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Progress of the Northern Territory Emergency Response Child Health Check Initiative: Health Conditions and Referrals

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Contents

Acknowledgements.....	iii
Executive summary	iv
1 Introduction.....	1
1.1 Data purpose, interpretation and quality	1
1.2 The NTER Child Health Check form	5
1.3 Report structure	5
2 Characteristics of children.....	6
2.1 Coverage of NTER Child Health Checks.....	6
2.2 Demographic characteristics	6
3 Health conditions	8
3.1 Overview of health conditions.....	8
3.2 Ears and eyes	10
Ear disease.....	10
Trachoma.....	13
Visual impairment	16
3.3 Oral health.....	17
Untreated caries	17
Gum disease.....	19
Other oral health issues.....	21
Any oral health issue	23
3.4 Skin.....	25
Skin sores.....	25
Scabies.....	27
Ringworm	29
3.5 Cardiac and respiratory.....	31
History of rheumatic heart disease.....	31
History of asthma.....	33
History of recurrent chest infection.....	35
3.6 Anaemia	37
3.7 Physical growth.....	39
Stunting	39
Underweight.....	41
Wasting.....	43
Overweight	45
3.8 Sudden Infant Death Syndrome risk factors	47

3.9 Other health issues.....	49
Regular smoker	49
Smoker in the household	51
Immunisation status	53
4 Referrals and vaccinations.....	55
4.1 Overview of referrals and vaccinations	55
4.2 Referrals.....	57
Primary Health Care clinic follow-up	57
Dental referral.....	59
Paediatrician referral	61
Tympanometry and audiology referral	63
Ear, Nose and Throat referral.....	65
Cardiology and cardiac investigations	67
Optometrist or ophthalmologist referral	69
Family and Community Services referral.....	70
Dietician or nutritionist referral.....	71
Any referrals provided.....	72
Number of referrals per child.....	74
4.3 Vaccinations	76
Abbreviations.....	78
References	79
Appendix 1. Prescribed NTER areas.....	81
Appendix 2. Missing data and CHC form versions	83
Appendix 3. Comparisons with other data sources	84
Data sources	85

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The responsibility for the report remains with the Department of Health and Ageing.

Executive summary

This *Progress of the Northern Territory Emergency Response Child Health Check Initiative: Health Conditions and Referrals* report describes the number and types of health conditions identified during the Child Health Checks as well as the number and types of referrals made as part of those health checks. The checks analysed for this report were undertaken from July 2007 to May 2008.

By 15 May 2008, approximately 10,900 Child Health Checks (CHCs) had been undertaken in the prescribed areas of the Northern Territory Emergency Response (NTER), representing 63% of the 17,182 children who are eligible for the checks. For the most part, these health checks were carried out as part of the NTER; however, some Medicare health checks are included.

The information provided in this report relates to 7,733 children for whom the AIHW had entered information from the CHC form into the Child Health Check Initiative (CHCI) database.

Data purpose, quality and interpretation

The purpose of the data collection is to support an evaluation of the Child Health Check Initiative. The aims for the evaluation have been agreed in consultation with the NT Department of Health and Community Services, the Aboriginal Medical Services Alliance of the NT, and the Australian Institute of Health and Welfare. In summary, the evaluation aims to measure the implementation of the NTER CHCI, and, where possible, its impact on and outcomes for the estimated 17,182 children living in the areas prescribed under the NTER.

When using and interpreting the data in this report, the following should be considered.

- **Context.** The data included here were collected as a by-product of a clinical process – a voluntary, comprehensive check of each child’s health, wellbeing, and social and environmental living conditions. The aim of the checks was to detect, treat or refer children for clinically significant problems rather than establish a definitive measure of disease prevalence in the population. The data presented in this report are not a substitute for estimates of prevalence derived from rigorous, scientific research.
- **Coverage.** The analyses presented in this report relate to 45% of children in scope of the NTER CHCI (i.e., the 7,733 children for whom a form had been entered into the CHCI database).
- **Number of children for whom questions were relevant.** The number of children to whom the CHCI data apply varies between items, according to the age group to which the question was applicable and, at times, the version of the form used to record the results of the health check. For each item, as well as for each comparison by region, age group and sex, the number of children for whom the question was relevant is shown in this report.
- **Approach used to calculate prevalence rates.** In the analyses presented in this report, the number of missing cases is included in the denominator when calculating prevalence rates. Thus the prevalence rates represent a minimum level of conditions, and may therefore underestimate the true prevalence of the conditions among children who received a Child Health Check.

- **Missing data.** Throughout the report, the percentage of missing data is shown for each item. Overall, the level of missing data for the health conditions items (Section 3) ranged from 1% to 14%, while the level of missing data for the referrals items (Section 4) ranged from 10% to 36%.
- **Comparisons with other data sources.** Where possible, the results from the analyses of the CHCI data are compared with data from other sources.

Health conditions

The prevalence of 25 health conditions is discussed in this report. Key findings are summarised below.

- **Smoker in household.** Over three in four (77%) children were identified as living in a household with a smoker.
- **SIDS risk factors.** Seventy-one per cent of children aged less than 1 year were at risk of Sudden Infant Death Syndrome (SIDS) due to bed sharing, while 37% were at risk due to exposure to tobacco smoke and 33% due to soft sleeping surfaces and loose bedding.
- **Oral health issues.** Forty per cent of children were reported to have untreated caries. Children aged 6 to 11 years of age (55%) were more likely than those aged 0 to 5 years (30%) and those aged 12 to 15 years (31%) to have untreated caries. Six per cent of children had gum disease.
- **Ear disease.** Just under one in three (29%) children were found to have ear disease. While 31% of children aged 0 to 5 years and 29% of children aged 6 to 11 years had ear disease, a smaller proportion of children aged 12 to 15 years did (23%).
- **Anaemia.** One in 6 children (16%) were identified as having anaemia. This rate was higher for children aged 0 to 5 years (25%) than for those aged 6 to 11 years (9%) and those aged 12 to 15 years (7%).
- **Immunisations** were due for 16% of children. A higher percentage of children aged 12 to 15 years (25%) were due for vaccinations compared with children aged 0 to 5 years (17%) and those aged 6 to 11 years (11%).
- **Skin sores.** One in ten (10%) children were reported to have 4 or more skin sores. Children aged 12 to 15 years (6%) were less likely than those in the other age groups (11% of 0 to 5 year olds and 10% of 6 to 11 year olds) to have 4 or more skin sores.
- **Scabies.** Eight per cent of children were identified as having scabies.
- **Physical growth.** Five per cent of children were considered to be stunted (i.e., short for their age) and 10% were assessed to be underweight (light for their age). Just over one in ten children (12%) showed signs of wasting (i.e., light for their height) while 5% of children were overweight (heavy for their height).

Referrals and treatment

- **Primary health care (PHC) clinic follow-up.** Health teams indicated that just under two in five (38%) children who received a health check required a PHC clinic follow-up.
- **Dental referrals** were made for 32% of children. The percentage of children aged 6 to 11 years (45%) referred for dental services was twice that of children 0 to 5 years of age (22%).

- **Other referrals.** Twelve per cent of children were given a paediatric referral, 12% received a referral for tympanometry and audiology, 8% a referral to an Ear, Nose and Throat (ENT) specialist, and 3% were referred to a cardiologist or for cardiac investigations.
- **Number of referrals per child.** Two out of three children (67%) were referred for at least one type of follow-up service. On average, 1.4 referrals were made per child.
- **Provision of vaccination.** Overall, 6% of children received a vaccination during their health check but this rate varied by age group: 11% of children aged 12 to 15 years received a vaccination compared with 8% of those aged 0 to 5 years and 3% of those aged 6 to 11 years.

1 Introduction

The Northern Territory Emergency Response (NTER) was announced by the former Australian Government on 21 June 2007 in response to the *Little Children are Sacred* report by the NT Board of Inquiry into the Protection of Aboriginal Children from Sexual Abuse (2007). The NTER involves a wide range of measures which are designed to protect children and make communities safe, as well as create a better future for Aboriginal people in the Northern Territory.¹

The role of the Department of Health and Ageing in relation to the NTER is to undertake the voluntary Child Health Checks, respond to follow up care needs, provide additional child special services and improve alcohol and other drug services.² The Child Health Check Initiative was based on the existing health checks that are available to Aboriginal and Torres Strait Islander children aged 14 years or less through Medicare (Medical Benefits Scheme (MBS) item number 708). The MBS 708 health checks were introduced prior to the NTER and have continued in parallel. Children who had received a health check in the previous nine months did not require another health check.

The NTER is a targeted response that covers areas of the NT that have been prescribed in legislation; a map of the prescribed areas is available at Appendix 1. The Child Health Checks are available on a voluntary basis to children in the prescribed areas who are aged 15 years or less.

This *Progress of the Northern Territory Emergency Response Child Health Check Initiative: Health Conditions and Referrals* report describes the number and types of health conditions identified during the Child Health Checks (CHCs) as well as the number and types of referrals made as part of those health checks. Information on vaccinations provided during the health checks is also shown. Differences in the findings by region, age group and sex are presented. Further, where possible, comparisons with other data sources are made.

The information detailed in this report relates to 7,733 Northern Territory Indigenous children aged 15 years or less for whom a completed CHC form was entered into the Child Health Check Initiative (CHCI) database by the AIHW by the 15 of May 2008.

1.1 Data purpose, interpretation and quality

Interpretation of the data presented in this report should take into consideration the context in which the data were collected and the purpose of the data collection. An issue of importance is the validity of the Child Health Checks and, in particular, the extent to which the checks accurately identify disease, risk factors and health conditions present in the children who received checks, and whether these findings can be generalised to Indigenous children who have not received Child Health Checks in the Northern Territory.

The data collection was designed to track the implementation of the Child Health Checks and follow-up care, and to evaluate the program. The aims for the evaluation have been agreed in consultation with the NT Department of Health and Community Services (NT

¹ See <http://www.facsia.gov.au/nter/resources.htm> for further details.

² Further information on the Department of Health and Ageing's role in the NTER can be found at <http://www.health.gov.au/internet/main/publishing.nsf/Content/health-oatsih-nt>.

DHCS), the Aboriginal Medical Services Alliance of the NT (AMSANT), and the Australian Institute of Health and Welfare (AIHW). In summary, the evaluation aims to measure some components of the implementation of the NTER CHCI, and, as far as possible, its impact on and outcomes for the target population. More specifically, the evaluation aims to:

1. Assess the extent to which the CHCs reached the target population;
2. Identify the prevalence and, if possible, the severity of health conditions found through the CHCs and validate these findings with data from other sources;
3. Identify the extent to which requested primary care, allied health and specialist follow-up services have been received, gaps in existing health service delivery, and barriers to the completion of follow-up treatment; and
4. Explore the possibility of undertaking more complex evaluative analyses which could include questions about:
 - a. Whether or not the CHC Initiative has led to improvements in health service delivery for Aboriginal and Torres Strait Islander children;
 - b. Health status of children in relation to the social determinants of health and access to comprehensive primary health care; and/or
 - c. Treatment outcomes.

The data presented in this progress report relate to the first two of these objectives. Data collection has commenced on follow-up service delivery which will enable assessment of the third objective. The fourth objective is expressed in exploratory terms because these tasks are more ambitious and are dependent on the quality of the data collected during the initial Child Health Checks and the follow-up service delivery.

The data included here were collected as a by-product of a clinical process – a voluntary, comprehensive check of each child’s health, wellbeing, and social and environmental living conditions. The health conditions identified were detected by review of the child’s medical records, a screening history and clinical examination. The checks included organising investigations and referrals as required, providing preventive health advice and developing a plan for the good health of the child. The aim of the checks was to detect, treat or refer children for clinically significant problems rather than establish a definitive measure of disease prevalence in the population.

Most of the checks included in this report were conducted by teams recruited and deployed by the Australian Government. The teams were made up of a doctor, up to three nurses and administrative support workers working in conjunction with local health services in the field. Where possible, each team comprised members of both sexes and included team members with skills in paediatrics and Aboriginal health. The teams received two days of orientation when they arrived in the Northern Territory, including cultural awareness training and detailed instruction on Child Health Check performance from consent procedures to clinical and reporting requirements, and team functioning. The teams were directed to use the Central Australian Rural Practitioners Association (CARPA) Standard Treatment Manual as their standard reference. Local Aboriginal and Torres Strait Islander health services provided advice on local communities. Orientation was conducted jointly by the Department of Health and Ageing (DoHA) and the Council of Remote Area Nurses of Australia (CRANA) with contributions from relevant Northern Territory agencies including the Department of Health and Community Services. Many of the doctors and nurses deployed through the Child Health Check teams were visiting remote Aboriginal communities for the first time. Some of the checks included in this report have been carried

out by the staff of Aboriginal Community Controlled Health Services or by the Northern Territory Department of Health and Community Services.

The data in this report accurately show the health conditions identified and the referrals made for the children seen by these teams as part of the Child Health Check Initiative. When combined with data on follow-up service delivery, these data should allow an assessment of the extent to which follow-up services have reached the children who needed them.

There are important limitations to the data. First, as with most data collected as a by-product of primary care service delivery, the accuracy of the review of medical records and the clinical screening examination was not assessed for any of the conditions reported.

Conditions that require specific clinical training or further investigation for accurate ascertainment may be under-reported. Second, the Child Health Checks were voluntary and, at this stage, nothing is known about how the children who participated compare with those who did not participate. Thirdly, the quality of the data relating to individual items varies, for example, because of the level of missing data for that particular item.

The data presented in this report are not a substitute for estimates of prevalence derived from rigorous, scientific research. The use and interpretation of these data should be guided by this general caveat and by the discussion within this report that compares specific Child Health Check findings with data from other sources. This process of comparing and contrasting the Child Health Check data with data from other sources is not yet complete.

When using and interpreting the data presented in this report, the following specific factors should be noted.

Coverage

As discussed further in Section 2.1, the number of Child Health Check forms entered into the CHCI database by the 15 of May 2008 (i.e., 7,733 forms) represents 45% of the estimated total population of Indigenous children covered by the NTER CHCI.

Number of children for whom questions were relevant

Some questions on the Child Health Check form were only asked in relation to children in particular age groups (e.g., the questions on SIDS risk factors were to be answered for those less than one year of age). In addition, a small number of the questions were not included in each version of the form. Thus the number of children for whom data were collected varies among the different items from as high as 7,733 (the number of children for whom data were entered by 15 May 2008) to as low as 539 (for the risk of SIDS items). For each item, as well as for each comparison by region, age group and sex, the number of children for whom the question was relevant is shown. Note that only the number of children to whom the question was relevant is considered when determining prevalence rates.

Approach used to calculate prevalence rates

In the analyses presented in this report, the number of missing cases is included in the denominator when calculating prevalence rates, rather than excluded from these calculations. Thus the prevalence rates represent a minimum level and these rates may underestimate the true prevalence of these conditions and referrals among children who received a Child Health Check. While the use of this approach does not have a large impact on the observed results when the extent of missing data for a particular item is small, it has a greater impact when the level of missing data is large. For each item discussed in this report, the extent of missing data is shown.

Level of missing data

The extent of missing data should be taken into account when using and interpreting data for each item. The percentage of missing data is shown in all tables presented in this report. Overall, the level of missing data for the health conditions items (Section 3) ranged from 1% (for those children known to have trachoma screening) to 14% (for one of the SIDS risk items), while the level of missing data for the referrals items (Section 4) ranged from 10% to 36%. Note that, for a number of items (e.g., oral health issues), the level of missing data was relatively higher in some regions than others; such differences should be taken into account when comparing prevalence rates between regions.

Due to the format of the question on trachoma, information on whether trachoma screening was completed as part of the Child Health Check was not provided on 47% of the forms. As discussed in Section 3.2, the prevalence of trachoma was calculated only for those children for whom screening was known to have been undertaken.

In this report, data on health conditions and referrals are shown according to age group, sex and region. While the exact age could not be determined for 1% of children, sufficient information was available to determine the age group for all children (i.e., 0 to 5 years, 6 to 11 years, and 12 to 15 years). Thus there are no missing data in relation to age group. Likewise, there are no missing data in relation to the region in which the Child Health Check was done. Information on the sex of the child was missing for 42 children (1% of children).

Further discussion on missing data in the CHCI data collection can be found in Appendix 2.

Comparison with other data sources

Where possible, the findings from the CHCI data are compared with data from other sources in the relevant section of this report. Making such comparisons relies on having data that are comparable in relation to a number of factors such as the method and timing of data collection, the way in which the condition was defined, the age of children in scope and the geographical area covered. When making comparisons across data sets, information is provided on how similar these aspects of the various collections are. In some cases, the available data considered for comparative purposes could not be used because they differed from the CHCI data in a number of substantial ways; examples are the data from the Australian Childhood Immunisation Register (ACIR) and data from The Western Australian Aboriginal Child Health Survey (WAACHS).

Further discussion about the comparison of the CHCI data with other data is provided in Appendix 3.

Scope of progress report

The NTER Child Health Check form was designed primarily to facilitate clinical assessment rather than data collection. Some, but not all, of the questions on the CHC form also yield useful data for monitoring and evaluating purposes. Only data considered useful for these purposes have been entered into the CHC database and analysed. The data were assessed against a set of criteria to determine which data were suitable for publication in this progress report, require further analysis, or are not useful for monitoring or evaluation purposes due to quality or validity issues. The criteria that were applied are as follows:

1. The data may be biased (too much missing data), and/or
2. The validity of the question may be problematic (for example, it may be unclear what the clinician may have taken into account in answering the question), and/or

3. The data require further analysis (eg free text fields need to be coded), and/or
4. Sufficient indicators are available elsewhere in the dataset.

Using the above criteria the following variables were excluded from publication:

Criterion 1: Growth faltering; high blood sugar levels.

Criterion 2: Concerns about alcohol; risk of sexually transmitted infections; depression, anxiety and/or self harm.

Criterion 3: Cardiac abnormality; respiratory abnormality; abdominal abnormality.

Criterion 4: Other skin problems; any skin problem.

1.2 The NTER Child Health Check form

The information collected using the Child Health Check form covers a broad range of topics including the child's medical history (for example, previous health checks and past health conditions), the family's medical history, the child's housing situation and the child's health status at the time of the health check. Information is also recorded on whether vaccinations, treatment and referrals were provided during the Child Health Check. A copy of the Child Health Check form is available on the Department's Internet site.

Since the NTER Child Health Checks were first conducted in July 2007, six different versions of the Child Health Check form have been used by those conducting the checks. Changes to the form over time addressed deficiencies of earlier versions and involved both adding questions and improving the structure of a number of existing questions (see Appendix 2).

1.3 Report structure

The information presented in this report has been divided into four sections as follows.

- This introductory section provides information about the CHCI data collection form, as well as data purpose, interpretation and quality.
- In Section 2, the coverage of the Child Health Checks and the demographic characteristics of the children are described.
- Section 3 provides details on the health conditions that were reported for the children during their Child Health Checks according to region, sex and age group.
- Section 4 presents information on referrals made and vaccinations provided during the Child Health Checks.

2 Characteristics of children

In this section of the report, details are provided on the coverage of the Child Health Checks to date, relative to the estimated population of Indigenous children in the communities and town camps within the scope of the NTER CHCI. In addition, information is provided on the characteristics of the children represented in the CHCI database, according to region and age group and also by region and sex.

2.1 Coverage of NTER Child Health Checks

By the 15 of May 2008, approximately 10,900 Child Health Checks had been undertaken in the prescribed areas of the NTER, representing 63% of the 17,182 children who are eligible for the checks.³ For the most part, these health checks were carried out as part of the NTER; however, as health checks continue to be made available under Medicare, some Medicare health checks are included in the figure above.

Data to monitor and evaluate the CHCI were only collected for children who received a CHCI check. The data and analyses presented in the remainder of this report relate to the 7,733 children whose data collection form had been processed by the AIHW by 15 May 2008; this represents 45% of eligible children.

2.2 Demographic characteristics

As noted above, data for 7,733 children had been entered into the CHCI database by 15 May 2008. The distribution of the 7,733 children according to region is shown in Table 2.1. A list of the communities within the prescribed NTER areas in these regions can be found in Appendix 1.

Just over three in ten (32%) children had their Child Health Check in the Darwin Rural region, 28% in the Arnhem region and 24% in the Central Australia region. Since the number of CHC forms entered into the database for children from the Barkly and Katherine regions is relatively small (398 and 887, respectively), the data for children in those two regions are combined in all subsequent analyses and together, account for 17% of the children.

Table 2.1: Indigenous children who had a NTER Child Health Check by region

Region	(%)	(no.)
Central Australia	23.6	1,826
Arnhem	28.1	2,174
Barkly	5.1	398
Darwin Rural	31.7	2,448
Katherine	11.5	887
All Regions	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

³ Note that the value of 17,182 is an estimate. The true value of the population is expected to be between 16,582 and 17,782 (using a relative standard error of 3.5%).

Of the 7,733 children for whom data have been entered in the CHCI database, 51% were boys and 48% were girls (Table 2.2).

