



Australian Government

**Australian Institute of
Health and Welfare**

AHWA

Northern Territory Remote Aboriginal Investment: Oral Health Program

July 2012 to
December 2018



Northern Territory Remote Aboriginal Investment: Oral Health Program

July 2012 to
December 2018



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Summary

Oral health is an important component of overall health and quality of life. Poor oral health can affect adults and children alike, causing pain, embarrassment, and even social marginalisation. For children, the effects can be long term, and carry through to adulthood.

Aboriginal and Torres Strait Islander children are more likely than non-Indigenous children to experience tooth decay. Several factors contribute towards the poorer oral health of Indigenous children, including social disadvantage and lack of access to appropriate diet and dental services.

For the past 10 years, the Australian Government has helped fund oral health services for Indigenous children aged under 16 in the Northern Territory. The Northern Territory Remote Aboriginal Investment Oral Health Program (NTRAI OHP) complements the Northern Territory Government Child Oral Health Program, by providing preventive (application of full-mouth fluoride varnish and fissure sealants) and clinical (tooth extractions, diagnostics, restorations and examinations) services.

This report presents data from the NTRAI OHP from July 2012 to December 2018, and includes long-term analyses for 2009–2018.

How many Indigenous children received services?

In 2018, almost 12,000 services were delivered to Indigenous children in the Northern Territory under the NTRAI OHP. Of those:

- almost 5,700 children received around 6,400 full-mouth fluoride varnish services, a rise of about 700 children from 2017
- 1,545 children received more than 1,600 fissure sealant services, a fall of nearly 100 children from 2017
- almost 3,200 children received clinical services on almost 3,900 occasions of service—such as dental assessments, fillings, extractions, or preventive services—a fall of more than 100 children from 2017.

In 2018:

5,665 children received **fluoride varnish** services

1,545 children received **fissure sealant** services

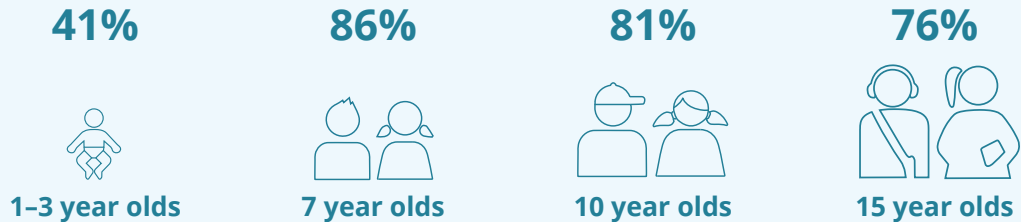
3,198 children received **clinical** services

Sources: tables S2.1, S2.3, S2.6.

How many Indigenous children experienced tooth decay?

Tooth decay varied by age, and in 2018, children aged 7 and 8 had the highest percentage of tooth decay experience (86%). In comparison, 4 in 10 (41%) children aged 1–3 had tooth decay experience.

The proportion of children who experienced tooth decay varied by age in 2018:

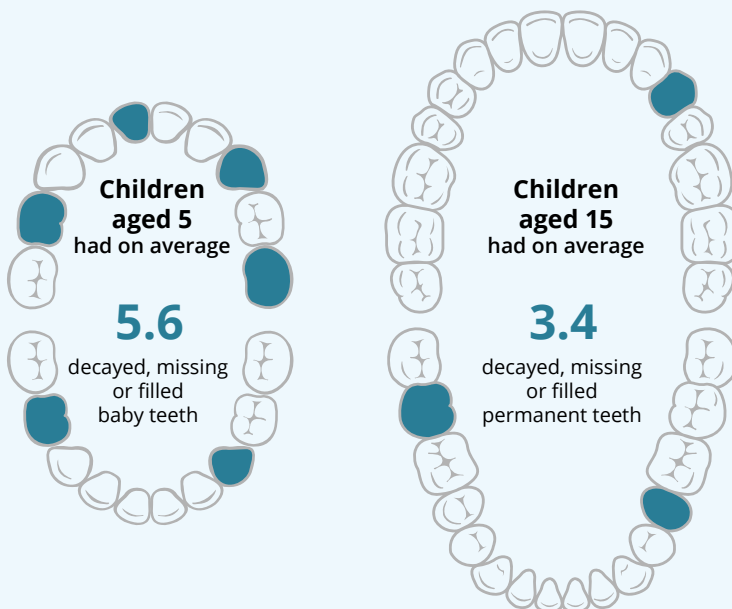


Source: Table S3.1.

How many decayed, missing or filled teeth did Indigenous children have?

A widely used indicator to measure oral health status is a count of the number of decayed, missing or filled teeth.

On average, in 2018, children in the NTRAI OHP aged 5 had the highest average number of decayed, missing or filled baby teeth (dmft), at 5.6 teeth, while children aged 15 had the highest average number of decayed, missing or filled permanent teeth (DMFT), at 3.4.



Source: Table S3.1.

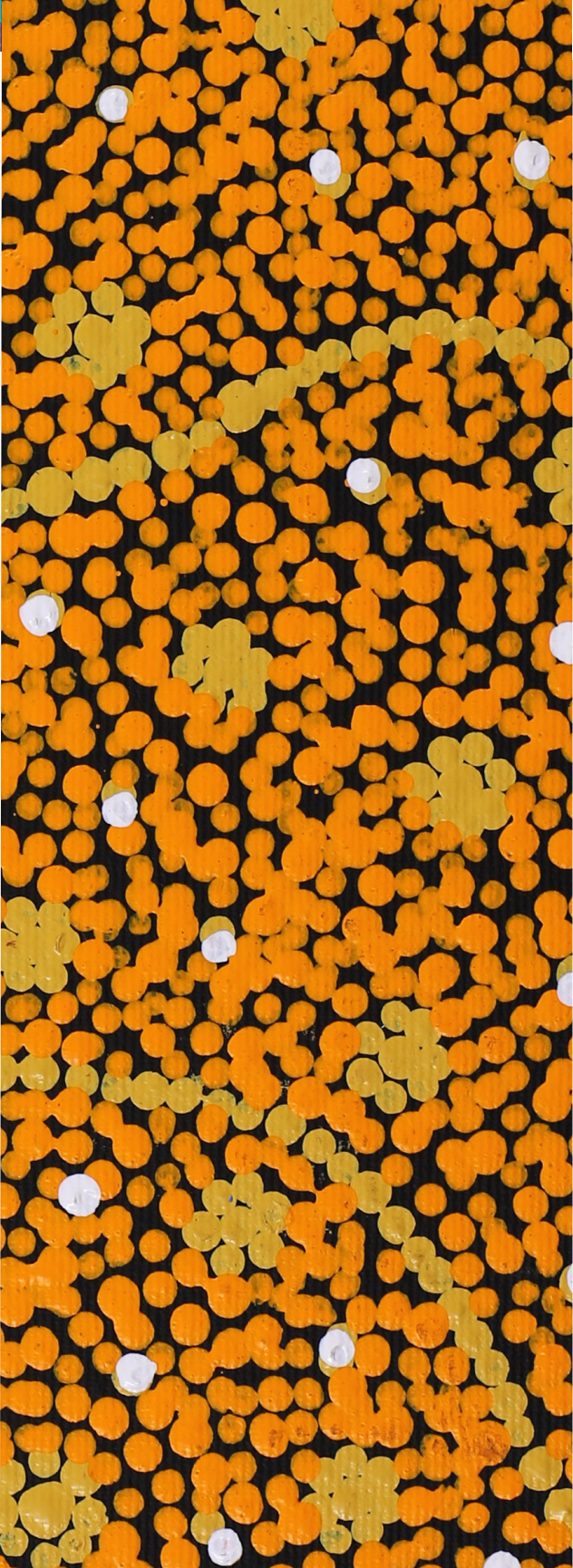
Note: The number of decayed, missing or filled teeth highlighted has been rounded to the nearest whole number.

Is the program meeting its benchmarks?

The NTRAI OHP has performance indicators and benchmarks to monitor its outcomes. In 2018, all of the clinical and preventive service delivery targets were met or exceeded (Table S1).


Table S1: Progress against benchmarks, 2018

Service delivery targets	Outcomes
At least 3,800 occasions of clinical service per year	3,886 occasions of clinical services
At least 6,369 fluoride varnish applications in 2018	6,429 fluoride varnish applications provided
Fissure sealant applications to at least 4,000 teeth in 2018	Fissure sealant applications to 6,927 teeth
Health outcome targets	
At least 50% of total service items are preventive services	69% of total service items were preventive in 2018



1

Introduction



Oral health plays a vital role in overall health, and can affect quality of life. Good oral health allows people to socialise and speak without pain, disease, discomfort or embarrassment. It can prevent children from being social marginalised and embarrassed because of oral diseases and their consequences (NACDH 2012).

Oral health revolves around the health of the tissues in the mouth—bones, gums, muscles and teeth—with the most common oral diseases affecting the gums (periodontal disease) and teeth (tooth decay). Poor oral health has been linked to various chronic conditions including:

- Cardiovascular disease
- Oral cancers
- Lung conditions
- Diabetes
- Stroke
- Adverse pregnancy outcomes (DHSV 2011).

Poor oral health can affect adults and children alike, but in children, it can have long-term negative effects that carry through to adulthood. As such, encouraging and maintaining good childhood oral health habits, and having access to oral health services, are important to prevent dental disease (NACDH 2012).

In 2015, among Australian children, oral disorders (mainly tooth decay) accounted for:

- 8.1% of the non-fatal burden of disease among those aged 5–9
- 4.1% among those aged 10–14
- and 3.3% among those aged 15–19 (AIHW 2019).

For Indigenous children aged 5–14, dental caries accounted for 6.2% for boys and 7.2% for girls of the total non-fatal burden of disease (AIHW 2016).

