



Northern Territory Child Deaths Review and Prevention Committee

Annual Report 2017-2018

Northern Territory Child Deaths Review and Prevention Committee

The NT Child Deaths Review and Prevention Committee respects the beliefs of Aboriginal and Torres Strait Islander people and advises there is information in this report regarding deceased Aboriginal and Torres Strait Islander children.

Postal NT Office of the Coroner
PO Box 1281 Darwin NT 0801

Telephone 08 8999 7770

Facsimile 08 8999 5128

E-mail cdrpc.ths@nt.gov.au

Web www.justice.nt.gov.au

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Child Deaths Review and Prevention Committee

Letter to Parliament

The Honourable Natasha Fyles MLA
Attorney-General and Minister for Justice
Parliament House
Mitchell Street
DARWIN NT 0800

Dear Minister

I am pleased to provide you with the Annual Report of the Northern Territory Child Deaths Review and Prevention Committee for 2017-2018, in accordance with section 213 of the *Care and Protection of Children Act*.

Yours sincerely,



Dr Sara Watson
Convenor
NT Child Deaths Review and Prevention Committee
31 October 2018



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Northern Territory Child Deaths Review and Prevention Committee

Members as at 30 June 2018

Dr Sara Watson

Convenor, NT Child Deaths Review and Prevention Committee
Acting Chief Medical Officer and Senior Director of Quality and Safety
Department of Health, NT

Mr Brent Warren

Deputy Convenor, NT Child Deaths Review and Prevention Committee
General Manager of Care and Protection
Territory Families, NT

Ms Colleen Gwynne

Children's Commissioner
Attorney-General & Justice, NT

Detective Superintendent

Kristopher Evans

Officer in Charge of Sex Crimes Unit,
Child Abuse Taskforce
NT Police, Darwin NT

Ms Priscilla Collins

CEO, North Australian Aboriginal
Justice Agency (NAAJA) Darwin NT

Dr Charles Kilburn

Co-Director, Women Children and Youth Division,
Royal Darwin Hospital, Department of Health, NT

Associate Professor Robert Parker

Director of Psychiatry,
Top End Mental Health Services,
Department of Health, NT

Ms Leonie Warburton

Senior Manager,
Quality and Practice Integrity
Territory Families, NT

Mr Peter Pangquee

Principal, Aboriginal and Torres Strait Islander
Health Practitioner Advisor
Department of Health, NT

Professor Gary Robinson

Director, Centre for
Child Development and Education
Menzies School of Health Research
Advisor to the Committee

Ms Maree Garrigan

A/Executive Director, School Support Services
Department of Education, NT

Mr Kelvin Currie

Deputy Coroner, NT Office of the Coroner
Attorney-General and Justice, NT

Dr Marianne Tiemensma

Forensic Pathologist, Forensic Pathology Unit
Royal Darwin Hospital
Department of Health, NT

Committee Secretariat

Ms Alana Carter

Research Officer
Office of the Coroner
Attorney-General and Justice, NT

Glossary of Terms

ABS	Australian Bureau of Statistics
AGD	Department of Attorney –General and Justice, NT
AIFS	Australian Institute of Family Studies
ANZCDR&PG	Australia and New Zealand Child Death Review and Prevention Group
ASGC	ABS Australian Standard Geographical Classification
BDM	Northern Territory Office of the Registrar of Births, Deaths and Marriages
CDR	Child Death Register
CDRPC	Child Deaths Review and Prevention Committee
COD	Cause of Death
Committee	Child Deaths Review and Prevention Committee
Coroner	Office of the NT Coroner
DoH	Department of Health, NT
ICD-10 AM	International Statistical Classification of Diseases and Related Health Problems, Tenth Revision – Australian Modified
LGA	Northern Territory Local Government Areas
Menzies	Menzies School of Health Research
NCIS	National Coronial Information System
NSW	New South Wales
NT	Northern Territory
Qld	Queensland
Register	Child Deaths Register
SUDI	Sudden Unexpected Death in Infancy
SIDS	Sudden Infant Death Syndrome
TF	Territory Families
the Act	<i>Care and Protection of Children Act 2007</i>
UCOD	Underlying Cause of Death
WHO	World Health Organisation

Definitions

Aboriginal

The following definition is provided for the term Aboriginal in section 13 of the Act:

Aboriginal means: (a) a descendant of the Aboriginal peoples of Australia; or (b) a descendant of the Indigenous inhabitants of the Torres Strait Islands.

Throughout this report the term Aboriginal will be used for people of either Aboriginal or Torres Strait Islander descent except where specific reference is being made to publications that use other terminology, for example, the ABS which often uses the term Indigenous.

Cause of death (COD)

All those diseases, morbid conditions, or injuries which either resulted in or contributed to death and the circumstances of the accident or violence which produced such injuries.¹

Child

Section 13 of the Act defines child as (a) a person aged seventeen years and under; or (b) a person apparently less than 18 years of age if age cannot be proved.

Child death

Section 208 of the Act defines child death as (a) the death of a child who usually resided in the Territory (whether the death occurred in the Territory or not); or (b) a stillbirth as defined in the *Births, Deaths and Marriages Registration Act* that occurred in the Territory.

Congenital malformations

Congenital malformations, including deformities and chromosomal abnormalities, are physical and mental conditions present at birth that are either hereditary or caused by environmental factors.

Greater Darwin

Greater Darwin incorporates the City of Darwin, the City of Palmerston and the Litchfield Shire.

Infancy

The infancy period extends from birth to 12 months of age. An infant death is the death of a live born child under 1 year of age.²

1 World Health Organisation (2008), *ICD-10 International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Volume 2 Instruction Manual*, 33-34.

2 Abeywardana, S. & Sullivan, E.A. (2008) *Congenital anomalies in Australia 2002-2003. Birth anomalies series no. 3. Cat. No. PER 41. Sydney: Australian Institute*

Neonatal

The neonatal period extends from birth to 28 days of age. A neonatal death is the death of a live born baby within 28 days of birth³

Perinatal

The Perinatal period extends from 20 weeks gestation to 28 days following birth. A perinatal death is a fetal death (of at least 20 weeks gestation or at least 400 grams birthweight⁴) or a neonatal death (of a live baby within 28 days from birth).

Post-neonatal

The post-neonatal period is the period from 28 days to 1 year of age.

Rest of the NT

Rest of the NT incorporate those areas outside the City of Darwin, the City of Palmerston and the Litchfield Shire.

Stillbirth (fetal death)

In accordance with section 4 of the *Births Deaths and Marriages Registration Act*, a stillbirth means the birth of a still-born child, which is defined as a child of at least 20 weeks gestation or with a body mass of at least 400 grams at birth that exhibits no sign of respiration or heartbeat, or other sign of life, after birth.⁵

Sudden unexpected death in infancy (SUDI)

SUDI (also described as Sudden Unexpected Infant Death, SUID), is a term used for all unexpected infant deaths, whether the explanation is immediate, determinable after a thorough examination, or remains unknown. At one point all unexplained SUDI deaths were labelled as Sudden Infant Death Syndrome, SIDS.

Underlying cause of death (UCOD)

- (a) The disease or injury which initiated the train of morbid events leading directly to death; or
- (b) The circumstances of the accident or violence, which produced the fatal injury (WHO).⁶

In Australia, the perinatal period commences at the 20th completed week of gestation and ends 28 completed days after birth. Perinatal deaths are a combination of stillbirths and neonatal deaths (as defined in the NT *Births, Deaths and Marriages Registration Act*).

3 Laws, P.J. & Hilder, L. (2008). Australia's mothers and babies 2006. Perinatal statistics series no. 22. Cat. No PER 46. Sydney: Australian Institute of Health and Welfare National Perinatal Statistics Unit.

