

# AUSTRALIAN TRACHOMA SURVEILLANCE ANNUAL REPORT, 2013

Carleigh S Cowling, Bette C Liu, Thomas L Snelling, James S Ward, John M Kaldor, David P Wilson

## Abstract

Australia remains the only developed country to have endemic levels of trachoma (a prevalence of 5% or greater among children) in some regions. Endemic trachoma in Australia is found predominantly in remote and very remote Aboriginal communities. The Australian Government funds the National Trachoma Surveillance and Reporting Unit to collate, analyse and report trachoma prevalence data and document trachoma control strategies in Australia through an annual surveillance report. This report presents data collected in 2013. Data are collected from Aboriginal and Torres Strait Island communities designated at-risk for endemic trachoma within New South Wales, the Northern Territory, South Australia and Western Australia. The World Health Organization grading criteria were used to diagnose cases of trachoma in Aboriginal children, with jurisdictions focusing screening activities on the 5–9 years age group; but some children in the 1–4 and 10–14 years age groups were also screened. The prevalence of trachoma within a community was used to guide treatment strategies as a public health response. Aboriginal adults aged 40 years or over were screened for trichiasis. Screening coverage for the estimated population of children aged 5–9 years and adults aged 40 years or over in at-risk communities required to be screened in 2013 was 84% and 30%, respectively. There was a 4% prevalence of trachoma among children aged 5–9 years who were screened. Of communities screened, 50% were found to have no cases of active trachoma and 33% were found to have endemic levels of trachoma. Treatment was required in 75 at-risk communities screened. Treatment coverage for active cases and their contacts varied between jurisdictions from 79% to 100%. Trichiasis prevalence was 1% within the screened communities. *Commun Dis Intell* 2016;40(1):E255–E266.

Keywords: active trachoma, control activities, endemic, facial cleanliness, SAFE control strategy, surveillance, South Australia, New South Wales, Northern Territory, Western Australia

## Introduction

This is the 8th national trachoma surveillance annual report.<sup>1–7</sup> Trachoma screening and management data for 2013 were provided to the

National Trachoma Surveillance and Reporting Unit (NTSRU) by the Northern Territory, South Australia, Western Australia and New South Wales.

Trachoma is one of the major causes of preventable blindness globally.<sup>8</sup> It is an eye infection caused by the bacteria *Chlamydia trachomatis* serotypes A, B, Ba and C. Infection with the relevant *C. trachomatis* serotype causes inflammation of the conjunctiva. Diagnosis of trachoma 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 with contraction and distortion of the eyelid, which may in turn cause the eyelashes to rub against the cornea. This condition is known as trichiasis, which leads to gradual vision loss and blindness.<sup>9–11</sup> Scarring of the cornea due to trichiasis is irreversible. However, if early signs of in-turned eyelashes are found, then surgery is usually effective in preventing further damage to the cornea. The infection can be transmitted through close facial contact, hand-to-eye contact, via fomites (towels, clothing and bedding) or by flies. Trachoma generally occurs in dry, dusty environments and is linked to poor living conditions. Overcrowding 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. Children generally have the highest prevalence of trachoma and are believed to be the main reservoirs of infection because the infection in children has a longer duration than in adults.<sup>12</sup>

The Alliance for the Global Elimination of Blinding Trachoma by 2020 (GET 2020) initiative, supported by the World Health Organization (WHO), advocates the implementation of the SAFE strategy, with its key components of surgery (to correct trichiasis), antibiotic treatment, facial cleanliness and environmental improvements. This strategy is ideally implemented through a primary care model within a community framework, ensuring consistency and continuity in screening, control measures, data collection and reporting, as well as the building of community capacity. The target set by both WHO and the Communicable Diseases Network Australia (CDNA) for the elimination of blinding trachoma is a prevalence in children aged 1–9 years of less than 5% over a period of 5 years.<sup>13–15</sup>

Trachoma is usually treated by a single dose of the antibiotic azithromycin repeated on an annual basis, with treatment strategies varying according to trachoma prevalence. Best public health practice involves treatment of all members of the household in which a case resides, whether or not they have evidence of trachoma. In hyperendemic communities, it is recommended that treatment is also extended to all children over 3 kg in weight up to 14 years of age, or to all members of the community over 3 kg in weight.<sup>9,12,16</sup>

### Trachoma control in Australia

Australia is the only high-income country where trachoma is endemic. It occurs primarily in remote and very remote Aboriginal communities in the Northern Territory, South Australia and Western Australia. In 2008, cases were also found in New South Wales and Queensland, States where trachoma was believed to have been eliminated. However, cases of trichiasis are believed to be present in all jurisdictions and sub-jurisdictional regions of Australia.<sup>12,17</sup> In 2013, the Australian Government committed \$16.5 million to continue, improve and expand trachoma control initiatives in jurisdictions with areas of known endemic levels of trachoma and to jurisdictions with a previous history of trachoma screening activities to ascertain if control programs were also required. Funding was also committed to establishing a strong framework for monitoring and evaluation of trachoma control activities.<sup>18</sup>

The surveillance and management of trachoma in 2013 was guided by the CDNA guidelines for management of trachoma. The 2006 *Guidelines for the Public Health Management of Trachoma in Australia*.<sup>19</sup> were reviewed in 2013 and revised guidelines were formally implemented from January 2014.<sup>9</sup> One of the main changes to the guidelines was to include the option of not screening all endemic communities every year. The Northern Territory trachoma control program in 2013 was guided by the revised *National Guidelines for the Public Health Management of Trachoma in Australia*.<sup>9</sup> The guidelines were developed in the context of the WHO SAFE strategy and make recommendations for improving data collection, collation and reporting systems in relation to trachoma control in Australia.