Table 2.2: Region by sex, Indigenous children who had a NTER Child Health Check

Region	Male		Female		Missing		Total	
	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	50.1	915	49.0	895	0.9	16	100.0	1,826
Arnhem	51.5	1,120	47.9	1,042	0.6	12	100.0	2,174
Barkly/ Katherine	49.0	630	50.4	648	0.5	7	100.0	1,285
Darwin Rural	52.4	1,283	47.3	1,158	0.3	7	100.0	2,448
All Regions	51.1	3,948	48.4	3,743	0.5	42	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

On average, 45% of the children were aged 0 to 5 years, 40% were aged 6 to 11 years, whereas 15% were aged 12 to 15 years (Table 2.3). The distribution of children by age group varied somewhat across the regions. For example, the proportion of 12 to 15 year olds in the Darwin Rural region (16%) was higher than that in the Barkly/Katherine region (13%). Such differences should be taken into account when comparing results across regions, especially in relation to those health conditions that are more frequently observed in certain age groups.

Table 2.3: Region by age group, Indigenous children who had a NTER Child Health Check

Region	0–5 years		6–11 years		12–15 years		Total	
	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	46.9	856	37.7	689	15.4	281	100.0	1,826
Arnhem	43.9	955	41.4	900	14.7	319	100.0	2,174
Barkly/ Katherine	46.5	597	40.9	525	12.7	163	100.0	1,285
Darwin Rural	43.1	1,055	40.8	998	16.1	395	100.0	2,448
All Regions	44.8	3,463	40.2	3,112	15.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

3 Health conditions

This section presents information from the CHCI database on health conditions of Indigenous children in scope of the NTER CHCI. Initially, a summary table is presented to provide an overview of the findings. Following this, the results for each separate health condition are shown by region and age group and then by region and sex.

In the relevant section, where possible, the findings from the CHCI dataset are compared with data from other sources. In order to align the age ranges covered by the data sets as closely as possible, the CHCI data were re-calculated as required. Further details about the other data sources and the comparisons made in this report can be found in Appendix 3.

3.1 Overview of health conditions

Table 3.1 provides an overview of the prevalence of health conditions identified through the CHCI. Details on how these conditions were defined and, where applicable, comments about the quality of these measures are detailed in the relevant section. The findings are grouped and ordered in the following way:

- ears and eyes (Section 3.2);
- oral health (Section 3.3);
- skin (Section 3.4);
- cardiac and respiratory (Section 3.5);
- anaemia (Section 3.6);
- physical growth (Section 3.7);
- SIDS risk factors (Section 3.8); and
- other conditions (Section 3.9).

While most of the conditions considered in this report relate to children across the entire age range covered by the Child Health Check (i.e., 0 to 15 year olds), there are a few exceptions. The relevant age range for each condition is specified in the second column of Table 3.1.

For some of the items, a response option of 'unsure' was a valid response option. For these items, the percentage of children for whom this response was indicated is shown in the fifth column of Table 3.1. For the other items in which the unsure option was 'not applicable', the letters 'na' are shown.

Three in four children (77%) aged 0 to 15 years lived in a household where one or more people smoked. Bed sharing was considered a SIDS risk factor for 71% of children aged less than one year, while exposure to tobacco smoke was considered a SIDS risk factor for 37% of these children. Four in ten (40%) children had untreated caries, while 38% of children had a history of recurrent chest infections, 29% of children had ear disease, and 16% of children were anaemic. In addition, 16% of children were due for an immunisation, 12% of children had signs of wasting (i.e., their weight was relatively low for their height) and 10% were underweight. Finally, 4 or more skin sores were prevalent among 10% of children and 8% of children had scabies.

Table 3.1: Health conditions, Indigenous children who had a NTER Child Health Check

Health condition	Age range (years)	Yes (%)	No (%)	Unsure (%)	Missing (%)	Total (%)	Total (no.)
Ears and eyes							
Ear disease ^(a)	All	29.2	68.4	na	2.4	100.0	7,733
Trachoma ^(b)	6–15	6.7	92.8	na	0.6	100.0	1,989
Visual impairment ^(c)	6–15	0.7	88.6	na	10.8	100.0	4,270
Oral health							
Untreated caries	All	40.3	48.9	na	10.8	100.0	7,733
Gum disease	All	5.6	83.6	na	10.8	100.0	7,733
Other oral health issue	All	3.1	85.9	na	10.9	100.0	7,733
Any oral health issue	All	42.8	46.4	na	10.9	100.0	7,733
Skin							
Skin sores (4 or more)	All	10.1	83.6	na	6.3	100.0	7,733
Scabies	All	8.3	85.4	na	6.3	100.0	7,733
Ringworm	All	5.8	87.8	na	6.4	100.0	7,733
Cardiac and Respiratory							
History of rheumatic heart disease ^(d)	All	1.1	88.6	5.4	4.9	100.0	7,556
History of asthma	All	6.0	83.5	4.5	5.9	100.0	7,733
History of recurrent chest infection	All	37.7	53.0	4.3	5.0	100.0	7,733
Anaemia							
Anaemia ^(e)	All	15.7	74.2	na	10.0	100.0	7,733
Physical growth							
Stunting ^(f)	All	4.5	90.8	na	4.7	100.0	7,733
Underweight ^(g)	All	10.2	86.8	na	3.0	100.0	7,733
Wasting ^(h)	All	11.8	82.6	na	5.5	100.0	7,733
Overweight ⁽ⁱ⁾	2–15	4.9	90.3	na	4.8	100.0	6,622
SIDS risk factors							
Prone sleeping	Less than 1	23.0	60.9	3.0	13.2	100.0	539
Soft sleeping surfaces & loose bedding	Less than 1	32.5	51.6	2.4	13.5	100.0	539
Overheating	Less than 1	15.2	67.7	4.1	13.0	100.0	539
Exposure to smoking	Less than 1	37.1	48.6	1.3	13.0	100.0	539
Bed sharing	Less than 1	71.2	15.2	0.6	13.0	100.0	539

(continued)

Table 3.1 (continued): Health conditions, Indigenous children who had a NTER Child Health Check

Health condition	Age range (years)	Yes (%)	No (%)	Unsure (%)	Missing (%)	Total (%)	Total (no.)
Other							
Regular smoker ^(j)	12–15	7.2	87.2	0.9	4.7	100.0	1,158
Smoker in household ^(k)	All	76.9	20.6	0.3	2.1	100.0	7,733
Immunisation due	All	15.9	77.0	1.7	5.5	100.0	7,733

- (a) Defined as having symptoms (e.g., perforation, bulging) or a diagnosis (e.g. otitis media, otitis externa) of ear disease in at least one ear.
(b) Includes only those children who are known to have been screened for trachoma as part of the CHC (i.e., 47% of children in the age range).
(c) Defined as having a visual acuity score of less than '6/12' in at least one eye.
(d) This question was not included in one of the versions of the Child Health Check form.
(e) Defined as a Haemoglobin (Hb) level less than 110g/L.
(f) Defined as below minus two standard deviations from mean height for age of reference population.
(g) Defined as below minus two standard deviations from mean weight for age of reference population.
(h) Defined as below minus two standard deviations from mean weight for height of reference population.
(i) Defined as equal to or greater than the 95th percentile in relation to Body Mass Index (BMI)-for-age relative to the reference population.
(j) In some but not all of the form versions, this was defined as one or more cigarettes per day.
(k) In most but not all of the form versions, the question referred to a 'regular' smoker in the household.
na not applicable

Source: AIHW analysis of NTER Child Health Check data entered as at 15 May 2008.

3.2 Ears and eyes

Ear disease

Based on the results of an otoscopy, health teams were asked to indicate whether the child's ear drums had a wet or dry perforation, were bulging, or if there was some 'other' issue with their ear drums. If there was an 'other' issue, the health team was asked to specify what it was. These free text 'other' responses included a wide variety of conditions (including wax in the ear, various symptoms of ear disease, hearing problems, etc.) and they were coded by the AIHW in terms of whether or not they indicated ear disease. These coded responses, along with the information about whether a child's ear drums were perforated or bulging, were used to create a measure of the prevalence of ear disease.⁴ As shown in Table 3.2, 29% of children were identified as having ear disease.

Note that additional analyses of the ear disease data indicate that for 8% of children, health teams were unable to determine if ear disease existed, with the most common reason given for this being the presence of excess wax. Since these children were coded as not having ear disease, the true extent of ear disease may be greater than the 29% indicated.

Thirty-one per cent of children aged 0 to 5 years and 29% of children aged 6 to 11 years had ear disease, while a smaller proportion (23%) aged 12 to 15 years did so. Of all the regions, ear disease was most prevalent among children who had a health check in the Arnhem region (35%) and least prevalent in the Darwin Rural region (24%).

⁴ Children were said to have ear disease if any of the following were evident in at least one ear: otitis media; otitis externa; cholesteatoma; wet or dry perforation; a bulging, red, retracted, collapsed, dull or opaque ear drum; inflammation; discharge; or air bubbles.

Table 3.2: Ear disease^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Ear disease	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	34.5	295	34.1	235	26.0	73	33.0	603
	No	61.9	530	64.0	441	71.2	200	64.1	1,171
	Missing	3.6	31	1.9	13	2.8	8	2.8	52
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	38.1	364	34.1	307	24.8	79	34.5	750
	No	57.8	552	64.1	577	72.4	231	62.6	1,360
	Missing	4.1	39	1.8	16	2.8	9	2.9	64
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	27.5	164	25.7	135	17.8	29	25.5	328
	No	70.7	422	73.5	386	79.8	130	73.0	938
	Missing	1.8	11	0.8	4	2.5	4	1.5	19
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	23.7	250	23.8	238	22.8	90	23.6	578
	No	73.6	776	74.5	744	76.5	302	74.4	1,822
	Missing	2.7	29	1.6	16	0.8	3	2.0	48
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	31.0	1,073	29.4	915	23.4	271	29.2	2,259
	No	65.8	2,280	69.0	2,148	74.5	863	68.4	5,291
	Missing	3.2	110	1.6	49	2.1	24	2.4	183
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as having symptoms (e.g., perforation, bulging) or a diagnosis (e.g. otitis media, otitis externa) of ear disease in at least one ear.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Overall, the rate of ear disease was consistent among boys (29%) and girls (30%) (Table 3.3). However, a higher proportion of girls (35%) than boys (32%) had ear disease in the Central Australia region.

Table 3.3: Ear disease^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Ear disease	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	31.6	289	34.6	310	33.0	603
	No	66.1	605	62.0	555	64.1	1,171
	Missing	2.3	21	3.4	30	2.8	52
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	34.1	382	34.9	364	34.5	750
	No	62.9	705	62.1	647	62.6	1,360
	Missing	2.9	33	3.0	31	2.9	64
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	25.9	163	25.0	162	25.5	328
	No	72.9	459	73.3	475	73.0	938
	Missing	1.3	8	1.7	11	1.5	19
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	23.5	301	23.7	275	23.6	578
	No	74.2	952	74.8	866	74.4	1,822
	Missing	2.3	30	1.5	17	2.0	48
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	28.7	1,135	29.7	1,111	29.2	2,259
	No	68.9	2,721	67.9	2,543	68.4	5,291
	Missing	2.3	92	2.4	89	2.4	183
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as having symptoms (e.g., perforation, bulging) or a diagnosis (e.g., otitis media, otitis externa) of ear disease in at least one ear.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of ear disease are also available from the NT Healthy School-Age Kids (HSAK) program (NT DHCS & NT DEET 2007). The HSAK data indicate that 31% of children aged 4 to 5 years who live in remote Indigenous communities in the NT had ear disease (NT DHCS 2008c). The corresponding figure from the CHCI dataset for 4 to 5 year olds is similar – 33%. Note that as discussed in Appendix 3, the definition of ear disease used in the HSAK data collection is broader than that used in the CHCI data collection; as well, the HSAK data relate to children in remote Indigenous communities throughout the NT, while the CHCI data relates to children in areas prescribed for the purpose of the NTER (the majority of these areas are remote but not all remote areas are prescribed, and some urban areas – town camps – are prescribed).

Data on the prevalence of ear disease among a sample of Indigenous NT children were also collected as part of a research study by Morris and colleagues in 2001. This study found that 91% of children aged 6 to 30 months had some form of middle ear disease (Morris et al. 2005). This large difference may be due in part to the difference between the approach, training and equipment used in the research study and that used by the Child Health Check team working in a primary care service delivery setting. The differences are discussed in more detail in Appendix 3.

Trachoma

Ascertaining the prevalence of trachoma from earlier versions of the Child Health Check form has proved difficult due to the way the question was structured. On the form, instructions indicate that health teams are to conduct a trachoma screening only under certain circumstances, namely, if a trachoma screener is available and if no trachoma screening had been done in 2007 as part of the HSAK screening. In earlier versions of the form, no question asked the health team to indicate whether they had undertaken a trachoma screening during the health check. In addition, the response option of 'no abnormality' was not provided to indicate that trachoma screening had been completed but no abnormality found. As a consequence, when no response was given for this question in earlier form versions, it was unclear whether this was because: no screening was done; no abnormality was found; or if the question was truly skipped. The available data indicate that 47% of children in the relevant age group (i.e., 6 to 15 years) were screened for trachoma, 6% were not screened, and this information is missing for 47% of children. For the latest versions of the health check form, the question on trachoma was restructured and, in turn, the level of missing data has fallen substantially (23% missing in the latest version compared with the average of 47% across all versions).

The percentage of children with trachoma was calculated *only* for those children for whom screening was known to have been undertaken as part of the Child Health Check. Due to the high level of missing information in relation to whether screening was done and due to the possibility that some cases of trachoma may have been picked up in the HSAK screening, the data in Tables 3.4 and 3.5 on the prevalence of trachoma must be used with caution.

As shown in Table 3.4, of the 1,989 children aged 6 to 15 years who were screened for trachoma, 7% were identified as having trachoma in at least one eye. The prevalence of this disease was similar for the 6 to 11 year olds (7%) and the 12 to 15 year olds (6%). However, differences were observed between the regions, with 9% of children in the Barkly/Katherine and Central Australia regions who had been screened identified as having trachoma, compared with 4% of children in the Arnhem region.

Table 3.4: Trachoma in at least one eye^(a) by age group and region, Indigenous children aged 6 to 15 years who had a NTER Child Health Check

Region	Trachoma in at least one eye	6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	10.2	40	4.6	8	8.5	48
	No	89.1	350	95.4	165	91.0	515
	Missing	0.8	3	0.0	0	0.5	3
	Total	100.0	393	100.0	173	100.0	566
Arnhem	Yes	4.5	18	2.0	3	3.8	21
	No	95.3	385	98.0	148	96.0	533
	Missing	0.2	1	0.0	0	0.2	1
	Total	100.0	404	100.0	151	100.0	555
Barkly/ Katherine	Yes	9.0	23	10.5	10	9.4	33
	No	90.2	230	86.3	82	89.1	312
	Missing	0.8	2	3.2	3	1.4	5
	Total	100.0	255	100.0	95	100.0	350
Darwin Rural	Yes	4.9	18	8.5	13	6.0	31
	No	94.5	345	91.5	140	93.6	485
	Missing	0.5	2	0.0	0	0.4	2
	Total	100.0	365	100.0	153	100.0	518
All regions	Yes	7.0	99	5.9	34	6.7	133
	No	92.4	1,310	93.5	535	92.8	1,845
	Missing	0.6	8	0.5	3	0.6	11
	Total	100.0	1,417	100.0	572	100.0	1,989

(a) The analyses include only those children who are known to have been screened for trachoma as part of the Child Health Check (i.e., 47% of children aged 6 years and over).

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Overall, as shown in Table 3.5, a higher percentage of boys than girls were identified as having trachoma (8% and 6%, respectively). This difference according to the sex of the child was greatest in the Darwin Rural region, with 8% of boys and 3% of girls who were screened being diagnosed with trachoma.

Table 3.5: Trachoma in at least one eye^(a) by sex and region, Indigenous children aged 6 to 15 years who had a NTER Child Health Check

Region	Trachoma in at least one eye	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	9.6	29	7.3	19	8.5	48
	No	89.4	269	92.7	242	91.0	515
	Missing	1.0	3	0.0	0	0.5	3
	Total	100.0	301	100.0	261	100.0	566
Arnhem	Yes	3.5	10	4.1	11	3.8	21
	No	96.5	273	95.5	256	96.0	533
	Missing	0.0	0	0.4	1	0.2	1
	Total	100.0	283	100.0	268	100.0	555
Barkly/ Katherine	Yes	10.1	16	8.9	17	9.4	33
	No	88.7	141	89.5	170	89.1	312
	Missing	1.3	2	1.6	3	1.4	5
	Total	100.0	159	100.0	190	100.0	350
Darwin Rural	Yes	8.2	23	3.4	8	6.0	31
	No	91.4	255	96.2	229	93.6	485
	Missing	0.4	1	0.4	1	0.4	2
	Total	100.0	279	100.0	238	100.0	518
All regions	Yes	7.6	78	5.7	55	6.7	133
	No	91.8	938	93.7	897	92.8	1,845
	Missing	0.6	6	0.5	5	0.6	11
	Total	100.0	1,022	100.0	957	100.0	1,989

(a) The analyses include only those children who are known to have been screened for trachoma as part of the Child Health Check (i.e., 47% of children aged 6 years and over).

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data from the HSAK program indicate that in 2007, 10% of Indigenous children aged 4 to 15 years in remote areas of the NT had trachoma (NT DHCS 2008c) while the CHCI data suggest that 7% of children aged 6 to 15 years had trachoma. Note these data are not comparable because the instructions on the CHCI form specifically indicate that children who had been screened for trachoma in 2007 as part of the HSAK program were not to be screened again.

Visual impairment

Child Health Check teams were asked to provide a visual acuity score for each eye for children aged 6 to 15 years. For the purposes of identifying those children with sight problems, children who had a visual acuity score of less than '6/12' in at least one eye were considered to be visually impaired.

Overall, less than 1% of children (or 28 children) were identified as being visually impaired (Table 3.6). Since information on visual acuity was missing for 11% of children, the true prevalence may be higher than the 1% reported.

Due to the small number of children with this condition, comparisons are shown by age group (Table 3.6) and sex (Table 3.7), but not by region. The prevalence of visual impairment was consistent across the age groups and for boys and girls.

Table 3.6: Visual impairment^(a) by age group and region, Indigenous children aged 6 to 15 years who had a NTER Child Health Check

Region	Visual impairment	6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.6	18	0.9	10	0.7	28
	No	86.9	2,703	93.2	1,079	88.6	3,782
	Missing	12.6	391	6.0	69	10.8	460
	Total	100.0	3,112	100.0	1,158	100.0	4,270

(a) Defined as having a visual acuity score of less than '6/12' in at least one eye.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Table 3.7: Visual impairment^(a) by sex and region, Indigenous children aged 6 to 15 years who had a NTER Child Health Check

Region	Visual impairment	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.6	13	0.7	15	0.7	28
	No	88.3	1,916	89.0	1,854	88.6	3,782
	Missing	11.1	241	10.3	215	10.8	460
	Total	100.0	2,170	100.0	2,084	100.0	4,270

(a) Defined as having a visual acuity score of less than '6/12' in at least one eye.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

3.3 Oral health

A series of questions on the Child Health Check form addressed various oral health issues, namely, the presence of untreated caries, gum disease and 'other' oral health issues.

Untreated caries

Four in ten (40%) children were identified as having untreated caries (Table 3.8). There were large differences in the prevalence of untreated caries between regions; 48% of children in Arnhem had untreated caries compared with 33% in the Central Australia region. However, the level of missing data varied by regions and was particularly high for Central Australia (30% compared with an average of 11%). This difference may have affected the observed prevalence rates for each region. There are clear differences by age group, with more than half (55%) of those aged 6 to 11 years having untreated caries, compared with 30% of those aged 0 to 5 years and 31% of those aged 12 to 15 years. The percentage of children aged 6 to 11 years with untreated caries was particularly high in the Arnhem region (63%).

Table 3.8: Untreated caries by age group and region, Indigenous children who had a NTER Child Health Check

Region	Untreated caries	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	22.5	193	49.2	339	21.7	61	32.5	593
	No	39.8	341	28.9	199	52.0	146	37.6	686
	Missing	37.6	322	21.9	151	26.3	74	30.0	547
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	36.1	345	63.1	568	39.8	127	47.8	1,040
	No	52.3	499	34.9	314	58.3	186	46.0	999
	Missing	11.6	111	2.0	18	1.9	6	6.2	135
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	28.1	168	52.6	276	25.2	41	37.7	485
	No	68.0	406	46.3	243	71.2	116	59.5	765
	Missing	3.9	23	1.1	6	3.7	6	2.7	35
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	31.2	329	54.2	541	31.6	125	40.6	995
	No	60.7	640	43.6	435	65.3	258	54.5	1,333
	Missing	8.2	86	2.2	22	3.0	12	4.9	120
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	29.9	1,035	55.4	1,724	30.6	354	40.3	3,113
	No	54.5	1,886	38.3	1,191	61.0	706	48.9	3,783
	Missing	15.7	542	6.3	197	8.5	98	10.8	837
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.9, on average, there was little difference between the percentage of boys (41%) and girls (40%) who had untreated caries. However, a larger difference by sex was observed in Arnhem compared with other regions, with 50% of boys compared with 45% of girls identified as having untreated caries.