4 Ibid

5 Ibid

6 op cit.

Foreword

This is the tenth Annual Report of the Northern Territory Child Deaths Review and Prevention Committee. The report is based on information provided to the Committee on the 45 deaths of children whose usual place of residence is the NT and of 32 stillbirths that occurred during the calendar year 2017. The report also provides summary information on 216 child and infant deaths that occurred in the five-year period 2013-2017

This report is the first to be produced by the NT Office of the Coroner who now has responsibility for the Secretariat of the Child Deaths Review and Prevention Committee.

The death of any child is a tragedy and the members of the Committee extend their sincere condolences to the family, friends and communities of the children and young people cited in this report. In highlighting the circumstances relating to these deaths and by conducting research based on identified patterns and trends, the Committee's objective is to effect change that will prevent and reduce child deaths, accidents and diseases in the NT.

In addition to providing an analysis of the child and infant deaths that occurred during 2017 and the preceding four years, this report provides information on injury related child deaths released by the NT Child Deaths Review and Prevention Committee and tabled in Parliament.

This year Colleen Gwynne resigned the Convenor of the Committee as a member. Other resignations were from the Deputy Convenor Victoria Pollifrone and Dr Annette (Nettie) Flaherty. All members made invaluable contributions and on behalf of the Committee I would like to express our sincere gratitude. We also welcomed the recent appointment of Dr Sara Watson as Convenor and Brent Warren as Deputy Convenor as well as the appointment of Forensic Pathologist Dr Marianne Tiemensma. Between them they bring extensive knowledge and expertise in NT Health, Territory Families and Forensic Pathology.



Dr Sara Watson
Convenor
NT Child Deaths Review and Prevention Committee

31 October 2018

Executive Summary

Background and overview of the Committee activities

The Committee is established pursuant to Part 3.3 of the *Care and Protection of Children Act* (the Act). The purpose of the child deaths review process undertaken by the Committee is to assist in the prevention and reduction of child deaths in the Northern Territory. It achieves this through:

- a) Maintaining a database on child deaths;
- b) Conducting research about child deaths, diseases and accidents involving children and
- c) Contributing to the development of appropriate policy to deal with such deaths, diseases and accidents.

The Committee's specific functions are set out in the Act.

- d) Action on issues arising from the on-going quality assurance of the Child Deaths Register (the Register);

Issues relating to child deaths data in the NT

Chapter 2 examines contextual factors and sources of data for the work of the Committee. This includes data obtained from national bodies such as the Australian Bureau of Statistics (ABS) and the National Coroners Information System (NCIS), which provide data on child deaths and demographics.

The primary source of data on child deaths is obtained from the Office of the Registrar of Births, Deaths and Marriages (BDM) which also provides data on stillbirths in the NT. Other sources such as medical records from the Department of Health (DoH) and documents held by the Office of the NT Coroner provide additional detail relating to individual deaths.

Other issues include the following:

- Although this is the Committee's 2017-2018 Annual Report, the focus is on child deaths for the calendar year 2017 with a further overview of calendar years 2013-2017.
- Presentation of data is based on the actual year of death rather than the year of registration of the death which is used by other agencies (e.g. ABS);
- ICD-10-AM codes are used for classifying the cause of death in line with the practice of most other similar committees within Australia;
- For all child deaths that involved a review by the NT Coroner, the delivery of coronial findings follows a thorough coronial investigation to determine a cause of death before it is reported to BDM. This may take months, possibly years to complete these investigations, hence the delay in reporting these deaths;
- The need to obtain additional data beyond that supplied by BDM;
- The need to canvas other jurisdictions including BDM registries in other states and territories, for information on the deaths of NT children that occurred interstate.

Child deaths in the NT, 2013-2017

Chapters 3 and 4 provide data on the deaths of children whose usual place of residence is the NT. The data for 2017 is current but it is important to view data aggregated over five years when determining trends or interpreting changes.

2017 snapshot

45 deaths of children whose usual place of residence is in the NT.

- » 20 (44.4%) were male; 25 (55.5%) were female;
- » 23 (51.1%) were Aboriginal; 22 (48.8%) were non-Aboriginal
- » 25 (55.5%) were from outside the Greater Darwin area.

45
deaths
in 2017

27 (60%) of the 45 were infant deaths; 5 (11.1%) were 1 to 4 years old, 1 (2.2%) was 5 to 9 year olds, 2 (4.4%) were 10-14 years old and 10 (22.2%) were 15-17 years old.

Of the 27 infant deaths, 15 (55.5%) were female and 12 (44.4%) were male; 13 (48.1%) were Aboriginal and 14 (51.8%) were non-Aboriginal.

Of the 27 infant deaths, 21 (77.7%) were neonatal (under 1 month old) deaths, of which 10 (37%) were Aboriginal and 11 (40.7%) were non-Aboriginal.

32
stillbirths
in 2017

In addition, **32 stillbirths** were registered as having occurred in the NT. 17 (53.1%) were female and 15 (46.9%) were male; 12 (37.5%) were Aboriginal and 20 (62.5%) were non-Aboriginal.

There were 53 perinatal (32 stillbirths + 21 neonatal) deaths registered in the NT: 22 (41.5%) were Aboriginal and 31 (58.5%) were non-Aboriginal.

2013-2017 aggregated snapshot

216 deaths of children who were usually resident in the NT:

- » 108 (50%) were female and 108 (50%) were male;
- » 145 (67.1%) were Aboriginal and 71 (32.8%) were non-Aboriginal
- » 141 (65.2%) were from outside the urban Greater Darwin area

216
deaths over
2013 - 2017

120 (55.5%) were infants, 28 (12.9%) were 1 to 4 years old, 9 (4.1%) were 5 to 9 years old, 23 (10.6%) were 10 to 14 years old and 36 (16.6%) were 15 to 17 years old.

Of the 120 infant deaths, 63 (52.5%) were females and 57 (47.5 %) were males; 82(68.3%) were Aboriginal and 38 (31.6%) non-Aboriginal.

Of the 120 infant deaths 88 (73.3) were neonates, under one month of age of which 62 (51.7%) were Aboriginal and 26 (21.7.3%) were non-Aboriginal.

In addition, 170 stillbirths were registered in the NT: 87 (51.2%) were male and 83 (48.8%) were female. 90 (53%) were non-Aboriginal and 80 (47%) were Aboriginal.

There were 258 perinatal (170 stillbirths + 88 neonatal) deaths registered in the NT 142 (55%) were Aboriginal and 116 (45%) were non-Aboriginal.

Chapter 1 – Introduction

Introduction

This is the Child Deaths Review and Prevention Committee's (CDRPC or Committee) tenth annual report. It provides information related to the deaths of 45 children under the age of 18 years whose usual place of residence is in the Northern Territory (NT) and 32 stillbirths registered in 2017. The report also includes information on child deaths and stillbirths from 2013 to 2017 for comparative and historical purposes.

Functions of the Committee

The Committee's functions are:

- to establish and maintain the Child Deaths Register.
- to conduct or sponsor research into child deaths, diseases and accidents involving children and other related matters (such as childhood morbidity and mortality), whether alone or with others;
- to make recommendations on the research into child deaths, diseases and accidents;
- to monitor the implementation of the recommendations;
- to raise public awareness in relation to:
 - i. the death rates of children;
 - ii. the causes and nature of child deaths and diseases and accidents involving children;
 - iii. the prevention or reduction of child deaths, diseases and accidents;
- to contribute to any national database on child deaths in Australia;
- to enter into an arrangement for sharing of information with anyone in Australia who has functions similar to those of this Committee;

At the end of each financial year the Committee is required to prepare a report about the operation of the Committee during that financial year. Should the Committee conduct or sponsor research about issues identified as being relevant to child deaths in the NT, the resulting report must also be presented to the Minister. The Minister is required to table the Committee's Annual Report and research report/s in the Legislative Assembly.