### The National Trachoma Surveillance and Reporting Unit

The NTSRU is responsible for data collation, analysis and reporting related to the ongoing evaluation of trachoma control strategies in Australia. It operates under contract with the Australian Government Department of Health.

The NTSRU has been managed by The Kirby Institute, the University of NSW since the end of 2010.<sup>5-7</sup> For previous reports from 2006 to 2008, the NTSRU was managed by The Centre for Eye Research Australia.<sup>1-3</sup> and the 2009 report was managed by the Centre for Molecular, Environmental, Genetic and Analytic Epidemiology, at the University of Melbourne.<sup>4</sup>

### Methods

Each jurisdiction undertook screening and treatment for trachoma according to its respective protocols, and in the context of the national 2006 CDNA *Guidelines for the Public Health Management of Trachoma in Australia*, or the 2014 CDNA *National guidelines for the Public Health Management of Trachoma in Australia*, which recommend specific treatment strategies depending on the prevalence of trachoma detected through screening.<sup>9,19</sup>

In 2006, when the National Trachoma Management Program was initiated, each jurisdiction identified at-risk communities from historical prevalence data and other knowledge, including known transiency into endemic communities. Over time, additional communities have been reclassified as being at risk. Screening for trachoma focuses on the at-risk communities, but a small number of other communities designated as not-at-risk have also been screened, generally if there is anecdotal information suggesting the presence of active trachoma.

The WHO trachoma grading criteria were used to diagnose and classify individual cases of trachoma in all jurisdictions.<sup>20</sup> Data collection forms for data collection at the community level were developed by the NTSRU, based on the CDNA guidelines. Completed forms were forwarded from the jurisdictional coordinators to the NTSRU for checking and analysis. Information provided to the NTSRU at the community level for each calendar year included:

- number of Aboriginal children aged 1–14 years screened for clean faces and the number with clean faces, by age group;
- number of Aboriginal 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 Aboriginal adults screened for trichiasis, number with trichiasis, and the number who had surgery for trichiasis;
- community-level implementation of WHO SAFE strategies.

While data may be collected for Aboriginal children aged 0–14 years, the focus age group in all regions is the 5–9 years age group.

Community-wide treatment differs between regions. In the Northern Territory, whole-of-community treatment according to the 2014 guidelines indicates the treatment of all people in the community over 3 kg in weight who are living in houses where there are any children less than 15 years of age. In Western Australia and South Australia whole-of-community treatment using the 2006 guidelines refers to active cases, household contacts and all children in the community aged 6 months to 14 years.

### **Northern Territory**

In 2013, the Northern Territory delivered trachoma control activities using the draft revised guidelines, which allowed resources to be directed towards community-wide treatment in high-prevalence communities, and ensured that resources were not consumed by annual screening in areas where the prevalence was already well established. Trachoma screening and management in the Northern Territory was undertaken through collaboration between the Northern Territory Department of Health, Centre for Disease Control (CDC) and Health Development; and the Aboriginal Community Controlled Health Services (ACCHS). Trachoma screening was incorporated into the Healthy School-Age Kids program annual check and conducted by either local primary health-care services or community-controlled services, with support from the CDC trachoma team. The Northern Territory uses school enrolment lists, electronic health records and local knowledge to best determine children aged 5–9 years present in the community at the time of screening. Following screening, treatment was generally undertaken by primary health-care services with support from the CDC trachoma team, particularly where community-wide treatments were required.

In 2013, community screening for trichiasis was undertaken primarily by primary health clinic professionals in the community, ACCHS, or by optometrists or ophthalmologists from the Regional Eye Health Service based in Alice Springs.

### **South Australia**

In 2013, Country Health South Australia was responsible for managing the South Australia trachoma screening and treatment program. Country Health South Australia contracted with ACCHS, the Aboriginal Health Council of South Australia, Nganampa Health Service and local health service providers to ensure coverage of screening

services in all at-risk rural and remote areas. South Australia uses the Australian Bureau of Statistics census population estimates<sup>21</sup> as the screening denominator for screened communities. Additional trichiasis screening activities were undertaken by the Eye Health and Chronic Disease Specialist Support Program (EH&CDSSP), coordinated by the Aboriginal Health Council of South Australia and supported by the Medical Specialist Outreach Assistance Program. This program provides regular visits to South Australia remote Aboriginal communities by optometrists and ophthalmologists. Trichiasis screening was undertaken opportunistically for adults by contracted trachoma screening service providers, the EH&CDSSP team and also routinely as part of the Adult Annual Health Checks.

### **Western Australia**

Trachoma screening and management in Western Australia is the responsibility of population health units in the Kimberley, Goldfields, Pilbara and Midwest health regions. In collaboration with the local primary health-care providers, the population health units screened communities in each region within a 2-week period, in August and September. People identified with active trachoma were treated at the time of screening. Each region determines the screening denominator in a different manner: in the Goldfields the denominator is based on the school register, without adjusting for absent children, plus other children present in the community at the time of screening; in the Pilbara the denominator number is based on children present in the community at the time of screening; in the Midwest the denominator is based on the school register with removal of children from the school list who were known to be absent on the day of the screening, plus any other children present in the community at the time of screening; and in the Kimberley the denominator is based on the school register, updated at the time of screening.

Trichiasis screening was undertaken in conjunction with the administration of adult influenza vaccinations. Screening of the target population also occurs with the Visiting Optometrist Scheme in the Kimberley region. In addition, the Goldfields region undertook additional trichiasis screening during the trachoma screening period.