Indigenous Australians are less likely to receive preventive dental care, and are more likely to have untreated dental disease or to be hospitalised due to oral health (Jamieson et al. 2010; Kruger & Tennant 2015).

Oral health in the Northern Territory

The proportion of Aboriginal and Torres Strait Islander people in the Northern Territory is 26%, the highest proportion of all Australian states and territories (ABS 2018).

Children in the Northern Territory have higher levels of tooth decay than other states and territories (AIHW 2018b), and Indigenous children experience twice as much tooth decay as non-Indigenous children (AIHW 2018a).

Several factors contribute to the poorer oral health of Indigenous children, including:

- poverty and social disadvantage
- lack of access to appropriate diet, resulting in the consumption of processed sugary foods and drinks
- lower use of fluoridated toothpaste
- lack of fluoridated water
- limited or no access to dental services, especially in rural and remote areas.

Australian Government oral health programs in the Northern Territory

The Northern Territory Remote Aboriginal Investment Oral Health Program (NTRAI OHP)—funded by the Australian Government, and implemented by the Northern Territory Department of Health—is designed to improve existing public dental services.

The program began in July 2015, and will be funded until 2022. Funded activities aim to decrease the prevalence, incidence, severity and impact of oral health problems of Indigenous children in the Northern Territory (CFFR 2016). The program works with primary health-care providers to incorporate primary prevention into their services and deliver clinical oral health treatments to Indigenous children.

The NTRAI OHP supersedes the Child Health Check Initiative—Closing the Gap (CHCI CtG) (2007 to mid-2012) and the Stronger Futures in the Northern Territory (SFNT) (July 2012–June 2015) programs.

This report focuses on data collected from the SFNT and NTRAI programs, but also includes some long-term analyses of the change in oral health over 2009–2018. For more information on the history of the program, see Appendix A.

About this report

This report presents information on oral health services provided by the NTRAI OHP and SFNT OHP to Aboriginal and Torres Strait Islander children under the age of 16 in the Northern Territory. It is an update of the *Northern Territory Remote Aboriginal Investment: Oral Health Program July 2012 to December 2017* report.

Supplementary tables are available at <https://www.aihw.gov.au/reports/indigenous-australians/nt-remote-aboriginal-investment-oral-health-18/data>.

The data include about 20,000 children under the age of 16 who came through the SFNT/NTRAI OHP between July 2012 and December 2018.

Table 1 shows that the majority of children and young people aged 0–14 received services through the NTRAI OHP in *Remote* and *Very remote* areas. It also shows how the numbers relate to the Northern Territory Indigenous population aged 0–14 within the same remoteness areas.

Services provided under the NTRAI OHP are available territory-wide to Indigenous children under the age of 16, but mainly focus on remote areas, where they are most needed.

Children and young people who receive services through the NTRAI OHP are not a random sample of the population, so the data might not be representative of the general population of Indigenous children in the Northern Territory. Additionally, not all dental services provided in the Northern Territory are captured within this report, as the report includes only oral health services funded by the Australian Government through the NTRAI OHP.

Table 1: Children aged 0–14 in the NTRAI OHP and relationship to the Northern Territory Indigenous population^(a), by remoteness area, 2018

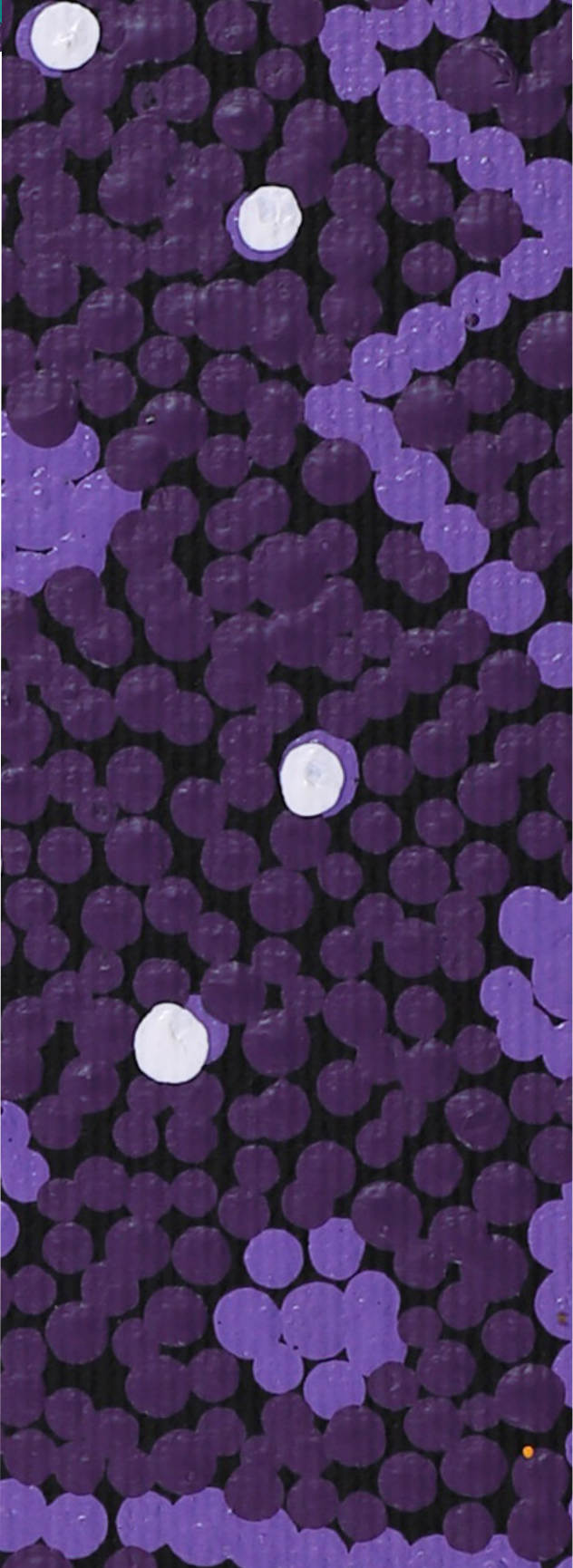
	Remoteness area			Total
	<i>Outer regional</i>	<i>Remote</i>	<i>Very remote</i>	
Number of NTRAI OHP children aged 0–14 ^(b)	467	1,162	2,294	3,923
Number of NTRAI OHP children aged 0–14 ^(b) as a percentage of the corresponding Northern Territory Indigenous population	8.8	25.7	19.2	18.0

(a) Children whose parent or guardian provided consent to share information with the AIHW as a proportion of the entire Northern Territory Indigenous population aged 0–14 within the corresponding remoteness area.

(b) Based on the location where the service was provided.

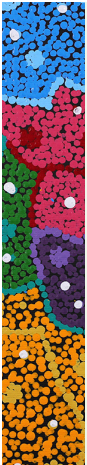
Note: While the NTRAI OHP provides services for children under the age of 16, the information provided in Table 1 excludes children aged 15 due to limitations on the availability of population estimates by remoteness area, and as such slightly underestimates the coverage of the NTRAI OHP.

Source: NTRAI OHP Data Collection.



2

Dental service delivery



Key findings

In 2018:

- almost 5,700 children received full-mouth fluoride varnish services
- more than 1,500 children received fissure sealants
- children aged 12–15 had the highest average number of fissure sealants (5.8 per child)
- almost 3,200 children received clinical services, such as plaque removal, extractions, and restorative procedures—of whom more than half (53%) were aged 6–11.

There are 2 main types of services delivered through the NTRAI OHP—preventive and clinical (Box 2.1).

Box 2.1: Types of services

Occasion of service: An appointment at a dental clinic on a specific date. A single occasion of service can involve multiple types of services within that 1 occasion.

Preventive services

Preventive service: Includes the removal of plaque and calculus, oral hygiene instruction, application of fissure sealants, application of full-mouth fluoride varnish, and other preventive services.

Full-mouth fluoride varnish: The application of a clinically determined amount of fluoride varnish (a concentrated form of fluoride) to as many teeth as possible in 1 service.

Fissure sealants: The application of a protective adhesive to grooves in the biting surfaces of teeth at the back of the mouth, usually as soon as adult molars erupt. The sealants prevent dental plaque and acid build-up, and can last for many years, but require regular check-ups to see if the sealant is intact.

Clinical services

Clinical service: Clinical services can include restorative services, endodontics, tooth extractions, diagnostic services or assessments, orthodontic services and periodontic services (treatment of gums).

Occasion of clinical service: An occasion of service where at least 1 clinical service was delivered (excluding occasions where *only* full-mouth fluoride varnish application and/or fissure sealants were delivered).

What services are provided?

The NTRAI OHP provides clinical and preventive oral health services to Indigenous children in the Northern Territory. Figure 2.1 contains a broad overview of the services and the number of clinical and preventive services provided.

Preventive services are part of routine care in all dental clinics, and are provided as part of an individual's dental treatment plan. Specific preventive services include the application of full-mouth fluoride varnish and fissure sealants. Other preventive services include the removal of plaque/calculus, dietary advice or oral health education.

General dental services that are provided in all NTRAI OHP settings include:

- examinations
- restorative fillings
- extractions
- emergency care
- preventive services.