The Child Deaths Register

Under the *Care and Protection of Children Act*, there is a statutory obligation for the CDRPC to establish and maintain a Child Deaths Register (the Register). The Register contains information relating to the deaths of children and young people under the age of 18 years whose usual place of residence is the NT. Section 208 of the Act defines a child death as:

- a) the death of a child who usually resided in the Territory (whether the death occurred in the Territory or not); or
- b) a stillbirth as defined in the *Births, Deaths and Marriages Registration Act* that occurred in the Territory.

The Register contains information related to date of birth, date of death, date of registration, age, gender, Aboriginal and Torres Strait Islander status, place of birth, place of death, usual place of residence and family details. Information is also gathered in relation to the underlying causes of deaths and external factors which may have contributed to the death. Information in the Register is predominantly sourced from data held by a number of NT government agencies, including the Department of the Attorney-General and Justice, Department of Health (DoH) and Territory Families (TF). Information is also provided by government funded health clinics and private medical centres.

Information relating to the deaths interstate of children whose usual place of residence is the NT, is sourced either from child death registers of other jurisdictions or the respective state or territory BDM's. Due to a number of legislative impediments preventing some jurisdictions sharing identifiable information relating to child deaths, including children whose usual place of residence is in the Northern Territory, it is not possible to report on these deaths.

Activities of the Committee

National representation and engagement

The CDRPC has representation on the Australian and New Zealand Child Death Review and Prevention Group (ANZCDR&PG), which comprises representatives from all the Australian jurisdictions and New Zealand.

The aim of the ANZCDR&PG is to identify, address and potentially decrease the number of infant and children deaths by sharing of information across jurisdictions and working collaboratively to improve national and international reporting.

Chapter 2 – Issues relating to child death data in the Northern Territory

Sources of data on child deaths

Australian Bureau of Statistics (ABS)

The Australian Bureau of Statistics (ABS) publishes a series of reports and tables on deaths that occur in all Australian jurisdictions.

There are a number of limitations with the ABS data, which include: the time lag between the recorded date of death with the NT BDM Registry and the publication of the ABS reports, only the medical causes of death are recorded and not the related risks such as the social factors that may have contributed to the deaths. The ABS child death tables do not provide data for each individual year of age so 15, 16 and 17 years old, for example, are included in the 15-19 age grouping.

Registry of Births, Deaths and Marriages

The Department of the Attorney-General and Justice's (AGD) Registry of Births, Deaths and Marriages provides details of all child deaths occurring in the NT such as name, residence, date of birth, age, gender, Aboriginal or Torres Strait Islander status, date and place of death and where available the cause of death.

The Registry of Births, Deaths and Marriages also provides information relating to stillbirths in the NT including date and place of birth, gestation age and gestation weight.

The National Coroner's Information System

The Committee obtains information such as Coronial Findings, Autopsy Reports, Toxicology Reports and Police Reports related to reportable deaths in the NT from the National Coroner's Information System (NCIS).

Office of the NT Coroner

The Office of the NT Coroner provides information to NCIS related to deaths of children deemed to be reportable under provisions contained in the *Coroner's Act*.

A reportable death is defined as a death that:

- appears to have been unexpected, unnatural or violent;
- appears to have resulted, directly or indirectly from an accident or injury;
- occurred during an anaesthetic or as a result of an anaesthetic and is not due to natural causes;
- occurred when a person was held in, or immediately before death, was held in care or custody;
- was caused or contributed to by injuries sustained while the person was held in custody;
- is of a person whose identity is unknown;
- and in certain other circumstances.

The death of a child that is considered to have occurred whilst being in care or custody includes those circumstances:

- where the child or young person is deemed to be 'in care' in accordance with provisions contained in the *Care and Protection of Children Act*; or
- where the child or young person is an involuntary patient under the *Mental Health and Related Services Act*, whether in hospital or temporarily removed from hospital; or
- if the young person's death occurs in a detention centre approved under the *Youth Justice Act*.

Other sources of data

Doctor issued death certificates and other relevant information required by the Committee is provided by the Department of Health (DoH) and other health service providers.

Confidentiality of information

The *Care and Protection of Children Act* contains provisions that help ensure the confidentiality of information obtained by the Committee in the exercising of its statutory responsibilities. It is an offence under the Act for a person to disclose, or use information obtained as part of the performance of their functions.

The Act allows for the disclosure of information for the purposes of research; as part of an inquiry or investigation conducted by Police or a Coroner; to a court or tribunal, or where otherwise required or authorised by law.

Coding cause of death

The Committee uses the International Statistical Classification of Diseases and Related Health Problems, (ICD-10 which was developed by the World Health Organisation, WHO) to code the underlying and multiple causes of death. The ICD-10 is designed to promote international compatibility in the collection, processing, classification and presentation of morbidity and mortality statistics. ICD-10-AM (Australian Modified) 9th Edition has been modified to ensure that the classification is current and appropriate for Australian clinical practice whilst ensuring that international compatibility is maintained.

Calendar year reporting

The Committee has elected to report on child deaths based on the calendar year as opposed to the financial year. The majority of other Australian jurisdictions use the same reporting period.

Chapter 3 – Child deaths in the Northern Territory

This chapter provides statistical data related to child deaths in the calendar year 2017 and for the period 2013-2017. The data includes demographic details relating to age, gender, Aboriginal status and underlying causes of death and whether the child and/or a sibling is known to the child protection system. Updated data is used in the present report so there may be some variations in the data reported for previous years.

Child deaths rates

A child death rate is a measure that adjusts the number of deaths for difference in the population size. Child death rates are reported as the number of deaths per 100,000 population of children, with the exception of the number of deaths in infancy which are reported per 1000 live births. Both child death rates and infant death rates are standard units of measurement. Rates within age groups are reported, as age-group specific rates (number of deaths per 100,000 populations).

Child deaths in 2017

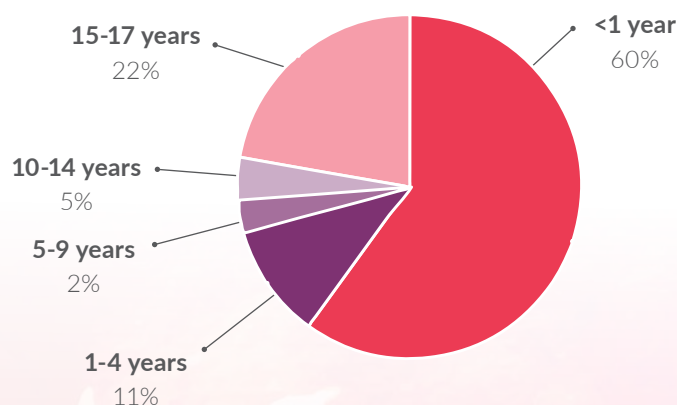
Child deaths by age group, NT, 2017

There were 45 child deaths registered in 2017. The highest number of deaths 27 (60%) occurred during infancy, with 5 (11%) deaths in the 1 to 4 year age group, 1 (2%) in the 5 to 9 years age group, 2 (5%) 10 to 14 years and 10 (22%) in the 15 to 17 years age group.

Figure 1: Number of child deaths by age group, NT, 2017

Age Group	No
< 1 year	27
1 - 4 years	5
5 - 9 years	1
10 - 14 years	2
15 - 17 years	10
Total	45

Source: NT Child Deaths Register



Child deaths by age group and gender, NT, 2017

Table 1: Number of child deaths by age group and gender and Aboriginal status, NT, 2017

Age Group	Female	Male	Total
< 1 year	15	12	27
1 - 4 years	2	3	5
5 - 9 years		1	1
10 - 14 years	2		2
15 - 17 years	6	4	10
Grand Total	25	20	45
Aboriginal Status			Total
Aboriginal			23
Non-Aboriginal			22
Grand Total			45

Source: NT Child Deaths Register

Child deaths, 2013-2017

Between 1 January 2013 and 31 December 2017, a total of 216 deaths of children normally resident in the NT were registered in the NT.