In 2011, Western Australia Health amalgamated several previously distinct communities into one single community for the purpose of trachoma surveillance due to the small populations of each community and the kinship links that result in frequent mobility between these communities. This definition alters trends presented in reports from 2010 to 2013.

## New South Wales

In 2013, New South Wales Health piloted a school-based trachoma screening project in 10 potentially at-risk communities in north-western New South Wales. The project aimed to determine if there was any evidence of trachoma in Aboriginal children living in rural and remote communities in New South Wales. Screening and treatment were conducted by the population health unit in Bathurst with support from the NSW Ministry of Health. No trichiasis screening was undertaken in New South Wales. In New South Wales, the denominator used to calculate screening coverage is based on the number of Aboriginal children aged 5–9 years enrolled in the school being screened. The denominator was not adjusted if children were absent on the day of screening.

## Data analysis

For the purpose of this report, a community is defined as a specific location where people reside and where there is at least 1 school. At-risk communities are classified by the participating jurisdictions as being at higher risk of trachoma (generally based on prevalence above 5% among the 5–9 years age group). Communities are defined as being not-at-risk by having a baseline prevalence of below 5%; if previously at risk, 5 years with a prevalence below 5%; or having no historical evidence of trachoma prevalence. Community coverage is defined as the number of at-risk communities screened for trachoma as a proportion of those that were identified to possibly have trachoma. Individual screening coverage is the proportion of children in the respective target age groups in a region that was actually screened. Active trachoma is defined as the presence of chronic inflammation of the conjunctiva caused by infection with *C. trachomatis* and includes WHO grades trachomatous inflammation – follicular and trachomatous inflammation – intense.<sup>15</sup> Under the WHO criteria, Clean face is defined as the absence of dirt, dust and crusting on cheeks and forehead. The Clean face target is at least 80% of children within the community having a clean face at the time of screening.<sup>17</sup> Trachomatous trichiasis is defined as the evidence of the recent removal of in-turned eyelashes or at least 1 eyelash rubbing on the eyeball.

Trachoma data were analysed in the age groups 0–4, 5–9 and 10–14 years. Comparisons over time were limited to the 5–9 years age group, which is the target age group for the trachoma screening programs in all regions. Data from 2006 were excluded from assessment of time trends as collection methods in this first year differed from those subsequently adopted.

## Projected data for trachoma prevalence

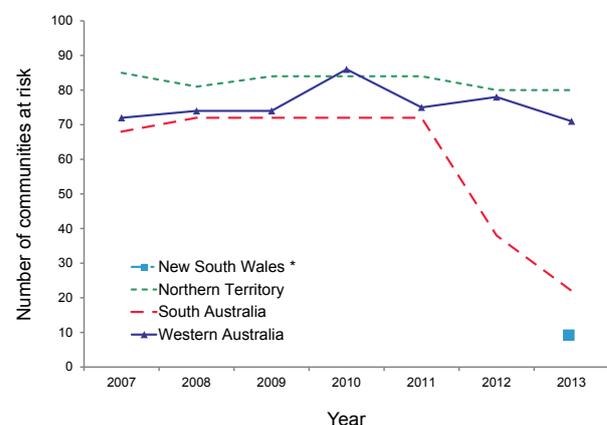
In 2013 the Northern Territory delivered trachoma control activities according to the newly revised guidelines.<sup>9</sup> Under these guidelines, a community would be excluded from screening activities for up to 3 years if high screening coverage had been achieved in the recent past and either prevalence of trachoma was less than 5%, or it was 5% or more without obvious clustering. Exclusion of these communities from screening activities leads to less reliable trachoma surveillance data during the interim period, for the total level, and trend in trachoma, in the region in which community is located. For reporting purposes, the NTSRU carried the most recent prevalence data forward in those communities that did not screen in the 2013 calendar year as a direct program decision, providing what is believed to be a conservative upper bound on average levels of trachoma. This principle will apply to all tables and figures relating to trachoma prevalence data. This method of projecting data was approved by the Trachoma Surveillance and Control Reference Group on 26 November 2013.

## Results

### Trachoma program coverage

Jurisdictions identified 183 communities as being at risk of trachoma in 2013, including those classified as potentially at-risk for the purposes of a mapping exercise in New South Wales (Table 1). The number of communities designated as being at-risk has plateaued in the Northern Territory, marginally decreased in Western Australia and substantially decreased in South Australia since 2012 (Figure 1). Of 183 at-risk or potentially at-risk communities, 145 communities were determined

**Figure 1: Number of communities at risk, 2007 to 2013, selected states, by year and state or territory**



\* Screened in 2013 only.

to require screening for trachoma, a further 18 were identified to require treatment without screening, equating to 163 communities that were determined to require screening, treatment, or both screening and treatment. Of these, 144 (88%) received the screening, treatment or both screening and treatment that was required. The remaining 20 at-risk communities did not require screening or treatment as their previous year's prevalence was under 5%. A total of 15 communities, 2 each in the Northern Territory and Western Australia and 11 in South Australia, deemed not at-risk were also screened for trachoma in 2013 (Table 1).

### Screening coverage

Jurisdictions identified 145 communities in the 4 jurisdictions requiring screening for trachoma in 2013 and of these 127 (88%) were screened for trachoma in 2013 (Table 1, Table 2). Within these communities 4,213 (84%) of an estimated 5,017 resident children aged 5–9 years were screened (Table 2). Screening coverage in children aged 5–9 years in at-risk communities was 81% for the Northern Territory, 90% for South Australia and Western Australia, and 72% for New South Wales (Table 2, Figure 2).

