Annual Report 2006 – 2007

Child Death & Serious Injury Review Committee

Government of South Australia

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Letter of Transmission

Hon Jay Weatherill MP
Minister for Families and Communities

Dear Minister

I submit to you for presentation to Parliament the 2006-2007 Annual Report of the South Australian Child Death and Serious Injury Review Committee which has been prepared pursuant to Part 7C of the *Children's Protection Act 1993.*

This report highlights the Committee's activities in fulfilling its statutory obligations.

In compliance with the *Public Sector Management Act 1995* and the *Public Finance and Audit Act 1987* a further report concerning the management of human resources and financial issues of the Committee has been submitted as part of the Annual Report of the Department for Families and Communities 2006-2007.

Yours faithfully

Dymphna Eszenyi
Chair
Child Death and Serious Injury Review Committee

31 October 2007

Chair's Foreword

This is the second Annual Report of the Child Death and Serious Injury Review Committee to be presented under Part 7C of the *Children's Protection Act 1993.* This report considers the deaths of children in South Australia during 2006.

Through its reviews of the deaths of children the Committee has made recommendations to the Minister which may assist those who work with children and young persons and their families to assess risks and to provide better services to keep children safe.

In this, and in the previous Annual Report, the Committee has identified a group of deaths from external causes amenable to immediate action. These are the deaths of small infants associated with non-standard sleeping environments. Every parent deserves to be taught how to create a safe sleeping environment for their baby. Safe sleeping for babies is a message which can and should be repeated as each new generation of parents emerges.

The Committee Secretariat was expanded in 2007 to begin work reviewing serious injuries. The Committee acknowledges the across government commitment to supporting its work in this area.

I thank the Committee members and secretariat staff, in particular Dr Sharyn Watts, for their effort throughout the year.

On behalf of the Committee I extend my condolences to the families and friends of these children and to the professionals and communities who provided care for them.

Dymphna Eszenyi
Chair
Child Death and Serious Injury Review Committee

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Glossary

ABS	Australian Bureau of Statistics
Act	*Children's Protection Act 1993*
AEC	Adverse Events Committee - Families SA
AIHW	Australian Institute of Health and Welfare
ARIA+	ARIA stands for Accessibility/Remoteness Index of Australia. This Index is a distance-based measure of remoteness. It defines five categories of remoteness based on road distance to service centres: Major City; Inner and Outer Regional; Remote and Very Remote.
CESDI	Confidential Enquiry into Sudden Deaths in Infants (Fleming et al. 2000)
Coroner	State Coroner
CYWHS	Children, Youth and Women's Health Service
DFC	Department for Families and Communities
DTEI	Department of Transport, Energy and Infrastructure
ICD-10	International Classification of Disease (Version 10)
IMR	Infant Mortality Rate
NCCH	National Centre for Classification in Health, Brisbane
NSW CDRT	New South Wales Child Death Review Team
Queensland Commission	Queensland Commission for Children and Young People and the Child Guardian
Registrar	Registrar, Births Deaths and Marriages
SEIFA	The SEIFA (Socio-Economic Indexes for Areas) Index of Relative Disadvantage (IRDS) draws on a variety of personal and household characteristics (available from the 2001 Census) to rank household and socioeconomic status. In this report, IRDS scores have been divided into quintiles with quintile 1 representing areas of greatest advantage.
SIDS	Sudden Infant Death Syndrome
SUDI	Sudden Unexpected Death in Infancy
Victorian Council	Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity
WHO	World Health Organization

Committee Members

Chair
Ms Dymphna Eszenyi

Members
Mr George Beltchev (until 04-10-2006)
Mr Brian Butler
Professor Roger Byard
Ms Linda Doré
Mr Tim Goodes (until 10-10-2006)
Ms Di Gursansky
Dr Diana Hetzel
Ms Samantha Laubsch
Mr Chris Shakes (from 02-02-2007)
Dr Nigel Stewart
Ms Alison Tucker
Ms Fiona Ward
Dr Richenda Webb (from 02-11-2006)
Ms Helen Wighton
Detective Superintendent Peter Woite

Secretariat
Executive Officer
Dr Sharyn Watts

Senior Project Officer
Ms Ellen Rosenfeld (from 14-05-2007)

Administrative Officer
Ms Mary Surman (from 08-08-2006)

Acknowledgements

The Committee wishes to thank the following individuals and organisations for making themselves available to support the Committee's work:

Val Edyvean, Registrar, Births Deaths and Marriages and staff

Mark Johns, State Coroner and staff, especially **Jeanette Collins**, Administrative Officer

Ron Somers, Director and **Meg Clarke**, Senior Project Officer
Epidemiology Branch, Department of Health

Sue Walker, Associate Director and **Garry Waller**, Senior Classification Officer
National Centre for Classification in Health, Brisbane

Nicola Spurrier, Chair and **Annabelle Chan**, Executive Officer
Maternal, Per-natal and Infant Mortality Committee, Department of Health

Leena Sudano, Health and Community Services Complaints Commissioner

Executive Summary

Establishment and Purpose

The Child Death and Serious Injury Review Committee was established by the *Children's Protection Act 1993* (the Act) in February 2006.

The Committee reviews the circumstances and causes of deaths and serious injuries to children and makes recommendations to Government. Recommendations may suggest changes in systems, policies, procedures, practices or legislation that may help prevent similar deaths or serious injuries from occurring again.

Activities

In the 2006-2007 financial year reporting period, the Committee continued to monitor and analyse information concerning the circumstances and causes of the deaths of all children in South Australia.

As a result of these activities, the Committee has produced a report regarding the deaths of children in South Australia from 1 January 2006 - 31 December 2006. This report includes findings and recommendations based on this information.

The Committee also reports on the recommendations it has made arising from the in-depth reviews of child deaths that have been undertaken in this reporting period. The Committee has monitored the implementation of previous recommendations and provides information regarding their progress.

Child Deaths 2006

Between 1 January and 31 December 2006, one hundred and nineteen children died in South Australia. Females accounted for 58% of these deaths (69 deaths) and males for 42% (50 deaths).

The death rate for South Australian children aged between birth and 17 years was 31.9 deaths per 100 000 children. This death rate is slightly lower than the rate for 2005 which was 35.4 deaths per 100 000 children.

Children usually Resident Elsewhere

Nine children who died in South Australia were normally resident in another State or Territory. Six of these children died from illness or disease.

Aboriginal Children

Twelve children who died in 2006 were Aboriginal - ten per cent of the total number of children who died in this year. Six Aboriginal children died from illness or disease, with four of these deaths occurring in children less than one year old. Key reports concerning the health and wellbeing of Aboriginal people continue to emphasise their poorer health status compared to non-Aboriginal people, across a range of major indicators.

Contact with Families SA

In 2006 thirty children, their siblings or members of their family, had contact with Families SA in the three years preceding their death. The number of contacts ranged from one notification or instance of service provision to a history of multiple notifications involving the child and their family. For these contacts, the child and the child's family may have received any of the range of services available including guardianship, custody or supervision orders. Contact with Families SA may be considered as an indicator of socioeconomic disadvantage (Glover et al. 2006).

Age Group and Cause of Death

As in 2005, there was an association between age and type of death, with very young children dying primarily from illness or disease but the majority of older children dying from external causes such as transport incidents and suicide.

Infants less than one year old

Over half of the children who died in 2006 were under one year of age (63 deaths), with 29.4% dying in the first 28 days of life, primarily from various conditions relating to complications occurring during pregnancy or from extreme prematurity. Three children died from Sudden Infant Death Syndrome (SIDS) and four children died accidentally from smothering and suffocation in their bedding.

Children one to four years old

Nineteen children aged between one and four years died, representing 16% of the total number of children dying in 2006. A greater number of children died from external causes (12 deaths) than from illness or disease (7 deaths). Deaths from external causes included fatal assault, drowning, transport incidents and suspected fatal neglect.

Executive Summary

Children five to nine years

Twelve children aged between five and nine years died, representing ten per cent of the total number of children dying in 2006. Seven children died from illness or disease, including three children who died from various forms of cancer. Two of the five deaths from external causes to children in this age group were as a result of drowning.

Children ten to fourteen years

Six children aged between ten and 14 years died in 2006, the lowest number of children in any age group (5%). Four of these children died from various diseases and two died from external causes.

Children fifteen to seventeen years

Nineteen children aged between 15 and 17 years died in 2006. Thirteen of these children died from external causes, seven in transport incidents and five from suicide.

Deaths due to Illness or Disease

In 2006 the deaths of 67 children (53.6%) were attributed to illness or disease. Of these deaths, congenital malformations, deformations and chromosomal abnormalities accounted for the majority (22 deaths), primarily in infants less than 28 days old. Twenty deaths were attributed to conditions related to spontaneous premature labour, infections, haemorrhage and maternal conditions affecting the newborn. The majority of these deaths also occurred in infants less than 28 days old. Ten children died from cancer. These deaths occurred in children aged between one and 17 years.

External Causes of Death

Forty-one children (34.6%) died from external causes in 2006, with the greatest proportion dying in transport incidents. Fatal assault, suicide, drowning and health system related adverse events accounted for approximately equal numbers of deaths. Smaller numbers of children died from causes such as accidental asphyxia and suspected fatal assault.[1]

Transport

Eleven children died in transport incidents in 2006, accounting for 9.2% of the total number of deaths in 2006. Six deaths were of children aged between 15 and 17 years. In both 2005 and 2006, transport incidents were the leading external cause of death for children in South Australia and in particular for children aged between 15 and 17 years.

Suicide

Five children died as a result of suicide in 2006 - four per cent of the total number of deaths in 2006. Three of the five were female and all were aged between 15 and 17 years. The method used in all incidents was hanging. The Committee intends to undertake a review of the suicide deaths which have occurred in 2005-2006 with the intention of making recommendations that will inform current prevention, intervention and support strategies.

Drowning

Five children died in four drowning incidents in 2006. This represented four per cent of the total number of deaths in this year. These deaths occurred in a diversity of circumstances, however, the Committee continues to emphasise the importance of adult supervision of children, in particular of toddlers where any body of water is concerned. As little as five centimetres of water in a bucket can pose a drowning risk for young children.

Accidents

Accidental asphyxia accounted for the deaths of four infants under one year of age in 2006, 3.4% of the total number of deaths in this year. Three of these infants died in circumstances suggesting accidental smothering in their bedding. As in 2005, the Committee again noted the association between this type of death and indicators of socioeconomic disadvantage.

The Committee recognises the need for services to support families who may not fall within the legal mandate for intervention required by agencies such as Families SA, and who may require more specific and targeted support than that which can be provided by services such as family home visiting.

Fatal assault

Six children died in five incidents attributed to fatal assault, accounting for five per cent of deaths in 2006. In 2005 two deaths were attributed to fatal

Reference:

1 Definition of terms used to classify causes of death can be found in Sections 2.5 and 2.6

assault, accounting for only 1.5% of the total number of deaths in that year. The proportion of children dying from fatal assault was greater in 2006 compared to 2005 when fatal assault accounted for 1.5% of the total number of deaths.

At the time of writing all cases remained open with either the South Australian Police, the Coroner or both. Once these inquiries have been completed, the Committee may resolve to review these cases in more detail.

Suspected fatal neglect

Three deaths appear to have occurred as the result of fatal neglect, accounting for 2.5% of the total number of deaths in 2006. Based on the information available, in all three cases it would appear that the basic needs of these children were not being met. One of these cases is currently under review by the Committee. In 2007, the Committee intends to undertake a review of all three cases to examine further the systemic issues for service provision arising from these cases.

Sudden Infant Death Syndrome and Deaths from Undetermined Causes

Three infants died from Sudden Infant Death Syndrome (SIDS) and five from undetermined causes. In four of these latter cases, smothering and suffocation could not be excluded as a cause of death.

Recommendations

The Committee is concerned about the number of infants who died in unsafe sleeping environments in 2006. Parents or carers require access to information that will enable them to recognise the importance of a safe sleeping environment for infants. Some parents or carers may also require access to practical resources. Others may need support that ensures financial and family stability.