Child deaths by year, gender and age group, NT, 2013-2017

The majority of child deaths over the five year period occurred during infancy (120 deaths or 55.5% of all child deaths). The age group with the second largest number of deaths was the 15-17 years age group (36 or 16.6%, while the 5-9 years age group had the fewest number of deaths (9 or 4.1%). Although the year dates have changed these figures are similar to last year's figures.

Males made up 51.6% of all children in the NT population (ABS 2017), and accounted for 50% of all child deaths over these years.

Table 2: Child deaths by year, gender and age group, NT, 2013-2017

Year and Gender		< 1 year	1-4 years	5-9 years	10-14 years	15-17 years	Total
2013	Female	17	3	0	4	5	
	Male	11	4	1	2	5	
	Subtotal	28	7	1	6	10	52
2014	Female	8	4	1	4	6	
	Male	11	3	2	4	3	
	Subtotal	19	7	3	8	9	46
2015	Female	11	1	0	3	3	
	Male	12	2	1	3	2	
	Subtotal	23	3	1	6	5	38
2016	Female	12	2	1	1	1	
	Male	11	4	2	0	1	
	Subtotal	23	6	3	1	2	35
2017	Female	15	2	0	0	4	
	Male	12	3	1	2	6	
	Subtotal	27	5	1	2	10	45
Total	Female	63	12	2	12	19	
	Male	57	16	7	11	17	
	Total	120	28	9	23	36	216

Source: NT Child Deaths Register and ABS 3101.0, June 2017

Total may differ from last year's report due to late registrations and interstate deaths

Child deaths by year, Aboriginal status and age group, NT, 2013-2017

In the years 2013-2017, the number of Aboriginal child deaths was substantially greater than the number of non-Aboriginal children. There was a total of 145 (67.1%) deaths of Aboriginal children, which is much greater than the proportion of non-Aboriginal children 71 (32.8%) in the total NT population for these age groups.

Table 3: Child deaths by year, Aboriginal status and age group, NT, 2013-2017

Year and Aboriginal Status		< 1 year	1-4 years	5-9 years	10-14 years	15-17 years
2013	Aboriginal	19	5	1	3	6
	Non-Aboriginal	9	2	0	3	4
	Subtotal	28	7	1	6	10
2014	Aboriginal	15	5	2	4	6
	Non-Aboriginal	4	2	1	4	3
	Subtotal	23	6	4	5	8
2015	Aboriginal	17	2	1	5	4
	Non-Aboriginal	6	1	0	1	1
	Subtotal	23	3	1	6	5
2016	Aboriginal	18	4	2	1	2
	Non-Aboriginal	5	2	1	0	
	Subtotal	23	6	3	1	2
2017	Aboriginal	13	4	1	0	5
	Non-Aboriginal	14	1	0	2	5
	Subtotal	27	5	1	2	10
Total	Aboriginal	82	20	7	13	23
	Non-Aboriginal	38	8	2	10	13
	Total	120	28	9	23	36

Source: NT Child Deaths Register

Total may differ from last year's report due to late registrations and interstate deaths

Child deaths by usual residence, age group and Aboriginal status, NT, 2013-2017

Usual residence refers to the child’s usual place of residence as recorded in the BDM register and reported by the parents or next of kin. For the purpose of this report, usual residence has been classified as either greater Darwin or the Rest of the NT.

In the five year period from 2013 to 2017, the majority of child deaths (141 or 65.2%) occurred among children living outside Greater Darwin region. This difference was driven by the larger number of deaths of Aboriginal children (124 or 57.4%) most of whom are living outside the Greater Darwin area.

Table 4: Child deaths by usual residence, age group and Aboriginal status, NT, 2013-2017

Age Group	Greater Darwin	%	Rest of NT	%
< 1 year	39	52%	81	57%
1 - 4 years	11	15%	17	12%
5 - 9 years	5	7%	4	3%
10 - 14 years	8	10%	15	11%
15 - 17 years	12	16%	24	17%
Total Aboriginal Status	75	100%	141	100%
Aboriginal	21	28%	124	88%
Non-Aboriginal	54	72%	17	12%
Total	75	100%	141	100%

Source: NT Child Deaths Register

Total may differ from last year’s report due to late registrations and interstate deaths

Child death rates by year, NT, 2013-2017

In this report, population numbers for the denominator are based on ABS Estimated Resident Population data for single years – for children aged 0-17 years in the NT (ABS Cat. 3101.0, 2017). Given the relatively small number of deaths each year in the NT, aggregating data across five years provides a more reliable indicator of the underlying rates.

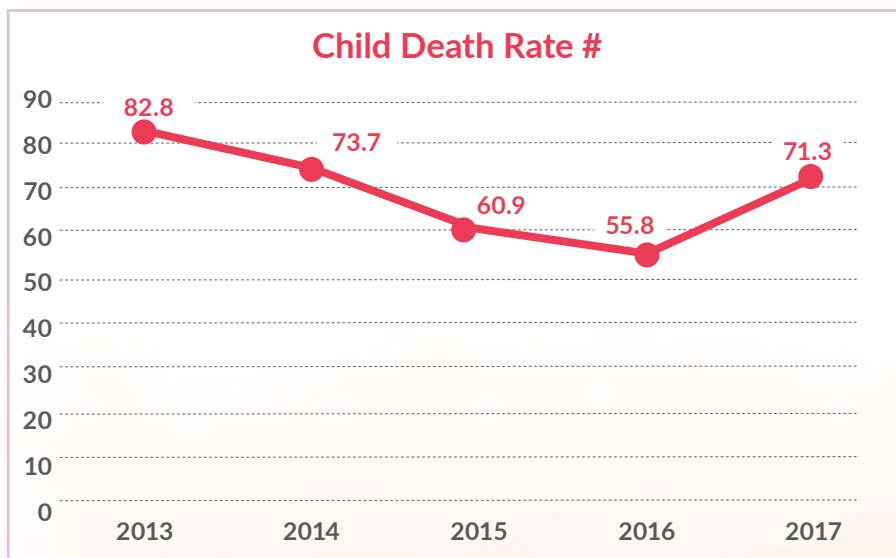
For the five year period from 2013-2017, there were a total of 216 deaths of NT children. The annualised death rate for this period was 68.9 deaths per 100,000 children. The annual rates are presented in Table 5 and Figure 2. Apart from a higher rate in 2013 there was a suggestion that annual NT death rates were falling, but has risen again in 2017. It needs to be remembered that there may be additional deaths in recent years that have not yet been reported.

Table 5: Child death rates by year, NT, 2013-2017

Year	Number of Deaths	Rate #
2013	52	82.8
2014	46	73.7
2015	38	60.9
2016	35	55.8
2017	45	71.3
Total	216	68.9

Source: NT Child Deaths Register and ABS 3101.0, June 2017
per 100,000 children

Figure 2: Child death rates by year, NT, 2013-2017



Child death rates by age group, NT, 2013-2017

Annualised age group specific death rates for the five year period are shown in Table 9. The infant death rate of 603.5 deaths per 100,000 infants reflects the large number of deaths, most in the neonatal period, that occur in this age group and were the majority of all NT child deaths. The 15-17 years age group are the second highest death rate at 78.7 deaths per 100,000 population and the lowest death rate is the 5 to 9 years age group at 9.9 deaths per 100,000 population.

