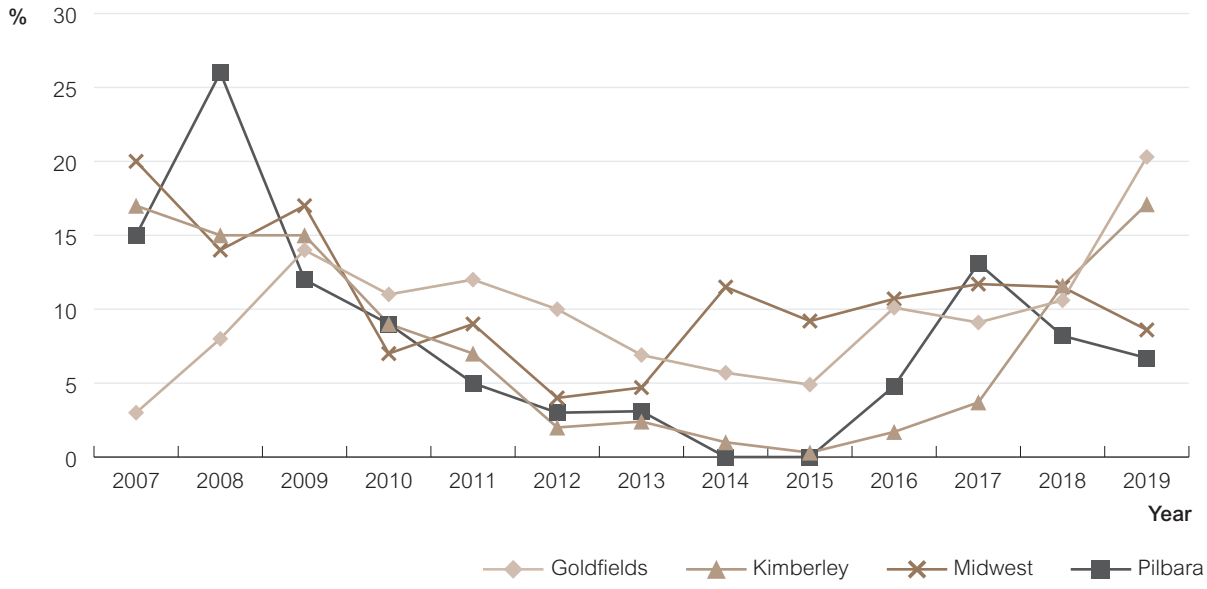
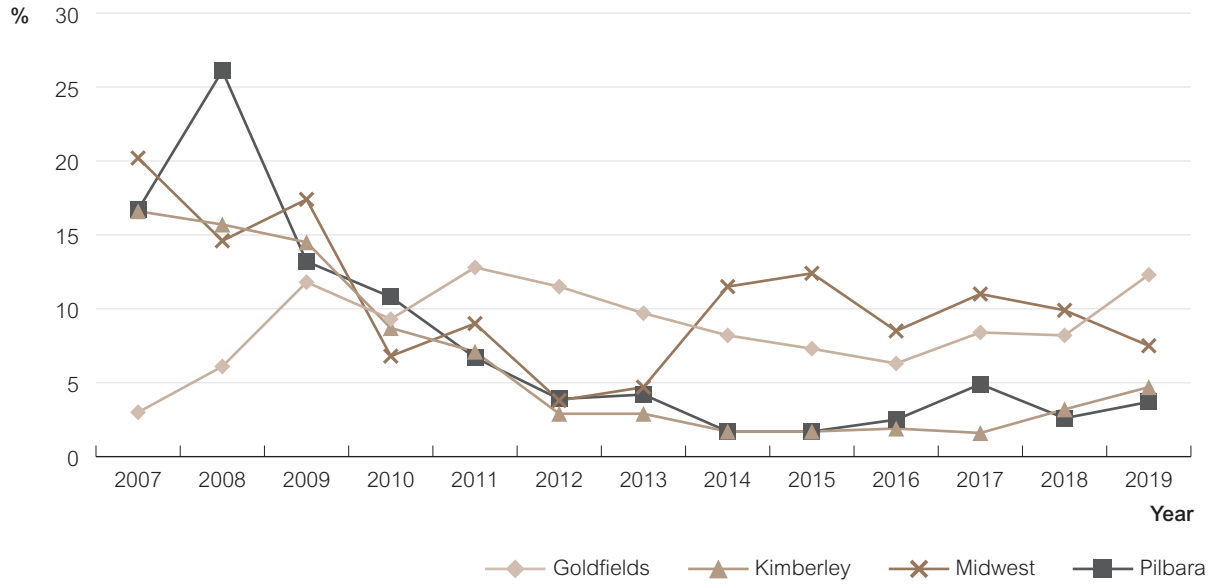