In-Depth Reviews

Of the cases screened by the Committee in this reporting period, 16 were identified for in-depth review. Two are currently under review. The majority await closure of criminal and/or coronial investigations.

Recommendations arising from completed in-depth reviews have highlighted issues concerning interagency exchange of information and collaboration and the role of a 'lead agency' in case management. The comprehensive delivery of services to children in rural and remote areas of the State was also recommended.

Recommendations relating to particular government departments were also made. With regard to Families SA, recommendations addressed issues such as the accurate assessment of risk to children, including the integration of policies and procedures that acknowledge the risk to children of exposure to domestic violence. The comprehensive assessment of parenting capacity was also recommended. Recommendations specific to the Department of Health included action to support national standards for child-resistant blister packaging of medications and the development of expertise in child protection issues amongst medical practitioners.

In this reporting period, the Committee has documented progress on the implementation of previous recommendations. The Committee was forwarded responses to its recommendations from various government departments. In general the Committee was impressed by the willingness of agencies to address the issues raised in its recommendations and it will continue to monitor the implementation of these recommendations.

The Committee recommends:

- Every infant be provided with a safe sleeping environment.
- State-wide programs or campaigns be developed and resourced to build the knowledge and confidence of parents or carers so that they know how to provide safe sleeping arrangements for infants.
- State-wide support programs be developed and resourced to provide safe sleeping environments for infants in disadvantaged families, including if necessary the provision of appropriate cots or beds and ongoing support to ensure that safe sleeping arrangements be maintained.

Structure of the Annual Report

This report has been organised into five sections.

SECTION 1: ACTIVITIES, PROGRESS AND PLANS 2006-2007

This section reviews the reasons for the establishment of the Committee. It provides an overview of the Committee's activities in the financial year reporting period 2006 2007, the Committee's contribution to South Australia's Strategic Plan and a synopsis of the legislation that established the Committee's powers and functions. An outline of the Committee's aims for the coming year is also presented in this section.

SECTION 2: CHILD DEATHS SA 2006

With the agreement of the Minister for Families and Communities and in accordance with common reporting procedures, although submitting its report at the conclusion of the financial year 2006-2007 the Committee reports, in this section, on the deaths of children in South Australia in the 2006 calendar year.

SECTION 3: IN-DEPTH REVIEWS 2006-2007

The report presented in this section outlines the review process, the cases the Committee has identified for review, and a synopsis of the recommendations arising out of the reviews it has undertaken. Monitoring of actions in response to the Committee's recommendations is also contained in this section.

SECTION 4: SERIOUS INJURY

The commencement of the Committee's work in the area of serious injuries to children is outlined in this section.

SECTION 5: REFERENCES

This section provides details concerning methodological issues, discussion of definitional issues referred to in Section 2, and a bibliography.

Section 1

Activities, Progress and Plans 2006 – 2007

Section 1: Activities, Progress and Plans

1.1 ESTABLISHMENT

The Child Death and Serious Injury Review Committee was established by the *Children's Protection Act 1993* (the Act) in February 2006. It is an initiative arising out of recommendations made in *Our best investment: a State plan to protect the interests of children (Layton, 2003).* An interim committee operated under directions issued by Cabinet from April 2005 until February 2006.

The Committee reviews the circumstances and causes of deaths and serious injuries to children and makes recommendations to Government. Recommendations may suggest changes in systems, policies, procedures practices or legislation that may help prevent similar deaths or serious injuries from occurring again.

It is funded through the *Keeping Them Safe* initiative with further contributions from the Department for Families and Communities, the Department of Health and the Department of Education and Children's Services. From its inception a small secretariat located within the Department for Families and Communities has assisted the Committee. Administrative, financial and human resource management is overseen by this department.

1.2 LEGISLATION

The legislation establishing the Committee is contained in Part 7C of the Act. Part 7C was inserted into the Act by the *Children's Protection (Keeping them Safe) Amendment Act 2005.* It came into operation on 1 February 2006.[2]

In summary, the legislation authorises the Committee to:

- maintain a database of the circumstances and causes of child death or serious injury that occurs in South Australia;
- review child deaths and serious injury with the aim of identifying legislative or administrative means of preventing such deaths or injuries in the future;
- request any person to produce a document that is relevant to a review;
- enter into arrangements with other Government agencies for the release of information relevant to a review;
- recommend legislative or administrative change based on its reviews;
- monitor the implementation of its recommendations;
- maintain links with similar bodies interstate and overseas.

The Committee is not required to individually review all cases of child death or serious injury and may not undertake a review if this would compromise any ongoing criminal investigation or coronial inquiry. However, it should review cases:

- where there are indications of abuse or neglect; or
- where the child or a member of the child's family has been the subject of a child protection notification in the past three years; or
- where the child was under the guardianship of the Minister or was in the care of a Government agency; or
- that have been referred to it by the Coroner.

The information acquired by the Committee cannot be disclosed to any person and is not required to be disclosed under the *Freedom of Information Act 1991.*

The Committee must report to the Minister for Families and Communities as required and annually. The Minister must table the Committee's annual report in Parliament.

1.3 COMMITTEE ACTIVITIES 2006-2007

From 1 July 2006 to 30 June 2007 the Committee met on ten occasions.

During this period the Committee:

- continued to identify and screen all cases of child death occurring in South Australia (see Section 2);
- considered the eligibility of all screened cases for in-depth review, chose eligible cases for review, and commenced or completed in-depth reviews of certain cases (see Section 3);
- presented its *Annual Report 2005-2006* to the Minister for Parliament; and
- commenced work concerning serious injury (see Section 4);

Reference:

2 The *Children's Protection Act 1993* can be accessed at the following web-link: http://www.legislation.sa.gov.au

- corresponded on an *ad hoc* basis with various agencies where the Committee identified immediate opportunities to contribute to the prevention of further deaths or serious injuries;
- met with agencies or organisations in a position to contribute to the work of improving the health and wellbeing of children in South Australia; and
- liaised with other State and Territory Child Death Review teams through attendance at the second annual national meeting of the Australian and New Zealand Child Death Review teams, held in Victoria in March 2007.

1.4 PLANS

The Committee will continue to:

- support South Australia's Strategic Plan to contribute to and monitor improvements in the health and wellbeing of South Australia's children;
- monitor and analyse trends and patterns in the deaths of children;
- review in-depth certain cases of child death;
- monitor the implementation of the recommendations arising from these activities; and
- develop its work in the area of serious injury.

Section 2

Child Deaths South Australia 2006

Section 2: Child Deaths South Australia 2006

2.1 WHY REPORT ON CHILD DEATHS?

The circumstances and causes of the deaths of children (aged between birth and 17 years) in South Australia from 1 January 2006 to 31 December 2006 are described in this section.

Opportunities for prevention can be identified through the systematic collection and analysis of morbidity and mortality data. Improvements to child-focused systems and services and changes to policies or practices can assist in the prevention of further deaths and injuries, and contribute to reducing human and financial costs to the community and to Government.

The majority of children die from illness or disease, including conditions relating to premature birth, infections, genetic abnormalities and cancer. The risk of dying from some forms of illness or disease may be reduced through the identification of systemic issues, however some risks cannot be completely eliminated with current technology and resources (Tang et al. 2007). Deaths from illness and disease are considered in Section 2.4. Deaths from 'external' causes such as transport incidents, accidental asphyxia or suicide and the sudden and unexpected deaths of infants, offer further opportunities for prevention. The circumstances and causes of these deaths are detailed in Sections 2.5 and 2.6.

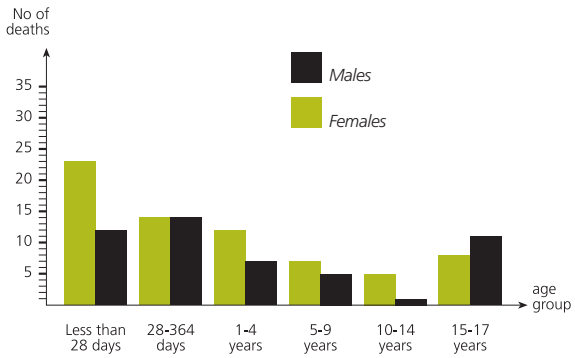
The Committee noted in the Annual Report 2005-2006, (Child Death and Serious Injury Review Committee, 2006) that trends and patterns in the deaths of children take time to emerge. Such trends are usually identified when there are a significant number of deaths from a particular cause or related to certain circumstances. The Committee's database only dates back to the beginning of 2005. In the current report small changes in numbers must be interpreted with caution.

2.2 OVERVIEW OF CHILD DEATHS 2006

One hundred and nineteen children died in South Australia between 1 January and 31 December 2006 (Figure 1).

In 2006, more females died (69) than males (50). This difference is particularly notable in the deaths of infants aged less than 28 days and is persistent across age groupings with the exception of children aged between 15 - 17 years. There are usually more deaths of male children than female, as was the case in South Australia in 2005. There is no readily identified reason for the 2006 numbers as shown in Figure 1 or as reflected in the death rates in Table 1. The Committee will not be in a position to identify trends or fluctuations until it has accumulated data over at least three years.

Figure 1: Deaths of children by sex and age, South Australia 2006*



** Source: Child Death and Serious Injury Review Committee database*

2.2.1 'Cause Not Yet Known'

At the time of writing the Coroner had provided cause of death information concerning 114 of the 119 deaths occurring in 2006. The Committee awaits information from the Coroner about the remaining five deaths. In some of these cases the information available has enabled the Committee to determine the category of death. Other cases await further information before the death can be classified by the Committee. These deaths are noted in the relevant sections.

The Committee notes that the Coroner's office continues to experience delays in receiving post mortem reports, primarily attributed to a shortage of forensic pathologists.

2.2.2 Deaths of Children Usually Living Outside South Australia

Nine of the children who died in South Australia in 2006 usually lived outside of the State; 7.6% of all children who died in South Australia in 2006. Four of these children were usually resident in the Northern Territory. Three children were normally resident in Victoria, one in Tasmania and one in New South Wales.

Six of these children died from illness or disease. For five of these children the incident leading to their death occurred in their State or Territory of residence and their death occurred after transfer to a South Australian

hospital for further medical care. These deaths will be noted in the relevant sections of the report.

2.2.3 Death Rates

Death rates, adjusted for age, are given in Table 1. The nine children who died in South Australia but were usually resident in another State or Territory are excluded from this analysis.

Table 1: Death rates per 100 000 children by sex and age, South Australia 2006*

Age at Death	Female		Male		Total	
	No.	Rate	No.	Rate	No.	Rate [3]
Under 1	36	408.5	24	259.0	**60**	**331.9**
1 - 4	10	29.0	7	19.4	**17**	**24.1**
5 - 9	5	10.9	5	10.4	**10**	**10.6**
10 - 14	4	8.1	1	-	**5**	**5.0**
15 - 17	7	23.5	11	34.6	**18**	**29.2**
ALL AGES	**62**	**36.8**	**48**	**27.1**	**110**	**31.9**

**Source: Child Death and Serious Injury Review Committee database*

In 2006, the overall death rate for South Australian children was 31.85 deaths per 100 000 children. This rate is slightly lower than the rate reported in 2005 of 34.5 deaths per 100 000 children. The death rate for females - 36.8 deaths per 100 000 female children - was considerably higher than the death rate for males 27.1 deaths per 100 000 male children. These differences were particularly marked in the rates of death for children aged less than one year and to a lesser but still significant degree for children between one and four years old.

Infant Mortality Rates

Infant mortality is widely used as an indicator of the health of a population as there is a demonstrated association between infant mortality and a population's standard of living. In general, the greatest proportion of infant deaths is attributed to events occurring during pregnancy and birth such as prematurity, congenital anomalies and intra-partum conditions.

The infant mortality rate for all infants up to one year of age for 2006 was 3.4 deaths per 1000 live births (63 deaths). This rate is lower than the rate for 2005 which was 4.6 deaths per 1000 live births. Forty-three of these infants died from illness or disease and eight from undetermined causes or SIDS. Nine infants died from external causes including four from accidental asphyxia and two from health system-related adverse events.