Table 3.9: Untreated caries by sex and region, Indigenous children who had a NTER Child Health Check

Region	Untreated caries	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	34.4	315	30.8	276	32.5	593
	No	33.4	306	41.2	369	37.6	686
	Missing	32.1	294	27.9	250	30.0	547
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	50.4	564	44.9	468	47.8	1,040
	No	44.6	500	47.5	495	46.0	999
	Missing	5.0	56	7.6	79	6.2	135
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	37.1	234	38.6	250	37.7	485
	No	60.5	381	58.3	378	59.5	765
	Missing	2.4	15	3.1	20	2.7	35
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	39.2	503	42.2	489	40.6	995
	No	55.2	708	53.6	621	54.5	1,333
	Missing	5.6	72	4.1	48	4.9	120
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	40.9	1,616	39.6	1,483	40.3	3,113
	No	48.0	1,895	49.8	1,863	48.9	3,783
	Missing	11.1	437	10.6	397	10.8	837
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

At the time of writing this report, no comparable data from other sources were available. However, work is being undertaken to determine whether comparable data can be derived from existing data sources such as the Child Dental Health Survey (AIHW DSRU 2007).

Gum disease

Six per cent of children were identified as having gum disease. As shown in Table 3.10, a similar proportion of children aged 6 to 11 years and 12 to 15 years had gum disease (7% and 6%, respectively), while 4% of those aged 0 to 5 years had this disease.

Of the four regions, Barkly/ Katherine had the highest percentage of children with gum disease (8%), while Central Australia had the lowest percentage (2%). Note, though, that the level of missing data for Central Australia was relatively high at 30% compared with an overall average of 11%.

Table 3.10: Gum disease by age group and region, Indigenous children who had a NTER Child Health Check

Region	Gum disease	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	0.9	8	3.8	26	2.1	6	2.2	40
	No	61.4	526	74.3	512	71.9	202	67.9	1,240
	Missing	37.6	322	21.9	151	26.0	73	29.9	546
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	5.0	48	8.7	78	6.9	22	6.8	148
	No	83.5	797	89.2	803	91.2	291	87.0	1,891
	Missing	11.5	110	2.1	19	1.9	6	6.2	135
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	6.9	41	9.0	47	12.3	20	8.4	108
	No	89.1	532	89.5	470	84.0	137	88.6	1,139
	Missing	4.0	24	1.5	8	3.7	6	3.0	38
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	3.6	38	7.7	77	4.8	19	5.5	134
	No	88.3	932	90.1	899	92.2	364	89.7	2,195
	Missing	8.1	85	2.2	22	3.0	12	4.9	119
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	3.9	135	7.3	228	5.8	67	5.6	430
	No	80.5	2,787	86.2	2,684	85.8	994	83.6	6,465
	Missing	15.6	541	6.4	200	8.4	97	10.8	838
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As indicated in Table 3.11, a similar percentage of boys and girls were identified as having gum disease (6% and 5%, respectively).

Table 3.11: Gum disease by sex and region, Indigenous children who had a NTER Child Health Check

Region	Gum disease	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	2.7	25	1.7	15	2.2	40
	No	65.1	596	70.5	631	67.9	1,240
	Missing	32.1	294	27.8	249	29.9	546
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	8.1	91	5.3	55	6.8	148
	No	87.0	974	87.0	907	87.0	1,891
	Missing	4.9	55	7.7	80	6.2	135
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	8.6	54	8.3	54	8.4	108
	No	88.9	560	88.3	572	88.6	1,139
	Missing	2.5	16	3.4	22	3.0	38
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	5.2	67	5.8	67	5.5	134
	No	89.2	1,145	90.1	1,043	89.7	2,195
	Missing	5.5	71	4.1	48	4.9	119
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	6.0	237	5.1	191	5.6	430
	No	83.0	3,275	84.2	3,153	83.6	6,465
	Missing	11.0	436	10.7	399	10.8	838
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

Other oral health issues

In addition to the health teams being asked to indicate whether the child had untreated caries and gum disease, they were asked if the child had any 'other' oral health issues and, if so, to specify what the problem was. Overall, 3% of children had an 'other' oral health issue (Table 3.12). Two per cent of children aged 0 to 5 years had an 'other' oral health condition compared with 4% of those aged 6 to 11 years and 5% of those aged 12 to 15 years.

Table 3.12: Other oral health issues^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Other oral health issues	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	1.8	15	2.5	17	3.6	10	2.3	42
	No	60.6	519	75.6	521	70.5	198	67.8	1,238
	Missing	37.6	322	21.9	151	26.0	73	29.9	546
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	2.3	22	3.6	32	5.6	18	3.3	72
	No	86.2	823	94.2	848	92.2	294	90.4	1,965
	Missing	11.5	110	2.2	20	2.2	7	6.3	137
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	2.7	16	5.0	26	8.6	14	4.4	56
	No	93.3	557	93.5	491	87.7	143	92.7	1,191
	Missing	4.0	24	1.5	8	3.7	6	3.0	38
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	1.4	15	4.1	41	4.3	17	3.0	73
	No	90.4	954	93.3	931	92.7	366	92.0	2,251
	Missing	8.2	86	2.6	26	3.0	12	5.1	124
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	2.0	68	3.7	116	5.1	59	3.1	243
	No	82.4	2,853	89.7	2,791	86.4	1,001	85.9	6,645
	Missing	15.7	542	6.6	205	8.5	98	10.9	845
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Information on the type of 'other' oral health issues was entered as free text. Analyses indicate that the most frequent responses were: plaque or poor dental hygiene; abnormal teeth growth; and broken or chipped teeth.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.13, a similar proportion of boys and girls had an 'other' oral health condition (both 3%).

Table 3.13: Other oral health issues^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Other oral health issues	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	2.2	20	2.5	22	2.3	42
	No	65.7	601	69.7	624	67.8	1,238
	Missing	32.1	294	27.8	249	29.9	546
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	3.1	35	3.6	37	3.3	72
	No	91.7	1,027	88.9	926	90.4	1,965
	Missing	5.2	58	7.6	79	6.3	137
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	4.4	28	4.3	28	4.4	56
	No	93.0	586	92.3	598	92.7	1,191
	Missing	2.5	16	3.4	22	3.0	38
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	2.9	37	3.1	36	3.0	73
	No	91.4	1,173	92.5	1,071	92.0	2,251
	Missing	5.7	73	4.4	51	5.1	124
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	3.0	120	3.3	123	3.1	243
	No	85.8	3,387	86.0	3,219	85.9	6,645
	Missing	11.2	441	10.7	401	10.9	845
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Information on the type of 'other' oral health issues was entered as free text. Analyses indicate that the most frequent responses were: plaque or poor dental hygiene; abnormal teeth growth; and broken or chipped teeth.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

In order to gain a better understanding of the nature of these 'other' oral health conditions, the free text responses were coded into one of six categories.⁵ These categories and the number of children with each corresponding problem were as follows: plaque or poor dental hygiene (57 children); abnormal teeth growth (55 children); broken or chipped teeth (43 children); missing teeth (22 children); mouth infection and sores (26 children); and a variety of other responses including pitting, loose teeth, toothache and chalky teeth (50 children).⁶

⁵ We acknowledge and thank Dr Kaye Roberts-Thomson, Senior Research Fellow at the Australian Research Centre for Population Oral Health, for her assistance in developing the coding scheme used to code the 'other' oral health issues.

⁶ The sum of the number of children with each of these 'other' oral health conditions (i.e., 253) does not equal the total number of children with an 'other' oral health condition (i.e., 243) since any one child may have had one or more of these conditions.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

Any oral health issue

To provide a summary measure of the oral health of the children, the proportion of children who had at least one of the oral health issues covered by the Child Health Check form – namely, untreated caries, gum disease or an ‘other’ oral health issue – was examined.

Overall, 43% of children had at least one type of oral health issue (Table 3.14). Variation in this rate is seen across the regions; the highest rate of any oral health issue was found in the Arnhem region (50%) and the lowest rate in the Central Australia region (34%). However, the level of missing data for Central Australia (30%) is relatively high compared with the other regions. Children aged 6 to 11 years were most likely to have one or more oral health conditions both overall (58%) and within each region. For example, in the Arnhem region, almost two in three (65%) children aged 6 to 11 years were diagnosed with at least one type of oral health problem, compared with 37% of 0 to 5 year olds and 44% of 12 to 15 year olds.

Table 3.14: Any oral health issue^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Any oral health issue	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	23.9	205	50.9	351	25.6	72	34.4	628
	No	38.4	329	27.1	187	48.0	135	35.7	651
	Missing	37.6	322	21.9	151	26.3	74	30.0	547
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	37.3	356	64.9	584	44.2	141	49.7	1,081
	No	51.0	487	33.0	297	53.9	172	44.0	956
	Missing	11.7	112	2.1	19	1.9	6	6.3	137
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	30.8	184	57.1	300	39.3	64	42.6	548
	No	65.2	389	41.7	219	57.1	93	54.6	701
	Missing	4.0	24	1.1	6	3.7	6	2.8	36
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	32.5	343	57.1	570	34.7	137	42.9	1,050
	No	59.3	626	40.7	406	62.3	246	52.2	1,278
	Missing	8.2	86	2.2	22	3.0	12	4.9	120
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	31.4	1,088	58.0	1,805	35.8	414	42.8	3,307
	No	52.9	1,831	35.6	1,109	55.8	646	46.4	3,586
	Missing	15.7	544	6.4	198	8.5	98	10.9	840
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as untreated caries, gum disease and/ or ‘other’ oral health issues.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Overall, a similar percentage of boys (43%) and girls (42%) had at least one type of oral health condition, although some variation by sex is observed within individual regions (Table 3.15). For example, in Arnhem, a higher percentage of boys than girls had one or more oral health conditions (52% and 47%, respectively).

Table 3.15: Any oral health issue^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Any oral health issue	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	36.1	330	33.1	296	34.4	628
	No	31.8	291	39.0	349	35.7	651
	Missing	32.1	294	27.9	250	30.0	547
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	52.2	585	46.8	488	49.7	1,081
	No	42.7	478	45.5	474	44.0	956
	Missing	5.1	57	7.7	80	6.3	137
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	41.7	263	43.8	284	42.6	548
	No	55.7	351	53.1	344	54.6	701
	Missing	2.5	16	3.1	20	2.8	36
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	41.1	527	44.9	520	42.9	1,050
	No	53.3	684	50.9	590	52.2	1,278
	Missing	5.6	72	4.1	48	4.9	120
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	43.2	1,705	42.4	1,588	42.8	3,307
	No	45.7	1,804	46.9	1,757	46.4	3,586
	Missing	11.1	439	10.6	398	10.9	840
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as untreated caries, gum disease and/ or 'other' oral health issues.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

3.4 Skin

The Child Health Check medical teams were asked to indicate whether the children had any of the following skin problems: 4 or more skin sores; scabies; or ringworm. In this section, the results from the analyses of these data are shown for each of these problems. A comparison of the CHCI data with data from other NT data sources is also made.

Skin sores

One in ten (10%) children were reported to have 4 or more skin sores (Table 3.16). Compared with those aged 12 to 15 years (6%), a higher percentage of children aged 0 to 5 years (11%) and 6 to 11 years (10%) had 4 or more skin sores. Among the four regions, the highest proportion of children with 4 or more skin sores was reported in the Darwin Rural region (13%). Note that the level of missing data for this item is high in the Central Australia region (20%) compared with the other regions (overall average of 6%).

Table 3.16: Skin sores (4 or more) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Skin sores (4 or more)	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	10.9	93	10.0	69	5.7	16	9.7	178
	No	68.1	583	72.3	498	74.7	210	70.7	1,291
	Missing	21.0	180	17.7	122	19.6	55	19.6	357
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	10.2	97	8.0	72	4.7	15	8.5	184
	No	86.2	823	89.3	804	92.8	296	88.5	1,923
	Missing	3.7	35	2.7	24	2.5	8	3.1	67
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	10.4	62	8.6	45	5.5	9	9.0	116
	No	87.9	525	90.9	477	93.3	152	89.8	1,154
	Missing	1.7	10	0.6	3	1.2	2	1.2	15
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	13.5	142	13.6	136	6.8	27	12.5	305
	No	84.2	888	85.2	850	89.9	355	85.5	2,093
	Missing	2.4	25	1.2	12	3.3	13	2.0	50
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	11.4	394	10.3	322	5.8	67	10.1	783
	No	81.4	2,819	84.5	2,629	87.5	1,013	83.6	6,461
	Missing	7.2	250	5.2	161	6.7	78	6.3	489
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

A similar percentage of boys and girls had 4 or more skin sores (both 10%) (Table 3.17).

Table 3.17: Skin sores (4 or more) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Skin sores (4 or more)	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	10.5	96	9.1	81	9.7	178
	No	69.0	631	72.2	646	70.7	1,291
	Missing	20.5	188	18.8	168	19.6	357
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	7.9	89	8.8	92	8.5	184
	No	89.0	997	88.0	917	88.5	1,923
	Missing	3.0	34	3.2	33	3.1	67
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	8.4	53	9.4	61	9.0	116
	No	90.8	572	89.0	577	89.8	1,154
	Missing	0.8	5	1.5	10	1.2	15
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	13.6	174	11.2	130	12.5	305
	No	83.9	1,077	87.2	1,010	85.5	2,093
	Missing	2.5	32	1.6	18	2.0	50
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	10.4	412	9.7	364	10.1	783
	No	83.0	3,277	84.2	3,150	83.6	6,461
	Missing	6.6	259	6.1	229	6.3	489
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of skin sores among children in the NT are available from two other data sources: the NT Healthy School-Age Kids (HSAK) program (NT DHCS 2008c) and the East Arnhem Regional Healthy Skin Project (Andrews & Kearns 2007).

Data from the HSAK program indicate that 16% of children aged 4 to 15 years in remote NT Indigenous communities in 2007 had skin sores (NT DHCS 2008c). This is higher than the prevalence rate of 10% observed in the CHCI data for 4 or more skin sores for children aged 4 to 15 years. However, given that the CHCI data report on the presence of 4 or more skin sores (rather than *any* skin sores as in the HSAK data), it would be expected that the CHCI prevalence rate would be lower than that observed using the HSAK data.

Data from the East Arnhem Regional Healthy Skin Project (EARHSP) show that among Indigenous children aged 0 to 14 years in East Arnhem, the prevalence rate of 5 or more skin sores in 2007 was 6% (Andrews 2008). This compares with a CHCI rate of 9% among children of the same age in the Arnhem region but who had 4 or more skin sores. Since the CHCI data relate to 4 or more skin sores, rather than 5 or more skin sores as in the EARHSP

data, the observed difference in the prevalence rate is in the expected direction. However, it should also be noted that the EARHSP prevalence rate is based on the number of skin assessments undertaken during the relevant period. In contrast, the CHCI data relate to the proportion of children who had 4 or more skin sores at the time of their Child Health Check, with children only represented once.

Further details about these data collections and comparisons can be found in Appendix 3.

Scabies

Overall, 8% of children were reported to have scabies (Table 3.18). Comparisons between the regions indicate that a relatively higher proportion of children in the Darwin Rural region had scabies (12%) when compared with Central Australia (6%); however, this difference may be overestimated due to a relatively high level of missing data in Central Australia (20%) and a low level in Darwin Rural (2%).

Generally there were no large differences in the prevalence of scabies according to age group, with the exception of the Arnhem region, where 10% of children aged 0 to 5 years, 7% of those aged 6 to 11 years and 6% of those aged 12 to 15 years were reported to have scabies.

Table 3.18: Scabies by age group and region, Indigenous children who had a NTER Child Health Check

Region	Scabies	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.5	47	6.8	47	4.3	12	5.8	106
	No	73.5	629	75.5	520	76.2	214	74.6	1,363
	Missing	21.0	180	17.7	122	19.6	55	19.6	357
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	9.7	93	6.9	62	6.0	19	8.0	174
	No	86.6	827	90.4	814	91.5	292	88.9	1,933
	Missing	3.7	35	2.7	24	2.5	8	3.1	67
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	5.5	33	6.7	35	5.5	9	6.0	77
	No	92.8	554	92.8	487	93.3	152	92.8	1,193
	Missing	1.7	10	0.6	3	1.2	2	1.2	15
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	12.5	132	10.6	106	11.4	45	11.6	283
	No	85.2	899	88.1	879	85.6	338	86.4	2,116
	Missing	2.3	24	1.3	13	3.0	12	2.0	49
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	8.8	305	8.0	250	7.3	85	8.3	640
	No	84.0	2,909	86.8	2,700	86.0	996	85.4	6,605
	Missing	7.2	249	5.2	162	6.6	77	6.3	488
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.19, 9% of boys and 8% of girls were reported to have scabies.

Table 3.19: Scabies by sex and region, Indigenous children who had a NTER Child Health Check

Region	Scabies	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	6.8	62	4.9	44	5.8	106
	No	72.7	665	76.3	683	74.6	1,363
	Missing	20.5	188	18.8	168	19.6	357
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	7.8	87	8.3	87	8.0	174
	No	89.2	999	88.5	922	88.9	1,933
	Missing	3.0	34	3.2	33	3.1	67
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	5.6	35	6.3	41	6.0	77
	No	93.7	590	92.1	597	92.8	1,193
	Missing	0.8	5	1.5	10	1.2	15
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	12.9	165	10.1	117	11.6	283
	No	84.6	1,086	88.4	1,024	86.4	2,116
	Missing	2.5	32	1.5	17	2.0	49
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	8.8	349	7.7	289	8.3	640
	No	84.6	3,340	86.2	3,226	85.4	6,605
	Missing	6.6	259	6.1	228	6.3	488
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on scabies from the East Arnhem Regional Healthy Skin Project indicate that the prevalence rate for scabies (based on the number of skin assessments) for Indigenous children aged 0 to 14 years in East Arnhem over the study period from 2004 to 2007 was 13% (Andrews 2008). This is 5 percentage points higher than the prevalence rate of 8% observed among children aged 0 to 14 years in the Arnhem region according to the CHCI data. The prevalence rates in the two data sources are calculated differently (as noted earlier in relation to the comparison of skin sore data and as discussed in Appendix 3). Furthermore, these two data sets cover different time periods.

Ringworm

Six per cent of children were identified as having ringworm (Table 3.20). While there was no overall variation in the prevalence of ringworm between age groups, there was some variation by age group within regions. In particular, in the Central Australia region, 5% of children aged 0 to 5 years and 4% of those aged 6 to 11 years were found to have ringworm compared with 1% of 12 to 15 year olds. The highest percentage of children with ringworm was recorded in the Darwin Rural region and Arnhem region (both 6%) and the lowest percentage in Central Australia (4%), although this difference may be overestimated due to a relatively high level of missing data in Central Australia (20%) compared with an average of 6%.

Table 3.20: Ringworm by age group and region, Indigenous children who had a NTER Child Health Check

Region	Ringworm	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.4	46	3.5	24	1.1	3	4.0	73
	No	73.6	630	78.8	543	79.4	223	76.5	1,396
	Missing	21.0	180	17.7	122	19.6	55	19.6	357
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	6.6	63	6.1	55	6.9	22	6.4	140
	No	89.6	856	91.2	821	90.6	289	90.4	1,966
	Missing	3.8	36	2.7	24	2.5	8	3.1	68
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	5.0	30	7.8	41	3.7	6	6.0	77
	No	93.3	557	91.6	481	95.1	155	92.8	1,193
	Missing	1.7	10	0.6	3	1.2	2	1.2	15
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	6.1	64	6.6	66	6.8	27	6.4	157
	No	91.4	964	92.1	919	89.9	355	91.4	2,238
	Missing	2.6	27	1.3	13	3.3	13	2.2	53
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	5.9	203	6.0	186	5.0	58	5.8	447
	No	86.8	3,007	88.8	2,764	88.3	1,022	87.8	6,793
	Missing	7.3	253	5.2	162	6.7	78	6.4	493
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.21, the prevalence of ringworm among boys and girls was similar (5% and 6%, respectively).

Table 3.21: Ringworm by sex and region, Indigenous children who had a NTER Child Health Check

Region	Ringworm	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	3.6	33	4.4	39	4.0	73
	No	75.8	694	76.9	688	76.5	1,396
	Missing	20.5	188	18.8	168	19.6	357
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	6.5	73	6.3	66	6.4	140
	No	90.4	1,012	90.5	943	90.4	1,966
	Missing	3.1	35	3.2	33	3.1	68
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	4.6	29	7.3	47	6.0	77
	No	94.6	596	91.2	591	92.8	1,193
	Missing	0.8	5	1.5	10	1.2	15
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	5.6	72	7.3	85	6.4	157
	No	91.7	1,177	91.0	1,054	91.4	2,238
	Missing	2.7	34	1.6	19	2.2	53
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	5.2	207	6.3	237	5.8	447
	No	88.1	3,479	87.5	3,276	87.8	6,793
	Missing	6.6	262	6.1	230	6.4	493
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

The prevalence of ringworm (which is also called tinea) was measured as part of the EARHSP. Data from this project indicate that among Indigenous children aged 0 to 14 years in East Arnhem, the prevalence of ringworm (based on the number of skin assessments) was 15% over the study period from 2004 to 2007 (Andrews 2008). Findings from the NTER CHCI indicate that in the Arnhem region, 6% of children aged 0 to 14 years had ringworm. As discussed in more detail in Appendix 3, the prevalence rates in the EARHSP are calculated differently than in the CHCI data collection and these two data sets cover different time periods.

Data on ringworm were also collected as part of the HSAK program; these data indicate that in 2007, 8% of children aged 4 to 15 years in remote NT Aboriginal communities had ringworm (NT DHCS 2008c). This is 2 percentage points higher than the prevalence rate of 6% observed in the CHCI data for children aged 4 to 15 years. (See Appendix 3 for further details.)