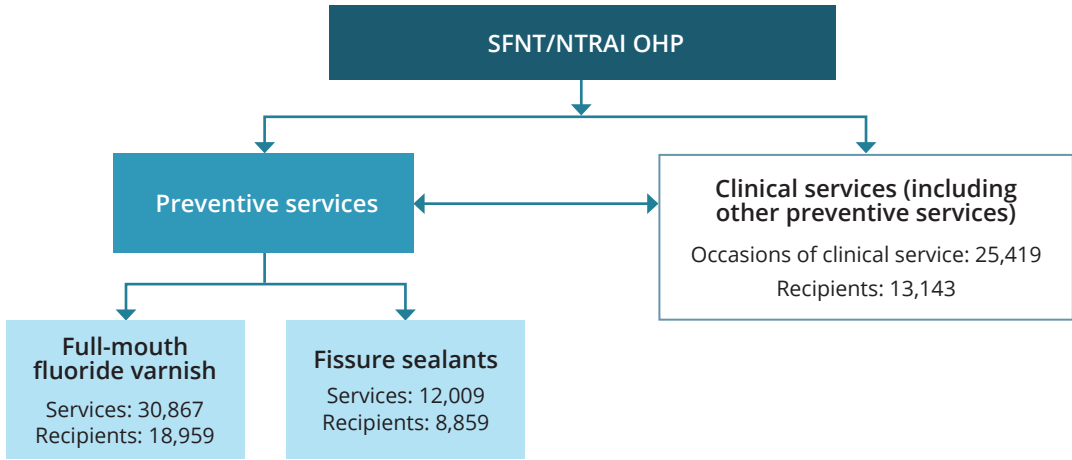
Consent rates

Parents or guardians of service recipients must provide their consent to share information with the AIHW. The demographic information in this report, apart from the number of services and service recipients, represents only children whose parent or guardian provided consent to share their information.

When a child's parent or guardian does not provide consent to share information, only a limited amount of combined information is provided to the AIHW. Due to this limited information, in this report the number of non-consent service recipients is estimated to be equal to the number of non-consent services. As children might receive multiple services, the total number of service recipients presented in Figure 2.1 is likely to be an overestimate of the true number of children who received services under the SFNT/ NTRAI OHP. Children who received multiple services within the program, and had consent to share information were only included once in the total number of service recipients between July 2012 and December 2018.

See Appendix A for more information.

Figure 2.1: Services provided under the SFNT/NTRAI OHP, July 2012 to December 2018



Notes

1. The 2-way arrows mean that a child can receive multiple types of services—for example, clinical services and preventive services, and services within the 2 categories.
2. The total number of service recipients includes children who did not have consent to share information with the AIHW. As such, for these children, the number of service recipients is estimated to be equal to the number of non-consent services, and might be an overestimate of the true number of service recipients. Children with consent to share information, and who received multiple services during the program were only included once in the total number of service recipients within each service.

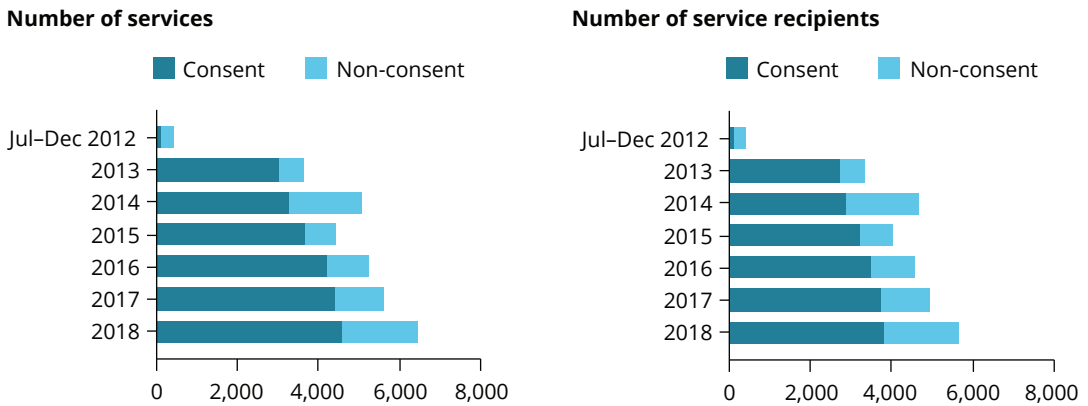
How many children had full-mouth fluoride varnish and fissure sealant services?

Full-mouth fluoride varnish

Full-mouth fluoride varnish has been shown to decrease the incidence of tooth decay by up to 25%–45% when professionally applied 2–4 times per year. It is considered to be a valuable public health intervention (Bonetti & Clarkson 2016; Marinho et al. 2013):

- In 2018, 5,665 children received 6,429 full-mouth fluoride varnish services (Figure 2.2).
- Between July 2012 and December 2018, 18,959 children received 30,867 full-mouth fluoride varnish services. This includes 11,365 children with consent to share information with the AIHW.
- The number of services and service recipients rose between 2017 and 2018.

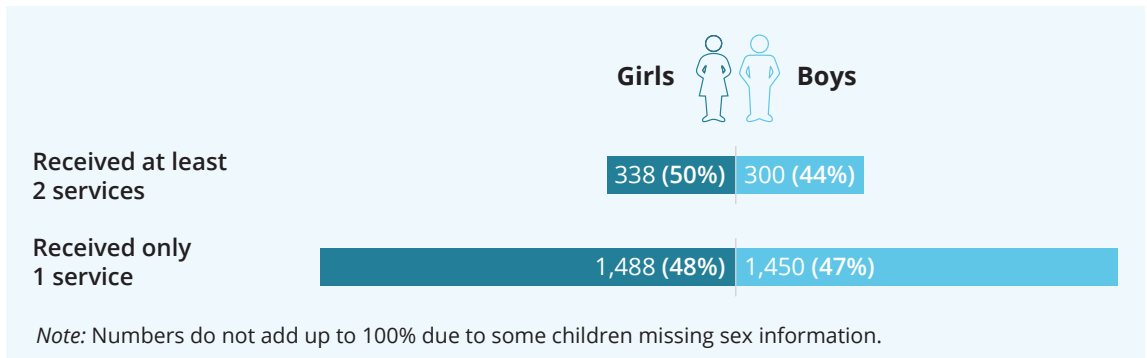
Figure 2.2: Full-mouth fluoride varnish services and service recipients, July 2012 to December 2018



Source: Table S2.1.

Consent rates to share information have fluctuated over the years, and while there has been an overall improvement over time, the consent rate fell from 83% in 2013 to 67% in 2018. This might be due to the increase in reporting of full-mouth fluoride varnish services by primary health-care staff who do not obtain and record consent for sharing data.

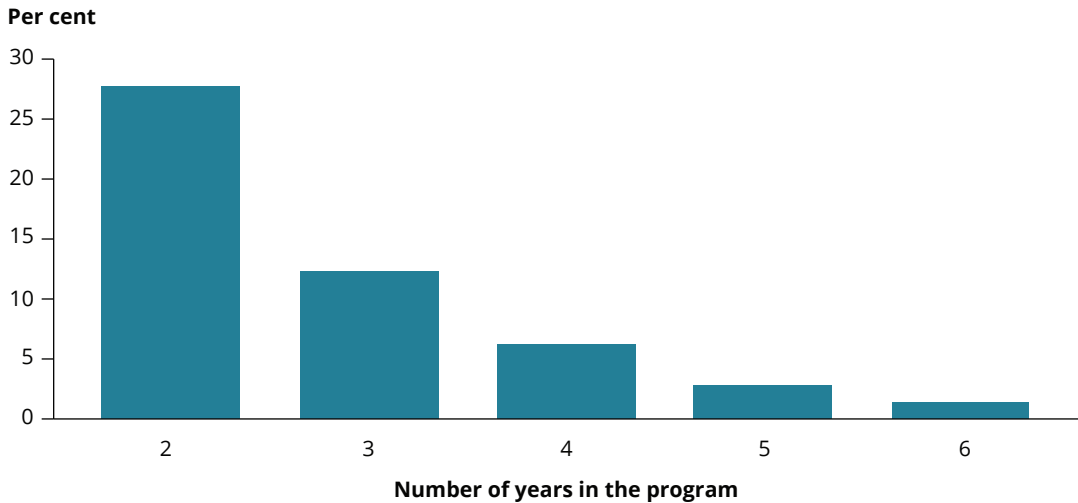
In 2018, a slightly higher percentage of girls received full-mouth fluoride varnish services than boys.



Ideally, full-mouth fluoride varnish FV services should be provided at least twice a year, but some studies have shown that 1 application per year can slightly reduce tooth decay (Arruda et al. 2011; Weintraub et al. 2006).

Since 2013, the proportion of service recipients receiving an annual fluoride varnish service decreased the longer children stayed in the program (Figure 2.3). Among children who received their first service in 2013 (6 years in the program), only 1% had an annual fluoride varnish service.

Figure 2.3: Service recipients who received an annual fluoride varnish service, by number of years in the SFNT/NTRAI OHP



Notes

1. Only includes service recipients aged 15 or under who were still eligible for services through the NTRAI OHP in 2018.
2. Excludes service recipients whose parent or guardian did not consent to share information.

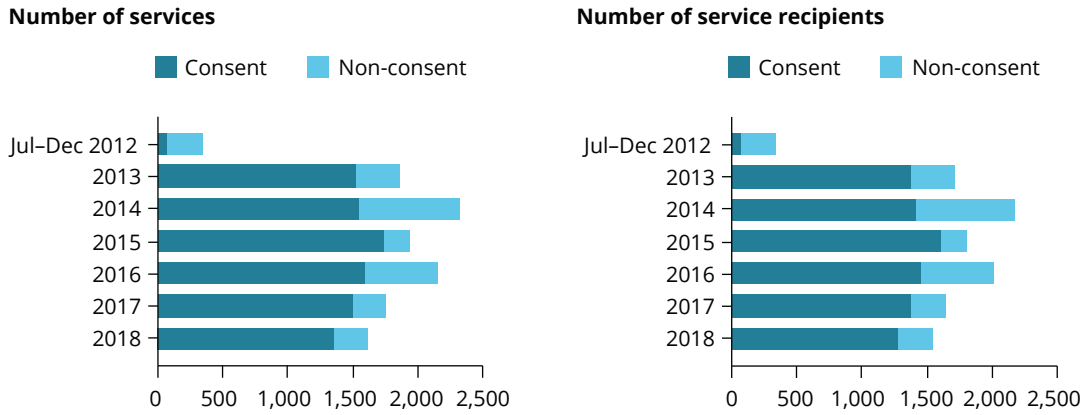
Source: Table S2.12.