The Maternal, Perinatal and Infant Mortality Committee of South Australia (MPIMC) provides a comprehensive annual report concerning the deaths of infants in South Australia. The twentieth report of this committee (Maternal, Perinatal and Infant Mortality in South Australia, 2005) recorded an infant mortality rate of five deaths per 1000 live births in 2005 and noted that this rate was higher than the rate in the previous five years (IMR = 3.7, 2003; IMR = 4.8, 2004). The MPIMC calculates infant mortality rates using infants born in South Australia as the numerator for its calculations. The Child Death and Serious Injury Review Committee bases its calculation on the number of infants who have died in South Australia, as registered with the Office of Births, Deaths and Marriages, including those infants not normally resident in South Australia thus the number of deaths and death rates will vary between these two committees.

Reference:

3 See Section 4.1 'Methodological Issues' for details concerning the calculation of death rates. These rates have been calculated using the ABS population projections for 2006.

Table 2: Death of children by cause of death and sex, South Australia 2006*

Cause of Death (per Committee Classification)	Females	Males	Total	%
Illness or Disease	**43**	**24**	**67**	**56.3**
SIDS & Undetermined Causes	**5**	**3**	**8**	**6.7**
External Causes				
Transport	6	5	11	9.2
Fatal assault	3	3	6	5.0
Suicide	3	2	5	4.2
Drowning	2	3	5	4.2
Health-system related	4	1	5	4.2
Accidental asphyxia	2	2	4	3.4
Suspected fatal neglect	1	2	3	2.5
Accidents	-	1	1	0.8
Fire	-	1	1	0.8
External Causes - Total	**21**	**20**	**41**	**34.6**
Cause Not Yet Known	**-**	**3**	**3**	**2.5**
TOTAL	**69**	**50**	**119**	
Percentage	**58.0**	**42.0**		**100**

**Source: Child Death and Serious Injury Review Committee database*

2.2.4 Causes of Death

In Section 2 and subsequent sections of the report, the Committee's system of classifying deaths is provided. The ICD-10 coding of deaths is provided in Section 5 for both the current (2006) and previous (2005) reporting periods. Table 2 outlines the cause of child deaths by sex in 2006.

The majority of deaths in 2006 occurred as a result of illness or disease. These deaths included deaths from conditions related to the prematurity of infants, congenital conditions or chromosomal abnormalities, but also included deaths from cancer and respiratory diseases. The higher proportion of female compared to male deaths is evident in the deaths from illness or disease. These deaths are considered in greater detail in Section 2.4.

Just over one third of children, with almost equal numbers of males and females, died from external causes, with the highest proportion dying in transport incidents. The deaths of six children were attributed to fatal assault and three to suspected fatal neglect. Similar numbers of children died from suicide, in drowning accidents or in probable health system-related adverse events. The latter have been classified as such by the Committee based on written records which may not necessarily be complete. The Committee places a death in this category based on consideration of prevention rather than an investigation of the cause of death. Eight children under one year of age died from SIDS or an undetermined cause.

2.2.5 Age and Cause of Death

Information concerning age and cause of death is presented in Table 3 and discussed in the following sections. Further details about age and causes of death are presented in Section 5.3.

Over half of the children who died in 2006 were under one year of age, with 29.4% of children dying in the first 28 days of life, primarily from illness or disease, including the complications of pregnancy. The greater numbers of children dying in the first year of life reflects this as a period of maximum vulnerability for children in terms of both their individual health and also their susceptibility to external causes of death. At this age infants are entirely dependent on the adults caring for them. Between 28 days and one year of age, causes of death were almost equally distributed between the three major types of death - illness and disease, SIDS and external causes.

*Table 3: Deaths of children by cause of death and age, South Australia 2006**

Cause of Death (per Committee Classification)	< 28 days	28 days to 1 year	1-4 years	5-9 years	10-14 years	15-17 years	Total	%
Illness or Disease								
Congenital malformations, deformations and chromosomal abnormalities	16	2	2	1	-	2	23	19.3
Certain conditions originating in the perinatal period	17	3	-	-	-	-	20	16.8
Cancer	-	-	3	3	1	3	10	8.4
Diseases of the nervous system	-	4	1	2	1	1	9	7.6
Diseases of the circulatory system	-	-	-	1	1	-	2	1.7
Certain infections and parasitic diseases	-	1	-	-	-	-	1	0.8
Endocrine, nutritional and metabolic diseases	-	-	1	-	-	-	1	0.8
Diseases of the respiratory system	-	-	-	-	1	-	1	0.8
Illness and Disease – Total	***33***	***10***	***7***	***7***	***4***	***6***	***67***	***56.3***
SIDS and Undetermined Causes								
Undetermined	-	5	-	-	-		5	4.2
SIDS	-	3	-	-	-	-	3	2.5
SIDS and Undetermined Causes – Total	***-***	***8***	***-***	***-***	***-***	***-***	***8***	***6.7***
External Causes								
Transport	1	-	2	1	-	7	11	9.2
Fatal assault	-	1	3	1	1	-	6	5.0
Suicide	-	-	-	-	-	5	5	4.2
Drowning	-	1	2	2	-	-	5	4.2
Health-system related	1	1	3	-	-	-	5	4.2
Accidental asphyxia	-	4	-	-	-	-	4	3.4
Suspected fatal neglect	-	-	2	-	1	-	3	2.5
Accidents	-	-	-	-	-	1	1	.8
Fire	-	-	-	1	-	-	1	.8
External Causes – Total	***2***	***7***	***12***	***5***	***2***	***13***	***41***	***34.6***
Cause Not Yet Known	**-**	**3**	**-**	**-**	**-**	**-**	**3**	**2.5**
NUMBER TOTAL (deaths per age group)	**35**	**28**	**19**	**12**	**6**	**19**	**119**	
PERCENTAGE TOTAL (deaths per age group)	**29.4**	**23.5**	**16.0**	**10.1**	**5.0**	**16.0**		**100**

** Source: Child Death and Serious Injury Review Committee database.*

Growing physical independence but continuing vulnerability is also reflected in the increasing percentage of deaths from external causes for children aged between one and four years. These children are more interactive with their environments. They require a high level of supervision and care which still leaves them dependent on the adults caring for them to meet their needs in age-appropriate ways. Twelve children in this age group died from various external causes including fatal assault and health system related adverse events, and seven died from illness or disease.

The smallest proportion of children who died were in the five to nine year age group, representing the 'middle years' of childhood. These children are usually participating in formal education which provides a high level of supervision and care and increasing levels of independence. These circumstances are reflected in the small numbers of children dying from external causes in these years.

Sixteen per cent of children were aged between 15 and 17 years at the time of their death. In this age group a greater number of children died from external causes. These years are a period of transition from childhood to adulthood, with emotional, physical and intellectual change occurring rapidly (Australian Institute of Health & Welfare, 2007). For many, this period of increasing independence is reflected in more time spent with peers, greater risk-taking behaviour and experimentation with alcohol and/or drugs, challenging relationships with family and friends, reduced involvement with formal

systems such as education, and access to a driver's licence.

Children Less Than 28 Days Old

Thirty-five children were less than 28 days old at death, 29.4% of the total number of children who died in 2006. The majority of infants in this age group died from illness or disease and only two children died from external causes. Twenty-three infants were female. The mean age of this group was 2.77 days. Fifteen of the 35 infants died in the first day of life and 26 died within the first two days of life.

Seventeen infants died from various conditions originating in the perinatal period, in particular from the effects of maternal complications of pregnancy and from the effects of placental separation and haemorrhage.

Sixteen infants died from congenital malformations, deformations and chromosomal abnormalities, including four infants who died from hypoplastic left heart syndrome.

Children 28 Days to One Year Old

The mean age of the 28 children who died in this age group was 4.5 months. They represented 23.5% of the total number of children who died in 2006. Just over one third of these children, with equal numbers of females and males, died from illness or disease, with four children dying from various degenerative diseases of the nervous system. For eight children the cause of death remained essentially unexplained, with three children's deaths attributed to SIDS and five to undetermined causes. This number roughly equals the number of children who died from various external causes, the majority from accidental asphyxiation. For three deaths, information is still not available from the Coroner.

Children One to Four Years Old

Nineteen children died in this age group, representing 16% of the total number of children who died in 2006. The mean age of these children was 2.15 years. Twelve females died and seven males. All deaths from illness or disease were of female children, with three dying from various forms of cancer, including two children who died from acute myeloid leukaemia. In this age group a higher proportion of children died from external causes. Three male children died from fatal assault and two children died from causes attributed to neglect. Three children died from causes related to health system-related adverse events.

Children Five to Nine Years Old

Ten per cent of the total number of children who died in 2006 were aged between five and nine years. Seven were female and five were male and their average age was seven years. Seven children, four females and three males, died from illness or disease including two children who died from acute lymphoblastic leukaemia. Other children died from conditions including unspecified epilepsy and Wernig-Hoffman syndrome. Of the five children who died from external causes, two died in drowning accidents.

Children Ten to Fourteen Years Old

The lowest percentage of children died in this age group (5%). Five children were female and one was male, with an average age of 12.4 years. Four females died from illness or disease including conditions such as unspecified epilepsy, asthma and infective myocarditis. Only two children died from external causes, with one death attributed to fatal assault and the other to suspected fatal neglect.

Children Fifteen to Seventeen Years Old

Sixteen per cent of the total number of children who died in 2006 were aged between 15 and 17 years. The average age was 16.7 years. Eight children were females, 11 were males. Six children died from illness or disease including two who died from malignant brain tumours and one from lymphoblastic lymphoma. Thirteen of the 19 children died from external causes. Transport incidents accounted for seven of these 13 deaths. The deaths of five children in this age group were attributed by the Committee to suicide. Three of these children were females and two were males.

2.3 'AT RISK' GROUPS OF CHILDREN

Circumstances such as living in remote areas of the State, being Aboriginal, or being poor can present risks to the health and wellbeing of children. Deaths amongst these groups of children are considered in more detail in the following sections.

2.3.1 Children Living in Remote Areas - ARIA+

ARIA+ represents the Accessibility and Remoteness Index of Australia. The ARIA methodology was developed by the Australian Government Department of Health and Aged Care in 1977. Minor changes have been made to this original methodology, resulting in the ARIA+ index of remoteness. The index is a distance based measure of remoteness which defines five categories of remoteness based on road distance to

Table 4: Deaths of children and geographic remoteness (ARIA+), South Australia 2006*

ARIA + category	Number of deaths	%	Adjusted Death Rate
Major City	71	64.5	**31.4**
Inner Regional	14	12.7	**31.9**
Outer Regional	17	15.5	
Remote	3	2.7	**34.9**
Very Remote	5	4.5	
TOTAL	**110**	**100**	

** Source: Child Death and Serious Injury Review Committee database.*

major service centres. Categories are determined by reference to postcode (Australian Institute of Health & Welfare, 2004). The categories are:

- major city - where there are assumed to be minimal restrictions on the accessibility to the widest range of goods, services and opportunities for social interaction. In South Australia, Adelaide is an example of a major city area;
- inner regional - e.g. areas such as the Adelaide hills;
- outer regional - e.g. areas such as Mount Gambier;
- remote - e.g. areas such as Port Lincoln; and
- very remote - children living in a very remote area would be assumed to have very little access to goods and services or opportunities for social interaction. Areas of northern South Australia are examples of very remote areas.

Table 4 gives details of the number of deaths in each ARIA+ category, the percentage of the total number of deaths for each category and the death rate, which has been calculated with reference to the number of children living in these areas. Only children who are resident in South Australia at the time of their death are included in these figures.

Table 4 indicates the majority of children who died in 2006 lived in areas designated as 'major city'. Death rates are similar across metropolitan, inner/outer regional and remote/very remote areas. As noted in the Committee's Annual Report 2005-2006 (Child Death and Serious Injury Review Committee, 2006), the small numbers available for analysis make comparisons between regions or across years difficult as an increase of one or two deaths may alter percentages and rates significantly.

2.3.2 Children Living in Areas of Socioeconomic Disadvantage - SEIFA

The SEIFA (Socio-Economic Indexes for Areas) Index of Relative Disadvantage (IRDS) draws on a variety of personal and household characteristics (available from the 2001 Census) to rank household and socioeconomic status. In this report, SEIFA scores are divided into five quintiles, each representing one fifth of the population, with the least disadvantaged populations represented in quintile 1.