Figure 5.6b. Estimated prevalence* of active trachoma among children aged 5-9 years in all at-risk communities by region, Western Australia 2007 – 2019



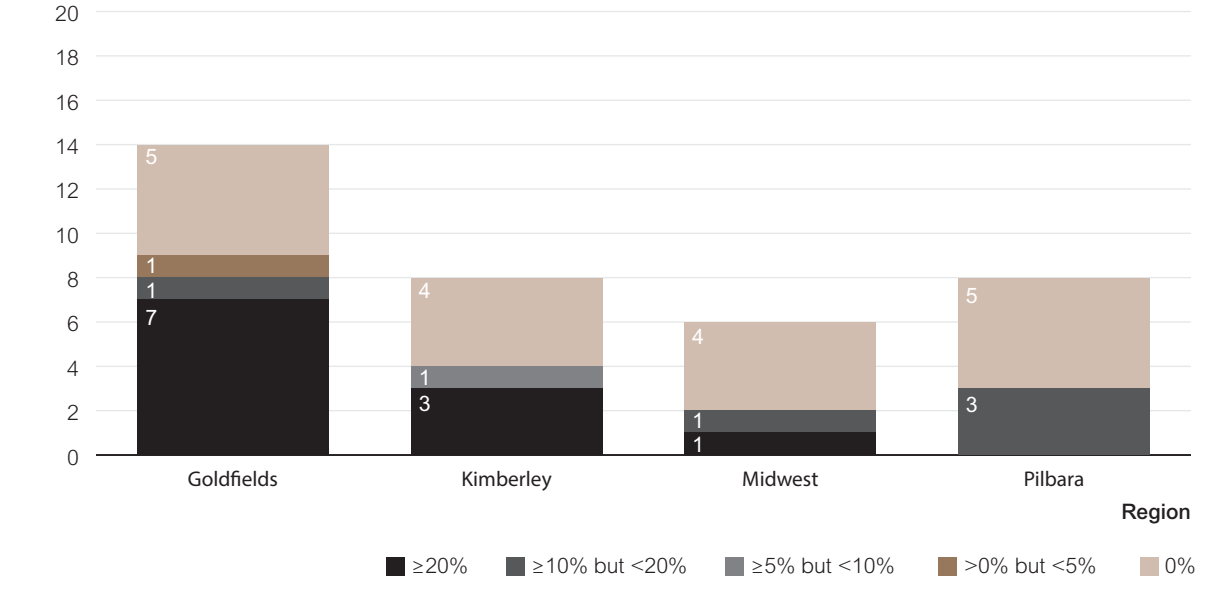
* Most recent estimates carried forward in at-risk communities that did not screen in 2016.

Figure 5.6c. Overall prevalence of active trachoma among children aged 5-9 years in all communities* by region, Western Australia 2007-2019