**Table 1: Delivery of trachoma control in Australia, 2013, by state or territory**

Community risk status and treatment delivered to communities	Number of communities					Total	Not at-risk
	New South Wales	Northern Territory	South Australia	Western Australia			
At risk* (A)	10	80	22	71	183	N/A	
Requiring screening for trachoma (B)	10	42	22	71	145	N/A	
Screened for trachoma (C)	10	30	16	71	127	15 <sup>‡</sup>	
Requiring treatment only (D)	N/A	18	N/A	N/A	18	N/A	
Treated <sup>†</sup> (E)	N/A	17	N/A	N/A	17	N/A	
Screened and/or treated for trachoma (F = C+E)	10	47	16	71	144	15	
Requiring neither screening or treatment for trachoma (G=A-B-D)	N/A	20	N/A	N/A	20	N/A	

\* In 2013, New South Wales communities have been designated as 'potentially at risk' for the purposes of a mapping exercise.

† Communities treated without screening in 2013 as per revised guideline instructions.

‡ Not at risk communities were screened in the Northern Territory (2), Western Australia (2) and South Australia (11).

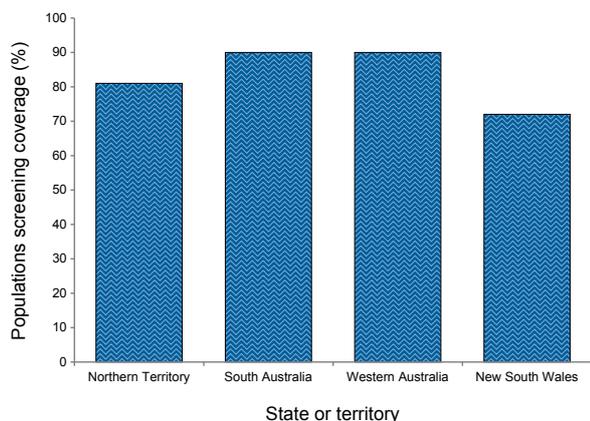
**Table 2: Trachoma screening coverage, trachoma prevalence and clean face prevalence in Australia, 2013, by state or territory**

Number of communities screened Age group (years)	New South Wales	Northern Territory	South Australia	Western Australia	Total	Not at risk
	5–9	5–9	5–9	5–9	5–9	5–9
Children examined for clean face	608	1,358	768	1,510	4,244	266
Children with clean face	581	1,057	671	1,112	3,421	241
Clean face prevalence (%)	96	78	87	74	81	91
Estimated number* of Aboriginal children in communities <sup>†</sup>	795	1,681	857	1,684	5,017	380
Children screened for trachoma	575	1,362	768	1,508	4,213	265
Trachoma screening coverage (%)	72	81	90	90	84	70
Children with active trachoma	3	33	27	57	120	3
Active trachoma prevalence (%)	0.5	2.4	3.5	3.8	2.8	1.1
Active trachoma prevalence using projected data (%)	0.5	5	3.5	3.8	4.0	1.1

\* Jurisdictional estimate.

† In communities that were screened for trachoma.

**Figure 2: Population screening coverage in children aged 5–9 years in communities that were screened for trachoma, selected states, 2013, by state or territory**



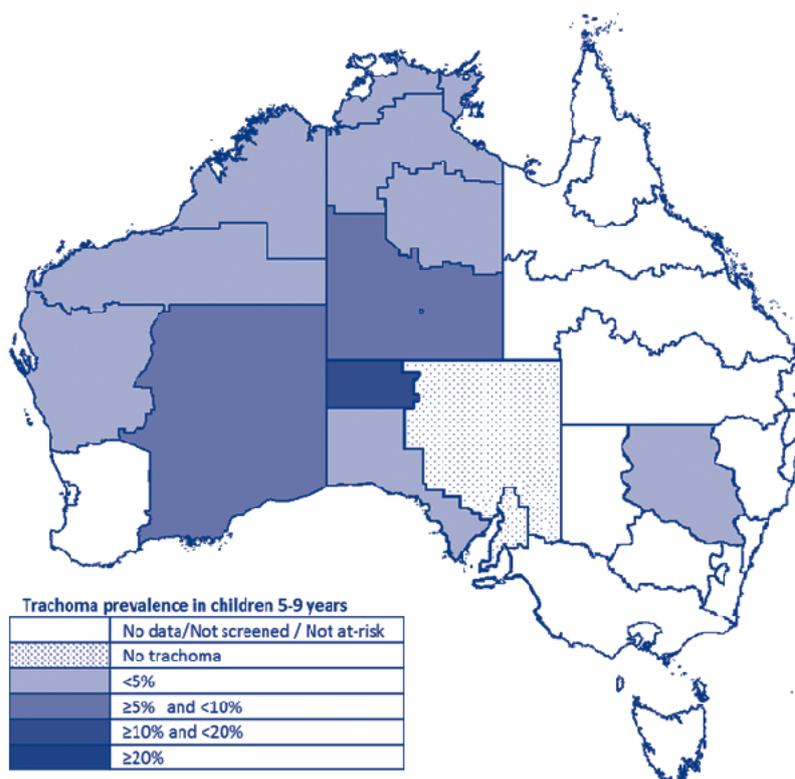
**Clean face prevalence**

A total of 4,244 children aged 5–9 years in 127 at-risk communities were assessed for clean faces during 2013. The overall prevalence of clean faces in children aged 5–9 years was 81%, with 78% in the Northern Territory, 87% in South Australia, 74% in Western Australia and 96% in New South Wales (Table 2).