3.5 Cardiac and respiratory

History of rheumatic heart disease

As part of the Child Health Check, medical teams were asked to indicate whether or not the child had a history of rheumatic heart disease. This item was not included in one version of the CHCI form; thus, these data were collected in relation to 7,556 children.

Overall, and for each of the regions, the results suggest that 1% of children had a history of rheumatic heart disease (Table 3.22). The rate varied between age groups, with a history of rheumatic heart disease reported for 3% of children aged 12 to 15 years compared with less than 1% of children aged 0 to 5 years of age and 1% of those aged 6 to 11 years.

Table 3.22: History of rheumatic heart disease^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	History of rheumatic heart disease	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	0.4	3	1.2	7	2.7	7	1.0	17
	No	88.0	692	87.0	529	85.1	217	87.2	1,438
	Unsure	4.2	33	5.3	32	2.0	5	4.2	70
	Missing	7.4	58	6.6	40	10.2	26	7.5	124
	Total	100.0	786	100.0	608	100.0	255	100.0	1,649
Arnhem	Yes	0.3	3	1.6	14	3.1	10	1.2	27
	No	89.5	855	86.8	781	85.3	272	87.8	1,908
	Unsure	4.4	42	7.3	66	7.5	24	6.1	132
	Missing	5.8	55	4.3	39	4.1	13	4.9	107
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	0.3	2	1.1	6	2.5	4	0.9	12
	No	90.6	541	90.3	474	83.4	136	89.6	1,151
	Unsure	4.4	26	6.7	35	8.0	13	5.8	74
	Missing	4.7	28	1.9	10	6.1	10	3.7	48
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	0.2	2	1.2	12	3.8	15	1.2	29
	No	91.8	969	88.5	883	87.3	345	89.7	2,197
	Unsure	4.1	43	6.5	65	5.6	22	5.3	130
	Missing	3.9	41	3.8	38	3.3	13	3.8	92
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	0.3	10	1.3	39	3.2	36	1.1	85
	No	90.1	3,057	88.0	2,667	85.7	970	88.6	6,694
	Unsure	4.2	144	6.5	198	5.7	64	5.4	406
	Missing	5.4	182	4.2	127	5.5	62	4.9	371
	Total	100.0	3,393	100.0	3,031	100.0	1,132	100.0	7,556

(a) This question was not included in one of the versions of the Child Health Check form.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.23, the percentage of boys and girls with a history of rheumatic heart disease was similar (both 1%).

Table 3.23: History of rheumatic heart disease^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	History of rheumatic heart disease	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	1.0	8	1.1	9	1.0	17
	No	87.9	719	87.0	710	87.2	1,438
	Unsure	3.2	26	5.3	43	4.2	70
	Missing	7.9	65	6.6	54	7.5	124
	Total	100.0	818	100.0	816	100.0	1,649
Arnhem	Yes	0.9	10	1.6	17	1.2	27
	No	90.3	1,011	85.0	886	87.8	1,908
	Unsure	4.9	55	7.4	77	6.1	132
	Missing	3.9	44	6.0	62	4.9	107
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	1.0	6	0.9	6	0.9	12
	No	89.2	562	89.8	584	89.6	1,151
	Unsure	6.0	38	5.5	36	5.8	74
	Missing	3.8	24	3.7	24	3.7	48
	Total	100.0	630	100.0	650	100.0	1,285
Darwin Rural	Yes	1.0	13	1.4	16	1.2	29
	No	89.8	1,152	90.0	1,043	89.7	2,197
	Unsure	5.3	68	5.2	60	5.3	130
	Missing	3.9	50	3.5	40	3.8	92
	Total	100.0	1,283	100.0	1,159	100.0	2,448
All regions	Yes	1.0	37	1.3	48	1.1	85
	No	89.4	3,444	87.9	3,223	88.6	6,694
	Unsure	4.9	187	5.9	216	5.4	406
	Missing	4.8	183	4.9	180	4.9	371
	Total	100.0	3,851	100.0	3,667	100.0	7,556

(a) This question was not included in one of the versions of the Child Health Check form.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of rheumatic heart disease in the NT are collected in the following two registers – the Top End Rheumatic Heart Disease Register and the Central Australian Rheumatic Heart Disease Register. Data from these registers combined indicate that as at the 31st of December 2005, 0.5% of Indigenous children aged 0 to 14 years had rheumatic heart disease (AIHW 2007, p. 103). In comparison, the CHCI data indicate that 1.1% of Indigenous children aged 0 to 14 years in scope of the NTER CHCI had a history of rheumatic heart disease. The differences between these two data sources are detailed in Appendix 3.

History of asthma

As part of the Child Health Check, medical teams were asked to indicate whether the child had a history of asthma. Overall, 6% of children were reported to have a history of asthma (Table 3.24). Among those aged 0 to 5 years, 5% had a history of asthma, while 7% of those 6 to 11 years and 6% of those 12 to 15 years did so. A comparison between regions indicate that 8% of children were reported to have a history of asthma in the Darwin Rural region, while 6% of children in the Barkly/Katherine region and 5% in both the Central Australia and Arnhem regions had a history of asthma.

Table 3.24: History of asthma by age group and region, Indigenous children who had a NTER Child Health Check

Region	History of asthma	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	4.0	34	6.2	43	3.9	11	4.8	88
	No	85.0	728	81.7	563	81.1	228	83.2	1,519
	Unsure	2.8	24	3.3	23	1.8	5	2.8	52
	Missing	8.2	70	8.7	60	13.2	37	9.1	167
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	3.8	36	5.7	51	5.6	18	4.8	105
	No	84.8	810	82.2	740	83.1	265	83.5	1,815
	Unsure	4.6	44	6.8	61	5.3	17	5.6	122
	Missing	6.8	65	5.3	48	6.0	19	6.1	132
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	4.4	26	8.4	44	6.7	11	6.3	81
	No	86.1	514	81.1	426	77.9	127	83.0	1,067
	Unsure	5.0	30	7.0	37	8.0	13	6.2	80
	Missing	4.5	27	3.4	18	7.4	12	4.4	57
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	6.7	71	9.3	93	7.3	29	7.9	193
	No	85.8	905	81.9	817	85.3	337	84.1	2,059
	Unsure	3.4	36	4.4	44	3.3	13	3.8	93
	Missing	4.1	43	4.4	44	4.1	16	4.2	103
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	4.8	167	7.4	231	6.0	69	6.0	467
	No	85.4	2,957	81.8	2,546	82.6	957	83.5	6,460
	Unsure	3.9	134	5.3	165	4.1	48	4.5	347
	Missing	5.9	205	5.5	170	7.3	84	5.9	459
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Table 3.25 indicates that 7% of boys and 5% of girls were reported to have a history of asthma.

Table 3.25: History of asthma by sex and region, Indigenous children who had a NTER Child Health Check

Region	History of asthma	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	6.1	56	3.5	31	4.8	88
	No	82.3	753	84.7	758	83.2	1,519
	Unsure	2.4	22	3.2	29	2.8	52
	Missing	9.2	84	8.6	77	9.1	167
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	5.3	59	4.4	46	4.8	105
	No	84.3	944	82.5	860	83.5	1,815
	Unsure	5.3	59	6.0	63	5.6	122
	Missing	5.2	58	7.0	73	6.1	132
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	6.3	40	6.3	41	6.3	81
	No	82.9	522	83.0	538	83.0	1,067
	Unsure	5.7	36	6.8	44	6.2	80
	Missing	5.1	32	3.9	25	4.4	57
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	8.6	110	7.2	83	7.9	193
	No	83.2	1,068	85.3	988	84.1	2,059
	Unsure	3.8	49	3.6	42	3.8	93
	Missing	4.4	56	3.9	45	4.2	103
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	6.7	265	5.4	201	6.0	467
	No	83.3	3,287	84.0	3,144	83.5	6,460
	Unsure	4.2	166	4.8	178	4.5	347
	Missing	5.8	230	5.9	220	5.9	459
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of asthma were collected in 2004–05 as part of the National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) (ABS 2006). These data indicate that 7% of Indigenous children in the NT aged 0 to 14 years had long-term asthma. This is similar to the 6% reported for children the same age in the NT using the CHCI database. See Appendix 3 for further details about the NATSIHS data and this comparison.

History of recurrent chest infection

In the medical history section of the Child Health Check form, the medical teams were also asked to record whether the child had a history of recurrent chest infections (Table 3.26).

Overall, almost two in five (38%) children had a history of recurrent chest infections with this rate varying between regions; Darwin Rural had the highest percentage of children with a history of this condition (48%), while Barkly/Katherine had the lowest percentage (29%). Children aged 12 to 15 years were less likely to have been recorded as having a history of recurrent chest infections (30%) than other children, with 39% of children aged both 0 to 5 years and 6 to 11 years reported to have a history of recurrent chest infection.

Table 3.26: History of recurrent chest infection by age group and region, Indigenous children who had a NTER Child Health Check

Region	History of recurrent chest infection	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	34.3	294	35.0	241	26.3	74	33.4	609
	No	54.8	469	53.3	367	58.4	164	54.8	1,000
	Unsure	2.8	24	3.3	23	2.1	6	2.9	53
	Missing	8.1	69	8.4	58	13.2	37	9.0	164
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	39.0	372	34.2	308	30.1	96	35.7	776
	No	52.7	503	53.8	484	56.7	181	53.7	1,168
	Unsure	3.8	36	7.6	68	8.2	26	6.0	130
	Missing	4.6	44	4.4	40	5.0	16	4.6	100
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	29.0	173	30.7	161	22.1	36	28.8	370
	No	64.0	382	59.8	314	62.0	101	62.0	797
	Unsure	3.9	23	7.0	37	9.2	15	5.8	75
	Missing	3.2	19	2.5	13	6.7	11	3.3	43
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	49.2	519	50.1	500	36.2	143	47.5	1,162
	No	44.8	473	43.4	433	57.0	225	46.2	1,131
	Unsure	2.7	29	3.1	31	3.3	13	3.0	73
	Missing	3.2	34	3.4	34	3.5	14	3.3	82
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	39.2	1,358	38.9	1,210	30.1	349	37.7	2,917
	No	52.8	1,827	51.3	1,598	57.9	671	53.0	4,096
	Unsure	3.2	112	5.1	159	5.2	60	4.3	331
	Missing	4.8	166	4.7	145	6.7	78	5.0	389
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

A slightly higher percentage of boys (39%) than girls (37%) were reported to have a history of recurrent chest infections (Table 3.27).

Table 3.27: History of recurrent chest infection by sex and region, Indigenous children who had a NTER Child Health Check

Region	History of recurrent chest infection	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	35.1	321	31.7	284	33.4	609
	No	53.4	489	56.5	506	54.8	1,000
	Unsure	2.7	25	3.0	27	2.9	53
	Missing	8.7	80	8.7	78	9.0	164
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	36.3	407	35.3	368	35.7	776
	No	55.1	617	51.9	541	53.7	1,168
	Unsure	5.4	60	6.7	70	6.0	130
	Missing	3.2	36	6.0	63	4.6	100
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	30.6	193	27.3	177	28.8	370
	No	59.8	377	63.7	413	62.0	797
	Unsure	6.2	39	5.6	36	5.8	75
	Missing	3.3	21	3.4	22	3.3	43
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	48.3	620	46.6	540	47.5	1,162
	No	45.2	580	47.5	550	46.2	1,131
	Unsure	3.3	42	2.5	29	3.0	73
	Missing	3.2	41	3.4	39	3.3	82
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	39.0	1,541	36.6	1,369	37.7	2,917
	No	52.3	2,063	53.7	2,010	53.0	4,096
	Unsure	4.2	166	4.3	162	4.3	331
	Missing	4.5	178	5.4	202	5.0	389
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

3.6 Anaemia

As part of the Child Health Check, health teams were asked to do a haemoglobin (Hb) test if such a test had not been done in the previous six months or if the result of their most recent test had suggested that the child was anaemic. As per World Health Organization standards, a child whose haemoglobin levels were less than 110 g/L were considered to be anaemic.

As indicated in Table 3.28, data on this item were missing for 10% of children, with the level of missing data at 15% for those aged 0 to 5 years compared with 7% for those aged 6 to 11 years and 6% for those aged 12 to 15 years.

Overall, 16% of children were found to be anaemic; however, the percentage of children with anaemia varied greatly between age groups. One in four (25%) children aged 0 to 5 years were anaemic compared with 9% of those aged 6 to 11 years and 7% of those aged 12 to 15 years (Table 3.28). Differences by region were less stark and ranged from 14% in the Darwin Rural region to 18% in the Barkly/Katherine region.

Table 3.28: Anaemia^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Anaemic	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	21.0	180	12.5	86	8.9	25	15.9	291
	No	56.3	482	79.0	544	80.4	226	68.6	1,252
	Missing	22.7	194	8.6	59	10.7	30	15.5	283
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	26.0	248	8.8	79	7.8	25	16.2	352
	No	56.6	541	80.8	727	85.9	274	70.9	1,542
	Missing	17.4	166	10.4	94	6.3	20	12.9	280
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	28.3	169	9.5	50	5.5	9	17.7	228
	No	63.8	381	86.7	455	93.3	152	76.9	988
	Missing	7.9	47	3.8	20	1.2	2	5.4	69
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	24.2	255	7.3	73	4.6	18	14.1	346
	No	66.8	705	89.1	889	91.9	363	79.9	1,957
	Missing	9.0	95	3.6	36	3.5	14	5.9	145
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	24.6	852	9.3	288	6.6	77	15.7	1,217
	No	60.9	2,109	84.0	2,615	87.7	1,015	74.2	5,739
	Missing	14.5	502	6.7	209	5.7	66	10.0	777
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as Hb level less than 110g/L.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

As shown in Table 3.29, overall, the prevalence of anaemia was similar among boys and girls (both 16%). However, in the Arnhem region, anaemia was more prevalent among girls than boys (18% and 15%, respectively).

Table 3.29: Anaemia^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Anaemic	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	16.1	147	15.8	141	15.9	291
	No	67.9	621	69.5	622	68.6	1,252
	Missing	16.1	147	14.7	132	15.5	283
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	14.5	162	18.1	189	16.2	352
	No	73.2	820	68.3	712	70.9	1,542
	Missing	12.3	138	13.5	141	12.9	280
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	18.9	119	16.5	107	17.7	228
	No	75.7	477	78.1	506	76.9	988
	Missing	5.4	34	5.4	35	5.4	69
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	14.7	189	13.5	156	14.1	346
	No	79.0	1,014	80.9	937	79.9	1,957
	Missing	6.2	80	5.6	65	5.9	145
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	15.6	617	15.8	593	15.7	1,217
	No	74.3	2,932	74.2	2,777	74.2	5,739
	Missing	10.1	399	10.0	373	10.0	777
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as Hb level less than 110g/L.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of anaemia were collected as part of the Northern Territory's 2007 Growth Assessment and Action (GAA) program. The GAA data indicate that in 2007, 25% of children aged 6 months to 4 years were anaemic (NT DHCS 2008b, p. 2). A slightly higher rate of anaemia – 27% – was observed for children aged 0 to 4 years using the CHCI data. Note the age ranges and geographical areas covered by these two data sources differ slightly.

Information on the prevalence of anaemia is also available from the HSAK program. These data indicate that in 2007, 11% of children aged 4 to 15 years were anaemic (NT DHCS 2008c). This is the same as the CHCI rate of 11% that applies to children aged 4 to 15 years.

Further details about the GAA and the HSAK data and how these data compare with the CHCI data can be found in Appendix 3.

3.7 Physical growth

Using information from the CHCI database on a child's weight, height, age and sex, four indicators of the physical growth of children were created: stunting (which is a measure of height for age); underweight (a measure of weight for age); wasting (a measure of weight for height); and overweight (a measure of weight for height).

Stunting

The measure of stunting takes into account the child's *height* relative to their *age* and thus indicates when a child is short for their age. If data on the height, age or sex were missing, a measure of stunting could not be determined; this was the case for 5% of children.

As shown in Table 3.30, 5% of children were considered to be stunted. Across the regions, this rate varied from 3% in Central Australia to 6% in Arnhem. Five per cent of children aged 0 to 5 years were assessed as being stunted, while 4% of those aged both 6 to 11 years and 12 to 15 years were identified as being stunted.

Table 3.30: Stunting^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Stunting	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	4.2	36	2.0	14	1.4	4	3.0	54
	No	89.5	766	94.8	653	91.1	256	91.7	1,675
	Missing	6.3	54	3.2	22	7.5	21	5.3	97
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	7.2	69	4.4	40	6.9	22	6.0	131
	No	86.7	828	90.2	812	89.0	284	88.5	1,924
	Missing	6.1	58	5.3	48	4.1	13	5.5	119
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	4.4	26	3.6	19	1.8	3	3.7	48
	No	89.4	534	93.1	489	93.9	153	91.5	1,176
	Missing	6.2	37	3.2	17	4.3	7	4.7	61
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	4.9	52	4.5	45	4.1	16	4.6	113
	No	89.7	946	93.6	934	92.4	365	91.7	2,245
	Missing	5.4	57	1.9	19	3.5	14	3.7	90
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	5.3	183	3.8	118	3.9	45	4.5	346
	No	88.8	3,074	92.8	2,888	91.4	1,058	90.8	7,020
	Missing	5.9	206	3.4	106	4.7	55	4.7	367
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as below minus two standard deviations from mean height for age of reference population.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

A similar percentage of boys (5%) and girls (4%) were assessed as being stunted (Table 3.31).

Table 3.31: Stunting^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Stunting	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	3.9	36	2.0	18	3.0	54
	No	91.8	840	93.3	835	91.7	1,675
	Missing	4.3	39	4.7	42	5.3	97
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	7.0	78	5.1	53	6.0	131
	No	87.9	985	90.1	939	88.5	1,924
	Missing	5.1	57	4.8	50	5.5	119
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	4.9	31	2.6	17	3.7	48
	No	91.4	576	92.6	600	91.5	1,176
	Missing	3.7	23	4.8	31	4.7	61
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	5.1	66	4.1	47	4.6	113
	No	91.6	1,175	92.4	1,070	91.7	2,245
	Missing	3.3	42	3.5	41	3.7	90
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	5.3	211	3.6	135	4.5	346
	No	90.6	3,576	92.0	3,444	90.8	7,020
	Missing	4.1	161	4.4	164	4.7	367
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as below minus two standard deviations from mean height for age of reference population.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

Comparison with other data sources

Information on the prevalence of stunting is available for NT children aged 0 to 4 years from data collected as part of the GAA program (NT DHCS 2008b). These data indicate that in 2007, 11% of children aged 0 to 4 years were stunted, while the CHCI data indicate 6% of this same age group were stunted. Note that the geographic areas covered by these two data collections differ slightly. See Appendix 3 for further details about the GAA data, as well as how the measure of stunting was derived.

Underweight

The underweight measure takes into account the child's *weight* relative to their *age*. For the 3% of children for whom information on weight, age or sex was missing, a measure of underweight could not be determined.

One in ten (10%) children were found to be underweight (Table 3.32). The prevalence of underweight children varied slightly by age group: 11% of children aged 0 to 5 years, 10% of those aged 6 to 11 years and 9% of those aged 12 to 15 years were underweight. More substantial differences between regions were also observed, with the lowest rate of underweight children found in the Central Australia region (5%) and the highest rate in the Arnhem region (14%).

Table 3.32: Underweight^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Underweight	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.7	49	3.8	26	2.8	8	4.5	83
	No	90.8	777	93.2	642	92.5	260	91.9	1,679
	Missing	3.5	30	3.0	21	4.6	13	3.5	64
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	15.2	145	11.9	107	14.7	47	13.8	299
	No	80.9	773	85.0	765	82.1	262	82.8	1,800
	Missing	3.9	37	3.1	28	3.1	10	3.4	75
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	7.9	47	9.1	48	3.7	6	7.9	101
	No	88.1	526	87.8	461	92.6	151	88.6	1,138
	Missing	4.0	24	3.0	16	3.7	6	3.6	46
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	13.1	138	12.2	122	11.1	44	12.4	304
	No	84.6	893	86.5	863	86.6	342	85.7	2,098
	Missing	2.3	24	1.3	13	2.3	9	1.9	46
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	10.9	379	9.7	303	9.1	105	10.2	787
	No	85.7	2,969	87.8	2,731	87.7	1,015	86.8	6,715
	Missing	3.3	115	2.5	78	3.3	38	3.0	231
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as below minus two standard deviations from mean weight for age of reference population.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

As shown in Table 3.33, 11% of boys and 9% of girls were identified as being underweight.

Table 3.33: Underweight^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Underweight	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.2	48	3.9	35	4.5	83
	No	92.5	846	93.1	833	91.9	1,679
	Missing	2.3	21	3.0	27	3.5	64
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	14.2	159	13.4	140	13.8	299
	No	82.2	921	84.4	879	82.8	1,800
	Missing	3.6	40	2.2	23	3.4	75
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	8.9	56	6.9	45	7.9	101
	No	87.9	554	90.1	584	88.6	1,138
	Missing	3.2	20	2.9	19	3.6	46
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	14.0	180	10.7	124	12.4	304
	No	84.3	1,082	87.7	1,016	85.7	2,098
	Missing	1.6	21	1.6	18	1.9	46
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	11.2	443	9.2	344	10.2	787
	No	86.2	3,403	88.5	3,312	86.8	6,715
	Missing	2.6	102	2.3	87	3.0	231
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as below minus two standard deviations from mean weight for age of reference population.