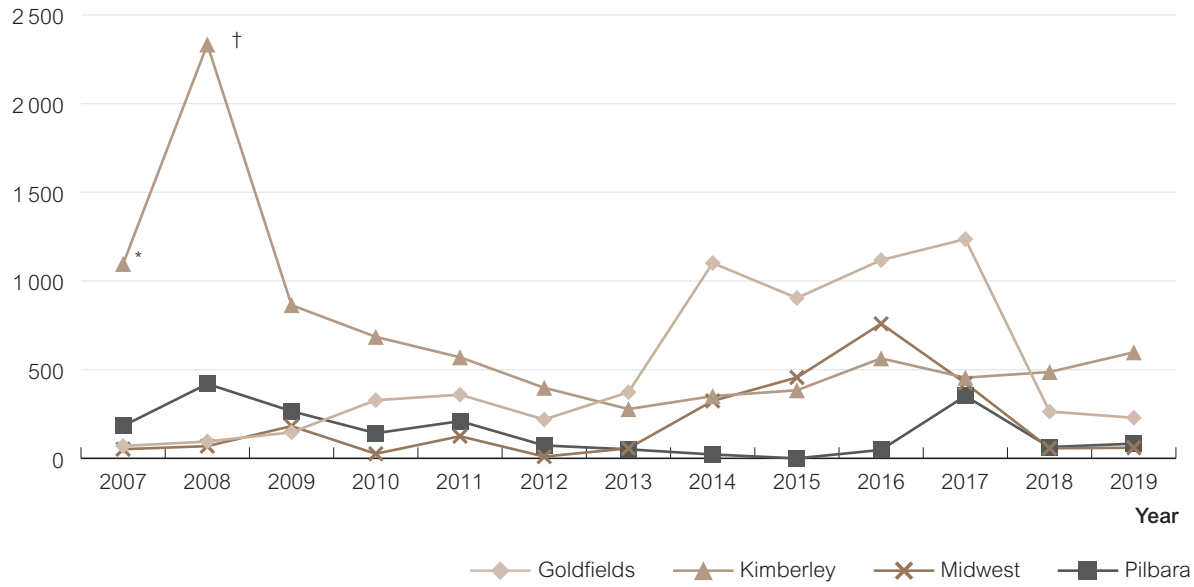
* Calculated carrying forward most recent data in all communities considered at risk of trachoma at some time since 2007.

Figure 5.7 Number of at-risk communities* according to level of trachoma prevalence in children aged 5-9 years by region, Western Australia 2019



* Including at-risk communities that did and did not screen in 2016.

Figure 5.8 Number of doses of azithromycin administered for the treatment of trachoma by region, Western Australia 2007 – 2019



* Treatments administered in the Kimberley in 2007 are likely to have been under-reported, as treatment data were not received from several communities.
† In the Kimberley in 2008, 17 communities were reported to have received 'community-based treatment', compared with only seven in 2009.

Table 5.1 Trachoma control delivery by region, Western Australia 2019

Number of communities	Goldfields	Kimberley	Midwest	Pilbara	Total
At risk (A)	16	8	6	8	38
Requiring screening for trachoma (B)	14	8	6	8	36
Screened for trachoma (C)	14	8	6	8	36
Requiring treatment without screening * (D)	0	0	0	0	0
Received treatment without screening * (E)	0	0	0	0	0
Screened and/or treated for trachoma (F = C+E)	14	8	6	8	36
Requiring neither screening or treatment for trachoma (G=A-B-D)	0	0	0	0	0

* Communities treated without screening in 2019 as per Guidelines.

Table 5.2 Trachoma screening coverage, trachoma prevalence and clean face prevalence by region, Western Australia 2019

	Goldfields				Kimberley				Midwest				Pilbara				Total			
Number of communities screened	14				8				6				8				36			
Age group (years)	***1-4***	***5-9***	***10-14***	***1-14***	***1-4***	***5-9***	***10-14***	***0-14***	***1-4***	***5-9***	***10-14***	***0-14***	***1-4***	***5-9***	***10-14***	***0-14***	***1-4***	***5-9***	***10-14***	***0-14***
Children examined for clean face	24	**188**	72	284	49	**181**	52	282	4	**93**	16	113	22	**89**	41	152	99	**551**	181	831
Children with clean face	7	**105**	68	180	6	**108**	28	142	1	**79**	15	95	14	**71**	35	120	28	**363**	146	537
Clean face prevalence (%)	*29*	***56***	*94*	*63*	*12*	***60***	*54*	*50*	*25*	***85***	*94*	*84*	*64*	***80***	*85*	*79*	*28*	***66***	*81*	*65*
Estimated number* of Aboriginal children in communities†	24	**197**	72	293	49	**192**	52	293	14	**106**	25	145	22	**89**	41	152	109	**584**	190	883
Children screened for trachoma	24	**182**	72	278	0	**181**	0	181	8	**93**	23	124	22	**89**	41	152	54	**545**	136	735
Trachoma screening coverage (%)	*100*	***92***	*100*	*95*	*0*	***94***	*0*	*52*	*57*	***88***	*92*	*86*	*100*	***100***	*100*	*100*	*50*	***93***	*72*	*80*
Children with active trachoma†	1	**37**	3	41	0	**31**	0	31	1	**8**	0	9	2	**6**	0	8	4	**82**	3	89
Observed prevalence of active trachoma‡ (%)	*4.2*	***20.3***	*4.2*	*14.7*	*0.0*	***17.1***	*0.0*	*20.5*	*12.5*	***8.6***	*0.0*	*7.3*	*9.1*	***6.7***	*0.0*	*5.3*	*7.4*	***15.0***	*2.2*	*12.6*
Estimated prevalence of active trachoma‡ (%)		***20.3***				***17.1***				***8.6***				***6.7***				***15.0***		
Overall prevalence of active trachoma‡ (%)		***12.3***				***4.7***				***7.5***				***3.7***				***6.4***		