The association between health and disease with factors such as socioeconomic status has been widely demonstrated in various populations. Health inequalities and risks have been linked to various markers of disadvantage such as access to education and income. It has been demonstrated that children from poorer families are at greater risk of death than those living in more affluent households.

Table 5 presents the number and percentage of deaths according to the five SEIFA quintiles.

Table 5: Deaths of children and socioeconomic disadvantage (SEIFA), South Australia 2006*

Quintile	1	2	3	4	5	Total
No. of deaths	17	20	22	26	25	**110**
% of deaths	15.5	18.2	20.0	23.6	22.7	**100**

** Source: Child Death and Serious Injury Review Committee database.*

The number of deaths per SEIFA quintile shows a gradient that is related to increasing socioeconomic disadvantage. Seventeen children died in areas of least disadvantage, compared to 25 deaths in areas of greatest disadvantage. This relationship was also observed in the deaths of children in South Australia in 2005 (Child Death and Serious Injury Review Committee, 2006).

2.3.3 Aboriginal Children

Twelve children who died in 2006 were Aboriginal - ten per cent of the total number of children who died in this year. This percentage is slightly lower than the percentage in 2005 when 12.5% of the deaths in that year were of Aboriginal children. The difficulty encountered in obtaining an accurate picture of Indigenous health both in South Australia and other States and Territories has been noted in various reports and has been largely attributed to incomplete recording of Indigenous status (e.g. South Australian

Government, 2003). These issues usually result in an under-estimate of the Indigenous population and may have a significant impact on the number of deaths of Aboriginal children recorded in any one year.

Key reports concerning the health and well being of Aboriginal people continue to emphasise their poorer health status, compared to non-Aboriginal people, across major indicators such as life expectancy, mortality, hospital admission and infant mortality (e.g. Australian Bureau of Statistics and Australian Institute of Health and Welfare, 2005).

Aboriginal children - usual residence

Four deaths were recorded of children who were not normally resident in South Australia, with three children normally resident in the Northern Territory and one in Victoria.

Aboriginal children - age and sex

Seven of the 12 children who died were male, five were female. Seven children were aged between birth and one year, with two children dying in the first 28 days of life. Three were aged between one and nine years and three deaths were of children aged between ten and 17 years (see Table 6 for details).

Table 6: Deaths of Aboriginal children by cause of death and age, South Australia 2006*

Cause of Death	<1 year	1-4 years	5-14 years	15-17 years	Total
Illness or Disease	3	1	1	1	**6**
SIDS and Undetermined	2	-	-	-	**2**
External Causes	-	-	3	-	**3**
Cause Not Yet Known	1	-	-	-	**1**
TOTAL	**6**	**1**	**4**	**1**	**12**

** Source: Child Death and Serious Injury Review Committee database*

Aboriginal children - ARIA+ and SEIFA

Of the eight children who were resident in South Australia at the time of their death, four were from areas where services are highly accessible, and two came from very remote areas where services are least accessible.

According to the SEIFA index of socioeconomic disadvantage, three of the eight children were living in areas of moderate disadvantage with four living in the most disadvantaged areas of the State.

Aboriginal children - contact with Families SA

Six children, their siblings or family members had contact with Families SA in the three years prior to their death. Contact covered a range of issues including requests for financial assistance, juvenile justice issues, and notifications where there were concerns about the safety or wellbeing of the child or their sibling.

Aboriginal children - causes of death

Table 6 provides information concerning the Committee's classification of the cause of death for Aboriginal children.

Six children died from illness or disease. Two of these deaths were of very young infants (under 28 days old) and all three deaths of children up to one year of age were related to prematurity. Two older children died from conditions related to epilepsy. Of the three children dying from external causes, one death was accidental and two were non-accidental. In one case limited information concerning the circumstances and cause of death was available from the Coroner.

Infant mortality rates for Indigenous children have improved in recent years across all States and Territories however, they continue to be two to three times higher than rates in the total population (Steering Committee for the Review of Government Service Provision, 2007). In South Australia, the Maternal, Perinatal and Infant Mortality Committee (South Australian Maternal, Perinatal and Infant Mortality Committee, 2006) reported that in 2005, the infant mortality rate for infants of Aboriginal mothers was 14.6 deaths per 1000 live births. It noted that this rate was three times the infant mortality rate of infants born to non-Aboriginal mothers in South Australia. Figures in Table 6 indicate that in 2006, seven Aboriginal children died in the first four years of life primarily from illness or disease, three children died in the 'middle' years of childhood, from external causes and only one death of an older child was recorded for this year.

2.3.4 Children who had Contact with Families SA

Socioeconomic status has a substantial impact on health and wellbeing in childhood and throughout life and is consequently linked to mortality. Flaherty and colleagues (2006) for example recently reported that children between the ages of four and six years who had experienced one or several adverse events were more likely to have been described as experiencing poor health. Adverse events included experiencing child abuse and neglect, having caregivers with

substance use or mental health problems or being exposed to conflict or criminal behaviour in the household.

Abuse and neglect in particular can have adverse consequences for children. In the short term there may be risk of physical injury, emotional trauma or compromised development. In the longer term children who have been abused may experience mental health problems including depression and suicidal thoughts, problems with personality formation, social and interpersonal difficulties and developmental deficits. They may be more likely to use maladaptive coping mechanisms such as substance use and self harm (Shonkoff & Phillips, 2000).

In South Australia, one of the key roles of Families SA is protecting children from abuse and neglect. A range of services may be offered to families following contact with Families SA including support for high need families with a very young infant, in-home support and programs and services that strengthen parenting capacity. Families SA also provide assistance for families who are facing financial difficulties and need assistance to pay for utilities or to buy food, medication or clothing for children. Support may be offered to young people who are considered to be 'at risk' when notified for problems such as possible suicidal behaviour, truancy, difficulties with family relationship and homelessness or for juvenile justice issues.

Although there may be positive outcomes for children and their families as a result of contact with Families SA, the need for services itself may be considered as a marker of socioeconomic disadvantage (Glover et al. 2006).

In 2006, 30 children, their siblings or members of their family had some form of contact with Families SA in the three years preceding their death. The number of contacts ranged from one notification or instance of service provision to a history of multiple notifications involving the child and their family. For these contacts, the child and the child's family may have received a range of services including financial assistance, foster care or guardianship, custody or supervision orders.

Families SA - usual residence

Two children who died in South Australia were normally resident in another state. These children had contact with health and child protection services in South Australia prior to their death.

Families SA - age, sex and Aboriginal status

Seventeen of the children who died were male and 13 were female. Twenty-two children were aged between birth and four years, five between five and 14 years and three children were aged between 15 and 17 years. Six children were identified as Aboriginal.

Families SA - ARIA+ and SEIFA

Sixty per cent of children lived in a major city area where services are highly accessible. However, despite the accessibility of services, 11 of these 17 children lived in areas of socioeconomic disadvantage (SEIFA quintiles 4 and 5). Overall, the majority of children (89%) resided in the moderate to the most disadvantaged areas in the State (quintiles 3 - 5).

Families SA - age and cause of death

Table 7 identifies the causes of death arranged by age, for this group of children.

Table 7: Deaths of children and contact with Families SA by cause of death and age, South Australia 2006*

Cause of Death	<1 yr	1-4 yrs	5-9 yrs	10-14 yrs	15-17 yrs	Total
Illness or Disease	5	3	2	1	2	**13**
SIDS and Undetermined	2	-	-	-	-	**2**
External Causes	4	5	1	1	1	**12**
Cause Not Yet Known	3	-	-	-	-	**3**
TOTAL	**14**	**8**	**3**	**2**	**3**	**30**

** Source: Child Death and Serious Injury Review Committee database*

Thirteen children died from illness or disease including very young infants whose deaths were related to conditions originating in the perinatal period, or congenital and chromosomal abnormalities, and deaths attributed to causes such as leukaemia and cancer. The cause of death is still unknown in three cases, pending information from the Coroner.

Twelve children died from external causes including three children who died from suspected fatal neglect, two who died in transport incidents and two from fatal assault. Three infants under one year of age died from accidental asphyxia. Two further infants died from undetermined causes however circumstantial information raised the possibility that accidental asphyxia may have been a contributing factor in these deaths. The majority of these infants were described as sleeping in 'atypical' sleeping environments such as sleeping on a couch or lounge or makeshift bedding comprising various items such as doonas, blankets and mattresses. Several infants had been placed to sleep with other children or adults in these 'atypical' arrangements.

In its 2005-2006 Annual Report, (Child Death and Serious Injury Review Committee, 2006) the Committee noted the number of infants who died from accidental asphyxia in this group of children. Again in this report, the number of deaths potentially attributable to the same cause amongst this group of children is highlighted. Information available from Families SA concerning these children indicates that their deaths have occurred against a background of risk. Requests for financial assistance, notifications concerning domestic violence issues and concerns about parenting capacity were noted. Several infants had been identified as being 'high risk' by Families SA.

The Committee's recommendation concerning safe sleeping environments for infants can be found in the Executive Summary and in Section 2.5.4

2.4 DEATHS DUE TO ILLNESS OR DISEASE

In 2006, the deaths of 67 children in South Australia were attributed to illness or disease. This represents 56.3% of the total number of deaths of children in South Australia.

Illness or disease includes deaths from infections, cancer, deaths from diseases of body systems such as the cardiac or respiratory systems, deaths arising from conditions associated with pregnancy, congenital conditions or chromosomal abnormalities.

2.4.1 Deaths Due to Illness or Disease – Usual Residence

Six children were not usual residents of South Australia. Two usually resided in the Northern Territory, two in Victoria, one in Tasmania and one in NSW. These children ranged in age from two weeks to five years. All had been transferred to major South Australian hospitals for further medical care prior to their death.

2.4.2 Deaths Due to Illness or Disease – Sex and Aboriginal Status

Table 8 shows the causes of death attributed to illness or disease arranged by sex.

Forty-three children dying from illness or disease were female and 24 were male. In 2006, a much higher proportion of females compared to males died from illness or disease. Six children dying from illness or disease were identified as Aboriginal. Three were female and three were male. This represents approximately half of the total number of Aboriginal children who died in 2006. The poorer health of Aboriginal children compared to non-Aboriginal children is widely documented and

Table 8: Deaths of children due to illness or disease by cause of death and sex, South Australia 2006*

Cause of Death	Female	Male	Total	%
Certain infections and parasitic diseases	-	1	**1**	**1.5**
Cancer	7	3	**10**	**14.9**
Endocrine, nutritional and metobolic diseases	1	-	**1**	**1.5**
Diseases of the nervous system	7	3	**10**	**14.9**
Diseases of the circulatory system	1	1	**2**	**3.0**
Diseases of the respiratory system	1	-	**1**	**1.5**
Certain conditions originating in the perinatal period	12	8	**20**	**29.9**
Congenital malformations, deformations and chromosomal abnormalities	14	8	**22**	**32.8**
Number of Deaths – **TOTAL**	**43**	**24**	**67**	**100**

** Source: Child Death and Serious Injury Review Committee database*

remains an area of ongoing concern to the Committee (see Section 2.3.3).

2.4.3 Deaths Due to Illness or Disease – ARIA+, SEIFA and Contract with Famlies SA

The majority of children resided in a major city area (38 deaths), with only one child recorded as residing in a very remote area of South Australia.

In relation to socioeconomic disadvantage, these children were relatively evenly divided between the five SEIFA quintiles with 11 children coming from the least disadvantaged areas of South Australia and 13 from the most disadvantaged areas of the State.

Thirteen children, their siblings or other family members had contact with Families SA in the three years prior to their death. Contact ranged from requests for financial assistance, to a history of notifications that may or may not have involved the child who died.

2.4.4 Deaths Due to Illness or Disease – Age

Table 9 (following page) presents details concerning age groupings and deaths due to illness or disease.