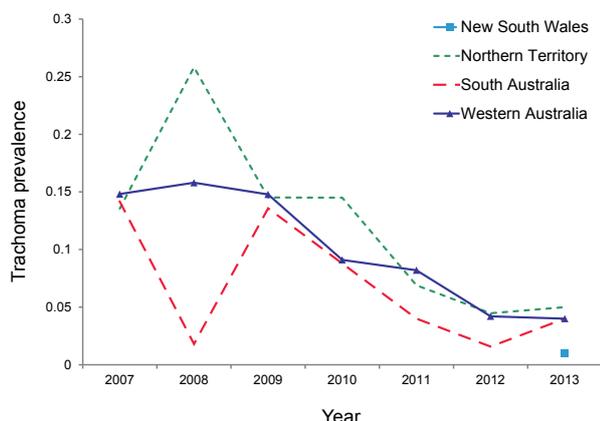
**Trachoma prevalence**

The overall prevalence of active trachoma among children aged 5–9 years in screened communities (using projected data, see methodology) was 4%, with 5% in the Northern Territory, 3.5% in Western Australia, 3.8% in South Australia, and 0.5% in New South Wales. The observed trachoma prevalence in communities that were screened in 2013 in the Northern Territory was 2% (Figure 3, Table 2). Since 2009, the prevalence of trachoma in children aged 5–9 years has decreased significantly in all studied jurisdictions, with the projected national trachoma prevalence dropping from 14% in 2009 to 4% in 2013. From 2012 to 2013 the prevalence of trachoma in children aged 5–9 years has remained steady in Western Australia, and increased in the Northern Territory and South Australia (Figure 4). No trachoma was reported or detected in children aged 5–9 years in 91 (50%) communities in 2013, including communities that screened for trachoma in children 5–9 years of age and communities in the Northern Territory that did not screen in accordance with guidelines. Endemic levels of trachoma (> 5%) were reported in 55 communities (33%) in 2013, including communities that screened for trachoma in children aged 5–9 years and communities in the Northern Territory that did not screen in accordance with guidelines (Figure 5).

**Figure 3: Trachoma prevalence in children aged 5–9 years in at-risk communities, selected jurisdictions, 2013**



**Figure 4: Trachoma prevalence among screened children\* aged 5–9 years, 2007 to 2013, selected states, by year and state or territory**

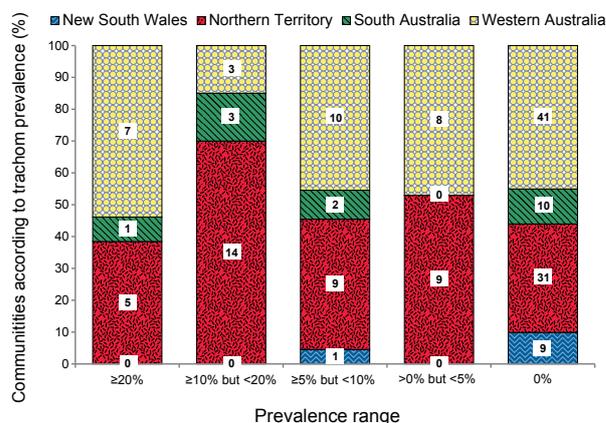


\* Including communities in the Northern Territory that screened in 2013 and those that did not screen in 2013 in accordance with revised guideline instructions.

**Treatment delivery and coverage**

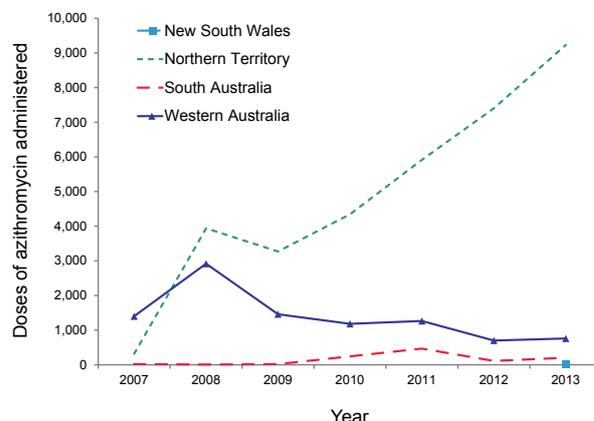
Trachoma treatment strategies were applied in 74 communities, comprising 99% of those requiring treatment (Table 3). Treatment was delivered to active cases and households in 45 communities, and to the whole of community in 29 communities according to the guidelines. Three communities, all in the Northern Territory did not treat according to CDNA guidelines (Table 3). Of all cases detected that required treatment, 99% received treatment (Table 4). Treatment coverage in all jurisdictions was 81%, with 79% in the Northern Territory, 99% in South Australia, 94% in Western Australia and 100% in New South Wales (Table 4). A total of 10,219 doses of azithromycin was delivered (Table 4). An increasing trend of azithromycin distribution is observed in the Northern Territory since 2009, with Western Australia and South Australia trends relatively stable (Figure 6).

**Figure 5: Number of screened at-risk communities\* according to level of trachoma prevalence in children aged 5–9 years, selected states, 2013, by state or territory**



\* Including communities in the Northern Territory that screened in 2013 and those that did not screen in 2013 in accordance with revised guideline instructions.