Each year, about 20%–39% of parents or guardians of children who received fluoride varnish services did not give consent to share their information with the AIHW, so it was difficult to follow up children accurately. Due to the small number of children receiving an annual fluoride varnish service, it is difficult to measure its effectiveness in preventing tooth decay for children in the NTRAI OHP.

Fissure sealants

- In 2018, 1,545 children received 1,619 fissure sealant services (Figure 2.4).
- Between July 2012 and December 2018, 8,859 children received 12,009 fissure sealant services. This includes 6,219 children with consent to share information with the AIHW.
- Between July 2012 and December 2018, the number of children in the program rose overall. But there have been fluctuations over the years, and in 2018, both the number of services and service recipients fell slightly from 2017. This can be partly explained by the fact that applying fissure sealants is considered a permanent procedure, so re-applying is not required.
- Consent rates to share information have improved overall since 2012, but the rate of consent fell slightly from 89% in 2015 to 83% in 2018.

Figure 2.4: Fissure sealant services and service recipients, July 2012 to December 2018



Source: Table S2.3.

A fissure sealant can be applied to numerous teeth during 1 occasion of service. In 2018, recipients had fissure sealant applications to an average of 4.3 teeth. Among children who received fissure sealant applications, 443 had existing caries.

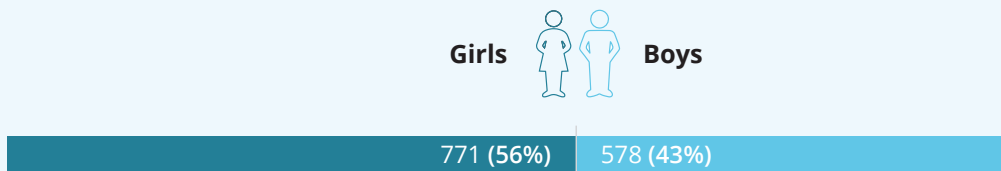
Children who had fissure sealant applications, by caries status, 2018

Children with **no existing caries** had an average **5.0 teeth** with fissure sealants

Children who **had existing caries** had an average **4.2 teeth** with fissure sealants

Source: Table S2.4.

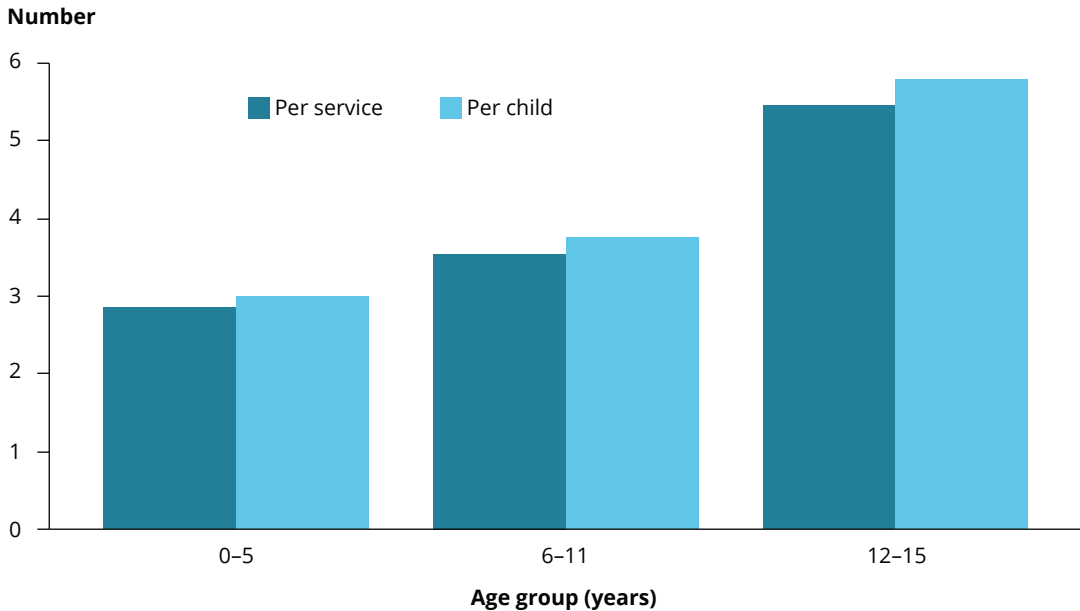
More girls than boys received fissure sealant services in 2018.



Note: Numbers do not sum to 100% due to some children with missing information for sex.

Children aged 6–11 made up the largest proportion (67%) of those who received fissure sealants in 2018. However, children aged 12–15 had the highest average number of fissure sealants per child (5.8) (Figure 2.5). The lower averages for younger children are expected because fissure sealants should be applied to permanent teeth.

Figure 2.5: Average number of fissure sealants, by age, 2018



Source: Table S2.5.

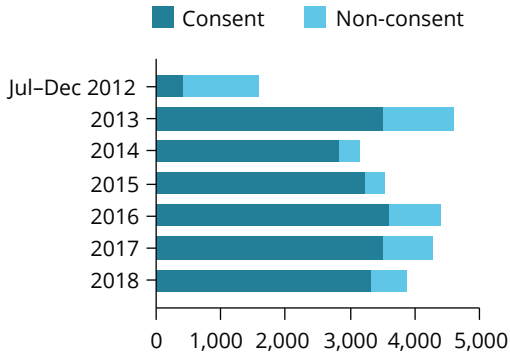
How many children had clinical services?

Clinical services can include restorative services, endodontics, tooth extractions, diagnostic services or assessments, orthodontic services and periodontic services (treatment of gums).

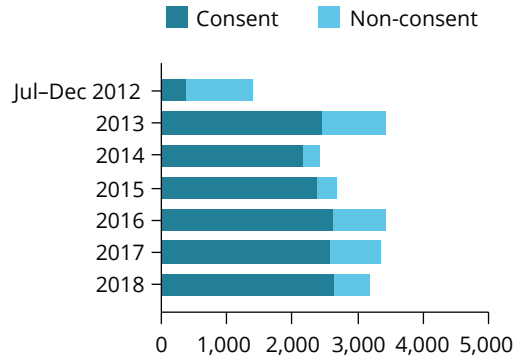
- In 2018, 3,198 children received 3,886 occasions of clinical services (Figure 2.6).
- Between July 2012 and December 2018, 13,143 children received 25,419 occasions of clinical service. This includes 8,578 children with consent to share information with the AIHW.
- The number of services and service recipients fell in 2014 and 2015, but have increased in the years since.
- Consent rates have fluctuated over time, from 26% in July–December 2012 to 83% in 2018.

Figure 2.6: Occasions of clinical service and service recipients, July 2012 to December 2018

Number of services

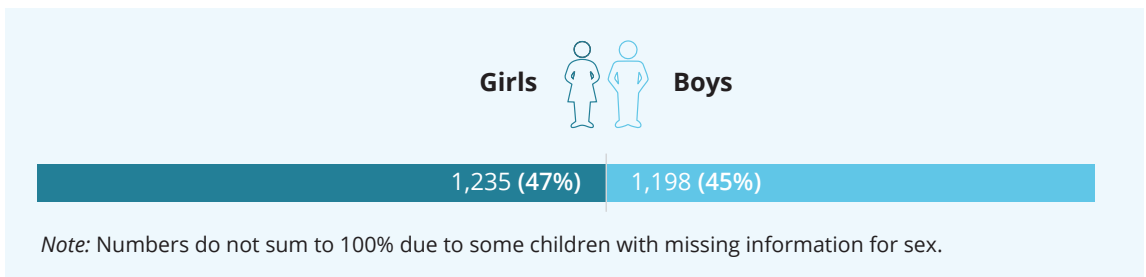


Number of service recipients



Source: Table S2.6.

Overall, slightly more girls than boys received clinical services in 2018:



In 2018, the majority of children who received a clinical service were aged 6–11 (53%), followed by those aged 0–5 (27%) and 12–15 (20%) (Table S2.7).

Services provided

Almost all children received diagnostic (assessment) services and preventive services other than full-mouth fluoride varnish and fissure sealants in 2018. Preventive services include dental prophylaxis (for example, removal of plaque and calculus), as well as dietary advice, oral hygiene instruction and mouthguards.

Types of clinical services provided through the NTRAI OHP



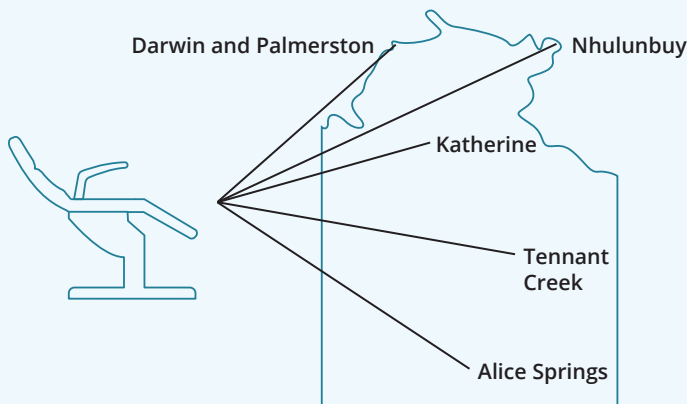
Source: Table S2.8.


Note: The proportions for the types of services provided sum up to more than 100%, as children can receive multiple types of services during 1 occasion of service.

How were services delivered?

The NTRAI OHP services are provided across the Northern Territory, in multi-chair community clinics, as well as single-chair clinics found in urban and regional primary schools. To improve access to oral health services in remote areas, single-chair clinics are also found in remote community health centres or delivered through mobile dental trucks.