Children Less Than 28 Days Old

Nearly 50% of children who died from illness or disease were less than 28 days old. Twenty-one of these infants were females and 12 were males. Approximately equal numbers died from conditions originating in the perinatal period (11 females, six males) and from

*Table 9: Deaths of children due to illness or disease by cause of death and age, South Australia 2006**

Cause of Death	<28 days	28 days -1 year	1-9 years	10-17 years	Total	%
Certain infections and parasitic diseases	-	1	-	-	**1**	**1.5**
Cancer	-	-	6	4	**10**	**14.9**
Endocrine, nutritional and metabolic diseases	-	-	1	-	**1**	**1.5**
Diseases of the nervous system	-	4	3	3	**10**	**14.9**
Diseases of the circulatory system	-	-	1	1	**2**	**3.0**
Diseases of the respiratory system	-	-	-	1	**1**	**1.5**
Certain conditions originating in the perinatal period	17	3	-	-	**20**	**29.8**
Congenital malformations, deformations and chromosomal abnormalities	16	2	3	1	**22**	**32.8**
NUMBER – TOTAL (deaths per age group)	**33**	**10**	**14**	**10**	**67**	
PERCENTAGE – TOTAL (deaaths per age group)	**49.2**	**14.9**	**20.8**	**14.9**		**100**

** Source: Child Death and Serious Injury Review Committee database*

congenital malformations, deformations and chromosomal abnormalities (ten females, six males).

Two of these infants were identified as Aboriginal. These infants died from conditions originating in the perinatal period.

Children 28 Days to One Year Old

Ten children aged between 28 days and one year died, primarily from nervous system diseases. Five of these children were male and five were female. One child was Aboriginal.

Children One to Nine Years Old

Six of the 14 children in this age group died from various forms of cancer including brain tumours and leukaemia. Three deaths were attributed to diseases of the nervous system. Eleven of these children were female and three were male and two children were Aboriginal.

Children Ten to Seventeen Years Old

Of the ten children aged between ten and 17 years, equal numbers died from various forms of cancer, and nervous system diseases. Six of these children were female and four were male and one child was Aboriginal.

2.4.5 Deaths Due to Illness or Disease – Cause of Death

Congenital Malformations, Deformations and Chromosomal Abnormalities

Congenital malformations, deformations and chromosomal abnormalities were the most common cause of death, especially for infants less than 28 days old (16 deaths). The most frequently occurring cause of death was hypoplastic left heart syndrome (four deaths). Other underlying causes of death included conditions such as diaphragmatic hernia and kidney abnormalities. Fourteen of these children were female and eight were male.

Infant mortality and the incidence of low birth weight are highly correlated and there is also an association between low birth weight and indicators of socioeconomic disadvantage (e.g. Yu, 2007). Information concerning birth weight and length of gestation was available for the majority of infants less then 28 days old who died from these conditions. The birth weights for these infants ranged from 370 grams to 3180 grams with an average weight of 1889 grams (n = 16). The gestational ages ranged from 20 weeks to 41 weeks with an average of 33 weeks (n = 16).

Conditions Occurring in the Perinatal Period

Table 9 indicates that 20 deaths were attributed to conditions occurring in the perinatal period. These conditions include spontaneous premature labour, infections, haemorrhage and maternal conditions affecting the newborn. The most common causes of death in 2006 were conditions related to extreme prematurity, complicated by haemorrhage or fulminant necrotising enterocolitis.

Twelve of these children were female and eight were male, three were Aboriginal children, all were under one year of age.

Information concerning birth weight and length of gestation was available for the majority of infants less then 28 days old who died from conditions occurring in the perinatal period. The birth weights for these infants ranged from 330 grams to 3060 grams with an average weight of 777 grams (n =14). The gestational ages ranged from 19 weeks to 38 weeks with an average of 24 weeks (n = 15).

Cancer

Although childhood cancers are rare, they account for a significant proportion of deaths in this reporting period. Childhood leukaemia accounted for four of the ten deaths and two deaths were attributed to malignant brain tumours. These deaths were evenly distributed across the one to 17 year age range.

Seven children were females and three were males.

Diseases of the Nervous Systems

Diseases of the nervous system also accounted for ten deaths and included cases of muscular atrophy causing respiratory failure, which occurred in younger children, and epilepsy. Seven children were female, three were male and two children were Aboriginal.

Infections

One child died from a severe generalised bacterial infection. There were no child deaths from infections primarily of the central nervous or respiratory systems.

2.5 DEATHS FROM EXTERNAL CAUSES

In 2006, 41 children (34.6%) died from external causes, with the highest proportion accounted for by transport incidents. Between four and six children died from the following causes: fatal assault, suicide, drowning, health system-related adverse events and accidental asphyxia. Much smaller numbers of children died from causes such as suspected fatal neglect, as a result of accidents, or in fire-related incidents (refer to Table 3).

2.5.1 Transport

For the purposes of this report, transport deaths include deaths arising from incidents involving a device used for or designed to be used for moving people or goods from one place to another. These incidents may involve pedestrians and include railway or water transport. Incidents may occur on public highways or places other than a public highway.

Eleven children died in transport incidents in 2006. These deaths account for 9.2% of the total number of deaths of children from all causes in 2006 and for 26.8% of the deaths from external causes. In 2005, 11% of children died in transport incidents and these deaths accounted for nearly half of the deaths from external causes. Despite this decrease, in both 2005 and 2006, transport deaths were the leading external cause of death for children in South Australia and accounted for a significant number of deaths overall, in each year.

Both the NSW Child Death Review Team (2005, 2006) and the Queensland Commission for Children and Young People (2005, 2006) have consistently reported transport deaths as the leading external cause of death for children in those States.

Transport - 'Cause Not Yet known'

In two cases, only limited information concerning the circumstances and cause of death was available from the Coroner.

Transport - Usual Residence

In 2006 the incident leading to one death occurred in another State. This child's death is not included in the discussion below.

Transport - Age and Sex

Six of the children who died in transport incidents were female.

Children's risk of death in transport incidents increased with age. Children ranged in age from birth to 17 years. Three children were aged between birth and four years, one was aged between five and nine years and six deaths were of children aged between 15 and 17 years.

Transport - ARIA+, SEIFA and Contact with Families SA

Over half of the children who died in transport incidents were residing in areas where services were

highly accessible (6 deaths). Three children lived in outer regional areas and one child lived in an area designated as 'very remote'.

Seven children resided in the moderate to the most disadvantaged areas in the State (quintiles 3 - 5). Stokes and colleagues (2001) found that rates of injury death for both drivers and passengers, in a Victorian sample, were highest for those with a lower socioeconomic status.

Two children, their siblings or family, had contact with Families SA in the previous three years. This is a lower number than that reported in 2005 when six out of 15 children, their siblings or families were recorded as having contact with Families SA.

Transport - Circumstances

Nine of the incidents leading to the deaths of children occurred on public roads. Five incidents involved a single vehicle only and the remainder involved two vehicles. The location of incidents was evenly divided between rural and metropolitan areas. There were no deaths of children as pedestrians or pedal cyclists, or as drivers or passengers on all terrain vehicles in 2006. There were no deaths of younger children in incidents such as driveway fatalities.

All children aged between one and 15 years were passengers, the majority in a vehicle driven by a parent. One incident was a single vehicle incident and the three other incidents involved two vehicles. The information available suggested that seatbelts were worn by these children. Four children were located in rear passenger seats. Between 2002-2006, the South Australian Department for Transport, Energy and Infrastructure's (DTEI) road crash database indicated that 54% of children who died in vehicle crashes were passengers.[4]

Of the five incidents involving children aged between 15 and 17 years, four were single vehicle incidents involving loss of control, rollover or collision with a fixed object. Single vehicle incidents have been shown to occur more frequently amongst young, inexperienced drivers (Gonzales et al. 2005). In two of these incidents the driver was another young person. The children who died in these two incidents were located in the rear passenger seat of the vehicles. Williams (2003) indicated that the presence of passengers increases the risk of a crash and attributed this result to factors such as distraction and peer pressure. In the other three incidents, the young person was the driver. Christie (2001) found that the first six months of driving attracted the highest crash rates for young drivers.

There was no indication from the information available for four of the five incidents that the children who died had been using alcohol or drugs. However, elements including driver inexperience (e.g. probationary licence recently acquired), speed, and road conditions such as wet bitumen could all be identified in one or more cases in the circumstances leading up to, or at the time of the incident. There was no discernable pattern related to the time of day or day of the week for these incidents. A recent study by Braitman and colleagues (2007) found that three main factors which contributed almost equally to the fatal and non-fatal crashes of 16 year old drivers were: failing to detect another vehicle or traffic control (e.g. not looking thoroughly, distraction and inattention) speeding; losing control of the vehicle and slippery roads. These researchers found that the combination of speeding, losing control or sliding on a slippery road were common factors in the incidents involving young drivers. These elements appear to be reflected in the transport deaths of young people in 2006 where young people were drivers.

Transport - Comments

The percentage of transport deaths of children in South Australia in 2006 remains approximately the same as the percentage of children who died in these kinds of incidents in 2005, when compared to the overall number of children who died in these two years.

In 2005 the Committee reported that eight of the 15 transport deaths were of children aged between 15 and 17 years (53%), with two of these children as drivers. In 2006 approximately the same percentage of children in this age group died in transport incidents (60% - six of the ten transport deaths), with three children as drivers. Transport deaths continue to be the leading cause of death for children in this age group, compared with deaths from causes such as suicide or illness and disease. Although the sample is limited, the Committee noted the reported absence of indications that alcohol or drugs had been used by the children who died in these incidents, either as passengers or as drivers.

With regard to the impact of various State and Australian Government initiatives on the deaths of

Reference:

4 These data have been provided by the Department for Transport, Energy and Infrastructure from its crash database, which is based on crashes reported to SA police.

children in transport incidents, the Committee noted the following in this reporting period:

- The establishment by the Minister for Transport of a Youth Advisory Task Force (March 2007). This Task Force will provide a youth perspective on proposed transport initiatives and advice about problems concerning the road toll.
- The proposed introduction of national legislation concerning the use of age-appropriate child restraints by children up to seven years of age.

In its previous Annual Report (Child Death and Serious Injury Review Committee, 2006) the Committee noted the introduction of the graduated licensing scheme for new drivers and indicated that it would continue to monitor any changes in the number and circumstances of deaths that may indicate the impact of this scheme. The number of deaths of children in the relevant age-range has remained approximately the same for the two reporting years (2005, 2006), and issues such as driver inexperience, speed and risk-taking in this small sample continue to be major factors in the circumstances leading to the deaths of young drivers. The Committee notes that DTEI will undertake a three year evaluation of this scheme beginning in March 2008.

2.5.2 Suicide

Five young people died as a result of suicide in 2006. This represents 4.2% of the total deaths for 2006 and 12.2% of deaths from external causes. In 2005 the Committee reported 3.7% of young people died as a result of suicide (5 of 136 deaths).

In its inaugural report (Child Death and Serious Injury Review Committee, 2006) the Committee acknowledged issues concerning under-reporting of suicide deaths, especially amongst children and young people. In summary, the Committee indicated that it would attribute a death to suicide if careful examination of coronial, police, health and education records so indicated.

Suicide - Age and Sex

Three of the young people who died as a result of suicide were female. All young people ranged in age from 15 to 17 years.

Suicide - ARIA+, SEIFA and Contact with Families SA

All five of the young people who died were residing in areas were services are considered to be highly accessible (i.e. major city area). With reference to SEIFA only one child lived in an area of moderate disadvantage, all other young people lived in the least disadvantaged areas of the State. One family had contact with Families SA in the three years preceding the young person's death.

Suicide - Circumstances

Location and time of day

All incidents occurred at the young person's place of residence. Three incidents occurred between three o'clock and six o'clock in the afternoon and all three of these young people were attending school.

Method

The method used in all incidents was hanging. Although these varied in their detail it is notable that the items used were commonly available household materials. Based on information contained in the Annual Reports of other child death review teams or committees (e.g. NSW Child Death Review Team, 2006; Queensland Commission for Children, Young People and the Child Guardian, 2006), hanging appears to be the most commonly used method of suicide by young people. In a review of youth suicide (Commonwealth Department of Health and Aged Care, 1999) it was noted that this method holds challenges for prevention as, unlike methods such as the use of firearms, it is not possible to restrict access to the items used, as they are readily available.