* Jurisdiction provides estimate for children aged 5-9 years only; number of children in communities aged 0-4 and 10-14 years are based on convenience sampling.
† In communities that were screened for trachoma in 2019.
‡ Methods of calculating the different prevalence rates on page 16.

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Table 5.3 Number and proportion of at-risk communities* according to level of trachoma prevalence in children aged 5-9 years, Western Australia 2007 – 2019

	2007		2008		2009		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
Communities at risk†	72		74		74		86		75		78		71		59		49		51		41		40		38	
Communities not screened‡	17		7		5		8		7		3		2		0		0		0		0		0		0	
Number of communities§	55		67		69		78		68		75		69		59		49		51		41		40		36	
≥20%	18	33%	29	43%	22	32%	14	18%	10	15%	9	12%	7	10%	2	3%	3	6%	3	6%	6	15%	5	13%	11	31%
≥10% but <20%	12	22%	7	10%	3	4%	18	23%	8	12%	3	4%	3	4%	4	7%	2	4%	15	29%	17	41%	12	30%	3	8%
≥5% but <10%	5	9%	8	12%	8	12%	7	9%	7	10%	10	13%	10	14%	2	3%	0	0%	2	4%	1	2%	8	20%	3	8%
>0% but <5%	0	0%	7	10%	14	20%	7	9%	4	6%	7	9%	8	12%	6	10%	5	11%	1	2%	1	2%	1	3%	1	3%
0%	20	36%	16	24%	22	32%	32	41%	39	57%	46	61%	41	59%	45	76%	39	79%	30	59%	16	39%	14	35%	18	50%

* Based on current or most recent year.
† As defined annually by each jurisdiction.
‡ Or treated as required per Guidelines.
§ Screened or receiving ongoing annual treatment as per Guidelines.

Table 5.4 Treatment strategies by region, Western Australia 2019

	Goldfields	Kimberley	Midwest	Pilbara	Total
Required treatment for trachoma	10	4	2	6	22
Treated for trachoma*	10	4	2	6	22
Screened and treated	10	4	2	6	22
Received treatment only	0	0	0	0	0
Received 6-monthly treatment	0	0	0	0	0
Did not require treatment	6	4	4	2	16
Treated active trachoma and households	10	2	1	6	19
Community-wide treatment	0	2	1	0	3
Not treated according to CDNA Guidelines	0	0	0	0	0

Figures and Tables – Western Australia

Table 5.5 Trachoma treatment coverage by region, Western Australia 2019

	Goldfields					Kimberley					Midwest					Pilbara					Total				
Age group (years)	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*	*0-4*	*5-9*	*10-14*	*15+*	*All*
Requiring treatment for active trachoma	1	37	3		41	0	31	0		31	1	8	0		9	2	6	0		8	4	82	3	0	89
Received treatment for active trachoma	1	37	3		41	0	31	0		31	1	8	0		9	2	6	0		8	4	82	3	0	89
Received treatment for active trachoma (%)	*100*	*100*	*100*		*100*		*100*			*100*	*100*	*100*			*100*	*100*	*100*			*100*	*100*	*100*	*100*		*100*
Estimated community members* requiring treatment	22	19	19	141	201	53	78	68	374	573	10	15	7	30	62	6	17	15	37	75	91	129	109	582	911
Number of community members* who received treatment	22	19	19	131	191	53	78	68	374	573	8	12	5	26	51	6	17	15	37	75	89	126	107	568	890
Estimated community members who received treatment (%)	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*
Number of community members who declined treatment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total number of doses of azithromycin delivered	23	56	22	131	232	53	109	68	374	604	9	20	5	26	60	8	23	15	37	83	93	208	110	568	979
Estimated overall treatment coverage (%)	*100*	*100*	*100*	*93*	*96*	*100*	*100*	*100*	*100*	*100*	*82*	*87*	*71*	*87*	*85*	*100*	*100*	*100*	*100*	*100*	*98*	*99*	*98*	*98*	*98*