Multi-chair community clinics where NTRAI OHP services are delivered





Dental services provided under general anaesthetic are carried out by Oral Health Services Northern Territory staff in the Northern Territory. Since 2015, data related to these services have not been provided to the AIHW, so the services are not included in this report.

Mobile dental trucks are used to reach many remote communities in Central Australia. Outreach dental service teams comprising a dentist or a dental/oral health therapist and dental assistant travel to remote communities in Central Australia for 1–3 weeks at a time. Some teams also travel to remote single-chair clinics.

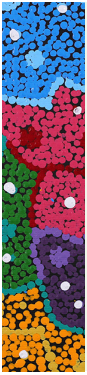
Remote community health centres are primarily used for service delivery in the Top End—the northern region of the Northern Territory—where dental teams use a single-chair clinic to provide dental services for 1–3 weeks at a time.

Distance, transport, unpredictable weather, cost and accommodation availability are all factors that challenge service delivery in remote areas of the Northern Territory. However, the NTRAI OHP provides funding to improve services in remote areas that are funded by the Northern Territory Government, enabling more visits and more equitable access to oral health services.



3

Oral health status



Key findings

In 2018:

- children aged 7–8 were the most likely to have tooth decay experience (86%)
- children aged 5 had the highest average number of decayed, missing and filled teeth
- generally, the proportion of children in the NTRAI OHP who experienced tooth decay fell over time.

How many children had decayed, missing and filled teeth?

Tooth decay is the most prevalent oral disease among children and adults. So a widely used indicator to measure oral health status is a count of the number of decayed, missing or filled teeth. The decayed, missing or filled teeth (dmft or DMFT) score is a measure of the number of such teeth a child has (Box 3.1).

Box 3.1: The dmft and DMFT score

The dmft or DMFT score counts the number of teeth that are decayed, missing or filled. Lower case dmft refers to deciduous or baby teeth, while upper case DMFT refers to permanent or adult teeth.

For example, a dmft score of 5 means that a child has 5 decayed, missing or filled deciduous teeth.

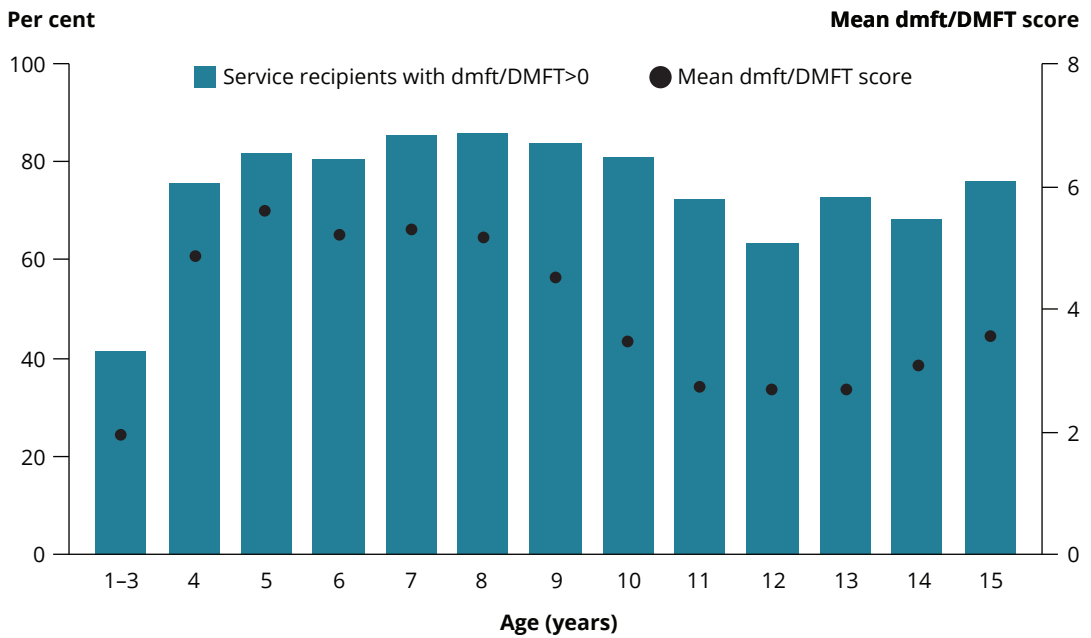
When children have a dmft/DMFT score that is greater than 0, this is known as having caries or tooth decay experience.

The proportion of children with tooth decay experience (a dmft/DMFT score greater than 0) varied with age (Figure 3.1). Children aged 5–10 had the highest percentages of tooth decay experience in 2018, with:

- 86% of children aged 7–8 experiencing tooth decay
- 84% of children aged 9 experiencing tooth decay
- 82% of children aged 5 experiencing tooth decay
- 81% of children aged 6 and 10 experiencing tooth decay.

The highest mean dmft/DMFT scores were among children aged 5 (5.6) and 7 (5.3).

Figure 3.1: Children with tooth decay experience, by age, 2018



Source: Table S3.1.
> greater than

In general, mean dmft scores were higher than mean DMFT scores, meaning that more decayed, missing and filled teeth were found among children’s baby teeth. In 2018:

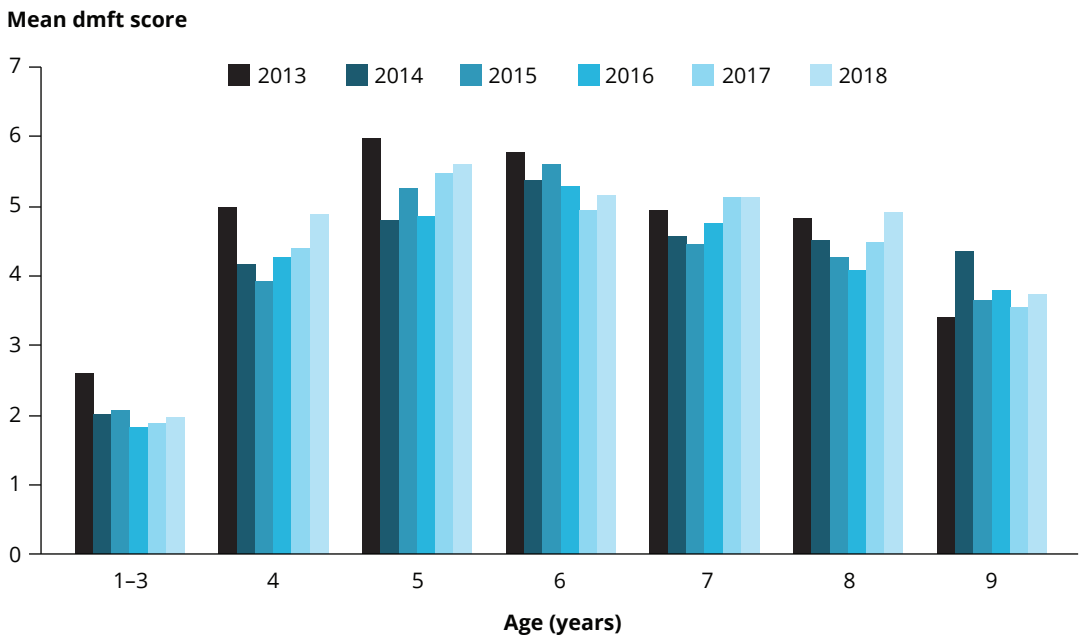
- children aged 5 had the highest average dmft score (5.6)
- children aged 15 had the highest average DMFT score (3.4).

Between 2013 and 2018, the mean dmft or mean DMFT either dropped or remained steady among all ages, except those aged 7, 8 and 9, with average dmft or DMFT dropping by:

- 23% among children aged 1–3 (dmft)
- 21% among children aged 15 (DMFT) (See Table S3.1).

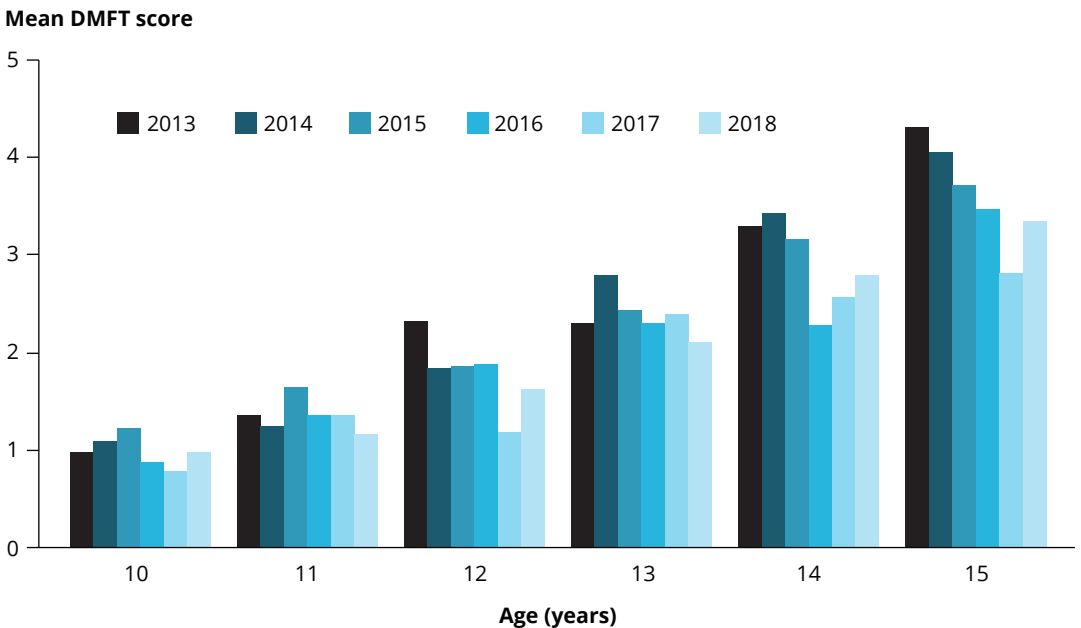
The proportion of children who experienced decay differed with age and over time (figures 3.2 and 3.3).