Table 6: Child death rates by age group, NT, 2013-2017

Age Group	Number of Deaths	Rate #
< 1 year	120	603.5
1 - 4 years	28	36.6
5 - 9 years	9	9.9
10 - 14 years	23	28.3
15 - 17 years	36	78.7
Total	216	68.9

Source: NT Child Deaths Register and ABC Cat 3101.0, June 2017
per 100,000 children

Child death rates by age group and gender, NT, 2013-2017

Of the total of 216 deaths, there were 108 (50%) were male and 108 (50%) were female. The respective rates were 71.2 for females and 66.8 for males with an overall rate of 68.9 per 100,000 children. Across the 5 year period, the annualised infant death rate was 650.2 per 100,000 infants for females and 559.3 for males.

Table 7: Child death rates by age group and gender, NT, 2013-2017

Age Group	Female		Male	
	Number of Deaths	Rate #	Number of Deaths	Rate #
< 1 year	63	650.2	57	559.3
1 - 4 years	12	32.2	16	40.9
5 - 9 years	2	4.6	7	15.1
10 - 14 years	12	30.5	11	26.2
15 - 17 years	19	87.9	17	70.5
Total	108	71.2	108	66.8

Source: NT Child Deaths Register and ABC Cat 3101.0, June 2017
per 100,000 children

Some totals may vary from last year's report due to late registrations and interstate deaths

Infants Deaths, 2013-2017

Infant deaths by gender and Aboriginal status, NT, 2013-2017

There were 120 infant deaths between 2013-2017 in the NT. A slight majority of those were female 63 (52.5%) and 82 (68.3%) were Aboriginal children.

Table 8: Infant deaths by gender and Aboriginal status, NT, 2013-2017

Aboriginal Status	Female	Male	Total
Aboriginal	40	42	82
Non-Aboriginal	23	15	38
Total	63	57	120
Percentage	52.50%	47.50%	100.00%

Source: NT Child Deaths Register

Perinatal deaths by type, Aboriginal status and year, NT, 2013-2017

Given that there is a substantially greater risk of death in the perinatal period, the Committee has always monitored this period. Perinatal deaths are the combination of neonatal deaths and stillbirths. Table 9 shows there are a total of 170 (65.9%) stillbirths and 88 (34.1%) neonatal deaths. The percentage of Aboriginal 80 (47%) and non-Aboriginal 90 (53%) stillbirths is considerably different. In the period 2013-2017 there were 88 neonatal deaths. The majority of neonatal deaths 62 (70.4%) were Aboriginal children.

Table 9: Perinatal deaths by type, Aboriginal status and year, NT, 2013-2017

Row Labels	2013	2014	2015	2016	2017	Total (%)
Aboriginal						
Neonatal	15	13	11	13	10	62
StillBirth	27	11	15	15	12	80
Subtotal	42	24	26	28	22	142 (55%)
Non-Aboriginal						
Neonatal	5	4	4	2	11	26
StillBirth	17	18	20	15	20	90
Subtotal	22	22	24	17	31	116 (45%)
Total	64	46	50	45	53	258 (100%)

Source: NT Child Deaths Register

Individual totals may differ from last year's report due to late registrations and interstate deaths

Post neonatal infancy by Aboriginal status and year, NT, 2013-2017

Table 10 presents post-neonatal infant deaths over the recent five year period by Aboriginal status. Of the total number of deaths in this age group, there is a majority that were Aboriginal children (62.5.6%).

Table 10: Post neonatal infancy by Aboriginal status and year, NT, 2013-2017

Post Neonatal	2013	2014	2015	2016	2017	Total
Aboriginal	4	2	6	5	3	20
Non-Aboriginal	4	0	2	3	3	12
Total	8	2	8	8	6	32

Source: NT Child Deaths Register

Deaths of children with a family involvement in child protection service 2013-2017

Children involved with the child protection system are considered to be a particularly vulnerable subgroup of the population. Given that the risk is often associated with families, it is prudent that child death committees consider the 'child protection' history of children who have died as well as that of their siblings, as an indicator of vulnerability.

A child is considered to be 'known' to the child protection system if an 'action' has been taken under Chapter 2 of the *Care and Protection of Children Act* to safeguard the wellbeing of the child. This 'action' by Territory Families can involve; receiving a child abuse notification, the assessing of child abuse notifications, child protection investigations, the undertaking of protective assessments, the provision of family support services, the taking out of statutory child protection orders, or the placement of a child into care.

The death of a child who is in the care of the Chief Executive Officer of Territory Families is required by law to be referred to the Office of the NT Coroner for him/her to make a finding on the child's death (Death in Care). In the present reporting period 2013-2017 there have been 8 deaths of children who were known to Territory Families and referred to the Office of the NT Coroner.

Characteristics of child death by children and families known to TF status, NT, 2013-2017

Children known to child protection services may originate from families characterised by dysfunction, including domestic and family violence, alcohol, drug and volatile substance abuse, mental illness, and involvement with the criminal justice system.

Of the 216 recorded child deaths in the NT in the reporting period 2013-2017, 72 (33.3%) were 'known' to Territory Families and 144 (66.6%) were 'not known' to Territory Families within the 3 years prior to their death. Of the 72 deaths of children known to Territory Families.

The highest number of involvement was in the <1 year range (26 or 36.1%) and the lowest number of involvement was in the 5-9 years range (5 or 6.9%).

Of the 72 deaths of children involved in the child protection system, 60 (83.3%) were Aboriginal and 12 (16.7%) were non-Aboriginal.

Table 11: Characteristics of child death by children and families known to TF status, NT, 2013-2017

Child Characteristics	Known to TF Number (%)		Not known to TF Number (%)	
Gender				
Female	29	48%	79	51%
Male	32	52%	76	49%
Total	61	100%	155	100%
Aboriginal Status				
Aboriginal	52	85%	105	68%
Non-Aboriginal	9	15%	50	32%
Total	61	100%	155	100%
Location				
Greater Darwin	12	20%	49	32%
Rest of NT	49	80%	106	68%
Total	61	100%	155	100%
Age Group				
< 1 year	20	33%	96	62%
1 - 4 years	12	20%	17	11%
5 - 9 years	6	10%	6	4%
10 - 14 years	13	21%	13	8%
15 - 17 years	10	16%	23	15%
Total	61	100%	155	100%

Source: NT Child Deaths Register

Chapter 4 – Underlying causes of child deaths in the Northern Territory, 2013-2017

This section provides information about the Underlying Cause of Death (UCOD) for 206 of the 216 child deaths in this five year reporting period. At the time of this report, there were 10 deaths awaiting the outcome of coronial investigations. One of these deaths is from 2016 and the remaining 9 are from 2017.

Underlying cause of death by ICD-10 chapter and year, NT, 2013-2017

Tables 12 to 15 provide a comparative breakdown of the UCOD by reporting years, gender and Aboriginal status, usual residence and age groups.

Table 12 details the underlying cause of death for children, which has been classified using the standard international coding system at broad chapter level. Conditions originating in the perinatal period (77) and external causes of morbidity and mortality (67) made up the greatest number of deaths in the 216 total.