Risk factors

There is a considerable body of research that identifies the risk factors associated with the suicide of children and young people. For example, socioeconomic disadvantage, adverse childhood and family environments, individual vulnerabilities and mental health disorders, exposure to stressors and adverse events, and socio-cultural and contextual factors are commonly identified as risk factors associated with suicide (Bridge et al. 2006). Such reviews highlight the consistent association between mental health factors such as mood disorders, previous suicidal behaviour and previous psychiatric care and attempted and completed suicide.

Risk factors identified in two or more of the cases of suicide for 2006, both alone or in combination with others, included:

- ***Previous suicide attempts and suicidal ideation*** - Bridge at al. (2006) commented that the single greatest risk factor for completed suicide was a previous suicide attempt. Some young people had

come to the attention of service providers because of self-harming behaviour, suicidal ideation and associated depression or previous suicide attempts. Other indicators included talking with friends about their intention to commit suicide.

- ***Intent*** - Suicide notes were left by some young people. In other cases, although no note was left, it would appear that the young person had previously talked about suicide in some context.
- ***Precipitating events and enduring difficulties*** - A number of precipitating events or enduring difficulties could be identified in the lives of some of these young people including arguments with friends or family members and longer term difficulties in relationships.
- ***Substance use*** - Problems with the use of alcohol and/or marijuana was noted in some cases.
- ***Shared awareness*** - Information suggested that there was a shared awareness of several incidents of suicide as they occurred, through community, school, work, friendship and family networks. In instances of shared awareness subsequent suicides are more likely to occur in young people who are already at risk or who have a prior history of difficulties or mental health problems (Davidson et al. 1989, cited in Commonwealth Department of Health and Aged Care, 1999).
- ***Electronic Media*** - There was evidence suggesting some young people had used the internet to search for information about suicide. The majority had used MSN, SMS or other media networks to communicate with friends.

Suicide - Comments

Based on its consideration of the circumstances of these deaths, the Committee considers the following issues relevant to the in-depth review of these deaths:

- methods of suicide and the association with risk factors such as substance use and self-harming practices;
- the role of friends and peers in providing support for the young person;
- relationship with family and family perceptions of a young person's wellbeing including issues such as social isolation and hopelessness;
- roles of parents, schools and service providers in supporting students, disseminating information to students and parents and in managing incidents; and
- use of electronic media as a vehicle for communication and for information gathering, accessibility of these media, the immediacy of communication and access to information.

The growing number of cases the Committee now has before it provides an opportunity to consider these issues in more depth. The Committee intends to undertake a review of the suicide deaths which have occurred in 2005-2006 with the intention of making recommendations that will inform current prevention, intervention and support strategies and further avenues for research.

2.5.3 Drowning

Five children drowned in four incidents in 2006. This represents four per cent of the total number of deaths in this year, 12.2% of deaths from external causes. In 2005, only two children died in drowning incidents in South Australia (1.5% of the total number of deaths).

In its previous report (Child Death and Serious Injury Review Committee, 2006) the Committee emphasised the importance of adult supervision of children, in particular toddlers, where any body of water is concerned. It emphasised that 'bodies of water' not only included swimming pools, rivers and dams but also included tanks, fish ponds and as little as five centimetres of water in a bucket. The age range and diversity of circumstances of the deaths from drowning in 2006 highlight the ongoing need for health promotion messages about supervision.

Drowning - Age, Sex and Aboriginal Status

Three children were male and two were female. One child was Aboriginal.

Children who died in drowning incidents ranged in age from five months to nine years. One child was less than one year of age, two children were aged between one and four years, and two children were aged between five and nine years. These figures reflect the finding that younger children are more likely to die in drowning incidents compared to older children (e.g. Byard & Lipsett, 1999).

Drowning - Usual Residence

One child normally resided in the Northern Territory however, the incident resulting in their death occurred in South Australia, so this death is included in the consideration of circumstances below.

Drowning - ARIA+, SEIFA and Contact with Families SA

All South Australian children were residing in areas classified by ARIA+ as a major city with indicators of socioeconomic disadvantage scattered across the five quintiles. None of these children or members of their families had had contact with Families SA.

Drowning - Circumstances

Location, time and month of incident

The five deaths occurred in various locations including a water tank, a river, a 'settling pond' and the sea. These incidents occurred at various times of the day including mid-morning, late afternoon and early evening and at various times during the year: March, May and December.

Supervision

In all five cases, the child was initially under the supervision of an adult or adults, usually a parent or family member. In three of these incidents there was a short period (typically for periods of 15 to 20 minutes) when the child was not under immediate observation after which their absence was noticed. The period of time that elapsed between the noted absence of a child and the time they were found varied from 15 minutes to 12 hours.

Drowning - Comments

The 2006 drowning deaths occurred in a diversity of circumstances. The Committee's consideration of those circumstances raised a number of issues:

- ***Rainwater tanks*** - there is no Australian Standard covering rainwater tank design that might adequately address issues of child safety. Since 1 July 2006 there have been mandatory requirements for all new homes built in South Australia to have rainwater tanks plumbed to their toilet, laundry and hot water services. The Committee will continue to gather information concerning this issue. It will liaise with relevant agencies such as the Epidemiology Branch, Department of Health and make recommendations to the Minister concerning legislative changes as necessary.
- ***Prams and strollers*** - mandatory safety standards have been considered that require prams and pushers to be sold with a 'tether strap' and a default braking system. These standards will come into operation on 1 July 2008 and may help prevent prams and strollers from rolling unexpectedly.
- ***Children living in inland areas and water safety*** - the need for these children to have training about water safety and the sea, where waves, tides and undertows present circumstances different to those encountered in swimming pools or inland bodies of water.

2.5.4 Accidents[5]

Five children died from accidental causes in 2006. Four children, all aged less than one year, died as a result of accidental asphyxia. One child died as the result of a crushing accident. This represents four per cent of the total number of deaths in this year and 12.2% of deaths from external causes.

Deaths Attributed to Accidental Asphyxia

Accidental asphyxia accounted for 3.4% of the total number of deaths in 2006 and nearly ten per cent of the deaths from external causes. The same proportion of children died from this cause in 2005 (five of 135 deaths). In South Australia, in this two year period, a greater number of infants have died from accidental asphyxia (nine deaths) than from SIDS (six deaths).

Of the four infants dying from accidental asphyxia, three died in circumstances suggesting accidental smothering in their bedding and one died in circumstances suggesting accidental asphyxia related to their sleep position.

The decision to attribute a death to accidental asphyxia has usually been made following careful examination of the infant's medical history, the circumstances of the death and autopsy results, and through the exclusion of other possibilities (Byard & Krous, 1999). The most common types of deaths attributed to accidental asphyxia in infants include smothering, overlying, mechanical asphyxia resulting from the infant becoming 'wedged' (e.g. between mattress and wall), hanging (e.g. from blind cords when a cot has been placed in proximity to a window) and choking due to feeding or eating accidents. A combination of these factors may result in death; for example an infant may become wedged between two objects making chest expansion impossible (mechanical asphyxia) and may also have their mouth and nose in a position such that

Reference:

5 This section reports on accidental deaths excluding those attributed to transport incidents, fires and drowning

they cannot take air in (external airway occlusion). It has been demonstrated that some infants are susceptible to this kind of airway occlusion and will stop breathing more rapidly than other infants. Other infants who may have underlying medical conditions such as cerebral palsy may be at risk of positional asphyxia (Byard & Jensen, 2007 In press).

Accidental asphyxia - age and sex

These infants ranged in age from nine weeks to 11 months. There were two females and two males. The age of mothers ranged from 22 years to 29 years.

Accidental asphyxia - ARIA+, SEIFA and contact with Families SA

All of these infants lived in areas where services are highly accessible, however these areas were identified as areas of moderate to high socioeconomic disadvantage. Three of these four families had had contact with Families SA in the three years prior to the infant's death. Financial problems, domestic violence and concerns about the wellbeing of this infant or their siblings were some of the issues raised concerning these families.

Accidental asphyxia - Circumstances

Accidental asphyxia - previous illness

There were no indications that any of these infants had been ill at the time of their death. One infant had previous respiratory problems.

Accidental Asphyxia - month, time and duration of last sleep

Time between being placed to sleep and being found ranged between one and three hours - there was no consistency concerning the time of day or time of year for these incidents.

Accidental asphyxia - sleep position, bedding and sleeping environments

In several instances, the position the infant was placed to sleep was not known. In most cases smothering had occurred through contact with soft, easily compressible surfaces. Only one child was sleeping in their own cot. The three other infants were sleeping in 'atypical' sleeping arrangements - for example on a lounge, co-sleeping, or sleeping in an adult bed. None of these arrangements were identified as the 'usual' sleeping arrangements for these infants.

Many of the risk factors associated with unsafe sleeping environments and SIDS are also risk factors for accidental asphyxia amongst infants including:

- prone (on the stomach) or 'side' sleeping;
- heavy wrapping of infants, in particular head covering (this may occur accidentally, especially if an infant 'doona' is used in the bed);
- use of pillows; and
- co-sleeping (Byard 2004; Fleming et al. 2000).

In a recent study considering the time of day during which SIDS deaths are most likely to occur, the key message which Blair et al. (2006) emphasised was to place infants on their back to sleep for all day-time and night-time naps.

Accidental Asphyxia - Comments

In 2005 the Committee commented on the association between indicators of socioeconomic disadvantage and deaths from accidental asphyxia and recommended that action be taken to identify the ways in which to convey safe sleeping messages especially to families who may be in this situation. In the deaths attributed to both accidental asphyxia and undetermined causes (where accidental asphyxia may have played a part) in 2006, the Committee again notes the association between these deaths and indicators of socioeconomic disadvantage. Improvements in parental knowledge and practices that result in the consistent provision of a safe sleeping environment for an infant require access to information, resources and supports that can ensure financial and family stability, and enable parents to recognise the importance of providing a consistently safe sleeping environment for their infant.

In this regard, the Committee notes that there are various programs currently operating that attempt to identify infants who are vulnerable or at high risk and provide support to the families of these infants. These programs include the Families SA 'Strong Families, Safe Babies' project which is targeted at infants considered to be at risk of imminent harm, and the population-based Family Home Visiting Program which is provided through the Children, Youth and Women's Health Service. Social isolation, young age of mothers or concerns about the mother's ability to care for her infant are all considered in determining the eligibility for this service.

Despite the existence of these programs, the Committee recognises the need for services to support families who may not fall within the legal mandate for intervention required by Families SA, but who require more specific and targeted support than can be provided by a family home visiting program.

Recommendation

The Committee is concerned about the number of infants who died in unsafe sleeping environments in 2006. Parents or carers require access to information that will enable them to recognise the importance of a safe sleeping environment for infants. Some parents or carers may also require access to practical resources. Others may need support that ensures financial and family stability.

The Committee recommends:

- Every infant be provided with a safe sleeping environment.
- State-wide programs or campaigns be developed and resourced to build the knowledge and confidence of parents or carers so that they know how to provide safe sleeping arrangements for infants.
- State-wide support programs be developed and resourced to provide safe sleeping environments for infants in disadvantaged families, including if necessary the provision of appropriate cots or beds and ongoing support to ensure that safe sleeping arrangements be maintained.

2.5.5 Fatal Assault

The Committee characterises a fatal assault as 'the death of a child from acts of violence perpetrated upon him or her by another person.' (Lawrence, 2004; p 842).

Six children died in five incidents attributed to fatal assault. These six deaths account for five per cent of the total number of deaths in 2006 and 12 per cent of the deaths from external causes. The proportion of children dying from fatal assault was greater in 2006 compared to 2005 when fatal assault accounted for 1.5% of the total number of deaths in that year.

Fatal Assault - Usual Residence

The incident resulting in the death of one of these six children did not occur in South Australia, and this child's death is not included in the discussion below.

Fatal Assault - Age and Sex

Two children were female and three were male. Children ranged in age from seven months to seven years. Four of these five children were less than four years old when they died.