(b) Includes those cases for which information on the sex of the child missing.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

Comparison with other data sources

Data on the prevalence of underweight is also available for NT children from the GAA program (NT DHCS 2008b). This data indicates that in 2007, 14% of children aged 0 to 4 years were underweight. The corresponding figure from the CHCI data is 11%. Note that the geographic areas covered by these two data collections differ slightly. (See Appendix 3 for further details.)

Wasting

The indicator of wasting takes into account a child's *weight* relative to their *height* and thus indicates when a child is light for their height.⁷ If data on the height (or length for infants), weight, age or sex were missing, a measure of wasting could not be determined (6% of children).

Overall, 12% of children were reported to show signs of 'wasting', with the prevalence of this condition varying between regions; wasting was reported in 16% of children in the Darwin Rural and Arnhem regions, 8% in the Barkly/Katherine region and 4% in the Central Australia region (Table 3.34). A somewhat higher percentage of children aged 6 to 11 years were reported to be wasting (14%) compared with children aged 0 to 5 years (10%) and 12 to 15 years (12%).

Table 3.34: Wasting^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Wasting	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	3.6	31	3.6	25	4.6	13	3.8	69
	No	90.1	771	92.7	639	87.9	247	90.7	1,657
	Missing	6.3	54	3.6	25	7.5	21	5.5	100
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	13.5	129	19.1	172	13.8	44	15.9	345
	No	79.3	757	74.9	674	80.6	257	77.6	1,688
	Missing	7.2	69	6.0	54	5.6	18	6.5	141
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	7.4	44	9.7	51	4.3	7	7.9	102
	No	86.8	518	86.1	452	90.2	147	86.9	1,117
	Missing	5.9	35	4.2	22	5.5	9	5.1	66
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	13.8	146	18.3	183	18.0	71	16.3	400
	No	79.8	842	78.0	778	77.7	307	78.7	1,927
	Missing	6.4	67	3.7	37	4.3	17	4.9	121
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	10.1	350	13.8	431	11.7	135	11.8	916
	No	83.4	2,888	81.7	2,543	82.7	958	82.6	6,389
	Missing	6.5	225	4.4	138	5.6	65	5.5	428
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as below minus two standard deviations from mean weight for height of reference population.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

⁷ The term 'underweight' is used by the NT DHCS to indicate the adequacy of weight relative to *age* (NT DHCS 2008b) while this term is used by the CDC to indicate the adequacy of weight relative to *height* (CDC 2008b). The terminology used by the NT DHCS is used in this report.

A comparison of the results by sex indicates that 13% of boys and 11% of girls were identified as wasting (Table 3.35).

Table 3.35: Wasting^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Wasting	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	4.0	37	3.6	32	3.8	69
	No	91.6	838	91.5	819	90.7	1,657
	Missing	4.4	40	4.9	44	5.5	100
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	16.9	189	15.0	156	15.9	345
	No	77.2	865	79.0	823	77.6	1,688
	Missing	5.9	66	6.0	63	6.5	141
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	7.9	50	8.0	52	7.9	102
	No	87.8	553	87.0	564	86.9	1,117
	Missing	4.3	27	4.9	32	5.1	66
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	17.5	225	15.1	175	16.3	400
	No	77.2	991	80.8	936	78.7	1,927
	Missing	5.2	67	4.1	47	4.9	121
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	12.7	501	11.1	415	11.8	916
	No	82.2	3,247	83.9	3,142	82.6	6,389
	Missing	5.1	200	5.0	186	5.5	428
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as below minus two standard deviations from mean weight for height of reference population.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

Comparison with other data sources

According to data from the 2007 GAA program, 10% of the children aged 0 to 4 years in rural and remote NT communities were identified as wasting (NT DHCS 2008b). This was consistent with the 10% calculated for children of the same age using the CHCI data. Note that the geographic areas covered by these two data collections differ slightly. (See Appendix 3 for further details.)

Overweight

A measure of whether or not a child was overweight (which takes into account a child's *weight* relative to their *height*) was developed for children aged 2 years and over.⁸ For 5% of children, information on the child's height, weight, age or sex were missing and thus a measure of overweight could not be determined.

Overall, 5% of children aged 2 years and over were assessed as being overweight (Table 3.36). Across the regions, the prevalence of overweight children varied as follows: 2% of children in the Arnhem region, 4% of children in the Darwin Rural region, 6% of children in the Barkly/Katherine region and 10% of children in the Central Australia region were assessed to be overweight. Children aged 12 to 15 years (8%) were more likely to be overweight than those aged 0 to 5 years (4%) and those aged 6 to 11 years (5%).

Table 3.36: Overweight^(a) by age group and region, Indigenous children aged 2 to 15 years who had a NTER Child Health Check

Region	Overweight	2–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	8.6	47	8.9	61	13.9	39	9.7	147
	No	87.1	478	87.2	601	78.6	221	85.6	1,300
	Missing	4.4	24	3.9	27	7.5	21	4.7	72
	Total	100.0	549	100.0	689	100.0	281	100.0	1,519
Arnhem	Yes	1.5	10	1.7	15	2.5	8	1.7	33
	No	92.7	620	92.0	828	91.8	293	92.2	1,741
	Missing	5.8	39	6.3	57	5.6	18	6.0	114
	Total	100.0	669	100.0	900	100.0	319	100.0	1,888
Barkly/ Katherine	Yes	3.0	12	5.7	30	12.3	20	5.7	62
	No	94.2	372	90.1	473	82.2	134	90.4	979
	Missing	2.8	11	4.2	22	5.5	9	3.9	42
	Total	100.0	395	100.0	525	100.0	163	100.0	1,083
Darwin Rural	Yes	2.6	19	3.9	39	6.6	26	3.9	84
	No	93.0	687	92.4	922	89.1	352	92.0	1,961
	Missing	4.5	33	3.7	37	4.3	17	4.1	87
	Total	100.0	739	100.0	998	100.0	395	100.0	2,132
All regions	Yes	3.7	88	4.7	145	8.0	93	4.9	326
	No	91.7	2,157	90.7	2,824	86.4	1,000	90.3	5,981
	Missing	4.5	107	4.6	143	5.6	65	4.8	315
	Total	100.0	2,352	100.0	3,112	100.0	1,158	100.0	6,622

(a) Defined as equal to or greater than the 95th percentile in relation to Body Mass Index (BMI)-for-age relative to the reference population.
Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

⁸ The overweight measure takes into account a child's weight relative to their height, with the cut-off being a BMI-for-age score that was equal to or greater than the 95th percentile in relation to the reference population. BMI (or Body Mass Index) is equal to a child's weight divided by the square of their height.

Overall, and in each of the regions, the proportion of boys and girls who were overweight was similar (both 5%) (Table 3.37).

Table 3.37: Overweight^(a) by sex and region, Indigenous children aged 2 to 15 years who had a NTER Child Health Check

Region	Overweight	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	9.5	73	10.0	74	9.7	147
	No	86.8	667	85.2	633	85.6	1,300
	Missing	3.6	28	4.8	36	4.7	72
	Total	100.0	768	100.0	743	100.0	1,519
Arnhem	Yes	1.9	19	1.6	14	1.7	33
	No	92.9	928	92.4	813	92.2	1,741
	Missing	5.2	52	6.0	53	6.0	114
	Total	100.0	999	100.0	880	100.0	1,888
Barkly/ Katherine	Yes	5.7	30	5.8	32	5.7	62
	No	91.6	479	89.9	500	90.4	979
	Missing	2.7	14	4.3	24	3.9	42
	Total	100.0	523	100.0	556	100.0	1,083
Darwin Rural	Yes	4.4	49	3.5	35	3.9	84
	No	90.7	1,012	93.8	949	92.0	1,961
	Missing	4.9	55	2.8	28	4.1	87
	Total	100.0	1,116	100.0	1,012	100.0	2,132
All regions	Yes	5.0	171	4.9	155	4.9	326
	No	90.6	3,086	90.7	2,895	90.3	5,981
	Missing	4.4	149	4.4	141	4.8	315
	Total	100.0	3,406	100.0	3,191	100.0	6,622

(a) Defined as equal to or greater than the 95th percentile in relation to Body Mass Index (BMI)-for-age relative to the reference population.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data received as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

3.8 Sudden Infant Death Syndrome risk factors

For children who were under the age of 1 year, health teams were asked to record whether the child had any of the following risk factors for Sudden Infant Death Syndrome (SIDS): prone sleeping; soft sleeping surfaces and loose bedding; overheating; exposure to smoking; and bed sharing. On average, information was not provided for 13% of infants.

Bed sharing

Seven in ten (71%) children aged less than 1 year were at risk of SIDS due to bed sharing (Table 3.38). This percentage varied between regions, with 77% of infants in Barkly/Katherine at risk of SIDS because of bed sharing compared with 66% of children in Darwin Rural. Girls were more likely than boys to be at risk of SIDS due to bed sharing (Table 3.39).

Table 3.38: SIDS risk factors by region, Indigenous children aged less than 1 year who had a NTER Child Health Check

Region	SIDS risk	Prone sleeping		Soft sleeping surfaces & loose bedding		Overheating		Exposure to smoking		Bed sharing	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	11.0	19	25.6	44	11.0	19	22.7	39	68.0	117
	No	73.8	127	58.7	101	72.7	125	62.8	108	17.4	30
	Unsure	1.2	2	1.7	3	2.3	4	0.6	1	0.6	1
	Missing	14.0	24	14.0	24	14.0	24	14.0	24	14.0	24
	Total	100.0	172	100.0	172	100.0	172	100.0	172	100.0	172
Arnhem	Yes	31.4	44	37.1	52	17.9	25	44.3	62	75.0	105
	No	51.4	72	46.4	65	64.3	90	41.4	58	11.4	16
	Unsure	3.6	5	2.9	4	4.3	6	0.7	1	0.0	0
	Missing	13.6	19	13.6	19	13.6	19	13.6	19	13.6	19
	Total	100.0	140	100.0	140	100.0	140	100.0	140	100.0	140
Barkly/Katherine	Yes	25.9	28	38.0	41	19.4	21	39.8	43	76.9	83
	No	56.5	61	43.5	47	61.1	66	45.4	49	11.1	12
	Unsure	5.6	6	4.6	5	8.3	9	3.7	4	0.9	1
	Missing	12.0	13	13.9	15	11.1	12	11.1	12	11.1	12
	Total	100.0	108	100.0	108	100.0	108	100.0	108	100.0	108
Darwin Rural	Yes	27.7	33	31.9	38	14.3	17	47.1	56	66.4	79
	No	57.1	68	54.6	65	70.6	84	39.5	47	20.2	24
	Unsure	2.5	3	0.8	1	2.5	3	0.8	1	0.8	1
	Missing	12.6	15	12.6	15	12.6	15	12.6	15	12.6	15
	Total	100.0	119	100.0	119	100.0	119	100.0	119	100.0	119
All regions	Yes	23.0	124	32.5	175	15.2	82	37.1	200	71.2	384
	No	60.9	328	51.6	278	67.7	365	48.6	262	15.2	82
	Unsure	3.0	16	2.4	13	4.1	22	1.3	7	0.6	3
	Missing	13.2	71	13.5	73	13.0	70	13.0	70	13.0	70
	Total	100.0	539	100.0	539	100.0	539	100.0	539	100.0	539

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Exposure to smoking

Environmental tobacco smoke is recognised as a risk factor for SIDS. Of those children less than 1 year of age, 37% were identified as at risk of SIDS because of exposure to tobacco smoke. This risk factor was identified among 47% of children in the Darwin Rural region, 44% in the Arnhem region, 40% in the Barkly/Katherine region and 23% in the Central Australia region (Table 3.38). Forty per cent of female infants were considered to be at risk due to exposure to smoking compared with 35% of male infants (Table 3.39).

Table 3.39: SIDS risk factors by sex, Indigenous children aged less than 1 year who had a NTER Child Health Check

Type of risk	SIDS risk	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Prone sleeping	Yes	22.4	63	24.0	61	23.0	124
	No	60.1	169	61.8	157	60.9	328
	Unsure	3.2	9	2.4	6	3.0	16
	Missing	14.2	40	11.8	30	13.2	71
	Total	100.0	281	100.0	254	100.0	539
Soft sleeping surfaces & loose bedding	Yes	32.0	90	33.5	85	32.5	175
	No	50.2	141	53.1	135	51.6	278
	Unsure	2.8	8	1.6	4	2.4	13
	Missing	14.9	42	11.8	30	13.5	73
	Total	100.0	281	100.0	254	100.0	539
Overheating	Yes	14.6	41	16.1	41	15.2	82
	No	67.6	190	68.1	173	67.7	365
	Unsure	3.9	11	3.9	10	4.1	22
	Missing	13.9	39	11.8	30	13.0	70
	Total	100.0	281	100.0	254	100.0	539
Exposure to smoking	Yes	35.2	99	39.8	101	37.1	200
	No	49.8	140	47.2	120	48.6	262
	Unsure	1.1	3	1.2	3	1.3	7
	Missing	13.9	39	11.8	30	13.0	70
	Total	100.0	281	100.0	254	100.0	539
Bed sharing	Yes	69.4	195	74.0	188	71.2	384
	No	16.0	45	14.2	36	15.2	82
	Unsure	0.7	2	0.0	0	0.6	3
	Missing	13.9	39	11.8	30	13.0	70
	Total	100.0	281	100.0	254	100.0	539

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Soft sleeping surfaces and loose bedding

Overall, one in three (33%) children under the age of 1 year were identified as at risk of SIDS because of soft sleeping surfaces and loose bedding. This risk factor varied between regions,

with 26% of infants in the Central Australia region at risk of SIDS because of this factor compared with 38% of infants in the Barkly/Katherine region (Table 3.38). There was little difference according to the sex of the child, with 32% of male infants and 34% of female infants at risk of SIDS from soft sleeping surfaces and loose bedding (Table 3.39).

Prone sleeping

Almost one in four (23%) children aged less than 1 year were identified as at risk of SIDS due to prone sleeping. This rate varied by region, with infants in the Arnhem region most likely to be identified with this SIDS risk factor (31%) and those in the Central Australia region least likely (11%) (Table 3.38). Twenty-two per cent of male infants and 24% of female infants were at risk of SIDS due to prone sleeping (Table 3.39).

Overheating

Among those children aged less than 1 year, overheating was identified as a SIDS risk factor for 15% of children. The Barkly/Katherine region had the highest percentage of infants for whom this risk factor was identified (19%) and the Central Australia region the lowest (11%) (Table 3.38). The prevalence of this risk factor was similar for male (15%) and female infants (16%) (Table 3.39).

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with these items.

3.9 Other conditions

Regular smoker

In each of the versions of the Child Health Check form, a question was asked about the smoking behaviour of those aged 12 to 15 years.⁹ As shown in Table 3.40, 7% of adolescents (or 83 adolescents) were reported to be regular smokers. This rate varied by regions; the highest rate of regular smoking among adolescents was observed for the Barkly/Katherine region (14%) and the lowest rate among those in the Central Australia region (5%). Although, overall, there was little variation between males and females (6% and 8% were regular smokers, respectively), this was not the case at the regional level. For example, a higher proportion of male adolescents (19%) were regular smokers than female adolescents (9%) in Barkly/Katherine. In contrast, in the Arnhem and Darwin Rural regions, a higher proportion of females than males aged 12 to 15 years were regular smokers (11% of girls compared with 4% of boys in Arnhem and 9% of girls compared with 3% of boys in Darwin Rural).

⁹ In early versions of the form, the question simply asked if the adolescent smoked. In later versions, the question asked about 'regular' smoking behaviours, with 'regular' defined to be at least once a day. Despite these differences in question wording, there were no clear differences between the various versions of the CHC form in the percentage that were recorded as being a smoker.

Table 3.40: Regular smoker^(a) by sex and region, Indigenous children aged 12 to 15 years who had a NTER Child Health Check

Region	Regular smoker	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.1	7	5.0	7	5.0	14
	No	85.5	118	89.4	126	87.5	246
	Missing	1.4	2	0.0	0	0.7	2
	Unsure	8.0	11	5.7	8	6.8	19
	Total	100.0	138	100.0	141	100.0	281
Arnhem	Yes	4.1	7	10.8	16	7.2	23
	No	94.2	161	83.1	123	89.0	284
	Unsure	0.0	0	2.7	4	1.3	4
	Missing	1.8	3	3.4	5	2.5	8
	Total	100.0	171	100.0	148	100.0	319
Barkly/ Katherine	Yes	19.2	14	9.0	8	13.5	22
	No	74.0	54	89.9	80	82.8	135
	Unsure	2.7	2	0.0	0	1.2	2
	Missing	4.1	3	1.1	1	2.5	4
	Total	100.0	73	100.0	89	100.0	163
Darwin Rural	Yes	3.4	7	8.9	17	6.1	24
	No	91.1	185	83.3	160	87.3	345
	Unsure	0.0	0	1.6	3	0.8	3
	Missing	5.4	11	6.3	12	5.8	23
	Total	100.0	203	100.0	192	100.0	395
All regions	Yes	6.0	35	8.4	48	7.2	83
	No	88.5	518	85.8	489	87.2	1,010
	Unsure	0.7	4	1.2	7	0.9	11
	Missing	4.8	28	4.6	26	4.7	54
	Total	100.0	585	100.0	570	100.0	1,158

(a) In some but not all of the form versions, this was defined as one or more cigarettes per day.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item.

Smoker in the household

For each child who received a health check, medical teams were asked to indicate whether anyone living in the child's household smoked regularly.¹⁰

Just over three in four (77%) children were identified as living in a household with a regular smoker (Table 3.41). While 73% of children aged 12 to 15 years lived in a household with a smoker, 78% of children aged 0 to 5 years and 77% of children aged 6 to 11 years did. Across regions, there was a notable difference in the percentage of children with a smoker in the household; the highest prevalence rate was recorded in the Arnhem region (86%) and the lowest in the Central Australia region (57%).

Table 3.41: Smoker in household^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Smoker in household	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	59.3	508	56.7	391	52.3	147	57.3	1,046
	No	35.0	300	37.0	255	42.7	120	37.0	675
	Unsure	0.7	6	0.7	5	0.0	0	0.6	11
	Missing	4.9	42	5.5	38	5.0	14	5.1	94
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	85.9	820	85.6	770	85.3	272	85.6	1,862
	No	11.6	111	13.2	119	13.5	43	12.6	273
	Missing	2.5	24	1.2	11	1.3	4	1.8	39
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	81.7	488	77.9	409	69.9	114	78.7	1,011
	No	17.6	105	20.8	109	28.2	46	20.2	260
	Missing	0.7	4	1.3	7	1.8	3	1.1	14
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	83.5	881	83.8	836	79.0	312	82.9	2,029
	No	14.9	157	14.9	149	20.3	80	15.8	386
	Missing	1.6	17	1.3	13	0.8	3	1.3	33
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	77.9	2,697	77.3	2,406	73.0	845	76.9	5,948
	No	19.4	673	20.3	632	25.0	289	20.6	1,594
	Missing	2.7	93	2.4	74	2.1	24	2.5	191
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) In most but not all of the form versions, the question referred to a 'regular' smoker in the household.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

¹⁰ In all but the two earlier versions of the CHC form, this question referred to 'regular' smoking which was defined as 'at least once per day'. In the earlier versions, the question simply asked if someone in the household smoked. Despite the differences in wording, no clear differences were observed between the versions in terms of the percentage of children identified as living in a household with a smoker.

On average the percentage of boys and girls who lived with a smoker in their household was similar (both 77%) (Table 3.42).

Table 3.42: Smoker in household^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Smoker in household	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	56.9	521	57.7	516	57.3	1,046
	No	37.3	341	37.0	331	37.0	675
	Unsure	1.1	10	0.1	1	0.6	11
	Missing	4.7	43	5.3	47	5.1	94
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	85.4	957	85.9	895	85.6	1,862
	No	12.6	141	12.5	130	12.6	273
	Missing	2.0	22	1.6	17	1.8	39
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	79.5	501	77.9	505	78.7	1,011
	No	19.8	125	20.5	133	20.2	260
	Missing	0.6	4	1.5	10	1.1	14
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	82.5	1,059	83.2	964	82.9	2,029
	No	15.8	203	15.7	182	15.8	386
	Missing	1.6	21	1.0	12	1.3	33
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	77.0	3,038	76.9	2,880	76.9	5,948
	No	20.5	810	20.7	776	20.6	1,594
	Missing	2.5	100	2.3	87	2.5	191
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) In most but not all of the form versions, the question referred to a 'regular' smoker in the household.

(b) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

Information on the prevalence of children living with a smoker in the household was also collected as part of the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS). The NATSIHS data indicate that 82% of Indigenous children aged 0 to 14 years in the Northern Territory lived in a household with a regular smoker (AIHW 2007, p. 459). This compares with a rate of 77% for 0 to 14 years olds as observed from the CHCI data. Further details about the NATSIHS data set can be found in Appendix 3.