Table 12: Underlying cause of death by ICD-10 chapter and year, NT, 2013-2017

ICD-10-AM Chapter No.	Code prefix	ICD-10-AM Descriptions	Chapter	2013	2014	2015	2016	2017	Grand Total
1	A and B	Certain infectious and parasitic diseases		0	2	2	4	2	10
2	C and D	Neoplasms		0	2	1	2	1	6
4	E	Endocrine, nutritional and metabolic diseases		1	0	1	0	0	2
6	G	Diseases of the nervous system		2	1	0	0	0	3
9	I	Diseases of the circulatory system		0	1	1	0	0	2
10	J	Diseases of the respiratory system		3	0	0	1	0	4
11	K	Diseases of the digestive system		0	0	0	0	1	1
16	P	Certain conditions originating in the perinatal period		17	17	11	16	16	77
17	Q	Congenital malformations, deformations and chromosomal abnormalities		4	1	6	2	6	19
18	R	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified		3	4	5	2	1	15
20	U-Y	External causes of morbidity and mortality		22	18	11	7	9	67
	Not yet coded	Awaiting coronial findings and/or cause of death*					1	9	10
	Total	Total		52	46	38	35	45	216

Source: NT Child Deaths Register

Proportions may differ from last year's report due to updated numbers, late registration etc

*includes 10 deaths which are still open coronial cases

Underlying cause of death by ICD-10 chapter, gender and Aboriginal status, NT, 2013-2017

Table 13 shows for all sub-groups the leading coded causes of death were “certain conditions originating in the perinatal period and external causes of morbidity and mortality”. There were similar numbers of male and female deaths over this period and significantly more Aboriginal (145) than non-Aboriginal (71).

Table 13: Underlying cause of death by ICD-10 chapter, gender and Aboriginal status, NT, 2013-2017

ICD-10-AM Chapter Descriptions	Gender		Aboriginal Status	
	Female	Male	Aboriginal	Non-Aboriginal
Certain infectious and parasitic diseases	6	4	7	3
Neoplasms	2	4	2	4
Endocrine, nutritional and metabolic diseases	0	2	1	1
Diseases of the nervous system	2	1	1	2
Diseases of the circulatory system	2	0	1	1
Diseases of the respiratory system	3	1	3	1
Diseases of the digestive system	0	1	1	0
Certain conditions originating in the perinatal period	37	40	57	20
Congenital malformations, deformations and chromosomal abnormalities	11	8	10	9
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	8	7	9	6
External causes of morbidity and mortality	29	38	44	23
Awaiting coronial findings and/or cause of death*	8	2	9	1
Total	108	108	145	71

Source: NT Child Deaths Register & National Coronial Information System (NCIS)

*includes 10 deaths which are still open coronial cases

Sixty seven deaths were due to ‘external causes of morbidity and mortality’ of which 44 deaths were of Aboriginal children and 23 were non-Aboriginal children. Of these, 27(40%) 21 Aboriginal and 6 non-Aboriginal deaths were the result of intentional self-harm. There were 8 (12%) children who died from drowning, 4 Aboriginal and 4 non-Aboriginal and there were 17 (25%) children who died from motor vehicle-related accidents, 9 Aboriginal and 8 non-Aboriginal.

Underlying cause of death by ICD-10 chapter and gender, and chapter and Aboriginal status, NT, 2013-2017

Figures 3 and 4 provide a comparison by gender and Aboriginal status for each of the ICD-10-AM chapters.

Figure 3: Underlying cause of death by ICD-10 chapter and gender, NT, 2013-2017

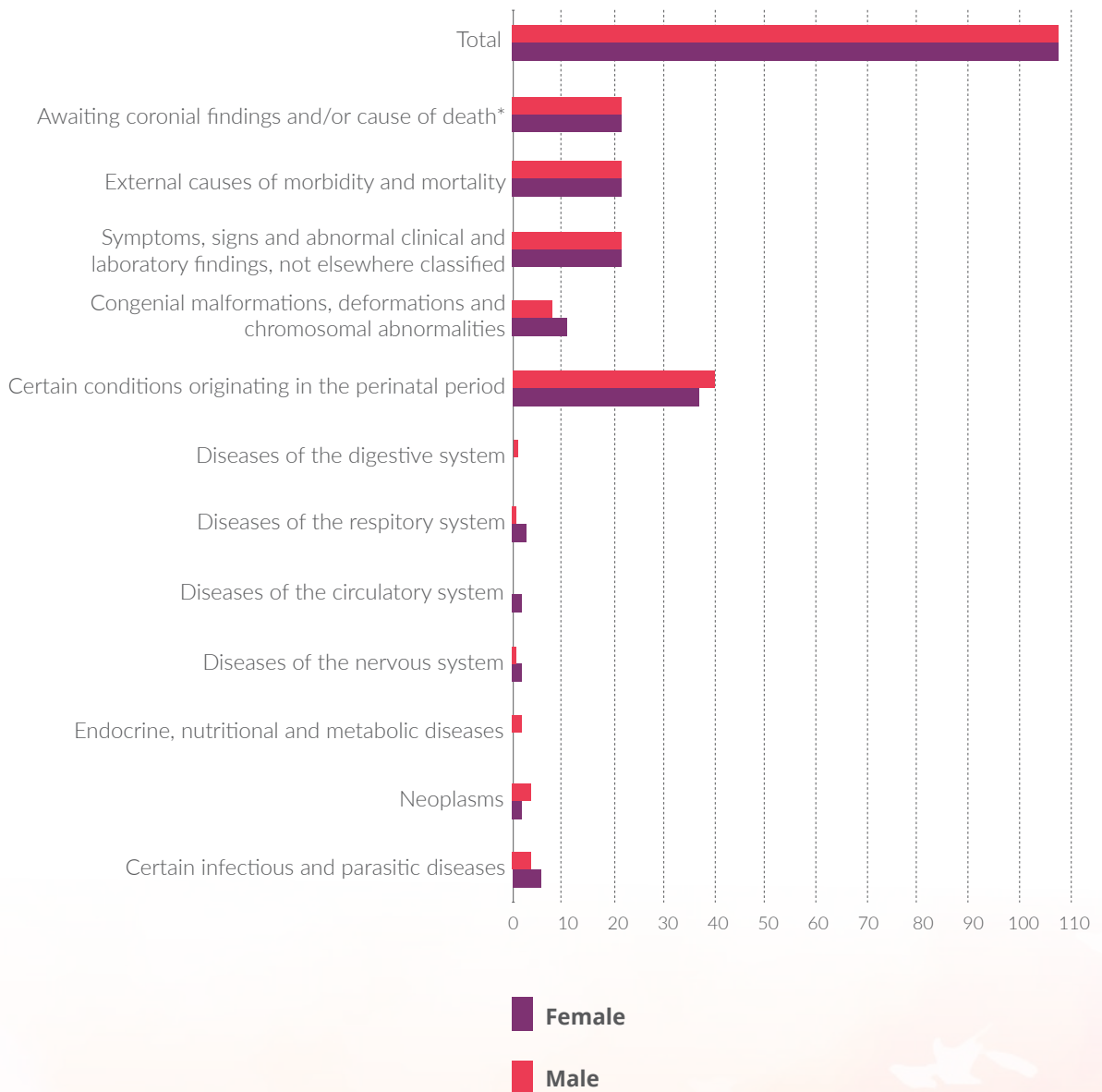
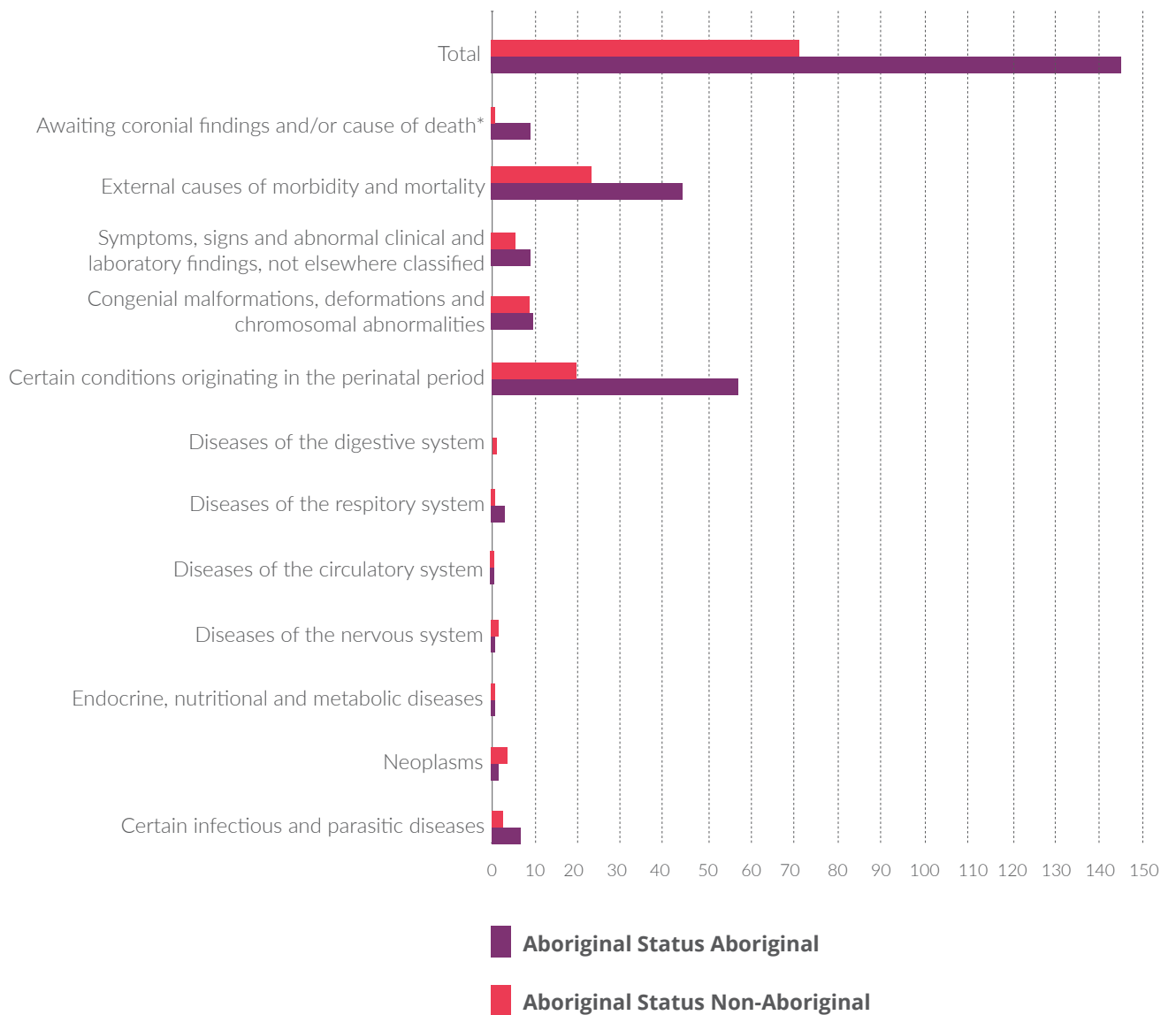