* Includes household contacts and community members requiring/receiving mass drug administration (MDA.

Table 5.6 a Trichiasis screening coverage, prevalence and treatment* among Indigenous adults by region, Western Australia 2019

	Goldfields		Kimberley		Midwest		Pilbara		Total		
Number of communities screened for trichiasis	19		5		6		6		36		
Age group (years)	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15-39***	***40+***	***15+***
Estimated population in region*	697	489	3,177	1,824	546	299	1,523	802	5,943	3,414	9,357
Number of adults examined†	25	178	44	36	0	173	111	87	180	474	654
Number with trichiasis	0	4	0	0	0	0	0	0	0	4	4
Proportion with trichiasis (%)	*0.0*	*2.2*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.8*	*0.6*
Surgery in past 12 months‡	0	0	0	0	0	0	0	0	0	0	0

* Opportunistic screening during trachoma screening, treatment and flu vaccination activities.
† Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions
‡ Surgery cases may include cases identified in previous years.

Table 5.6 b Trichiasis screening coverage, prevalence and treatment from MBS Item 715 data* among Indigenous adults by region, Western Australia 2019

	Goldfields	Kimberley	Midwest	Pilbara	Total
Age group (years)	***40+***	***40+***	***40+***	***40+***	***40+***
Estimated population in region†	489	1,824	299	802	3,414
Number of adults examined	922	2,530	906	50	4,408
Number with trichiasis	0	0	1	0	1
Proportion with trichiasis (%)	*0.0*	*0.0*	*0.1*	*0.0*	*0.02*
Surgery in past 12 months	0	0	0	0	0

* MBS: Medicare Benefits Schedule.
* Data likely to include duplicate individual presentations, and individuals in urban settings.
† Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between regions.

Table 5.6 c Trichiasis screening coverage, prevalence and treatment from visiting optometrist services data among Indigenous adults by region, Western Australia 2019

	Goldfields	Kimberley	Midwest	Pilbara	Total
Age group (years)	***40+***	***40+***	***40+***	***40+***	***40+***
Estimated population in region*	489	1,824	299	802	3,414
Number of Adults examined	126	1,215	0	565	1,906
Number with trichiasis	0	0	0	0	0
Proportion with trichiasis (%)	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Surgery in past 12 months	0	0	0	1	1

* Population estimate limited to trachoma endemic regions and does not take into account changing endemic regions over time and transiency between region.

Table 5.7 Health promotion activities by region, Western Australia 2019

	Goldfields	Kimberley	Midwest	Pilbara	Total
Number of communities that reported health promotion activities	12	15	7	13	47
Total number of programs reported	16	25	14	70	125
Methods of health promotion					
One-on-one discussion	3	12	6	4	25
Presentation to group		17	7		24
Interactive group session	13	25	7	43	88
Social marketing					0
Print material/mass media		1	7	58	66
Sporting/community events			1	1	2
Other		16	14	26	56
Target audience					
Health professionals/staff		6			6
Children	9	9	7	60	85
Youth		12	6	13	31
Teachers/childcare/preschool staff		9		3	12
Caregivers/parents					0
Community members	3	14	13	41	71
Community educators/health promoters	4				4
Interagency members		1			1
Frequency of health promotion activities					
Once	15	25	14	70	124
Occasional*	1				1
Regular†					
Ongoing/routine					

* 2-4 times per year.
† 5-12 times per year.