**Figure 6: Number of doses of azithromycin administered for the treatment of trachoma, Australia, 2007 to 2013, by state or territory**



**Table 3: Treatment strategies in Australia, 2013, by state or territory**

Number of communities	New South Wales	Northern Territory	South Australia	Western Australia	Total
Required treatment for trachoma	1	34	6	34	75
Treated for trachoma	1	33	6	34	74
Screened and treated	1	16	6	34	57
Received treatment only	N/A	17	N/A	N/A	17
Received 6-monthly treatment	N/A	5	N/A	N/A	5
Did not require treatment	9	34	10	37	90
Treated active cases and households	1	12	5	27	45
Treated the whole of community*	0	21	1	7	29
Not treated according to CDNA guidelines	0	3	0	0	3

\* In the Northern Territory, whole-of-community treatment was guided by the 2014 guidelines. This is defined as the treatment of all people in the community weighing more than 3 kg and living in households with children less than 15 years of age. In Western Australia and South Australia whole-of-community treatment was guided by the 2006 guidelines. This is defined as active cases, household contacts and all children in the community aged 6 months to 14 years.

Table 4: Trachoma treatment coverage in Australia, 2013

Age group (years)	Northern Territory				South Australia				Western Australia				New South Wales				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					
Active cases requiring treatment	3	33	10	46	46	1	27	5	33	33	15	57	22	94	94	0	3	0	3	3	19	120	37	176	
Active cases who received treatment	3	33	10	46	46	1	27	5	33	33	15	56	22	93	93	0	3	3	3	3	19	119	37	175	
Active cases who received treatment (%)	100	100	100	100	100	100	100	100	100	100	100	98	100	99	99	100	100	100	100	100	100	99	100	99	
Estimated contacts requiring treatment	1,184	1,497	1,306	7,597	1,1584	25	41	29	78	173	102	158	140	317	717	2	3	1	16	22	1,313	1,699	1,476	8,008	12,496
Number of contacts who received treatment	1,033	1,297	1,057	5,799	9,186	25	41	28	76	170	81	142	128	315	666	2	3	1	16	22	1,141	1,483	1,214	6,206	10,044
Estimated contacts who received treatment (%)	87	87	81	76	79	100	100	100	97	98	79	90	91	99	93	100	100	100	100	100	87	87	82	77	80
Total number of doses of azithromycin delivered	1,036	1,330	1,067	5,799	9,232	26	68	33	76	203	96	198	150	315	759	2	6	1	16	25	1,160	1,602	1,251	6,206	10,219
Estimated overall treatment coverage (%)	87	87	81	76	79	100	100	97	99	99	82	92	93	99	94	100	100	100	100	100	87	88	83	77	81
Doses administered in communities that were treated without screening*	423	498	399	2,264	3,584											423	498	399	2,264	3,584					
Doses administered six-monthly*	552	659	574	3,114	4,899											552	659	574	3,114	4,899					

\* As per revised guidelines 2014.

### Trichiasis

Screening for trichiasis was undertaken in 143 communities with 5,635 adults aged over 15 years screened in 2013. The prevalence of trichiasis in adults aged 15 years or over was 1% (55/5,635), and 1% (49/3,856) in adults aged 40 years or over. Surgery for trichiasis was reported to have been undertaken for 31 adults in 2013 (Table 5).

### Health promotion activities

Health promotion activities were reported to have been undertaken in 128 communities, including at-risk and not at-risk communities. These included school and community based activities promoting facial cleanliness.

## Discussion

### Trachoma screening

The number of at-risk communities screened plateaued in the Northern Territory, decreased slightly in Western Australia and decreased substantially in South Australia. It is expected that this decreasing trend will continue in future years. A number of communities screened for the first time in 2013 did not have trachoma, and therefore do not qualify as being at risk for future years.

The revised *National Guidelines for the Public Health Management of Trachoma in Australia* direct communities to focus resources on treatment without annual screening where trachoma prevalence is already well established. Communities with non-endemic levels of trachoma will not be

required to screen annually. These guidelines were implemented in the Northern Territory in 2013, and implemented nationwide in 2014. This strategy affected the number of communities screened in the Northern Territory and will have a similar effect in other jurisdictions in future years. Community and child population screening coverage have been used as an indication of the level of program delivery in previous annual trachoma reports. In response to the revised guidelines, the annual report has shifted focus from screening coverage to the extent of implementation of the guidelines with respect to screening, treatment and health promotion activities.

### Trachoma prevalence

In past years, the NTSRU had been able to estimate the prevalence using population weights. Due to the poor screening coverage of the 0–4 years age group, it was considered that the results reported were not representative of that age group. In Australia, the prevalence in the 5–9 years age group is accepted as a sufficient measure of the prevalence of trachoma within at-risk communities.

Across all 4 jurisdictions in 2013, the prevalence of trachoma in children 5–9 years was 4%, a figure that includes data projected forward in communities that did not screen due to implementation of the revised guidelines. This rate is consistent with the 2012 national prevalence of 4% for trachoma in children aged 5–9 years. The observed trachoma prevalence in communities that were screened in 2013 was 3%.

**Table 5: Trichiasis screening coverage, prevalence and treatment among Aboriginal adults in Australia, 2013**

Number of communities screened for trichiasis	Northern Territory		South Australia		Western Australia		Total		
	56		23		64		143		
Age groups	15–39	40+	15–39	40+	15–39	40+	15–39	40+	15+
Estimated population in region*	14,087	7,146	3,385	2,121	5,898	3,450	23,370	12,717	36,087
Adults examined†	1,106	878	512	1,322	161	1,656	1,779	3,856	5,635
With trichiasis (% of adults examined)	6 (0.05%)	33 (4%)	0	8 (0.6%)	0	8 (0.5%)	6 (0.3%)	49 (1%)	55 (1%)
Offered ophthalmic consultation	0	13		8	0	7	0	28	28
Declined ophthalmic consultation	0	2		0	0	1	0	3	3
Surgery in past 12 months	0	23		2	0	6	0	31	31

\* 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 does not account for adults who may be examined in routine adult health checks, and may also include multiple screening.