Figure 4: Underlying cause of death by ICD-10 chapter and Aboriginal status, NT, 2013-2017



Underlying cause of death by ICD-10 chapter and usual residence, NT, 2013-2017

Table 14: Underlying cause of death by ICD-10 chapter and usual residence, NT, 2013-2017

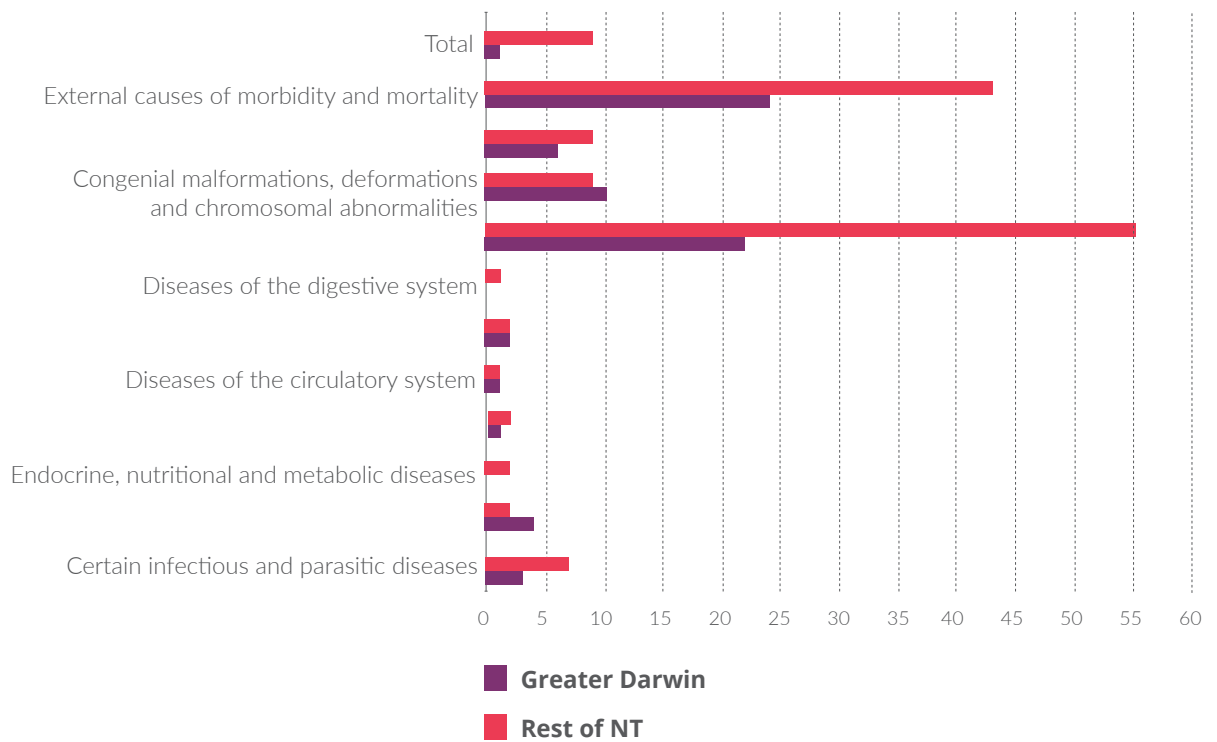
ICD-10-AM Chapter Descriptions	Greater Darwin	Rest of NT
Certain infectious and parasitic diseases	3	7
Neoplasms	4	2
Endocrine, nutritional and metabolic diseases	0	2
Diseases of the nervous system	1	2
Diseases of the circulatory system	1	1
Diseases of the respiratory system	2	2
Disease of the digestive system	0	1
Certain conditions originating in the perinatal period	22	55
Congenital malformations, deformations and chromosomal abnormalities	10	9
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	6	9
External causes of morbidity and mortality	24	43
Awaiting coronial findings and/or cause of death*	1	9
Total	74	142

Source: NT Child Deaths Register

*includes 16 deaths which are still open coronial cases

Of the 216 child deaths recorded, 142 (65.77%) were from the Rest of the NT. The leading cause of death in Greater Darwin was 'external causes' 24 (11.1%) and in the Rest of NT was 'certain conditions originating in the perinatal period' 55 (25.4%).

Figure 5: Underlying cause of death by ICD-10 chapter and usual residence, NT, 2013-2017



Source: NT Child Deaths Register

*includes 16 deaths which are still open coronial cases

Underlying cause of death by ICD-10 chapter and age group, NT, 2013-2017

The largest number of deaths in children aged less than 1 year was from 'conditions originating in the perinatal period' 76 or 62.8% followed by 'congenital malformations, deformations and chromosomal abnormalities' 16 or 13.2%. The latter figure includes Sudden Infant Deaths (SIDS) and Sudden Unexpected Death in Infancy (SUDI). For all other age groups, the leading cause of death was 'external causes'. As previously stated under Table 13 'external causes' includes motor vehicle accidents, drownings and intentional self-harm which are potentially preventable causes of death.