Fatal Assault - ARIA+, SEIFA and Contact with Families SA

Three of the children whose deaths were attributed to fatal assault were residing in areas where services are highly accessible (i.e. a major city area). Four of the five children resided in areas of moderate socioeconomic disadvantage (SEIFA quintiles 3 and 4). Two children or their families had contact with Families SA.

Fatal Assault - Circumstances

Mechanism of death and previous abuse

Mechanisms of death included some form of blunt force trauma to the head, chest and/or abdomen, and incineration. Some children had experienced previous physical abuse.

Perpetrators

In several cases criminal charges are pending against a parent or defacto partner of a parent and in one case a family member has been convicted of criminal neglect based on their role in the incident leading to the child's death.

Family environment

Poorer mental health of parents, substance misuse, economic stress, social disadvantage and family disruption are risk factors that have been associated with child abuse and neglect (Shonkoff & Phillips, 2000)

Amongst the families of this group of children, the younger age of mothers (under 25 years at the time of the child's death), a parent or parents who themselves had experienced adverse events in their childhood, contact with child protection services, and intellectual difficulties or current mental health problems were indicated in the information available.

Fatal Assault - Comment

At the time of writing all cases remained open with either South Australian Police, the Coroner or both. Once these inquiries have been completed the Committee may resolve to review these cases in more detail.

2.5.6 Suspected Fatal Neglect

The Committee defines fatal neglect as a death resulting from an act of omission by the child's carer(s) including:

- failure to provide for basic needs;
- abandonment;

- inadequate supervision; and
- refusal/delay in provision of medical care.

This definition can account for both chronic neglect and single incidents of neglect, or a combination of both (NSW Child Death Review Team 2003; p 15). The Committee is mindful of the evidence which indicates that the changing nature of child development will strongly influence the ways in which neglect can have an impact on a child (Lawrence & Irvine, 2004).

Three deaths in 2006 appeared to have occurred as the result of fatal neglect. The Committee will make a final decision regarding the classification of these deaths when they have been reviewed in greater depth. Such review cannot proceed until Coronial and/or criminal investigations are finalised. These three deaths accounted for 2.5% of the total number of deaths in 2006 and 7.3% of the deaths from external causes. In 2005 two deaths were attributed to fatal neglect, accounting for 1.5% of the total number of deaths. In both years the number and proportion of deaths attributed to this cause is low.

Fatal Neglect - Age, Sex and Aboriginal Status

These children ranged in age from two years to ten years. Two children were male and one child was Aboriginal.

Fatal Neglect - ARIA+, SEIFA and Contact with Families SA

Two children resided in areas where services were highly accessible and only one child came from an area of moderate socioeconomic disadvantage. All three children, their siblings or family had had previous contact with Families SA.

Fatal Neglect - Circumstances

In all three cases the information available suggested that there was a delay in the provision of medical care for these children and this delay appeared to occur in an environment where the basic needs of the child were not being met. Indicators common to at least two cases were:

- concerns expressed by others about the child's living conditions;
- questions raised regarding the care providers' ability to care adequately for the child and/or their siblings;
- financial difficulties;
- concern about domestic violence; and
- a history of notifications to Families SA in relation to issues indicative of neglect, including re-notifications for similar issues.

Fatal Neglect - Comment

One case is currently under review by the Committee. In 2007 the Committee intends to undertake a review of all three cases of suspected fatal neglect to examine further the systemic issues for service provision arising from the issues identified above.

As a result of previous in-depth reviews, the Committee has made recommendations specific to Families SA regarding the assessment and management of cases involving chronic neglect. Families SA has indicated that it recognises that chronic neglect requires holistic assessment and longer term intervention and a project is planned to respond to these issues. The Committee will monitor the implementation of this recommendation with Families SA.

2.6 SUDDEN UNEXPECTED DEATHS IN INFANCY

There are a number of infants under one year of age who die suddenly and unexpectedly, and for whose death no immediate cause can be found. Currently these deaths may be assigned to the category of 'sudden unexpected death in infancy' (SUDI).
This definition has been described as an 'umbrella' term that is used for all sudden unexpected deaths of infants under one year of age. In some cases autopsy findings and/or the close scrutiny of the circumstances surrounding the death may result in a cause of death being determined. In other cases however, despite thorough examination of all known factors, no cause can be attributed to the death. The deaths that remain *unexplained* after such examination may be attributed to 'sudden infant death syndrome' (SIDS) or may remain undetermined. Byard and Jensen (2007, *in press*) have suggested a gradient of certainty with regard to determining causes of death, where deaths attributed to SIDS have the lowest score and deaths with highly significant pathology and death scene findings, such as an infant found hanging from a blind cord, have the highest score.

In its Annual Report 2005-2006 (Child Death and Serious Injury Review Committee, 2006) the Committee indicated that it would adopt the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) definition of SUDI that was developed by Fleming and his colleagues (Fleming et al. 2000). Table 10 outlines this definition of SUDI.

Table 10: CESDI definition of sudden unexpected death in infancy

Age range: between 7 and 365 completed days of life (i.e. Post-perinatal infant deaths). Criteria for inclusion:
• deaths that were unexpected and unexplained at autopsy (i.e. those meeting the criteria for SIDS);
• deaths occurring in the course of an acute illness that was not recognised by carers and/or by health professionals as potentially life-threatening;
• deaths occurring in the course of a sudden acute illness of less than 24 hours' duration in a previously healthy infant, or a death that occurred after this if intensive care had been instituted within 24 hours of the onset of the illness;
• deaths arising from a pre-existing condition that had not been previously recognised by health professionals;
• deaths resulting from any form of accident, trauma or poisoning.

** Source: Fleming et al. (2000)*

This definition was adopted at the Ninth International SIDS Conference (2005) by the International Society for the Prevention and Study of Infant Death (ISPID) Pathology Working Group. In 2007 the CESDI definition was proposed for adoption at the national meeting of Australian and New Zealand child death review committees however the teams failed to reach consensus regarding its use.

The Committee also determined that they would include the sudden unexpected deaths of infants less than seven days old. Deaths in this age group would be marked as such.

Ongoing debate persists regarding the definition of SIDS. However, it would appear that there is agreement with the view that SIDS does not represent a single disease entity but is a complex amalgam of predisposing factors, external stressors and underlying vulnerabilities (Byard & Krous, 2003). The definition of SIDS adopted by the Committee is that given in the paper by Krous et al. (2004). Section 5.2 contains further details of the ways in which SIDS deaths are classified using this system.

Using these definitions, SUDI deaths in this section include infants dying from *explained* causes including illness or disease, accidents (accidental asphyxia, drowning and transport incidents) and fatal assault or neglect and infants dying from *unexplained* causes including those classified as SIDS and undetermined.

Twenty infants died suddenly and unexpectedly in 2006. Table 11 gives an indication of the causes of death for these infants.

Table 11: Deaths of children attribted to SUDI, South Australia 2006*

SUDI Classification	Number of Deaths
EXPLAINED	
Illness or Disease	2
Accidental Asphyxia (smothering and suffocation)	4
Other explained causes (transport, drowning and fatal assault)	3
Explained Deaths – TOTAL	***9***
UNEXPLAINED	
SIDS	3
Undetermined	5
Unexplained Deaths – TOTAL	***8***
CAUSE NOT YET KNOWN	
Cause Not Yet Known – TOTAL	***3***
SUDI TOTAL	**20**

** Source: Child Death and Serious Injury Review Committee database*

Nine infants died from *explained* causes, with the highest number dying from accidental asphyxia or smothering and suffocation in their bedding. Eight infants died from *unexplained* causes including three attributed to SIDS and five to undetermined causes. These deaths are examined in more details in Section 2.6.2. In three cases post mortem information was not available at the time of writing. However, circumstantial evidence and the age of the infants indicated that they should be included under the umbrella of SUDI.

In comparison, 19 children died suddenly and unexpectedly in 2005, with 13 of these deaths attributed to *explained* causes, three to SIDS and three to undetermined causes, thus making numbers similar across these two years.

2.6.1 SUDI *Explained* Causes

Despite the various causes of death included in the *explained* category of deaths, the CESDI studies (Fleming et al. 2000) identified a number of different risk factors associated with the deaths of infants from *explained* causes compared with a group of surviving infants matched for age. These factors included young age at death (<1 month); winter months; low birth

weight and shorter gestation; young mothers; socioeconomic disadvantage such as parents with less education and parents receiving income support; illness of the infant in the 24 hours before death; and maternal smoking.

SUDI Explained* Causes - *Age and Sex

Two infants who died from *explained* causes were less than one day old. Three infants died at two months of age and a total of six infants died within the first five months of life. One infant died at 11 months. Five of these infants were female.

SUDI Explained Causes - Socioeconomic Disadvantage

Eight of the nine infants lived in areas of relative disadvantage (quintile 3 - 4 infants; quintile 4 - 2 infants; and, quintile 5 - 2 infants). These rankings appear to reflect the trend that Byard (2004) and Fleming et al. (2000) have commented on regarding the level of socioeconomic disadvantage that is often associated with SUDI. The majority (six infants) were located in areas where services were highly accessible.

SUDI Explained Causes - Illness

With the exception of one infant, there was no indication from the records available to suggest that any of these infants had been significantly ill in the days or hours before their death.

2.6.2 SUDI *Unexplained* Causes

Eight infants died from *unexplained* causes in 2006, accounting for 6.7% of the total deaths in this year. In 2005 six infants died from *unexplained* causes, accounting for 4.4% of the total number of deaths in that year.

SUDI Unexplained - SIDS

Three deaths were attributed to SIDS in 2006. This accounts for 2.5% of the total number of death in 2006. All three of these deaths were classified as SIDS II, where more than one of the criteria for a SIDS I classification are not met. Three deaths were also attributed to SIDS in 2005.

In the past fifteen years, public health campaigns have successfully increased awareness of the risks associated with the *unexplained* deaths of infants, such as sleeping an infant on their stomach and exposure to cigarette smoke. These campaigns have resulted in the death rate from SIDS falling dramatically. However, in the past year, the number of deaths attributed to SIDS has been flagged by the Australian Bureau of Statistics as increasing nationally from 59 in 2004 to 87 in 2005.[6] Monitoring over the next few years is needed to determine if this represents an upward trend in SIDS deaths which may necessitate safe sleeping messages being raised again in the public arena. The Committee supports ongoing promotion of such safe sleeping messages.

The following characteristics of infants may predispose them to SIDS: being male; prematurity; high birth order and low birth weight; an extended stay in hospital; history of minor respiratory and gastro-intestinal illness in the days leading up to death; age between two and four months and a history of poor prenatal care. In addition maternal smoking, young age of mothers and socioeconomic disadvantage have been associated with an increased risk of SIDS. Risk factors in the infant's sleep environment are described in Section 2.5.4 which considers infant deaths caused by accidental asphyxia. Kinney and Filiano (2001) have proposed a 'triple risk' model of SIDS which divides these risk factors into three intersecting components: a critical period of development (first few months of life): the vulnerability of the infant (e.g. poor homeostatic control) and inability to cope with certain external stressors.

SIDS - age, sex and Aboriginal status

These infants were aged between six weeks and five months of age. Two were female and one child was Aboriginal. Only one mother was less than 25 years old at the time of the infant's birth.

SIDS - socioeconomic disadvantage

These infants resided in regional areas of the State where services are relatively accessible and with reference to the SEIFA index of socioeconomic disadvantage, these infants resided in less disadvantaged areas.

SIDS - previous illness

Two infants had been treated by a doctor in the month prior to their death for illnesses including respiratory problems and viral infection and conditions associated with prematurity.

SIDS - month, time and duration of last sleep

There were no commonalities across factors such as the month of death or the time and duration of the last sleep for these three infants. Two infants had been placed to sleep the previous evening, roused again and

Reference:

6 http://www.austats.abs.gov.au

fed sometime during the night, and found in the early morning. One infant had been placed to sleep for a mid-day nap. Time between being last placed to sleep and being found varied from two to eight hours. With such a small number of deaths, it is not surprising that patterns were not discernable. Blair and colleagues (2006) found that the majority of SIDS deaths occurred during night-time sleep, often after midnight, with the length of time elapsing between being placed to sleep and found varying between less than one hour and 14 hours. Their overall conclusion however, was that a death attributable to SIDS could occur at any time of the day and relatively quickly.