Immunisation status

The health teams undertaking the Child Health Checks were asked to review whether or not a child's immunisation status was up to date for his or her age group and provide any vaccinations that were due. To find this information, they checked the child's records or called the NT Immunisation Helpdesk. 'Due' was defined as any immunisation not previously given but due by the date of CHC. The teams recorded whether or not a vaccination was due. The data on this item therefore tells us how many children were due for vaccinations at the time of their check. It is not a measure of immunisation coverage for the population.

Overall, 16% of children were due for an immunisation (Table 3.43). When the age of the children was considered, the data indicate that a higher percentage (25%) of 12 to 15 year olds were due for their immunisations, compared with 17% of children aged 0 to 5 years and 11% of those aged 6 to 11 years. The data also indicate differences by region, with 20% of children in Arnhem due for their immunisations compared with 12% of children in the Central Australia region.

Table 3.43: Immunisation status by age group and region, Indigenous children who had a NTER Child Health Check

Region	Immunisation status	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Due	14.5	124	6.7	46	17.4	49	12.0	219
	Up to date	75.7	648	85.9	592	71.9	202	79.0	1,442
	Unsure	2.8	24	2.0	14	2.1	6	2.4	44
	Missing	7.0	60	5.4	37	8.5	24	6.6	121
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Due	22.6	216	15.9	143	22.9	73	19.9	432
	Up to date	69.8	667	77.3	696	66.8	213	72.5	1,576
	Unsure	0.8	8	1.7	15	3.1	10	1.5	33
	Missing	6.7	64	5.1	46	7.2	23	6.1	133
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Due	13.7	82	10.7	56	31.3	51	14.7	189
	Up to date	81.7	488	85.3	448	61.3	100	80.6	1,036
	Unsure	0.8	5	1.1	6	1.8	3	1.1	14
	Missing	3.7	22	2.9	15	5.5	9	3.6	46
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Due	16.7	176	8.9	89	30.6	121	15.8	386
	Up to date	77.4	817	84.0	838	61.3	242	77.5	1,897
	Unsure	1.5	16	1.9	19	2.0	8	1.8	43
	Missing	4.4	46	5.2	52	6.1	24	5.0	122
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Due	17.3	598	10.7	334	25.4	294	15.9	1,226
	Up to date	75.7	2,620	82.7	2,574	65.4	757	77.0	5,951
	Unsure	1.5	53	1.7	54	2.3	27	1.7	134
	Missing	5.5	192	4.8	150	6.9	80	5.5	422
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Eighteen per cent of girls and 14% of boys were due for their immunisations (Table 3.44).

Table 3.44: Immunisation status by sex and region, Indigenous children who had a NTER Child Health Check

Region	Immunisation status	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Due	11.1	102	13.1	117	12.0	219
	Up to date	79.8	730	78.4	702	79.0	1,442
	Unsure	2.5	23	2.1	19	2.4	44
	Missing	6.6	60	6.4	57	6.6	121
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Due	17.5	196	22.6	236	19.9	432
	Up to date	74.3	832	70.3	733	72.5	1,576
	Unsure	1.6	18	1.4	15	1.5	33
	Missing	6.6	74	5.6	58	6.1	133
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Due	12.4	78	17.1	111	14.7	189
	Up to date	83.0	523	78.1	506	80.6	1,036
	Unsure	0.6	4	1.5	10	1.1	14
	Missing	4.0	25	3.2	21	3.6	46
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Due	14.8	190	16.8	195	15.8	386
	Up to date	77.8	998	77.5	898	77.5	1,897
	Unsure	2.3	29	1.1	13	1.8	43
	Missing	5.1	66	4.5	52	5.0	122
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Due	14.3	566	17.6	659	15.9	1,226
	Up to date	78.1	3,083	75.8	2,839	77.0	5,951
	Unsure	1.9	74	1.5	57	1.7	134
	Missing	5.7	225	5.0	188	5.5	422
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable a reasonable comparison with this item. See Appendix 3 for a discussion on the differences between the collection of immunisation status data during Child Health Checks compared with the Australian Childhood Immunisation Register (ACIR).

4 Referrals and vaccinations

This section provides information on referrals made to a primary health care (PHC) clinic, a specialist and to other health services. In addition, information on vaccinations provided during the health check is presented. Other data on the treatments that children received during their health check were provided on the Child Health Check form in free text form. AIHW is currently working on coding and analysing those data.

As was done in the previous section, an overview table is first presented and this is followed by a more detailed analysis of the results according to region, age group and sex. However, if less than 2% of children (i.e., less than 150 children) were referred to a specific type of service, comparisons are made by age group and by sex, but not by region. Less than 0.5% of children (i.e., less than 40 children) were referred to 11 of the service types shown in Table 4.1. Due to the small numbers involved, no separate tables are presented for those referral types.

4.1 Overview of referrals and vaccinations

Table 4.1 provides an overview of the referrals that were made during the health checks, as well as the percentage of children who received a vaccination during the health check. As shown, the percentage of missing data for the various types of referrals ranged from 10% to 36%. In earlier versions of the form, it was not possible to distinguish between when a non-response meant that no referrals had been made or the question had been skipped. For the latest version of the CHC form, the referrals question has been re-structured and the level of missing data for this version has dropped to 8% or less for each of the referral types.

The results indicate that two in three (67%) children were referred to at least one type of service for follow-up (Table 4.1). In particular, almost four in ten (38%) children were referred for primary health care (PHC) clinic follow-up, 32% were referred to a dentist, and 12% to both paediatric services, and tympanometry and audiology services. Meanwhile, 6% of children received a vaccination during the Child Health Check.

Child Health Check teams were not required to make referrals to specialist or allied health services where a referral was already in place and the child's name was on a waiting list. This means that for some conditions there were fewer referrals related to that condition than there were children identified with that condition. For example, while 43% of children were found to have at least one oral health issue (Table 3.14), 32.1% of children were referred for dental services (Table 4.4). It is also likely that some of the referrals for Primary Health Care clinic follow-up were made in anticipation that, following further assessment at the clinic, there would be a referral on to specialist or allied health services if that was warranted.

Table 4.1: Referrals and vaccinations, Indigenous children who had a NTER Child Health Check

Type of referral or vaccination	Yes (%)	No (%)	Missing (%)	Total (%)	Total (no.)
Referrals					
Primary health care clinic follow-up	37.7	52.1	10.2	100.0	7,733
Dental	32.1	35.2	32.7	100.0	7,733
Paediatrician	11.8	55.5	32.7	100.0	7,733
Tympanometry and audiology	11.5	55.8	32.7	100.0	7,733
Ear, nose and throat (ENT)	8.2	59.1	32.7	100.0	7,733
Cardiology and cardiac investigations	2.8	64.5	32.7	100.0	7,733
Optometrist or ophthalmologist	1.2	66.1	32.7	100.0	7,733
Family And Community Services (FACS)	0.5	66.7	32.7	100.0	7,733
Dietician or nutritionist	0.5	66.8	32.7	100.0	7,733
Speech therapist	0.4	63.9	35.7	100.0	7,733
Social worker	0.3	67.0	32.7	100.0	7,733
Radiology investigations	0.3	66.9	32.7	100.0	7,733
Surgeon	0.3	66.9	32.7	100.0	7,733
Mental health services	0.3	64.0	35.7	100.0	7,733
Emergency department or hospital	0.2	67.1	32.7	100.0	7,733
Physiotherapist	0.1	64.2	35.7	100.0	7,733
Pathology investigations	0.1	67.2	32.7	100.0	7,733
Drug and alcohol	0.0	64.3	35.7	100.0	7,733
Occupational therapist	0.0	64.3	35.7	100.0	7,733
Other referral ^(a)	0.3	67.0	32.7	100.0	7,733
Any referral ^(b)	66.9	10.6	22.5	100.0	7,733
Treatment					
Provision of vaccination during health check	6.3	74.8	18.9	100.0	7,733

(a) Includes responses such as gynaecologist, obstetrics, dermatologist, prosthetic department, podiatrist and paediatric liaison nurse.

(b) Defined as having one or more referrals for any of the above-mentioned services.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

4.2 Referrals

Primary Health Care clinic follow-up

Health teams were asked to indicate if a primary health care (PHC) clinic follow-up was required for the child. Overall, 38% of children required a PHC clinic follow-up (Table 4.2). A comparison of the data by age group indicates that 45% of children aged 0 to 5 years required a PHC clinic follow-up, while 31% of those aged 6 to 11 years and 34% of those aged 12 to 15 years did so. The highest rate of referrals for a PHC clinic follow-up was recorded in the Barkly/Katherine region (45%).

Table 4.2: Primary health care clinic follow-up by age group and region, Indigenous children who had a NTER Child Health Check

Region	PHC clinic follow-up	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	42.8	366	28.9	199	28.1	79	35.3	644
	No	44.9	384	51.4	354	49.8	140	48.1	878
	Missing	12.4	106	19.7	136	22.1	62	16.6	304
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	43.5	415	31.9	287	34.8	111	37.4	813
	No	43.7	417	55.2	497	53.9	172	50.0	1,086
	Missing	12.9	123	12.9	116	11.3	36	12.6	275
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	51.6	308	40.8	214	35.6	58	45.1	580
	No	45.1	269	56.4	296	57.1	93	51.2	658
	Missing	3.4	20	2.9	15	7.4	12	3.7	47
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	44.6	471	26.4	263	36.7	145	35.9	879
	No	49.0	517	66.7	666	55.9	221	57.4	1,404
	Missing	6.4	67	6.9	69	7.3	29	6.7	165
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	45.0	1,560	30.9	963	33.9	393	37.7	2,916
	No	45.8	1,587	58.3	1,813	54.1	626	52.1	4,026
	Missing	9.1	316	10.8	336	12.0	139	10.2	791
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

On average, a similar percentage of boys and girls (37% and 39%, respectively) required a PHC clinic follow-up. However, in the Barkly/ Katherine region, a higher percentage of girls than boys required such follow-up (47% and 43%, respectively) (Table 4.3).

Table 4.3: Primary health care clinic follow-up by sex and region, Indigenous children who had a NTER Child Health Check

Region	PHC clinic follow-up	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	34.9	319	35.4	317	35.3	644
	No	47.8	437	48.6	435	48.1	878
	Missing	17.4	159	16.0	143	16.6	304
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	36.6	410	38.4	400	37.4	813
	No	50.6	567	48.9	510	50.0	1,086
	Missing	12.8	143	12.7	132	12.6	275
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	42.9	270	47.1	305	45.1	580
	No	53.0	334	49.7	322	51.2	658
	Missing	4.1	26	3.2	21	3.7	47
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	34.9	448	37.0	429	35.9	879
	No	58.8	754	55.9	647	57.4	1,404
	Missing	6.3	81	7.1	82	6.7	165
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	36.7	1,447	38.8	1,451	37.7	2,916
	No	53.0	2,092	51.1	1,914	52.1	4,026
	Missing	10.4	409	10.1	378	10.2	791
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Dental referral

On average, 32% of children were referred for dental services (Table 4.4). The percentage of children aged 6 to 11 years (45%) who were referred for dental services was twice that of children aged 0 to 5 years (22%). This aligns with the finding that a higher percentage of children aged 6 to 11 years compared with other age groups had one or more oral health conditions (see Section 3.3).

Compared with other regions, the lowest percentage of children referred for dental services was in Central Australia (24%). This too aligns with the finding that a relatively lower percentage of children in the Central Australia region had one or more oral health conditions (see Section 3.3).

Table 4.4: Dental referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Dental referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	15.0	128	37.6	259	16.7	47	23.8	434
	No	47.3	405	38.3	264	48.8	137	44.1	806
	Missing	37.7	323	24.1	166	34.5	97	32.1	586
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	27.2	260	51.0	459	33.2	106	37.9	825
	No	33.8	323	21.8	196	29.5	94	28.2	613
	Missing	39.0	372	27.2	245	37.3	119	33.9	736
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	23.3	139	41.0	215	27.0	44	31.0	398
	No	55.4	331	43.4	228	52.8	86	50.2	645
	Missing	21.3	127	15.6	82	20.2	33	18.8	242
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	22.3	235	47.0	469	30.4	120	33.7	824
	No	28.4	300	23.2	232	32.7	129	27.0	661
	Missing	49.3	520	29.8	297	37.0	146	39.3	963
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	22.0	762	45.1	1,402	27.4	317	32.1	2,481
	No	39.2	1,359	29.6	920	38.5	446	35.2	2,725
	Missing	38.8	1,342	25.4	790	34.1	395	32.7	2,527
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

On average, a similar percentage of boys (33%) and girls (31%) were referred to dental services (Table 4.5).

Table 4.5: Dental referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	Dental referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	26.0	238	21.8	195	23.8	434
	No	42.0	384	46.3	414	44.1	806
	Missing	32.0	293	32.0	286	32.1	586
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	39.3	440	36.3	378	37.9	825
	No	27.1	303	29.5	307	28.2	613
	Missing	33.7	377	34.3	357	33.9	736
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	30.2	190	31.9	207	31.0	398
	No	53.2	335	47.2	306	50.2	645
	Missing	16.7	105	20.8	135	18.8	242
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	33.4	428	34.0	394	33.7	824
	No	28.3	363	25.5	295	27.0	661
	Missing	38.3	492	40.5	469	39.3	963
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	32.8	1,296	31.4	1,174	32.1	2,481
	No	35.1	1,385	35.3	1,322	35.2	2,725
	Missing	32.1	1,267	33.3	1,247	32.7	2,527
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Paediatrician referral

As shown in Table 4.6, 12% of children were referred to paediatric services. Compared with those aged 12 to 15 years (9%), a higher percentage of children aged 0 to 5 years (13%) and 6 to 11 years (12%) were referred to such services. Across the regions, 14% of children in the Arnhem region were referred to a paediatrician, compared with 9% in the Central Australia region. This variation was primarily due to differences in referral rates for children aged 0 to 5 years and those aged 12 to 15 years.

Table 4.6: Paediatrician referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Paediatrician referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	8.6	74	10.9	75	5.3	15	9.0	164
	No	53.6	459	65.0	448	60.1	169	58.9	1,076
	Missing	37.7	323	24.1	166	34.5	97	32.1	586
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	16.3	156	12.0	108	11.6	37	13.8	301
	No	44.7	427	60.7	546	51.1	163	52.3	1,136
	Missing	39.0	372	27.3	246	37.3	119	33.9	737
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	14.6	87	9.3	49	7.4	12	11.5	148
	No	64.2	383	75.0	394	72.4	118	69.6	895
	Missing	21.3	127	15.6	82	20.2	33	18.8	242
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	12.8	135	12.7	127	9.4	37	12.2	299
	No	38.0	401	57.5	574	53.7	212	48.5	1,187
	Missing	49.2	519	29.8	297	37.0	146	39.3	962
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	13.1	452	11.5	359	8.7	101	11.8	912
	No	48.2	1,670	63.0	1,962	57.2	662	55.5	4,294
	Missing	38.7	1,341	25.4	791	34.1	395	32.7	2,527
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Overall, there was little difference in the percentage of boys (13%) and girls (11%) who were referred to a paediatrician (Table 4.7). However, in the Barkly/Katherine region, 14% of boys and 9% of girls were referred to this type of follow-up service.

Table 4.7: Paediatrician referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	Paediatrician referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	8.7	80	8.9	80	9.0	164
	No	59.2	542	59.1	529	58.9	1,076
	Missing	32.0	293	32.0	286	32.1	586
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	14.6	163	13.1	137	13.8	301
	No	51.8	580	52.5	547	52.3	1,136
	Missing	33.7	377	34.4	358	33.9	737
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	13.7	86	9.4	61	11.5	148
	No	69.7	439	69.8	452	69.6	895
	Missing	16.7	105	20.8	135	18.8	242
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	12.9	165	11.6	134	12.2	299
	No	48.9	627	47.9	555	48.5	1,187
	Missing	38.3	491	40.5	469	39.3	962
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	12.5	494	11.0	412	11.8	912
	No	55.4	2,188	55.7	2,083	55.5	4,294
	Missing	32.1	1,266	33.3	1,248	32.7	2,527
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Tympanometry and audiology referral

Instructions on the Child Health Check form indicate that health teams were to refer children for tympanometry and audiology services if the child had large perforations in one ear drum, perforations in both ear drums, or if there were concerns about the child's hearing or speech.

On average, 12% of children were referred to such services (Table 4.8). Some variation by age group was evident; 9% of those aged 0 to 5 years were referred to tympanometry and audiology services, while 14% of those aged 6 to 11 years and 12% of those aged 12 to 15 years were referred to such services.

Across the regions, the lowest percentage of children referred to tympanometry and audiology services was in the Arnhem region (10%) and the highest percentage was in the Central Australia region (15%).

Table 4.8: Tympanometry and audiology referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Tympanometry and audiology referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	13.3	114	16.7	115	14.9	42	14.8	271
	No	48.9	419	59.2	408	50.5	142	53.1	969
	Missing	37.7	323	24.1	166	34.5	97	32.1	586
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	7.7	74	12.0	108	8.5	27	9.6	209
	No	53.2	508	60.7	546	54.2	173	56.4	1,227
	Missing	39.1	373	27.3	246	37.3	119	33.9	738
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	9.0	54	13.9	73	6.1	10	10.7	137
	No	69.7	416	70.5	370	73.6	120	70.5	906
	Missing	21.3	127	15.6	82	20.2	33	18.8	242
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	7.8	82	13.3	133	14.9	59	11.2	274
	No	43.0	454	56.9	568	48.1	190	49.5	1,212
	Missing	49.2	519	29.8	297	37.0	146	39.3	962
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	9.4	324	13.8	429	11.9	138	11.5	891
	No	51.9	1,797	60.8	1,892	54.0	625	55.8	4,314
	Missing	38.8	1,342	25.4	791	34.1	395	32.7	2,528
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

A similar percentage of boys and girls were referred to tympanometry and audiology services (12% and 11%, respectively) (Table 4.9).

Table 4.9: Tympanometry and audiology referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	Tympanometry and audiology referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	15.5	142	14.4	129	14.8	271
	No	52.5	480	53.6	480	53.1	969
	Missing	32.0	293	32.0	286	32.1	586
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	9.6	108	9.4	98	9.6	209
	No	56.6	634	56.2	586	56.4	1,227
	Missing	33.8	378	34.4	358	33.9	738
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	11.4	72	10.0	65	10.7	137
	No	71.9	453	69.1	448	70.5	906
	Missing	16.7	105	20.8	135	18.8	242
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	11.3	145	11.1	128	11.2	274
	No	50.4	646	48.5	562	49.5	1,212
	Missing	38.3	492	40.4	468	39.3	962
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	11.8	467	11.2	420	11.5	891
	No	56.1	2,213	55.5	2,076	55.8	4,314
	Missing	32.1	1,268	33.3	1,247	32.7	2,528
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Ear, Nose and Throat referral

Overall, 8% of children were referred to an Ear, Nose and Throat (ENT) specialist (Table 4.10). Six per cent of those aged 0 to 5 years were referred to such services, compared with 10% of those aged 6 to 11 years and 11% of those aged 12 to 15 years. Across the regions, 10% of children in Arnhem were referred to an ENT specialist compared with 7% in Darwin Rural.

Table 4.10: ENT referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	ENT referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	5.1	44	11.3	78	13.9	39	8.8	161
	No	57.1	489	64.6	445	51.6	145	59.1	1,079
	Missing	37.7	323	24.1	166	34.5	97	32.1	586
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	8.7	83	10.6	95	10.7	34	9.8	212
	No	52.4	500	62.1	559	52.0	166	56.3	1,225
	Missing	39.0	372	27.3	246	37.3	119	33.9	737
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	5.0	30	9.0	47	11.7	19	7.5	96
	No	73.7	440	75.4	396	68.1	111	73.7	947
	Missing	21.3	127	15.6	82	20.2	33	18.8	242
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	4.5	47	7.9	79	9.6	38	6.7	164
	No	46.3	488	62.3	622	53.4	211	54.0	1,321
	Missing	49.3	520	29.8	297	37.0	146	39.3	963
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	5.9	204	9.6	299	11.2	130	8.2	633
	No	55.4	1,917	65.0	2,022	54.7	633	59.1	4,572
	Missing	38.8	1,342	25.4	791	34.1	395	32.7	2,528
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

The percentage of boys and girls who were referred to an ENT specialist was consistent (both 8%) (Table 4.11).

Table 4.11: ENT referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	ENT referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	8.4	77	9.1	81	8.8	161
	No	59.6	545	59.0	528	59.1	1,079
	Missing	32.0	293	32.0	286	32.1	586
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	8.9	100	10.6	110	9.8	212
	No	57.4	643	55.1	574	56.3	1,225
	Missing	33.7	377	34.4	358	33.9	737
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	6.8	43	8.2	53	7.5	96
	No	76.5	482	71.0	460	73.7	947
	Missing	16.7	105	20.8	135	18.8	242
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	7.1	91	6.2	72	6.7	164
	No	54.6	700	53.3	617	54.0	1,321
	Missing	38.3	492	40.5	469	39.3	963
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	7.9	311	8.4	316	8.2	633
	No	60.0	2,370	58.2	2,179	59.1	4,572
	Missing	32.1	1,267	33.3	1,248	32.7	2,528
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Cardiology and cardiac investigations

Overall, cardiology and cardiac investigation referrals were made for 3% of children (Table 4.12). Across the age groups, the percentage of children referred for such services was similar (2% for those aged 0 to 5 years and 3% for those aged 6 to 11 years and those aged 12 to 15 years).