New South Wales detected trachoma in 1 of the 10 communities screened. This community is now considered at-risk and will continue to be monitored. A further 9 communities were screened in 2013.

Trachoma prevalence in 2013 increased slightly in South Australia and the Northern Territory but plateaued in Western Australia, after a decreasing trend from 2009 to 2012 in all jurisdictions. The observed trends in South Australia and Western Australia were most likely due to the decrease in at-risk communities in South Australia and Western Australia. This trend may continue in future years due to implementation of the revised guidelines where communities not at risk cease undergoing screening and the at-risk population becomes more concentrated.

### Trachoma treatment

Nationally, 99% of active cases that were identified in 2013 were treated for trachoma. Contact and community-treatment coverage was 81%. The total number of doses of azithromycin administered in 74 communities was 10,219. The majority of these were in the Northern Territory.

### Facial cleanliness

Promoting facial cleanliness is a major component of the SAFE strategy, recognising that the presence of nasal and ocular discharge is significantly associated with the risk of both acquiring and transmitting trachoma. New South Wales had the highest prevalence of facial cleanliness at 96% of all children screened. The Northern Territory did not report levels of facial cleanliness in communities that did not screen for trachoma. However it is recommended that jurisdictions implementing the new guidelines continue to screen for facial cleanliness in communities where treatment and health promotion activities are undertaken.

### Program delivery and monitoring

Improvements in program delivery have been reported in 2013 with increased coverage of screening and treatment delivery and health promotion activities in Western Australia. However, although treatment coverage in the Northern Territory and South Australia was high, these jurisdictions did not reach their community screening goals due to funding issues with service providers. Data quality also improved in all jurisdictions. However, as many regions chose to

focus on the 5–9 years age group, data pertaining to the 0–4 and 10–14 years age groups were not comprehensive.

The newly endorsed CDNA guidelines provide the basis for strengthening trachoma control programs in all jurisdictions by reducing ambiguity in previous guidelines and providing clear guidance on screening and treatment methods. The impact of the new strategies, in particular treatment and screening schedules, may not be evident for several years.

### Progress towards Australia's elimination target

The Australian government's commitment to the WHO Alliance of the Global Elimination of Blinding Trachoma by the year 2020 (GET 2020), to which Australia is a signatory, continues with further funding committed to ensuring that trachoma programs are increased and strengthened.

Discussions and plans are required for the next phase of monitoring communities no longer considered at-risk, and planning for the ongoing monitoring of trichiasis once blinding trachoma has been eliminated from Australia.

With the implementation of new guidelines in 2014 and strengthened efforts in health promotion, environmental condition improvements and treatment coverage, as reported in 2013, and decreasing numbers of at-risk communities leading to a more focused trachoma control program in endemic areas, Australia will stay on track to eliminate trachoma by 2020.

### Acknowledgements

The trachoma surveillance and control activities are supported by funding from the Australian Government under the *Closing the Gap – Improving Eye and Ear Health Services for Indigenous Australians* measure.

Jurisdictional contributors to trachoma data collection

#### Northern Territory

Aboriginal Community Controlled Health Services

Aboriginal Medical Services Alliance of the Northern Territory

Centre for Disease Control, Northern Territory Department of Health

Healthy School Age Kids Program: Top End and Central Australia

### South Australia

Aboriginal Community Controlled Health Services

Aboriginal Health Council of South Australia

Country Health South Australia

### Western Australia

Aboriginal Community Controlled Health Services

Communicable Diseases Control Directorate, Health Department of Western Australia

Goldfields Population Health Unit

Kimberley Population Health Unit

Midwest Population Health Unit

Pilbara Population Health Unit

### New South Wales

Population Health unit, Western New South Wales Local Health District

### The National Trachoma Surveillance and Control Reference Group

The NTSRU is guided by the National Trachoma Surveillance and Control Reference Group, members of which include the following representatives and organisations:

Meredeth Taylor: Office for Aboriginal and Torres Strait Islander Health, Australian Government Department of Health

Rhonda Stilling: Office for Aboriginal and Torres Strait Islander Health, Australian Government Department of Health

David Scrimgeour: Aboriginal Health Council of South Australia

Daniel Suggit: National Aboriginal Community Controlled Health Organisations

Vicki Krause: Communicable Diseases Network Australia

Stephen Lambert: Queensland Department of Health

Paula Spokes: New South Wales Department of Health

Charles Douglas: Northern Territory Department of Health

Melissa Vernon: Western Australia Country Health Service

Lucy Angley: Country Health South Australia

Hugh Taylor: Melbourne School of Population Health, University of Melbourne

Donna Mak: Population and Preventive Health, University of Notre Dame Australia

The National Trachoma Surveillance and Reporting Unit, The Kirby Institute, University of New South Wales

The authors would like to thank Mary Sinclair for assistance with technical editing.