Figure 3.2: Mean dmft score among children aged 1–9, by age, 2013–2018



Sources: tables S3.1, S3.2, S3.3, S3.4 and S3.5.

Figure 3.3: Mean DMFT score among children aged 10–15, by age, 2013–2018



Sources: tables S3.1, S3.2, S3.3, S3.4 and S3.5.

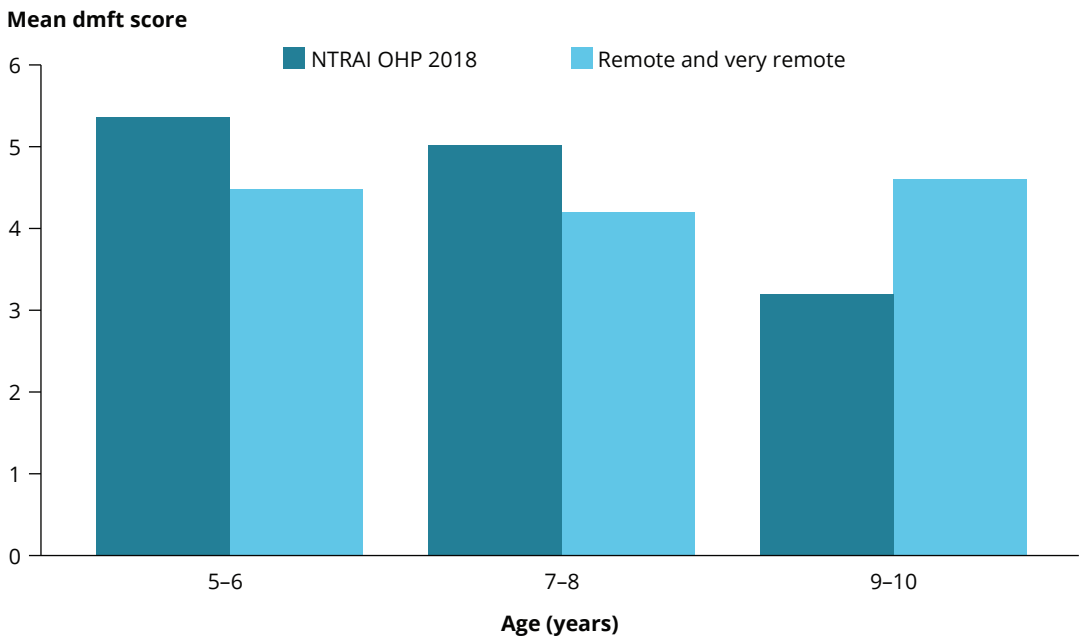
Children in the NTRAI OHP compared with other Australian children

The National Child Oral Health Study 2012–14 provides a snapshot of Australian children’s oral health. Data were collected from children aged 5–14, living in all Australian states and territories, and 5.5% of the total respondents were Aboriginal or Torres Strait Islander (Ha et al. 2016).

As services provided under the NTRAI OHP are mainly focused on Indigenous children and young people living in remote areas of the Northern Territory, the mean dmft/DMFT score of children from the program was compared with other Australian children living in *Remote and very remote* areas.

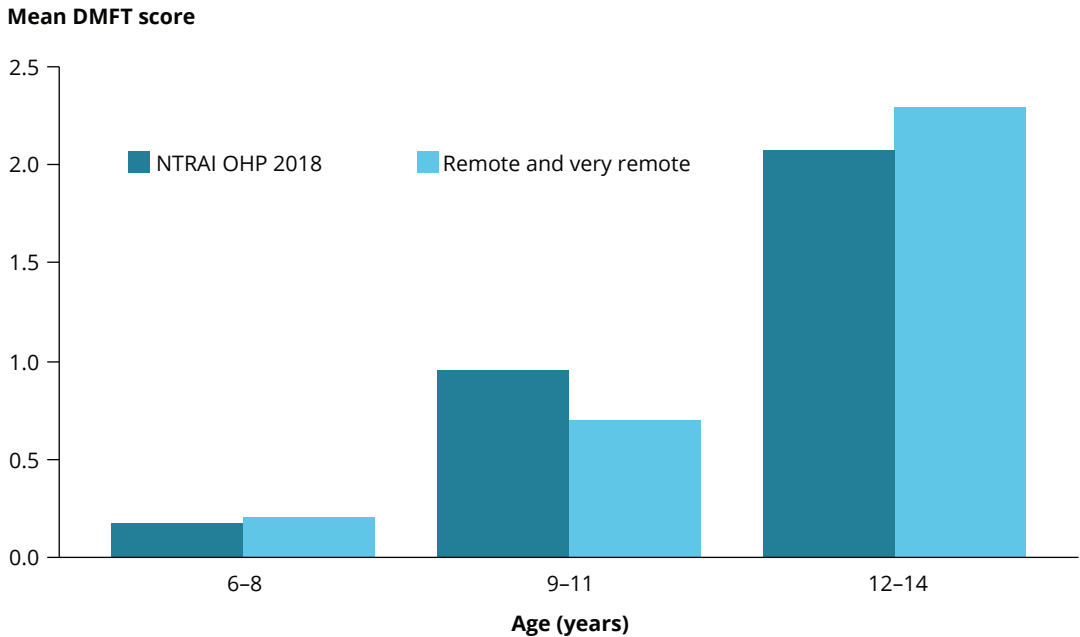
Children aged 5–8 in the NTRAI OHP had slightly higher mean dmft scores than all children living in *Remote and very remote* areas (Figure 3.4). For children with permanent teeth, DMFT scores were similar between those aged 6–14 in the NTRAI OHP and all children living in *Remote and very remote* areas (Figure 3.5).

Figure 3.4: Mean dmft score among children in the NTRAI OHP (2018) and all children living in *Remote and very remote* areas (2012–14)



Sources: Table S3.1; National Child Oral Health Study 2012–14.

Figure 3.5: Mean DMFT score among children in the NTRAI OHP (2018) and all children living in *Remote and very remote* areas (2012–14)



Sources: Table S3.1; National Child Oral Health Study 2012–14.

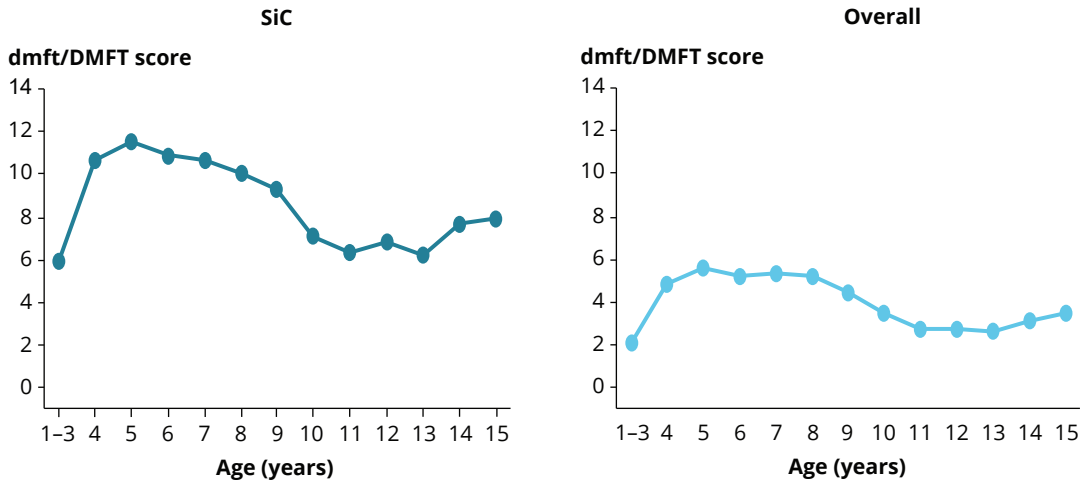
Significant Caries Index

The Significant Caries Index (SiC) is used to pinpoint children who have the most tooth decay experience in a group. In the NTRAI OHP, the SiC value is the average number of dmft/DMFT among children with the highest 30% of dmft/DMFT scores of all children in the program.

Figure 3.6 shows the difference between the mean dmft/DMFT scores among children with SiC values (those in the highest 30% of dmft/DMFT scores) and all the children in the NTRAI OHP.

In 2018, children in the NTRAI OHP with the highest 30% of dmft/DMFT scores (SiC values) had scores that were 2–3 times as high as those of all children in the NTRAI OHP overall.

Figure 3.6: SiC and mean total dmft/DMFT scores of children in the NTRAI OHP, by age, 2018



Note: The SiC value is the mean dmft/DMFT score among children in the NTRAI OHP who have the highest 30% of dmft/DMFT scores (the most tooth decay experience).

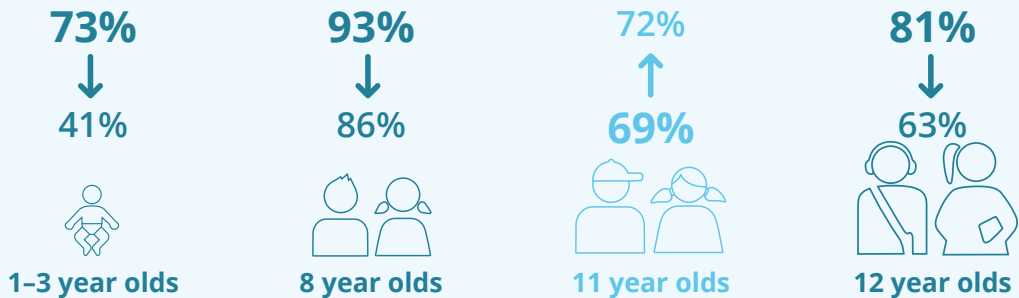
Source: Table S3.1.

How has tooth decay experience changed over time?