Table 5.8 Soap distribution by region, Western Australia 2019

Region	Milpa Bar Soap	Liquid Soap Refills
Kimberley	40,802	598
Pilbara	7,560	48
Midwest	5,736	0
Goldfields	9,600	30
Total	**63,698**	**676**

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Appendix

Age-specific prevalence of follicular trachoma in Australian remote communities

Analysis undertaken by National Trachoma Surveillance and Reporting Unit for the National Trachoma Surveillance and Control Reference Group. May 2019

Background

Australia is a signatory to the World Health Assembly's resolution to achieve the global elimination of trachoma by 2020 (GET2020). An essential requirement for elimination is that the prevalence of active trachoma (trachomatous inflammation – follicular (TF) and trachomatous inflammation – intense (TI)) must be below 5% in the 1-9-year age group. Under Australian trachoma control guidelines (endorsed by the Communicable Diseases Network Australia), screening for trachoma for the purposes of public health decision-making is based on school settings, and focuses on assessing prevalence in the 5-9-year age group. Younger children may be screened opportunistically, but coverage has not consistently been as high as in the 5-9-year group. There is some evidence internationally that trachoma may be more prevalent in the younger age groups, and that estimations based on 5-9-year olds alone may under-estimate the true prevalence in 1-9-year olds.[1] To ascertain whether screening of the 5-9-year age group is sufficiently representative, Australian jurisdictions with active trachoma undertook enhanced screening in at-risk communities in 2018, to include the 1-4-year age group. Here we present the results of that enhanced screening.

Screening of 1-4-year-old children

In 2018 trachoma teams in the Northern Territory (NT), South Australia (SA) and Western Australia (WA) conducted enhanced screening of trachoma to maximise coverage in 1-4-year olds, in order to obtain a representative sample as possible of 1-9-year olds. The purpose of the enhanced screening was explained by the trachoma teams to residents of at-risk communities, during their regular visits to communities for screening and treatment activities. There was general support for the enhanced screening, even though it had not been routine practice in the preceding years of the trachoma program.

Statistical analysis

All communities in which screening for active trachoma was conducted during 2018 were eligible for inclusion. To ensure that the comparison of prevalence between younger and older children was based on comparable levels of screening in the two groups, we conducted primary analyses restricting the analysis to communities in which the screening coverage for 1-4-year olds was at least 80% of coverage in the 5-9-year olds. As there are 5 single year age cohorts in the 5-9-years age group and 4 in the 1-4-years group, the ratio of underlying population numbers in the two age groups is approximately 5:4 and we therefore included only communities in which the number of children screened in the 1-4-years age group was at least 64% (i.e. 80% of 80%) of the number in the 5-9-years age group. In secondary analyses, we included all communities in which screening took place, regardless of coverage.

We used logistic regression to estimate the relationship between active trachoma prevalence and age group (1-4 years vs 5-9 years) in each jurisdiction separately, with community as a fixed effect. We tested the significance of the association at the 0.05 level of significance.

Results

- Screening data from 748 children aged 1-9 years in 18 communities across 2jurisdictions (NT and WA) met the screening coverage inclusion criteria.
- SA did not meet the required inclusion criteria for the analysis in 2018.
- For WA, 11 communities, representing all 4 regions, met the screening coverage inclusion criteria. The difference between the 2 age groups in active trachoma prevalence was not statistically significant ($p = 0.808$) (Table 1, Figure 1).
- In the NT 7 communities met the inclusion criteria, all from Alice Springs Remote. We found evidence of a significant difference between age groups ($p = 0.048$), with higher prevalence in the 5-9-year olds than the 1-4-year olds (Table 2, Figure 1).
- Further analyses included all communities in which 1-4-year olds were screened, regardless of whether they met the screening coverage inclusion criteria. In these analyses there was no significant difference between age groups in either WA ($p = 0.322$) (Table 3, Figure 1) or the NT ($p = 0.144$) (Table 4, Figure 1).