### Author details

Carleigh S Cowling, Senior Surveillance Officer<sup>1</sup>

Bette C Liu, Senior Lecturer<sup>2</sup>, Scientific Head of Research Assets<sup>3</sup>

Thomas L Snelling, Consultant Infectious Diseases<sup>4</sup>, NMHRC Frank Fenner research fellow<sup>5</sup>

James S Ward, Deputy Director, Head Preventative Health<sup>6</sup>

John M Kaldor, Professor of Epidemiology<sup>1</sup>

David P Wilson, Associate Professor and Head, Surveillance and Evaluation Program for Public Health<sup>1</sup>

1. National Trachoma Surveillance Reporting Unit, The Kirby Institute, University of New South Wales, Darlinghurst, New South Wales
2. School of Public Health and Community Medicine, University of New South Wales
3. The Sax Institute, Sydney, New South Wales
4. Princess Margaret Hospital for Children, Perth, Western Australia
5. Telethon Institute for Child Health Research, Centre for Child Health Research, University of Western Australia
6. Baker IDI Central Australia, Alice Springs, Northern Territory

Corresponding author: Ms Carleigh Cowling, Senior Surveillance Officer, National Trachoma Surveillance Reporting Unit, The Kirby Institute, University of New South Wales, DARLINGHURST NSW 2010. Telephone: +61 2 9385 0865. Email: ccowling@kirby.unsw.edu.au

### References

1. Tellis B, Keeffe JE, Taylor HR. Surveillance report for active trachoma, 2006. National Trachoma Surveillance and Reporting Unit. *Commun Dis Intell* 2007;31(4):366–374.
2. Tellis B, Keeffe JE, Taylor HR. Trachoma surveillance annual report, 2007. A report by the National Trachoma Surveillance and Reporting Unit. *Commun Dis Intell* 2008;32(4):388–399.

3. Tellis B, Fotis K, Keeffe JE, Taylor HR. Trachoma surveillance report, 2008. A report by the National Trachoma Surveillance and Reporting Unit. *Commun Dis Intell* 2009;33(3):275–290.
4. Adams KS, Burgess JA, Dharmage SC, Taylor HR. Trachoma surveillance in Australia, 2009. A report by the National Trachoma Surveillance and Reporting Unit. *Commun Dis Intell* 2010;34(4):375–395.
5. Cowling CS, Popovic G, Liu BC, Ward JS, Snelling TL, Kaldor JM, Wilson DP. Australian trachoma surveillance annual report, 2010. *Commun Dis Intell* 2012;36(3):E242–E250.
6. Cowling CS, Liu BC, Ward JS, Snelling TL, Kaldor JM, Wilson DP. Australian trachoma surveillance annual report, 2011. *Commun Dis Intell* 2013;37(2):E121–E129.
7. Cowling CS, Liu BC, Ward JS, Snelling TL, Kaldor JM, Wilson DP. Australian trachoma surveillance annual report, 2012. *Commun Dis Intell* 2015;39(1):E146–E157.
8. World Health Organization. Global WHO Alliance for the elimination of blinding trachoma by 2020. *Wkly Epidemiol Rec* 2012;87(17):161–168.
9. Communicable Diseases Network Australia. *National guidelines for the public health management of trachoma in Australia*. January 2014. Canberra: Commonwealth of Australia; 2014. Accessed on 16 September 2014. Available from: <http://www.health.gov.au/internet/main/publishing.nsf/Content/cdna-song-trachoma.htm>
10. Polack S, Brooker S, Kuper K, Mariotti S, Mabey D, Foster A. Mapping the global distribution of trachoma. *Bull World Health Organ* 2005;80(12):913–919.
11. World Health Organization. *Trichiasis surgery for trachoma*. Geneva. WHO; 2013. Accessed on 3 August 2014. Available from: [http://apps.who.int/iris/bitstream/10665/101430/1/9789241548670\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/101430/1/9789241548670_eng.pdf)
12. Taylor HR. Trachoma: a blinding scourge from the Bronze Age to the Twenty First Century. Melbourne: Centre for Eye Research Australia; 2008.
13. World Health Organization. *Future approaches to trachoma control – report of a global scientific meeting*. 17–20 June 1996. Geneva: WHO; 1997.
14. Mariotti SP, Pararajasegaram R, Resnikoff S. Trachoma: looking forward to global elimination of trachoma by 2020 (GET 2020). *Am J Trop Med Hyg* 2003;69(5 Suppl):33–35.
15. World Health Organization. *Report of the 2nd global scientific meeting on trachoma*. 25–27 August 2003. Geneva: WHO; 2003.
16. World Health Organization. *Trachoma control: a guide for programme managers*. Geneva: WHO; 2008.
17. Taylor HR, Fox SS, Xie J, Dunn RA, Arnold AL, Keeffe JE. The prevalence of trachoma in Australia: the National Indigenous Eye Health Survey. *Med J Aust* 2010;192(5):248–253.
18. Australian Government. Budget 2013–14. Budget Paper No. 3. Health. [online]. Canberra: Commonwealth of Australia; 2013. Accessed on 2 May 2014. Available from: [http://www.budget.gov.au/2013-14/content/bp3/html/bp3\\_03\\_part\\_2b.htm](http://www.budget.gov.au/2013-14/content/bp3/html/bp3_03_part_2b.htm)
19. Communicable Diseases Network Australia. *Guidelines for the public health management of trachoma in Australia*. March 2006. Canberra: Commonwealth of Australia; 2006.
20. World Health Organization. *SAFE documents: Trachoma simplified grading cards*. Accessed on 16 September 2014. Available from: [http://www.who.int/blindness/causes/trachoma\\_documents/en/index.html](http://www.who.int/blindness/causes/trachoma_documents/en/index.html)
21. Australian Bureau of Statistics. *Experimental Estimates and Projections, Aboriginal and Torres Strait Islander Australians, 1991 to 2021*. ABS cat no. 3238.0. Released 8 September 2009. Last updated 29 April 2014.