Although this report focuses on services provided between July 2012 and December 2018, information from 2009 to June 2012 is included in this section to provide long-term trends over time.

From March 2009 to December 2018, the proportion of children with tooth decay experience fell for most ages, though it rose by 3 percentage points for children aged 11.

Tooth decay experience from March 2009 to December 2018



Source: Table S3.7



Changes over time could either be associated with changes in the sample of children who were in the program at different times, or with actual changes in tooth decay experience among children in the program. Results are based on data made available to the AIHW periodically, and are not representative of the whole population.

Changes over time and differences across CHCI(CtG) and NTRAI OHP

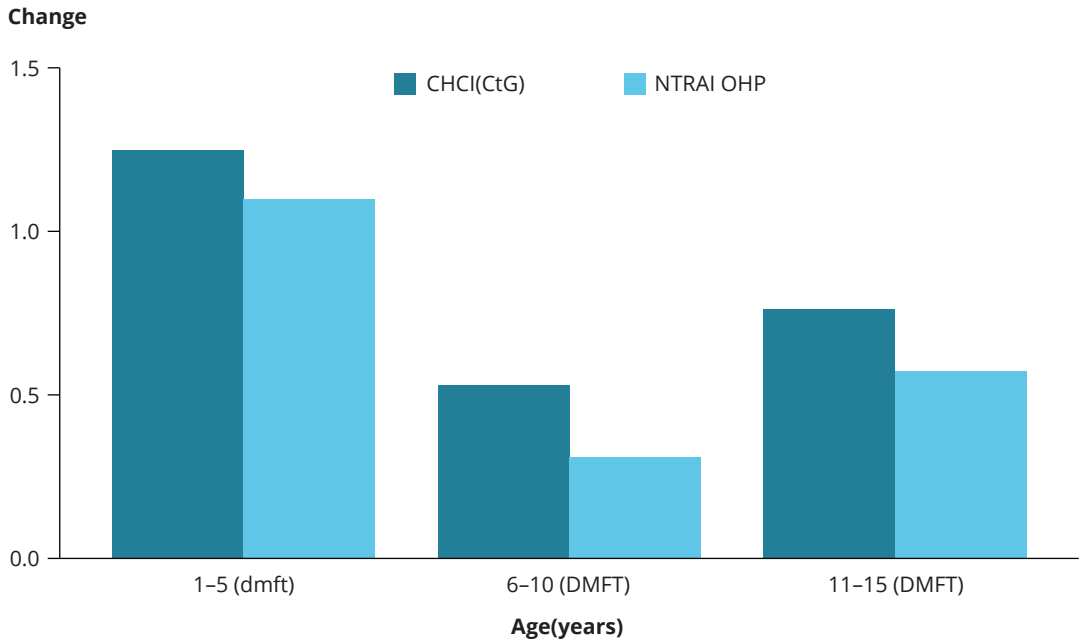
Another method of looking at the changes in children's oral health among programs is to compare tooth decay experience in the same children across multiple services. Data from the CHCI(CtG) are available from August 2008 to June 2012, and can be compared with the SFNT/NTRAI OHP from July 2012 to December 2018.

The change in dmft/DMFT was looked at for children who had at least 2 dmft/DMFT records in 1 of the CHCI(CtG) or SFNT/NTRAI OHP time periods. A time gap of at least 3 months between services was included to allow for enough time to see changes in oral health. Additionally, to truly compare the programs, children who had received services in both programs were excluded.

Through both programs, tooth decay fell over time, measured by an increment in dmft or DMFT score per person-year (Figure 3.7):

- For baby teeth in children aged 1–5 and for permanent teeth in children aged 6–10 and 11–15, increases in tooth decay were lower in the NTRAI OHP.
- Tooth decay among children fell for all age groups between the CHCI(CtG) to the NTRAI OHP:
 - by 12% for those aged 1–5
 - by 42% for those aged 6–10
 - by 25% for those aged 11–15.

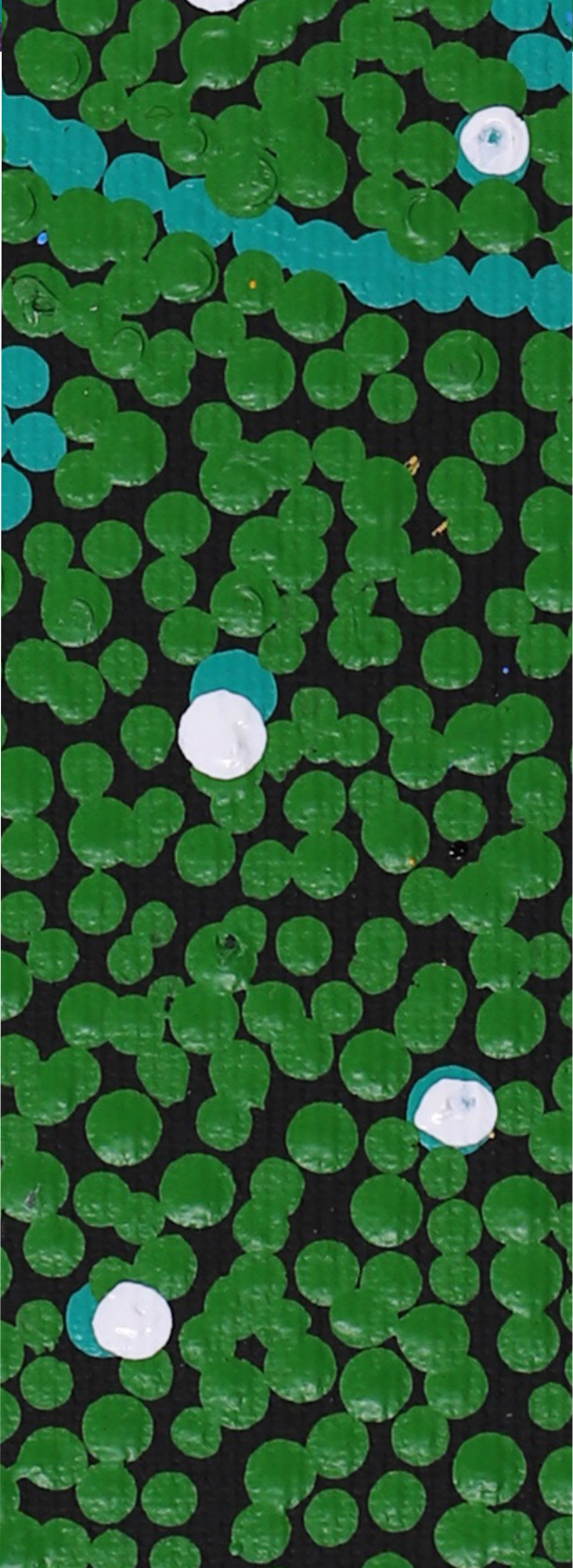
Figure 3.7: Changes in average dmft or DMFT score per person-year among children who had at least 2 services, August 2008 to December 2018



Source: Table S3.8.

Changes over time could be explained by various factors:

- Preventive interventions (for example, full-mouth fluoride varnish) introduced at the population level through the SFNT/NTRAI OHP could decrease tooth decay.
- The CHCI(CtG) cohort is relatively small, and the smaller sample size could cause variability in the findings.
- Children aged 6–10 have fewer teeth because their permanent teeth are still developing after they have lost their baby teeth. This could be a reason for this age group having the smallest increase in dmft/DMFT over time.



4

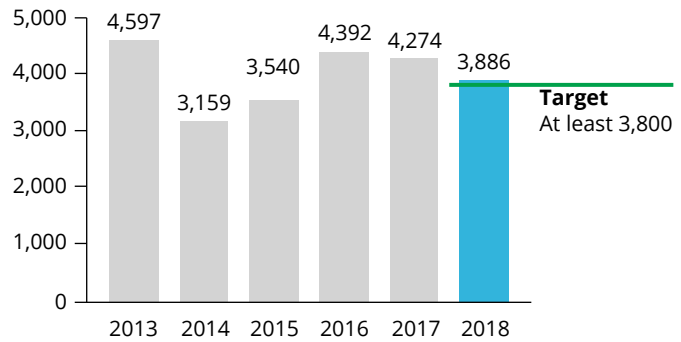
Progress against benchmarks

The NTRAI OHP (previously the SFNT OHP) has performance indicators and benchmarks to monitor the outcomes achieved through the program. The targets are set jointly by the Australian and Northern Territory departments of health, through the Northern Territory Health Implementation Plan (CFFR 2016).