Four per cent of children in the Central Australia region and 3% in the Arnhem region were referred for cardiology and cardiac investigation services; in both Barkly/Katherine and Darwin Rural regions, 2% were referred for such services.

Table 4.12 : Cardiology and cardiac investigations referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Cardiology and cardiac investigations referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	2.9	25	5.7	39	3.9	11	4.1	75
	No	59.3	508	70.2	484	61.6	173	63.8	1,165
	Missing	37.7	323	24.1	166	34.5	97	32.1	586
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	2.4	23	3.7	33	4.7	15	3.3	71
	No	58.4	558	69.0	621	58.0	185	62.7	1,364
	Missing	39.2	374	27.3	246	37.3	119	34.0	739
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	2.7	16	1.3	7	1.2	2	1.9	25
	No	76.0	454	83.0	436	78.5	128	79.2	1,018
	Missing	21.3	127	15.6	82	20.2	33	18.8	242
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	1.4	15	2.2	22	2.0	8	1.8	45
	No	49.2	519	68.0	679	61.0	241	58.8	1,439
	Missing	49.4	521	29.8	297	37.0	146	39.4	964
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	2.3	79	3.2	101	3.1	36	2.8	216
	No	58.9	2,039	71.3	2,220	62.8	727	64.5	4,986
	Missing	38.8	1,345	25.4	791	34.1	395	32.7	2,531
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Cardiology and cardiac investigation referrals were made for a similar percentage of boys and girls (3% and 2%, respectively) (Table 4.13).

Table 4.13: Cardiology and cardiac investigations referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	Cardiology and cardiac investigations referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	4.9	45	3.4	30	4.1	75
	No	63.1	577	64.7	579	63.8	1,165
	Missing	32.0	293	32.0	286	32.1	586
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	3.8	43	2.7	28	3.3	71
	No	62.4	699	62.9	655	62.7	1,364
	Missing	33.8	378	34.5	359	34.0	739
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	2.2	14	1.7	11	1.9	25
	No	81.1	511	77.5	502	79.2	1,018
	Missing	16.7	105	20.8	135	18.8	242
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	2.0	26	1.6	19	1.8	45
	No	59.5	764	57.9	670	58.8	1,439
	Missing	38.4	493	40.5	469	39.4	964
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	3.2	128	2.4	88	2.8	216
	No	64.6	2,551	64.3	2,406	64.5	4,986
	Missing	32.1	1,269	33.4	1,249	32.7	2,531
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Optometrist or ophthalmologist referral

Health teams were instructed to refer a child to an optometrist or an ophthalmologist if the child was unable to read '3 symbols on the 6/12 line' or if there was a '2 or more line difference between eyes'. Overall, 89 children (1%) were referred to an optometrist or an ophthalmologist (Table 4.14).

Table 4.14: Optometrist or ophthalmologist referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Optometrist or ophthalmologist referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.4	14	1.7	52	2.0	23	1.2	89
	No	60.8	2,105	72.9	2,269	63.9	740	66.1	5,114
	Missing	38.8	1,344	25.4	791	34.1	395	32.7	2,530
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

An equal percentage of boys and girls were referred to an optometrist or ophthalmologist (both 1%) (Table 4.15).

Table 4.15: Optometrist or ophthalmologist referral by sex, Indigenous children who had a NTER Child Health Check

Region	Optometrist or ophthalmologist referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	1.1	44	1.2	44	1.2	89
	No	66.7	2,635	65.5	2,451	66.1	5,114
	Missing	32.1	1,269	33.3	1,248	32.7	2,530
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Family and Community Services referral

Of the 7,733 children for whom CHC forms have been analysed to date, 0.5% (42) forms documented a referral to Family and Community Services (FACS) (Tables 4.16 and 4.17).

The Child Health Check teams are responsible for conducting comprehensive Child Health Checks, not for investigating abuse. However, while conducting a health check, clinicians may become aware or suspect that a child has been abused. In these circumstances, the clinician is required to follow Northern Territory Government procedures for mandatory reporting of suspected instances of abuse (physical, emotional, sexual, or neglect).

Table 4.16: FACS referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	FACS referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.6	21	0.4	14	0.6	7	0.5	42
	No	60.6	2,098	74.1	2,307	65.3	756	66.7	5,161
	Missing	38.8	1,344	25.4	791	34.1	395	32.7	2,530
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Table 4.17: FACS referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	FACS referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.3	12	0.8	29	0.5	42
	No	67.6	2,667	65.9	2,466	66.7	5,161
	Missing	32.1	1,269	33.3	1,248	32.7	2,530
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Comparison with other data sources

There are no data available from other sources that are sufficiently similar to enable reasonable direct comparison with this item. However, child protection data from the Northern Territory provide some context. In 2006-07, the rate of substantiated cases of abuse and neglect (of notifications received during the financial year) was 16.8 per 1000 for Indigenous children aged 0 to 16 years in the Northern Territory (AIHW 2008). This is equivalent to 1.68% of children over the course of the year 2006-07. Not all cases of abuse are reported and the extent to which this is an accurate measure of the real level of abuse is not known.

Dietician or nutritionist referral

Thirty-seven children (0.5%) were referred to a dietician or nutritionist (Tables 4.18 and 4.19).

Table 4.18: Dietician or nutritionist referral by age group and region, Indigenous children who had a NTER Child Health Check

Region	Dietician or nutritionist referral	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.6	22	0.2	6	0.8	9	0.5	37
	No	60.5	2,096	74.4	2,315	65.1	754	66.8	5,165
	Missing	38.8	1,345	25.4	791	34.1	395	32.7	2,531
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Table 4.19: Dietician or nutritionist referral by sex and region, Indigenous children who had a NTER Child Health Check

Region	Dietician or nutritionist referral	Male		Female		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
All regions	Yes	0.6	25	0.3	12	0.5	37
	No	67.2	2,654	66.3	2,482	66.8	5,165
	Missing	32.1	1,269	33.4	1,249	32.7	2,531
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Any referrals provided

Using the information on referrals to each of the types of services listed in Table 4.1, a summary measure was created to assess the percentage of children who had one or more referrals.

The results indicate that two out of three (67%) children had been provided with one or more referrals (Table 4.20). In relation to the age of the children, 70% of children aged 6 to 11 years, 66% of those aged 0 to 5 years and 63% of those aged 12 to 15 years were referred to additional services. Across the regions, some differences were observed; 69% of children in both the Barkly/Katherine and the Arnhem regions were referred to one or more services compared with 67% of children in the Darwin Rural region and 64% of children in the Central Australia region.

Table 4.20: Any referral provided^(a) by age group and region, Indigenous children who had a NTER Child Health Check

Region	Any referral provided	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	62.1	532	67.5	465	58.7	165	63.6	1,162
	No	15.2	130	13.1	90	15.3	43	14.4	263
	Missing	22.7	194	19.4	134	26.0	73	22.0	401
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	66.6	636	71.7	645	65.2	208	68.5	1,489
	No	6.7	64	6.7	60	8.2	26	6.9	150
	Missing	26.7	255	21.7	195	26.6	85	24.6	535
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	69.7	416	70.7	371	57.7	94	68.6	881
	No	19.4	116	19.0	100	25.8	42	20.1	258
	Missing	10.9	65	10.3	54	16.6	27	11.4	146
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	64.9	685	69.2	691	66.3	262	66.9	1,638
	No	5.3	56	6.3	63	8.4	33	6.2	152
	Missing	29.8	314	24.4	244	25.3	100	26.9	658
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	65.5	2,269	69.8	2,172	63.0	729	66.9	5,170
	No	10.6	366	10.1	313	12.4	144	10.6	823
	Missing	23.9	828	20.1	627	24.6	285	22.5	1,740
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

(a) Defined as having one or more referrals for PHC clinic follow-up and/or specialist or other services.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

On average, two out of three boys and girls (both 67%) received a referral for additional services (Table 4.21).

Table 4.21: Any referral provided^(a) by sex and region, Indigenous children who had a NTER Child Health Check

Region	Any referral provided	Male		Female		Total ^(b)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	63.8	584	63.4	567	63.6	1,162
	No	14.5	133	14.4	129	14.4	263
	Missing	21.6	198	22.2	199	22.0	401
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	68.8	771	68.2	711	68.5	1,489
	No	6.3	70	7.4	77	6.9	150
	Missing	24.9	279	24.4	254	24.6	535
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	69.0	435	67.9	440	68.6	881
	No	20.8	131	19.6	127	20.1	258
	Missing	10.2	64	12.5	81	11.4	146
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	66.5	853	67.4	780	66.9	1,638
	No	7.1	91	5.2	60	6.2	152
	Missing	26.4	339	27.5	318	26.9	658
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	66.9	2,643	66.7	2,498	66.9	5,170
	No	10.8	425	10.5	393	10.6	823
	Missing	22.3	880	22.8	852	22.5	1,740
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Defined as having one or more referrals for PHC clinic follow-up and/or specialist or other services.

(b) Includes cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Number of referrals per child

Using the information on all types of referrals, an additional measure was created to identify the number of referrals per child, as well as the average number of referrals.

Most frequently, children were referred to just one additional service (38%) while 19% were referred to two additional services, 7% were referred to three such services and 2% were referred to four follow-up services (Table 4.22). Less than 1% of children were referred to 5 or 6 additional services.

On average, and excluding those cases for which information on referrals was missing, 1.4 referrals were made per child. Across the three age groups, there was little variation in the average number of referrals made.

Table 4.22: Number of referrals^(a) per child by age group, Indigenous children in the Northern Territory who had a NTER Child Health Check

	0–5 years		6–11 years		12–15 years		Total	
Number of referrals	(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
0	10.6	366	10.1	313	12.4	144	10.6	823
1	39.4	1,364	36.7	1,143	35.8	415	37.8	2,922
2	18.0	624	21.3	662	18.2	211	19.4	1,497
3	6.4	221	8.7	270	6.0	70	7.3	561
4	1.4	50	2.5	78	2.2	25	2.0	153
5–6	0.3	10	0.6	19	0.7	8	0.5	37
Missing	23.9	828	20.1	627	24.6	285	22.5	1,740
Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733
Average number of referrals^(b)	1.3		1.5		1.4		1.4	

(a) Includes referrals for PHC clinic follow-up and/ or specialist and other referrals.

(b) The calculation of the average (mean) is based on valid (non-missing) data.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Both boys and girls were referred to an average of 1.4 additional services (Table 4.23).

Table 4.23: Number of referrals^(a) per child by sex, Indigenous children in the Northern Territory who had a NTER Child Health Check

Number of referrals	Male		Female		Total ^(b)	
	(%)	(no.)	(%)	(no.)	(%)	(no.)
0	10.8	425	10.5	393	10.6	823
1	37.5	1,480	38.1	1,425	37.8	2,922
2	19.3	763	19.4	726	19.4	1,497
3	7.6	299	6.9	260	7.3	561
4	2.1	81	1.9	70	2.0	153
5–6	0.5	20	0.5	17	0.5	37
Missing	22.3	880	22.8	852	22.5	1,740
Total	100.0	3,948	100.0	3,743	100.0	7,733
Average number of referrals^(c)	1.4		1.4		1.4	

(a) Includes referrals for PHC clinic follow-up and/ or specialist and other referrals.

(b) Includes those cases for which information on the sex of the child was missing.

(c) The calculation of the average (mean) is based on valid (non-missing) data.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

4.3 Vaccinations

On average, 6% of children received a vaccination during their Child Health Check, but this rate varied by age group (Table 4.24). Eleven per cent of children aged 12 to 15 years received a vaccination; this compares with 8% of those aged 0 to 5 years and 3% of those aged 6 to 11 years. This pattern is consistent with the pattern of children whose immunisations were due (as discussed in Section 3.9).

Table 4.24: Provision of vaccination during health check by age group and region, Indigenous children who had a NTER Child Health Check

Region	Provision of vaccination during health check	0–5 years		6–11 years		12–15 years		Total	
		(%)	(no.)	(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	9.7	83	3.9	27	11.7	33	7.8	143
	No	66.2	567	67.2	463	56.6	159	65.1	1,189
	Missing	24.1	206	28.9	199	31.7	89	27.1	494
	Total	100.0	856	100.0	689	100.0	281	100.0	1,826
Arnhem	Yes	8.3	79	3.2	29	4.7	15	5.7	123
	No	67.2	642	72.6	653	72.4	231	70.2	1,526
	Missing	24.5	234	24.2	218	22.9	73	24.1	525
	Total	100.0	955	100.0	900	100.0	319	100.0	2,174
Barkly/ Katherine	Yes	7.2	43	3.6	19	13.5	22	6.5	84
	No	86.1	514	87.2	458	73.0	119	84.9	1,091
	Missing	6.7	40	9.1	48	13.5	22	8.6	110
	Total	100.0	597	100.0	525	100.0	163	100.0	1,285
Darwin Rural	Yes	5.2	55	2.0	20	15.4	61	5.6	136
	No	81.9	864	82.8	826	72.7	287	80.8	1,977
	Missing	12.9	136	15.2	152	11.9	47	13.7	335
	Total	100.0	1,055	100.0	998	100.0	395	100.0	2,448
All regions	Yes	7.5	260	3.1	95	11.3	131	6.3	486
	No	74.7	2,587	77.1	2,400	68.7	796	74.8	5,783
	Missing	17.8	616	19.8	617	19.9	231	18.9	1,464
	Total	100.0	3,463	100.0	3,112	100.0	1,158	100.0	7,733

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Overall, 5% of boys and 7% of girls had received a vaccination during their health check (Table 4.25).

Table 4.25: Provision of vaccination during health check by sex and region, Indigenous children who had a NTER Child Health Check

Region	Provision of vaccination during health check	Female		Male		Total ^(a)	
		(%)	(no.)	(%)	(no.)	(%)	(no.)
Central Australia	Yes	6.0	55	9.4	84	7.8	143
	No	66.6	609	63.7	570	65.1	1,189
	Missing	27.4	251	26.9	241	27.1	494
	Total	100.0	915	100.0	895	100.0	1,826
Arnhem	Yes	5.4	61	5.9	61	5.7	123
	No	69.8	782	70.5	735	70.2	1,526
	Missing	24.7	277	23.6	246	24.1	525
	Total	100.0	1,120	100.0	1,042	100.0	2,174
Barkly/ Katherine	Yes	4.8	30	8.2	53	6.5	84
	No	85.4	538	84.4	547	84.9	1,091
	Missing	9.8	62	7.4	48	8.6	110
	Total	100.0	630	100.0	648	100.0	1,285
Darwin Rural	Yes	4.7	60	6.5	75	5.6	136
	No	82.2	1,055	79.3	918	80.8	1,977
	Missing	13.1	168	14.2	165	13.7	335
	Total	100.0	1,283	100.0	1,158	100.0	2,448
All regions	Yes	5.2	206	7.3	273	6.3	486
	No	75.6	2,984	74.0	2,770	74.8	5,783
	Missing	19.2	758	18.7	700	18.9	1,464
	Total	100.0	3,948	100.0	3,743	100.0	7,733

(a) Includes those cases for which information on the sex of the child was missing.

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Abbreviations

ABS	Australian Bureau of Statistics
ACIR	Australian Childhood Immunisation Register
AIHW	Australian Institute of Health and Welfare
AMSANT	Aboriginal Medical Services Alliance of the NT
BMI	Body Mass Index
CDC	USA Centres for Disease Control and Prevention
CHC	Child Health Check
CHCI	Child Health Check Initiative
CRANA	Council of Remote Area Nurses of Australia
DoHA	Department of Health and Ageing
EARHSP	East Arnhem Regional Healthy Skin Project
ENT	Ear, Nose and Throat
FACS	Family and Community Services
GAA	Growth Assessment and Action
Hb	Haemoglobin
HSAK	Healthy School-Age Kids
NATSIHS	National Aboriginal and Torres Strait Islander Health Survey
NT	Northern Territory
NT DEET	NT Department of Employment, Education and Training
NT DHCS	NT Department of Health and Community Services
NTER	Northern Territory Emergency Response
SIDS	Sudden Infant Death Syndrome
WAACHS	Western Australian Aboriginal Child Health Survey

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Appendix 1. Prescribed NTER areas

Prescribed Areas Northern Territory National Emergency Response Act 2007

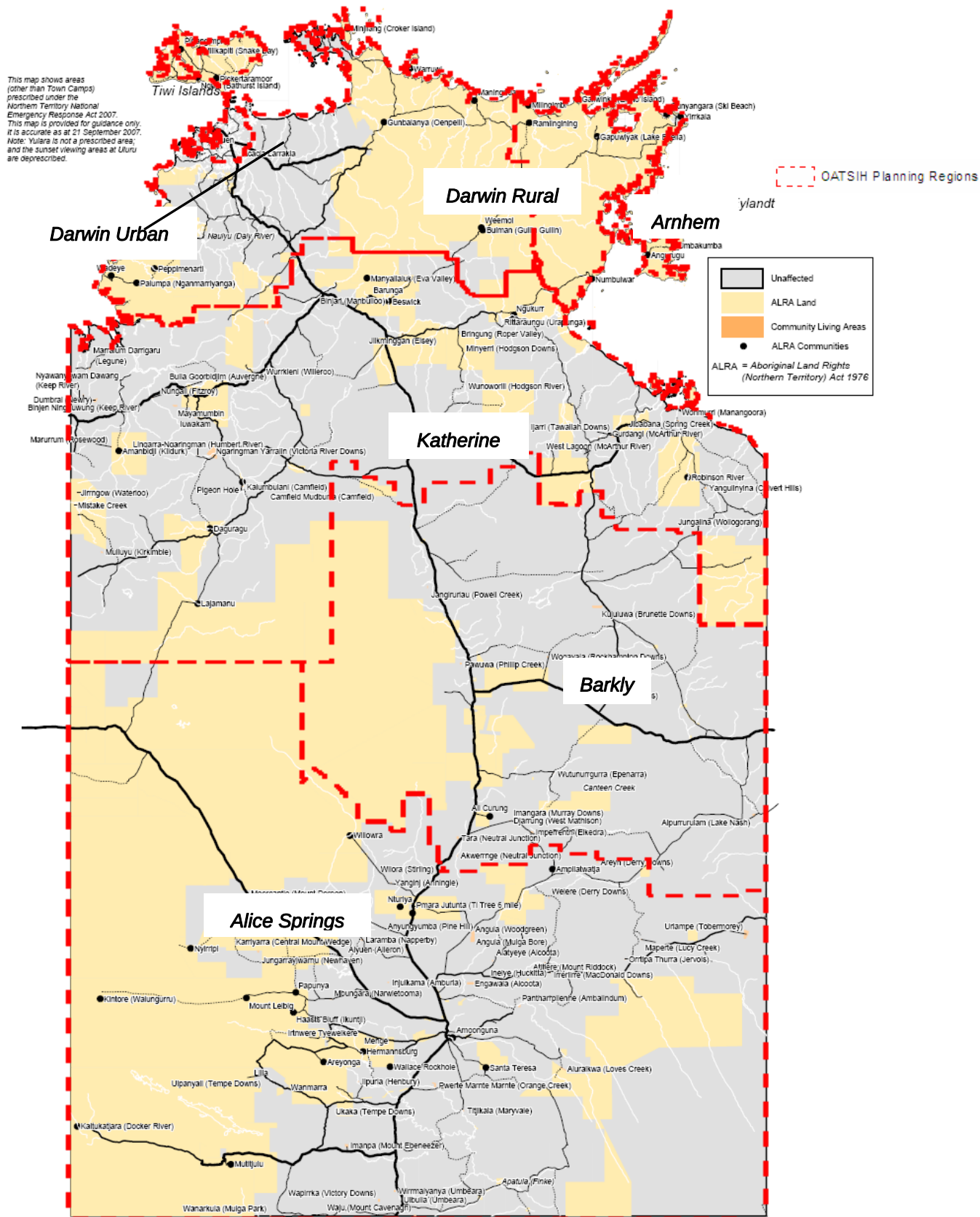


Table A1.1: Communities, outstations and town camps within the prescribed NTER areas, by region

Region	Communities (and alternate names)
Central Australia	Akngwertnarre (Morris Soak), Amoonguna, Ampilatwatja, Anthelk Ewlpaye (The Village), Anthepe (Drive In), Aper Alwerrkng (Palmer's Camp), Areyonga, Atitjere (Harts Range), Bassos Farm (Hwyethwenge), Docker River (Kaltukatjara), Engawala (Alcoota), Ewyenper Atwatye (Hidden Valley), Finke (Apatula), Haasts Bluff (Ikuntji), Hanson Bal, Hermannsburg (Ntaria), Wallace Rockhole, Ilperle Tyathe (Warlpiri Camp), Ilpeye Ilpeye (Golders Camp), Ilyiperenye (Old Timers), Imanpa, Inarleng (Little Sisters), Ingkerreke Outstation/Iwupataka, Irklancha Atwacha, Irrkerlantye (Whitegate Camp), Karate (Karnte), Kintore, Laramba (Napperby), Lhenpe Artnwe (Hoppys Camp), Mount Liebig, Mpwetyerre (Abbotts Camp), Mt Nancy, Mutitjulu, Namatjira, New Ilparpa, Nyewente (Trucking Yards), Nyirripi, Papunya, Petermann/Simpson Remote ILOC, Pmara Jutunta (Ti Tree 6 Mile), Sandover and Outstation (Bonya), Santa Teresa (Ltyentye Apurte), Ti Tree Station (Nturiya), Titjikala, Utopia (Urapuntja), Willowra, Wilora (Stirling), Yarrenyty Arltere (Larapinta Valley), Yuelamu, Yuendumu.
Arnhem	Alyangula, Angurugu, Galiwinku (Elcho Island), Groote Outstations, Marthakal Homelands Outstations, Gapuwiyak, Gapuwiyak Outstations, Gumatj Outstation, Gunyangara (Ski Beach, Marngarr), Laynhapuy Homelands, Milingimbi, Milyakburra (Bickerton Island), Numbulwar, Ramingining, Umbakumba, Yirrkala
Barkly	Ali Curung, Alpurruurulam, Lake Nash, Ilperrelhelam, Wart Alparayetye, Canteen Creek (Owaitilla), Elliott North Camp & South Camp, Imangara (Murray Downs), Kargaru, Marla Marla, Munji-Marla, Ngarpa Ngarpa, Sorry Camp, Tara community, The Village, Tinkarli, Village Camp, Wuppa, Wutunugurra (Epenarra).
Darwin Rural	Acacia Larrakia, Amangal (Adelaide River), Bagot, Belyuen, Bulman, Demed Homelands, Douglas/Daly Remote ILOC, Gunbalanya (Oenpelli), Kakadu/Marrakai – Remote (Jabiru), Knuckey Lagoons, Kulaluk, Kybrook Farm (Copperfield Creek), Manabadurma (Jabiru), Maningrida, Maningrida Outstations, Milikapiti (Snake Bay), Minjilang (Crocker Island), Minmarama Park, Nauiyu (Daly River), Nguiu, Palmerston Town Camp, Palumpa (Nganmarriyanga), Peppimenarti, Pine Creek Compound, Pirlangimpi, Railway Dam, Wadeye, Waruwi, Weemol.
Katherine	Amanbidji (Kildurk), Barunga, Beswick (Wugularr), Binjari, Borrooloola, Bulla, Daguragu, Garawa 1, Garawa 2, Jilkminggan (Duck Creek), Kalkarindji (Wave Hill), Lajamanu, Mabunji Outstation, Manyallaluk (Eva Valley), Mara, Mataranka Town Camp, Miali Brumby, Minyeri (Hodgson Downs), Mulgga, Ngukurr, Rittarangu, Pigeon Hole (Bunbidee), Robinson River, Rockhole, Timber Creek, Warlpiri Transient Camp, Yanyula, Yarralin.