Table 15: Underlying cause of death by ICD-10 chapter and age group, NT, 2013-2017

ICD-10-AM Chapter Descriptions	< 1 year	1 - 4 years	5 - 9 years	10 - 14 years	15 - 17 years
Certain infectious and parasitic diseases	3	5	0	1	1
Neoplasms	1	2	1	1	1
Endocrine, nutritional and metabolic diseases	0	2	0	0	0
Diseases of the nervous system	1	0	1	1	0
Diseases of the circulatory system	1	0	0	0	1
Diseases of the respiratory system	2	1	1	0	0
Diseases of the digestive system	0	1	0	0	0
Certain conditions originating in the perinatal period	76	1	0	0	0
Congenital malformations, deformations and chromosomal abnormalities	16	0	2	1	0
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	13	2	0	0	0
External causes of morbidity and mortality	4	11	4	19	29
Awaiting coronial findings and/or cause of death*	4	2	0	0	4
Total	121	27	9	23	36

Source: NT Child Deaths Register

Proportions may differ from last year's report due to updated numbers, late registration etc.

*includes 10 deaths which are still open coronial cases

Appendices

Appendix 1: Table of underlying cause of child deaths by ICD-10 chapters, NT, 2013-2017

Number of Deaths	Causes - ICD-10 Chapter 1: Certain infectious and parasitic diseases (A00-B99)
1	Acute meningococcaemia
2	Cytomegaloviral disease, unspecified
1	Gastroenteritis and colitis of unspecified origin
1	Sepsis due to Pseudomonas
1	Sepsis, unspecified
1	Sepsis due to unspecified staphylococcus
1	Sequelae of viral encephalitis
1	Meningococcal meningitis
1	Enterovirus infection, unspecified site
10	Total

Number of Deaths	ICD-10 Chapter 2: Neoplasms (C00-D48)
1	Malignant neoplasm of lower lobe, bronchus or lung
1	Malignant neoplasm of adrenal gland, unspecified
1	Malignant neoplasm of kidney, except renal pelvis
1	Malignant neoplasm of bone and articular cartilage, unspecified
2	Malignant neoplasm of brain, unspecified
6	Total

Number of Deaths	ICD-10 Chapter 4: Endocrine, nutritional and metabolic diseases (E00-E99)
1	Disorders of copper metabolism
1	Other sphingolipidosis
2	Total

Number of Deaths	ICD-10 Chapter 6: Diseases of the nervous system (G00-G99)
2	Cerebral palsy, unspecified
1	Anoxic brain damage, not elsewhere classified
3	Total

Number of Deaths	ICD-10 Chapter 9: Diseases of the circulatory system (I00-I99)
1	Dilated cardiomyopathy
1	Ventricular tachycardia
2	Total

Number of Deaths	ICD-10 Chapter 10: Diseases of the respiratory system (J00-J99)
1	Pneumonia due to Haemophilus influenzae
1	Pneumonia due to Mycoplasma pneumoniae
1	Bronchopneumonia, unspecified
1	Respiratory disorder, unspecified
4	Total

Number of Deaths	ICD-10 Chapter 11: Disease of the digestive system (K00-K99)
1	Acute periodontitis
1	Total

Number of Deaths	ICD-10 Chapter 16: Certain conditions originating in the perinatal period (P00-P96)
1	Fetus and newborn affected by maternal hypertensive disorders
1	Fetus and newborn affected by maternal infectious and parasitic diseases
3	Fetus and newborn affected by incompetent cervix
8	Fetus and newborn affected by premature rupture of membranes
3	Fetus and newborn affected by other forms of placental separation and haemorrhage
1	Fetus and newborn affected by other malpresentation, malposition and disproportion during labour and delivery
3	Fetus and newborn affected by multiple pregnancy
14	Fetus and newborn affected by chorioamnionitis
2	Fetus and newborn affected by other maternal complications of pregnancy
1	Fetus and newborn affected by other and unspecified conditions of umbilical cord
1	Fetus and newborn affected by other maternal conditions
1	Fetal blood loss from ruptured cord
12	Extremely low birth weight 499g or less
5	Extremely low birth weight 500 - 749g
1	Extremely low birth weight 750 - 999g
1	Other low birth weight 1250 - 1499g
1	Other low birth weight 1500 - 2499g
5	Extreme immaturity, less than 24 completed weeks
1	Extreme immaturity, 24 or more completed weeks but less than 28 completed weeks
1	Respiratory distress syndrome of newborn
3	Termination of pregnancy, affecting fetus and newborn
2	Unspecified intraventricular (nontraumatic) haemorrhage of fetus and newborn
1	Prematurity, unspecified
1	Other bacterial sepsis of newborn
1	Slow fetal growth, unspecified
1	Neonatal aspiration of meconium
2	Intraventricular (nontraumatic) haemorrhage, grade 3, of fetus and newborn
77	Total

Number of Deaths	ICD-10 Chapter 17: Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
2	Tetralogy of Fallot
3	Patent ductus arteriosus
1	Osteogenesis imperfecta
1	Other specified congenital malformation syndromes predominantly affecting facial appearance
3	Chromosomal abnormality, unspecified
2	Other specified chromosome abnormalities
1	Microcephaly
1	Renal agenesis, unspecified
1	Down's syndrome, unspecified
1	Atresia of foramina of Magendie and Luschka
1	Hypoplastic left heart syndrome
1	Patau's syndrome, unspecified
1	Congenital eventration of diaphragm
2	Chromosomal abnormality, unspecified
19	Total

Number of Deaths	ICD-10 Chapter 18: Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)
6	Other ill-defined and unspecified causes of mortality
8	Sudden infant death syndrome with mention of autopsy
1	Other specified general symptoms and signs
15	Total

Number of Deaths	ICD-10 Chapter 20: External causes of morbidity and mortality (V00-Y99)
1	Pedal cyclist injured in collision with fixed or stationary object, driver, nontraffic accident
1	Pedal cyclist injured in collision with car, pick-up truck or van, driver, traffic accident
1	Car occupant injured in collision with fixed or stationary object, while boarding or alighting, sedan
2	Car occupant injured in collision with fixed or stationary object, passenger, traffic accident, sedan
1	Car occupant injured in collision with car, pick-up truck or van, driver, traffic accident, sedan
1	Car occupant injured in noncollision transport accident, passenger, traffic accident, sedan
3	Car occupant injured in noncollision transport accident, passenger, traffic accident, all-terrain four-wheel drive
2	Accident to other private fixed-wing aircraft, injuring occupant
3	Drowning and submersion following fall into swimming-pool
2	Drowning and submersion following fall into natural water
2	Drowning and submersion while in natural water
2	Hanging, strangulation and suffocation, undetermined intent
2	Other accidental hanging and strangulation
1	Inhalation and ingestion of food causing obstruction of respiratory tract
1	Inhalation and ingestion of other objects causing obstruction of respiratory tract, other specified object
25	Intentional self-harm by hanging
1	Occupant of pick-up truck or van injured in noncollision transport accident, person on outside of vehicle, nontraffic accident
1	Bitten or struck by crocodile or alligator
1	Other specified drowning and submersion
1	Exposure to uncontrolled fire in building or structure
1	Intentional self-harm by knife
2	Assault by knife, parent
1	Pedestrian injured in collision with car, pick-up truck or van, nontraffic accident
3	Pedestrian injured in collision with car, pick-up truck or van, traffic accident
1	Struck by thrown, projected or falling object
1	Accidental poisoning by and exposure to liquefied petroleum gas [LPG]
1	Accidental poisoning by and exposure to other specified gas and vapours
2	Accidental suffocation and strangulation in bed
1	Other specified fall from one level to another
67	Total

Number of Deaths	Not yet coded
10	Awaiting coronial findings
10	Total
	216 deaths over 2013-2017 Period

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