Service delivery targets

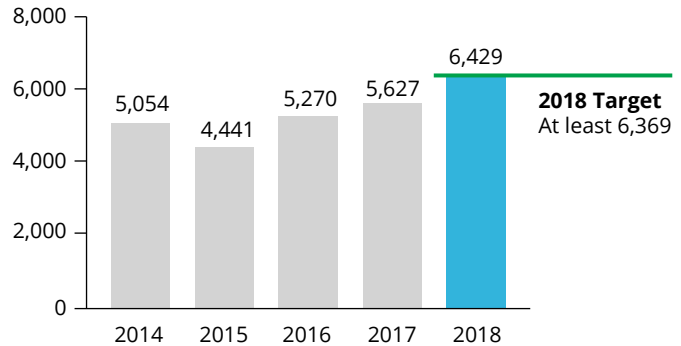
Indicator:
Clinical services provided

3,800 occasions of **clinical service** per year



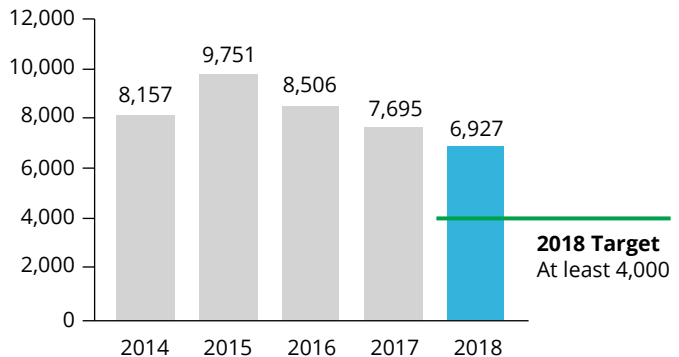
Indicator:
Fluoride varnish applications

6,369 **fluoride varnish** applications in 2018



Indicator:
Fissure sealant applications

Fissure sealant applications to 4,000 teeth in 2018



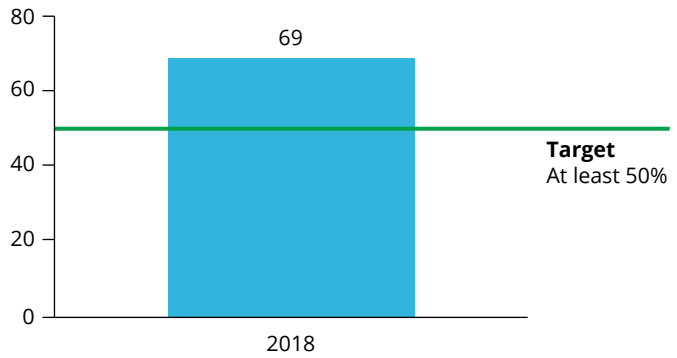
Notes

1. The fissure sealant target is based on the number of teeth that had a fissure sealant application. The target is different from the data presented elsewhere in this report on the number of fissure sealant application services.
2. Primary care team data for clinical services, fluoride varnish, and fissure sealants for 2014 and 2015 are not included in these performance measures.

Health outcome targets

Indicator:
Prioritisation of preventive services

At least 50% of total service items are preventive services



Note: The data for the preventive services target include fissure sealants, full-mouth fluoride varnish and preventive services (for example, removal of plaque/calculus) that were provided during clinical occasions of services. Only data where consent was obtained to share information were used.

Appendix A: About the Northern Territory Remote Aboriginal Investment Oral Health Program data collection

Data collection, management and reporting

The Department of Health commissioned the Australian Institute of Health and Welfare (AIHW) to collect, manage and report on oral health services data provided through the NTRAI OHP.

The data are extracted from an electronic information system in which dental professionals record clinical information, before the data are sent electronically to the AIHW.

Children who receive oral health services under the NTRAI OHP are not a random sample of Indigenous children in the Northern Territory. Further, not all dental services provided in the Northern Territory are captured in the NTRAI dental data collection, because it includes only oral health services funded by the Australian Government through the NTRAI OHP. Services provided through other funding sources (for example, the Northern Territory Government or private sector) are not included in this report. As a result, findings in this report are not representative of all Indigenous children in the Northern Territory.

The data that the AIHW receives rely on parents or guardians of service recipients providing their consent to share individual information. Detailed information on dental services are only sent to the AIHW when consent is given. In cases where that consent is not given, the AIHW receives combined information on only the number of services.

Due to this limited information, the number of non-consent service recipients presented in this report is estimated to be equal to the number of non-consent services. As a result, apart from the total number of services and service recipients, other information in this report is representative of children for whom consent was obtained, rather than of all service recipients.



History of the program

The NTRAI OHP began as a part of the Child Health Check Initiative, a response to the poor oral health found among Indigenous children in the Northern Territory National Emergency Response prescribed areas in mid-2007.

The program later continued under the Closing the Gap initiative in the Northern Territory National Partnership Agreement from mid-2009 to mid-2012. These 2 programs, from 2007 to mid 2012, are collectively referred to as the CHCI(CtG). Improvements were seen in the oral health of children who received services through CHCI(CtG) oral health programs, which shows their importance.

As a result of the improvements in oral health, the Australian Government continued to fund, and also expanded, the program under the SFNT OHP from July 2012 to June 2015. This program has been continued through the NTRAI OHP since July 2015, and will be funded until 2022.

Appendix B: Data quality statement

SFNT/NTRAI OHP dental data collection summary

- This data collection included more than 20,000 Indigenous children and adolescents aged 0–15 who received oral health services under the SFNT OHP, and, later, under the NTRAI OHP.
- Data collected as part of the SFNT/NTRAI OHP are a by-product of a clinical process. Dental professionals who provide clinical services document the results on standard data collection forms or in a computer-based data collection system.
- In the first 6 months of the SFNT/NTRAI OHP (July to December 2012), the consent rate to share data with the AIHW was low (27% for clinical service recipients, 26% for full-mouth fluoride varnish recipients, and 22% for fissure sealant recipients), so data collected in this period are not representative of all SFNT dental services and service recipients. But consent rates improved substantially after the initial period—to 89% for clinical service recipients, 81% for full-mouth fluoride varnish recipients, and 89% for fissure sealant recipients in 2015,. They have since fallen to 83%, 67%, and 83%, respectively, in 2018.

A full data quality statement for the SFNT/NTRAI dental data collection can be found online at <https://meteor.aihw.gov.au/content/index.phtml/itemId/723506>.

Acknowledgments

Ms Kate Gersekowski, Ms Bin Tong and Ms Ruth Penm of the AIHW's Indigenous Group prepared this report. The authors acknowledge Mr Geoff Callaghan and Dr Fadwa Al-Yaman, of the AIHW, for their guidance and comments. The authors also thank Ms Katie Penfold, of the AIHW, for providing valuable comments on this report.

The Department of Health provided funds to support data collection and report production, and members of the Indigenous Health Division are gratefully acknowledged for their comments on this report.

The authors are grateful for the assistance and cooperation of the Northern Territory Department of Health. Special thanks go to the many clinicians and administrators who supported this data collection while also providing clinical services in remote locations across the Northern Territory.

The authors acknowledge the families of the children who consented to share their information with the AIHW for this report.

Abbreviations

AIHW	Australian Institute of Health and Welfare
CHCI(CtG)	Child Health Check Initiative/Closing the Gap program
dmft	decayed, missing or filled deciduous (baby) teeth
DMFT	decayed, missing or filled permanent (adult) teeth
NTRAI	Northern Territory Remote Aboriginal Investment
OHP	Oral Health Program
SFNT	Stronger Futures in the Northern Territory
SiC	Significant Caries Index

Glossary

deciduous (baby) teeth: Primary teeth that develop during the embryonic stage of human development and erupt (that is, become visible in the mouth) during infancy. They are usually lost and replaced by permanent teeth, but in the absence of permanent replacements, they can remain functional for many years.

dental caries: An infectious disease that can lead to cavities (small holes) in the tooth structure that compromise both the structure and the health of the tooth, commonly known as tooth decay.

diagnostic services: Services that include:

- examinations (consultations, written reports, referrals, and initial, periodic, and emergency oral examinations)
- radiographical examination and interpretation (intraoral radiographs and skull radiographs)
- other diagnostic services (including bacteriological examinations, antibiotic sensitivity tests, biopsies and models).

dmft: Decayed, missing or filled deciduous (or baby) teeth.

DMFT: Decayed, missing or filled permanent (or adult) teeth.

dmft/DMFT: The score for deciduous and permanent teeth combined (that is, dmft + DMFT).


endodontics: Pulp or nerve treatments (pulp capping, pulpotomy, extirpation or debridement of root canal).

extraction: Removal of permanent or deciduous tooth or tooth fragment.

fissure sealants: Thin adhesive coatings that are applied to the grooves on the chewing surfaces of the back teeth to protect them from tooth decay.

full-mouth fluoride varnish: A concentrated form of fluoride that is applied in 1 service to all dentition.

Indigenous: A person of Aboriginal or Torres Strait Islander descent who identifies as an Aboriginal or Torres Strait Islander and is accepted as such by the community in which they live.



permanent teeth: Adult or secondary teeth that start to erupt at about 6 years of age. By about age 21, a person usually has 32 permanent teeth.

preventive services: Services including:

- dental prophylaxis (removal of plaque, removal of calculus, recontouring of existing restorations)
- topical fluoride (application of fluoride solution or gel, instruction on self-application)
- other preventive services (including dietary advice, oral hygiene instruction, fissure sealing and provision of mouthguards).

restorative services: Removal of diseased tooth structures and replacement with amalgams, glass ionomer, silicate and composite resins (filling of 1, 2, 3 or more surfaces).

Significant Caries Index (SiC): Mean dmft/DMFT score among children who have the highest 30% of dmft/DMFT scores.

tooth decay experience: a dmft/DMFT score greater than 0.

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Related publications

The following AIHW publications might be of interest:

- AIHW 2019. Northern Territory Remote Aboriginal Investment: Oral Health Program July 2012 to December 2017. Cat. no. IHW 205. Canberra: AIHW.
- AIHW 2018. Northern Territory Remote Aboriginal Investment: Oral Health Program July 2012 to December 2016. Cat. no. IHW 190. Canberra: AIHW.
- AIHW 2017. Northern Territory Remote Aboriginal Investment: Oral Health Program July 2012 to December 2015. Cat. no. IHW 175. Canberra: AIHW.
- AIHW 2014. Stronger Futures in the Northern Territory: Oral Health Program July 2012 to December 2013. Cat. no. IHW 144. Canberra: AIHW.
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- AIHW 2011. Dental health of Indigenous children in the Northern Territory: findings from the Closing the Gap Program. Cat. no. IHW 41. Canberra: AIHW.

These reports can be downloaded from www.aihw.gov.au/publications.

The website also includes information on ordering printed copies.



This report presents information on oral health outreach services provided to Aboriginal and Torres Strait Islander children and young people in the Northern Territory. It shows that in 2018, 6,429 full-mouth fluoride varnish services, 1,619 fissure sealant services and 3,886 occasions of clinical service were provided. Some improvements were seen in the oral health of children, with the proportion of tooth decay in children aged 12 falling by 17 percentage points over time.



Stronger evidence,
better decisions,
improved health and welfare