Appendix 2. Missing data and CHC form versions

As noted in Section 1.1, the level of missing data varies across the items, as well as between regions. The higher level of missing data for some questions often related to the format of the question and/or the available response options. In some instances, when a response was not provided, it was unclear whether this meant:

- no testing was undertaken (e.g., no screening for trachoma was done);
- testing was undertaken but no abnormality was detected (or no referral was given) and thus this lack of response actually meant 'no';
- the health team was unsure of the correct response; or
- the question was inadvertently skipped.

This ambiguity was particularly problematic for some data collected using the earlier versions of the form. Changes to the latest version of the Child Health Check form were mainly aimed at addressing this problem. For example, earlier versions of the form only asked for details on the *types* of referrals provided and not whether *any* referrals were provided. Thus, when this question was not answered, it was unclear as to whether this meant no referrals were given or the question was skipped. In the latest version of the form, the referrals question first asks whether or not any referrals were provided and, if so, which types. As well, the trachoma screening question has been restructured to allow health teams to indicate instances when no screening was undertaken, versus those when screening was completed but no abnormality was detected. Furthermore, a new response option of 'unsure' was added to many of the questions, thus allowing health teams who did not have the relevant information to provide an answer to the question, rather than leave it blank. Subsequently, these changes to the form have resulted in a substantial decrease in the proportion of missing responses over the course of the collection of the CHCI data.

Details on the number of health checks that have been conducted with each version of the form, as well as the range of dates over which each version was used, are shown in Table A2.1. By the 15 of May 2008, 42% of the health teams reported on the results of Child Health Checks using version 5, with 30% using version 6.

Table A2.1: Number of NTER Child Health Check forms processed, by version and date of use

Version	(%)	(no.)	Range of dates over which version was used
1	4.8	374	22 July 2007 to 4 Oct 2007
2	2.3	177	25 July 2007 to 25 July 2007
3	11.5	892	1 Aug 2007 to 17 Oct 2007
4	9.3	722	3 Aug 2007 to 11 Dec 2007
5	42.3	3,269	19 Aug 2007 to 1 Feb 2008
6	29.7	2,299	16 Aug 2007 to 1 May 2008
Total	100.0	7,733	22 July 2007 to 1 May 2008

Source: AIHW analysis of the NTER Child Health Check data entered as at 15 May 2008.

Appendix 3. Comparisons with other data sources

Making comparisons across data sets relies on having data that are comparable in relation to a number of factors such as:

- the method of data collection (e.g., data based on a report provided by the child, parent or carer versus data based on a medical examination or a clinical test);
- the definition of medical conditions considered. For example, what specific types of problems were covered by the definition used, the time span of the condition (e.g., current condition versus history of condition) and whether the condition was present at the time of the data collection versus a recurring problem that may or may not have been evident at the time of data collection;
- the age of children in scope;
- the geographical area covered (e.g., national, state/territory or regional); and
- the timing of collection (e.g., the years in which the data were collected).

In some cases, the available data considered for comparative purposes could not be used because they differed from the CHCI data in a number of ways. A number of examples follow.

The Western Australian Aboriginal and Child Health Survey (WAACHS). While the WAACHS (Zubrick et al. 2004) covered a number of similar topics to that of the CHCI data collection (e.g., ear disease, visual impairment, caries, etc.), often the definitions used for these medical conditions differed substantially. For example, the WAACHS measure of ear disease refers to *recurring* ear disease, while the CHCI data on ear disease indicate the percentage of children who had ear disease *at the time of the health check*. In addition, the WAACHS data on medical conditions were reported by parents or carers, rather than based on a medical examination or medical test. Furthermore, there are known differences in prevalence rates for some conditions according to state and territory. For example, data from *The National Aboriginal and Torres Strait Islander Health Survey 2004–05* (NATSIHS) show that, across all age groups, rates of asthma are higher in WA than in the NT. Finally, the WAACHS data were collected in 2004–05 using a sample survey approach. Thus the WAACHS data were not considered comparable with the CHCI data.

The National Aboriginal and Torres Strait Islander Health Survey 2004–05 (NATSIHS). Data on children's conditions from the NATSIHS (ABS 2006) were not comparable with data from the Child Health Checks in most cases since the NATSIHS information relates to long-term conditions (i.e., conditions that had lasted or were expected to last for 6 months or more), whereas most of the conditions covered in the CHCI data refer to health conditions that existed at the time of the health check. As well, the information on the children's conditions were reported by parents or carers in the NATSIHS rather than based on the results of a medical examination or clinical test as they were in the CHCI. However, as discussed below, the definitions used and the method of data collection were considered sufficiently similar to allow data from these two sources to be compared for measures of the prevalence of asthma and the presence of a smoker in the household.

Australian Childhood Immunisation Register (ACIR). While information on the immunisation status for children aged 0 to 15 years is collected as part of the CHCI, the ACIR presents information on the proportion of children with up-to-date immunisation status at specific ages – namely, 1, 2 and 6 years of age. As well, the criteria used to determine if a child's immunisation status was up to date differ across the two data collections. The ACIR uses a definition of 'overdue' for immunisations not given within two months of their due date (ACIR 2007). In contrast, an immunisation that was due was defined in the Child Health Check Initiative as any immunisation not previously given but due by the date of CHC. As a result, the CHCI data shown in Tables 3.43 and 3.44 are likely to over-state the number of children who would be classed as 'overdue' by the ACIR definition.¹¹ Due to these differences, the ACIR data are not compared with the data from the CHCI dataset.

Comparisons made in this report

In this report, CHCI data are compared with data from other sources for the following conditions:

- ear disease (Section 3.2);
- trachoma (Section 3.2);
- skin sores, scabies and ringworm (Section 3.4);
- history of rheumatic heart disease (Section 3.5);
- history of asthma (Section 3.5);
- anaemia (Section 3.6);
- stunting, underweight and wasting (Section 3.7); and
- smoker in household (Section 3.9).

The outcomes of the comparisons are provided within the relevant sections of this report while more detail about the data sources and the comparability of these other data sources with the CHCI data are provided below.

Data sources

East Arnhem Regional Healthy Skin Project (EARHSP)

Comparisons between East Arnhem Regional Healthy Skin Project (EARHSP) data and the CHCI data have been made in relation to skin sores, scabies and ringworm (see Section 3.4).

In the EARHSP, children aged 0 to 14 years were screened for skin sores, scabies and ringworm over a three-year period, with treatment and follow-up services also provided (Andrews & Kearns 2007, Andrews 2008). A total of 2,329 children – or 88% of the target population group – received one or more skin assessments over the course of the project with a total of 6,038 skin assessments completed.

¹¹ The time when vaccines are due is based on age and previous vaccines received, where doses of the same vaccine must be given at particular intervals. CHC teams based immunisation status on age alone. In contrast, the ACIR bases immunisation status on age and period since last vaccine. Thus in situations where a child was late for their vaccine based on their age but up to date if their last vaccine was within a certain period, they could be judged as being up to date on the ACIR but due by the CHC criteria.

The prevalence rates from the EARHSP data are based on the number of skin assessments done (not the number of children who were assessed). Specifically, the prevalence rates represent a monthly period prevalence which excludes subsequent skin assessments for the same child that occurs within 30 days of an earlier assessment (Andrews 2008). Thus any one child can be represented in the EARHSP prevalence rates multiple times. In contrast, the CHCI prevalence rates are based on the number of children who had a Child Health Check, with each child represented only once.

In order to align the geographical coverage of the two datasets as closely as possible, CHCI results for the Arnhem region (rather than for all of the regions covered by the CHCI) are compared with the results from the EARHSP.

The age of the children covered in the two data sources differs: the CHCI data relate to children 0 to 15 years of age, whereas the EARHSP data relate to children aged 0 to 14 years. For the purpose of comparison, the CHCI data were re-analysed and only those aged 0 to 14 years were included.

In order to match the dates of data collection as closely as possible with those of the Child Health Check data (which was collected from July 2007 to May 2008), the EARHSP results for skin sores for 2007 (January to August) were used for comparison purposes; these data relate to a total 550 skin assessments. In contrast, EARHSP data for scabies and ringworm were only available for the full study period – namely, September 2004 to August 2007. Thus in contrast with the comparison of the skin sores data, the period of coverage differs more substantially between the two data sets for the comparisons of scabies and ringworm than it does for the skin sores comparisons.

Growth Assessment and Action program

Comparisons between data from the Northern Territory's 2007 Growth Assessment and Action (GAA) program and the CHCI have been made in relation to anaemia (Section 3.6), and the three physical growth measures of stunting, underweight and wasting (all in Section 3.7).

The GAA is a monitoring and growth promotion program for children aged 0 to 4 years who live in remote communities of the NT (NT DHCS 2008b). Although some non-Indigenous children are included within the ambit of the GAA program, the vast majority of children are Indigenous (96% in the 2007 collection¹²). Meanwhile, only Indigenous children are covered by the NTER CHCI.

The dates over which the GAA and CHCI data were collected differ somewhat, with the 2007 GAA data collected between mid October 2006 and mid April 2007 (NT DHCS 2007) and the CHCI data collected from July 2007 to May 2008.

The GAA prevalence rates are calculated based on non-missing data, which contrasts with the approach used for the CHCI data where missing cases are included in the calculations.

In both the GAA and the CHCI datasets, the prevalence of anaemia was based on a blood test and a child was considered to be anaemic when their Hb level was less than 110 g/L. Note that unlike the physical growth measures, the GAA anaemia data relate to a subset of children – those aged 6 months to 4 years. Since the CHCI dataset does not contain exact age in months for all children (since in some versions of the CHCI form, only the age rather than the date of birth was requested), the CHCI analyses could not be re-analysed to exactly

¹² Personal communication from Richard Inglis, Health Services Information Branch, NT Department of Health and Community Services, May 2008.

match the age range of the GAA data. Instead, the CHCI data that are compared to the GAA data relate to children aged 0 to 4 years. It should also be noted that the geographic areas differ. The GAA data relate to remote communities, whereas the CHCI data, relate to Indigenous children in the NTER prescribed areas, the majority of which are remote but some urban regional children are also in scope.

To create the physical growth measures, a reference population must be chosen as a comparison point for the growth pattern observed for each child. In order to produce growth measures that are comparable with that of the GAA, the AIHW has made use of the USA Centres for Disease Control and Prevention 2000 growth charts (CDC 2008a) for the reference population as was done by the NT DHCS in their analysis of the GAA data. These growth charts are used by a number of different states and territories across Australia in the creation of physical growth measures (NT DHCS 2007, 2008a).¹³

In addition to the choice of a reference population, the development of physical growth measures relies on a decision about what cut-off points will be used to determine whether a child's growth will be considered adequate or inadequate relative to the 'norm'. For the purposes of the analyses presented in this report, the same cut-off points as were used by the NT DHCS with the GAA data were used (NT DHCS 2007). These cut-offs are as follows:

- stunting: a child was considered to be stunted when their 'height-for-age' score was more than two standard deviations below the mean, relative to the reference population;
- underweight: a child was considered to be underweight when their 'weight-for-age' score was more than two standard deviations below the mean, relative to the reference population; and
- wasting: a child was considered to be wasted when their 'weight-for-height' score was more than two standard deviations below the mean, relative to the reference population.

Healthy School-Age Kids (HSAK) Screening Program

Comparisons between data from the Northern Territory's Healthy School-Age Kids (HSAK) Screening Program and the CHCI have been made in relation to ear disease (Section 3.2), trachoma (Section 3.2), skin sores (Section 3.4), ringworm (Section 3.4) and anaemia (Section 3.6).

The Healthy School-Age Kids (HSAK) Screening Program is a joint initiative of the NT Department of Health and Community Services and the NT Department of Employment, Education and Training (NT DHCS & NT DEET 2007). The program is for school-aged children in remote areas of the Northern Territory.

The HSAK data that are discussed in this report were collected in 2007; they relate to all remote Indigenous communities (NT DHCS 2008c). In contrast, the CHCI data, which was collected from July 2007 to May 2008, relate to Indigenous children in the NTER prescribed areas, the majority of which are remote but some urban children in living in town camps are also in scope.

¹³ As detailed in the recent discussion paper released by the NT DHCS (2008a), the NT is considering the future use of the 2006 World Health Organization growth standards rather than the 2000 CDC growth charts.

In 2007, HSAK data on ear disease were collected for 170 children aged 4 to 5 years. To align the ages for the two data sets, the CHCI data were re-analysed and a prevalence rate derived for this same age group.

For the HSAK collection, ear disease is defined as any abnormality found in at least one ear and includes evidence of acute or chronic infection, as well as other conditions such as wax or foreign bodies in the ear. In contrast, the definition for the CHCI collection is focused specifically on ear disease and does not include other conditions such as wax and foreign bodies in the ear.

The HSAK data on trachoma relate to 2,475 children aged 4 to 15 years while the CHCI data on this health condition were collected for children aged 6 to 15 years and thus the two data sets differ in this regard. More importantly, trachoma screening was not undertaken as part of the Child Health Checks for children who had already been screened for trachoma in 2007 as part of the HSAK program; thus the rates of trachoma from these two data sets are not comparable.

Data on the presence of any skin sores and ringworm were collected for 2,475 children aged 4 to 15 years. The CHCI data on these measures were re-analysed to cover this same age range. The measures of skin sores in the two studies differ: the HSAK program provides information on the prevalence of *any* skin sores, while the measure in the CHCI data relates to the prevalence of 4 or more skin sores.

Data on anaemia were also collected for 2,475 children in remote Aboriginal communities aged 4 to 15 years as part of the HSAK program. As with the CHCI data, a child was considered to be anaemic when their Hb level was less than 110 g/L.

Morris and colleagues 2001 study on middle ear infection

A comparison between the CHCI data and data from a study by Morris and colleagues on middle ear infection can be found in Section 3.2.

As part of the study by Morris et al., which was undertaken in 2001, the ears of 698 children aged 6 months to 30 months were examined by ear health research officers. The children lived in 29 remote communities in Northern and Central Australia (Morris et al. 2005). This study found that 91% of children who had their ears examined had otitis media, with the rate of perforated ear drums (i.e., severe otitis media) varying considerably between communities and regions.

There are a number of differences between this data collection and the CHCI data collection. In particular, the data collected by Morris and colleagues was part of a research study that was done in 2001 that focused specifically on ear health. Assessments were completed using both tympanometry and pneumatic otoscopy. In contrast, the CHCI ear disease data were collected as part of a general, overall examination of a child's health; these data were collected from July 2007 to May 2008. During the Child Health Checks, assessments of ear health made from July to December 2007 were based on otoscopy results alone; from January 2008 onwards, CHC teams used otoscopes and tympanometers.

Children aged 6 to 30 months were included in the Morris and colleagues study. Since the CHCI database does not have information on age in months for all children, the age ranges of the two studies cannot be aligned; instead, the CHCI data were re-analysed for children aged 1 to 3 years. A total of 1,644 children in this age range are represented in the CHCI database.

The geographical coverage of the two studies differs. Children that were included in the Morris and colleagues study lived in 29 remote communities in the following regions:

Darwin Rural, East Arnhem, Katherine and Central Australia. Four of the communities in the Morris and colleagues study were in South Australia and children in the Barkly region and those who lived in out stations were not included. In contrast, the coverage of the CHCI collection included those living in the Barkly region and those living in out stations but it did not include communities outside of the NT.

National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) 2004–05

Comparisons between the data from the 2004–05 National Aboriginal and Torres Strait Islander Health Survey (NATSIHS) and the CHCI data are made in relation to the prevalence of asthma in Section 3.5 and the presence of a smoker in the household in Section 3.9.

The NATSIHS, which was conducted by the Australian Bureau of Statistics (ABS), collected information on personal and household characteristics for Indigenous persons resident in private dwellings across all states and territories in Australia (ABS 2006).

Since the data reported on the health conditions of Indigenous children in the NATSIHS relate to long-term conditions (i.e., conditions that had lasted or were expected to last for 6 months or more), most of the NATSIHS data are not comparable with the CHCI data. However, the question on the Child Health Check form regarding asthma relates to whether the child had a *history of asthma* (not whether they had signs and symptoms of asthma at the time of the Child Health Check). Given that asthma is usually a chronic condition, a comparison between the NATSIHS and the CHCI data has been made in relation to this item.

Nonetheless, the two data sources differ in a number of other ways. The NATSIHS data were collected in 2004 and 2005 through the use of a sample survey and covered urban, rural and remote regions of Australia. On the other hand, the CHCI data were collected from July 2007 to May 2008 and covered rural and remote areas of the NT in scope of the NTER CHCI.

The NATSIHS data relates to children aged 0 to 14 years. Thus the CHCI data were re-analysed for this subset of children.

Furthermore, the NATSIHS data on asthma were parent/carer-reported data, while the CHCI data on asthma were based on medical records and/or information from parents and carers.

No data are provided by the ABS on the rate of long-term asthma among 0 to 14 year olds in the NT. Instead, the ABS report indicates that 14% of Indigenous children in Australia aged 0 to 14 years had long-term asthma (ABS 2006, p. 26). In order to ascertain the relevant rate for the NT, AIHW undertook further analyses of the NATSIHS data.

Top End Rheumatic Heart Disease Register and the Central Australian Rheumatic Heart Disease Register

CHCI data on the prevalence of rheumatic heart disease are compared with data from the Top End Rheumatic Heart Disease Register and the Central Australian Rheumatic Heart Disease Register in Section 3.5.

Data on the prevalence of rheumatic heart disease in the NT are collected in two registers: the Top End Rheumatic Heart Disease Register and the Central Australian Rheumatic Heart Disease Register. The combined prevalence rate of rheumatic heart disease as reported in these two registers is compared with corresponding data from the CHCI dataset. Data for 2005 from these two registers for Indigenous children in the NT aged 0 to 14 years have been published by the AIHW (2007, p. 96 to 106). Data from the Top End registry covers the northern part of the NT, including Darwin, East Arnhem, the Katherine region, Alligator,

Daly, Finniss and Bathurst-Melville. Data for the NT from the Central Australian registry cover the Barkly and Central Australia regions.

There are a number of differences between these data sources. In particular, the CHCI dataset collected information on the history of rheumatic heart disease from health records and/or directly from parents, carers or the children themselves, while the registers collect information from medical providers. As well, the available information from the registers were current as at 31 December 2005, while the CHCI data were collected from July 2007 to May 2008 for children aged 0 to 15 years in scope of having a NTER Child Health Check. Since the data from the registers relate to children aged 0 to 14 years, the CHCI data were re-analysed for this age group for the purpose of the comparisons shown in this report.

Data from the two registers combined indicate that as at the 31st of December 2005, 99 Indigenous children aged 0 to 14 years were recorded as having rheumatic heart disease. Using estimated resident Indigenous population data for 2001 for the relevant areas, this equates to a rate of rheumatic heart disease of 0.5% (AIHW 2007, p. 103).