Figure 1 Box plot showing prevalence of trachoma in 1-4 and 5-9-year-old children by jurisdiction, communities that met screening coverage inclusion criteria

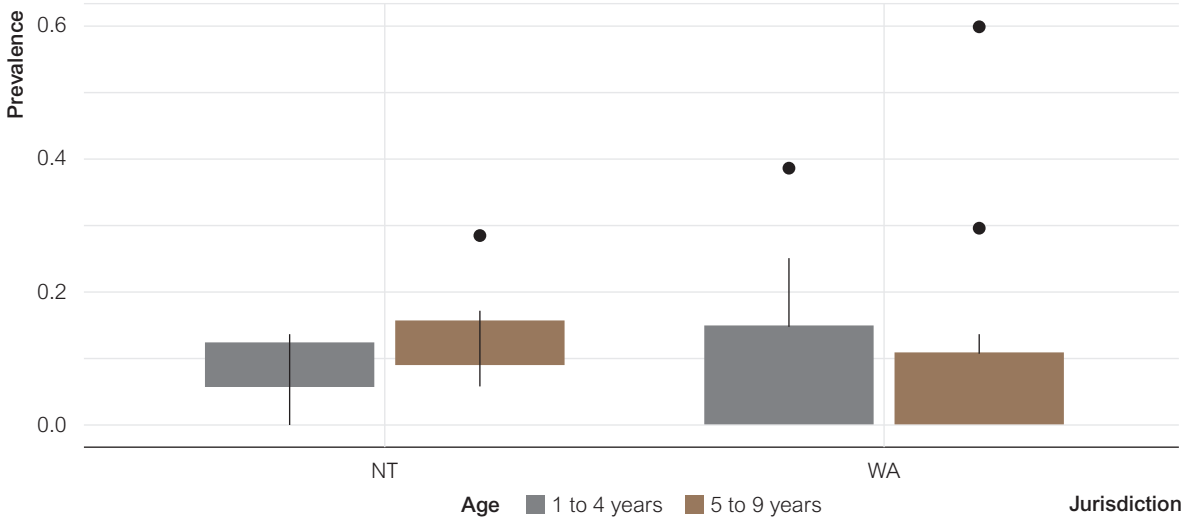

Table 9 Comparison of trachoma prevalence between 1-4 and 5-9-year-old children in Western Australia among 11 communities that met screening coverage inclusion criteria

Age group (years)	Number of children examined	Number of children with active trachoma	Trachoma prevalence (%)
1-4	161	17	10.6
5-9	186	20	10.8

Odds ratio: 0.91 (0.42-1.97) p-value: 0.808

Table 10 Comparison of trachoma prevalence between 1-4 and 5-9-year-old children in Northern Territory among 7 communities that met screening coverage inclusion criteria

Age group (years)	Number of children examined	Number of children with active trachoma	Trachoma (%)
1-4	176	13	7.4
5-9	225	30	13.3

Odds ratio: 1.97 (1.01 -4.06) p-value: 0.048

Table 11 Comparison of trachoma prevalence between 1-4 and 5-9-year-old children in all 25 Western Australia communities in which screening took place

Age group (years)	Number of children examined	Number of children with active trachoma	Trachoma (%)
1-4	335	30	9.0
5-9	541	56	10.4

Odds ratio: 0.91 (0.78-2.16) p-value: 0.32

Table 12 **Comparison of trachoma prevalence between 1-4 and 5-9-year-old children in all 33 Northern Territory communities in which screening took place**

Age group (years)	Number of children examined	Number of children with active trachoma	Trachoma (%)
1-4	408	34	8.33
5-9	1,035	82	7.92

Odds ratio: 1.38 (0.9 – 2.18) p-value: 1.44v

Discussion and conclusion

In the communities with high levels of screening coverage in both 1-4 and 5-9-years age groups, trachoma prevalence in the 1-4 age group did not differ significantly from prevalence in the 5-9 age group in Western Australia and it was lower in the Northern Territory.

There was no evidence of higher prevalence in the younger age group, and if anything, prevalence was lower in the 1-4-year-old age group than the 5-9-year group. The finding was generally consistent between the jurisdictions, and was sustained in analyses that involved all screened communities, not just those with higher coverage of screening in the younger age group.

The main limitation to this analysis is the sample size. Although substantial overall, it was not large enough at jurisdictional and sub-jurisdictional levels to exclude the possibility that the relationship between age and prevalence varies geographically.

Despite this limitation, the analysis provides strong support to the use of prevalence in 5-9-year-old age group as a basis for assessing one of the key indicators of trachoma control.

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