SIDS - sleep position, bedding and sleeping environments

Two infants were found in the same position that they had been placed to sleep - either back or side. One infant placed to sleep on its back was found with its face to the side on its stomach. In two instances, cushion, pillows or doonas were described as part of the bedding. Co-sleeping was also noted in one case.

SUDI Unexplained - Undetermined Causes

Five infants' deaths were attributed to an undetermined cause, accounting for 4.2% of the total number of deaths in 2006. In comparison, three deaths were attributed to undetermined causes in 2005, representing 2.2% of the total number of deaths.

It has been noted that differentiation between SIDS and deaths due to accidental asphyxia is often difficult. Even after taking into account circumstantial and death scene information, cases of suffocation and SIDS may have identical features (Byard & Jensen, 2007 *In press*). The features of these five deaths were varied. In four cases, the weight of evidence available was sufficient to exclude SIDS. In each of these cases, circumstantial evidence raised the possibility of accidental asphyxia however no anatomical evidence substantiated this possibility.

Undetermined cause - age, sex and Aboriginal status

Infants dying from undetermined causes ranged in age from seven weeks to 31 weeks. Three infants were female, two were male and two infants were Aboriginal. The mothers of these infants were aged between 24 and 30 years.

Undetermined cause - socioeconomic disadvantage

Two infants were resident in remote or very remote areas of the State and three came from areas of socioeconomic disadvantage. Two families had received services from Families SA in the three years prior to the infant's death. In both cases notifications in relation to the health and wellbeing of the infant were received by Families SA immediately following the birth of these infants.

Undetermined cause - previous illness

These infants were described as having various illnesses since birth; only one however had a mild respiratory illness at the time of death.

Undetermined cause - month, time and duration of last sleep

These deaths occurred in various months of the year, from July through to December. Four infants had been placed for overnight sleep and were found in the early morning. All had been checked or fed during the night. One death occurred in the early evening. Time elapsed between being replaced to sleep after feeding or checking by parents, and being found, ranged between two and four hours.

Undetermined cause - sleep position, bedding and sleeping environments

These infants were placed to sleep in various positions. Two were placed to sleep on their back and found in the same position but in a different location i.e. they had wriggled or moved in their sleep, and two were found prone with faces into the mattress.

In each case the infants had been placed to sleep in an 'atypical' sleeping environment for example, co-sleeping with adults or other children, or sleeping in makeshift bedding comprising various doonas and pillows. Some infants were sleeping in 'infant beds' with soft or easily compressible mattresses. Again, the Committee views safe sleeping environments as a basic requirement for infant safety and its recommendation regarding safe sleeping can be found in the Executive Summary or Section 2.5.4.

Section 3

In-depth Review of Child Deaths 2006-2007

Section 3: In-depth Review of Child Deaths

3.1 COMMITTEE'S POWERS AND FUNCTIONS

Under Part 7C of the Act the Committee is enabled to undertake the in-depth review of cases of child death and serious injury. With regard to these reviews, the powers and functions of the Committee are unique for a number of reasons:

- The Committee has the dual functions of keeping a database of the circumstances and causes of child deaths and of conducting in-depth reviews. In other Australian jurisdictions these functions have been spilt between organisations and Committees.
- The Committee's focus is not only the deaths of children 'known' to the child protection system, but also includes any child who may have died from actual or suspected abuse or neglect; in circumstances that may suggest systemic changes could be made to prevent similar deaths; children in detention; under the care and protection of the Minister; or cases referred by the Coroner.
- The Committee also has a legislative responsibility for the review of serious injury. No other Child Death Committee in Australia undertakes this function.

3.2 IN-DEPTH REVIEW PROCESS

3.2.1 Eligibility

Diagram 1 (Section 5.1) outlines the decision pathway for determining how cases screened by the Committee will be considered for in-depth review. Information concerning the death of a child is considered by one of the Committee's four screening teams. In general, a screening team will determine whether the cases that fall into their jurisdiction should be taken to the full committee to be considered for in depth review.

Under the Act there are two criteria for considering whether a case is reviewable. These criteria are outlined in Section 1.2 'Legislation'.

In accordance with Section 52S (4) of the Act, prior to undertaking a review the Committee must ensure that its review process does not compromise any criminal or coronial investigations. Criminal investigations are considered to be concluded once sentencing of any individual involved in the death of the child has occurred, or South Australian Police have determined they have no further interest in the matter. Investigations conducted by the Coroner are considered to have concluded when the Coroner has made a finding into the cause of death, or a coronial inquiry has been completed. In addition the protocol with Families SA requires that, where possible, if the Families SA Adverse Events Committee is also conducting an inquiry into the death of a child, the Committee will await the report of this review prior to commencing its own review process.

The length of time elapsing between identification of a case for review and availability of all documents is an ongoing issue of concern for the Committee. Because cases marked for review must await completion of criminal and or coronial investigations, significant periods of time may elapse before the Committee can undertake reviews. These delays may exceed two years from the date of death in cases where criminal prosecutions are not finalised.

Where reviews cannot be undertaken for several years because of ongoing coronial and/or criminal processes, the utility of any recommendations which the Committee might make may well be overtaken by systemic change implemented by the relevant agencies in the intervening years. The Committee will, in following years, develop further protocols for selecting cases for review.

3.2.2 Reporting Requirements

The Committee submits a report to the Minister at the conclusion of each in-depth review. This report provides details of the case that has been reviewed including a synopsis of all relevant documents and records and the Committee's comments on the information contained in these documents. The report contains the Committee's recommendations regarding systemic issues that may contribute to the prevention of similar deaths in the future.

3.3 IN-DEPTH REVIEW ACTIVITIES

3.3.1 Status of 2005-2006 In-depth Reviews

In its previous Annual Report (Child Death and Serious Injury Review Committee, 2006) the Committee identified 13 cases for in-depth review. Four of these reviews have now been completed. Following closure of either coronial and/or criminal investigations in 2006-2007, one case was reviewed without recommendations, four cases are being prepared for review (awaiting further documentation), and one is currently under review. In three cases the Committee is still awaiting the closure of criminal and/or coronial proceedings.

3.3.2 Status of 2006-2007 In-depth Reviews

In the 2006-2007 reporting period, the majority of cases of child death occurring in South Australia during 2006 have been considered for review by the Committee. Nineteen cases have yet to be considered with five cases still awaiting information from the Coroner and 14 awaiting the availability of further information. Of the cases that have been considered, two deaths occurring in 2006 were not eligible for review under the Act i.e. the incidents resulting in the deaths did not occur in South Australia and/or the child was normally resident in another State or Territory at the time of the death. At the time of writing, 16 deaths were flagged for review.

Of these 16 cases, six were cases of fatal assault. Five of these cases remain subject to either coronial or criminal investigation, or both. The review of the sixth case, referred by the Coroner, has been completed.

Three cases where the Committee has attributed the death to suspected neglect have been marked for review. Two await the outcome of criminal or coronial proceedings and one case is under review.

The five cases of suicide occurring in 2006 have been marked for review, but coronial processes have not been completed. Once these processes are complete, it is the intention of the Committee to look at these cases individually or as a group of linked cases to determine if there are common systemic issues.

Two children died whilst under Guardianship and/or custody of the Minister. One case is under review by the Committee and the other awaits finalisation of coronial processes before becoming available for review by the Committee.

3.3.3 Recommendations Arising out of In-depth Reviews

Several major systemic issues were identified in this reporting period and were the subject of recommendations to the Minister. Some of these issues reflected recommendations arising from the reviews undertaken in 2005-2006.

Summary of Recommendations

Interagency exchange of information and the role of a 'lead agency'

Some of the Committee's reviews in 2005-2006 highlighted the need for consideration of changes to policies or procedures both between and within organisations that would promote the exchange of information and ensure that key opportunities for such exchange were not over-looked. The Committee also recommended that a lead agency be designated to assume responsibility for planning, management and monitoring of all service delivery to a child and their family. This would include responsibility for case conferencing to ensure all information about the child and their family was known and considered by all service agencies and responsibility for ensuring that case plans were implemented and evaluated.

The issue of interagency collaboration and exchange of information was again highlighted in the recommendations arising from 2006-2007 reviews. The Committee identified limited interagency collaboration in service delivery beyond referral, resulting in poor coordination of services and ineffective use of resources across the service systems that were working with the child and/or family. The role of a 'lead agency' in multi-disciplinary practice was again identified as a key issue that needed to be addressed.

Delivery of services to children in rural and remote areas

The Committee identified the challenges of service delivery including education, health and welfare services in remote areas of South Australia. Its recommendations emphasised the rights of children in these areas to receive a similar quality of service as children living in more accessible areas of the State.

Agency Issues Arising out of In-depth Reviews

In both this reporting period and the previous reporting period, the Committee considered documents provided by a number of key agencies when undertaking its reviews. Issues of relevance to each agency are discussed below.

Department for Families and Communities - Families SA

Assessment of 'risk' to children - In the previous reporting period the Committee's recommendations highlighted the need for the provision of services based on better assessment of 'need', which recognised key issues for the child and their family. In the 2006-2007 reporting period, in-depth reviews gave rise to further recommendations regarding assessment processes. The Committee recommended the development of procedures that could identify possible risks to siblings where children have previously been removed from the

care of parent(s) or carer(s) and where removal was prompted by parental neglect, especially in situations where siblings were born following the removal of other children. The Committee also recommended comprehensive assessment of parenting capacities and appropriate decision making, based on this assessment, which would result in either support being provided to parents or removal of children from the parents' care.

Related to the assessment of children the Committee identified practice issues concerning multi-disciplinary assessment and the importance of decision-making based on recognition of the cumulative, not single incident-based assessment of risk.

Case management and planning - The Committee identified the need for explicit case planning and documented case plans especially where there were complex situations and multiple indicators of risk. The Committee's recommendations highlighted the need to support workers managing complex cases, especially through consultation and monitoring by senior staff.

Adequate and appropriate resources - The Committee identified gaps in service provision outside office hours. It recognised that infants who may be living in high risk environments require a consistent level of support that should not be compromised by the time of day or day of the week. As such, the Committee recommended that services be provided with resources to ensure adequate and appropriate service provision at weekends, especially for infants living in high risk situations.

Domestic violence - The Committee considered that although family violence was identified as a critical dynamic and contributory risk factor it was not incorporated into procedures for child protection assessment and investigation. The Committee recommended integration of policies and procedures that acknowledge the impact of domestic violence on children.

Adverse Events Committee - In 2005-2006 the Committee recommended improvements to the Families SA Adverse Events Committee's process of reviews. In this reporting period the Committee again expressed concern about the process and outcomes of Adverse Events Committee reviews in terms of their timeliness and their ability to generate strategies to improve or strengthen service delivery and practice responses.

In this reporting period, in addition to recommendations arising from in-depth reviews, the Committee also wrote to the Minister concerning trends evident from its initial screening of cases. Although some of these cases would be the subject of further, comprehensive review, early notification was given to the Minister to encourage attention to trends that could be addressed through the Department's ongoing quality assurance and professional development strategies. Committee members were concerned that in 2006, some systemic issues remained unchanged despite legislative and policy reform aimed at improvement to the safety and care of children in South Australia. The Committee recognised the positive initiatives being developed by the Department but drew attention to the continuation of practices that contributed to high risks for children in families where there were complex and longstanding difficulties, especially in the area of neglect.

Department of Health

The Committee made a number of recommendations concerning issues specific to the Department of Health including:

- ***Child-resistant blister packaging*** - The Committee noted the risks to children who may gain access to medications that are not appropriately packaged and recommended that the Therapeutic Goods Administration and Standards Australia should be prompted to consider the need for national standards.
- ***Slow-release morphine overdose*** - The Committee noted two recent coronial inquiries involving fatal overdose of slow-release morphine and recommended that the Department of Health ensure it has determined whether revisions to treatment advice given to medical and emergency room staff have been put into place.
- ***Development of expertise in child protection*** - The Committee identified the need for identification, accreditation and support for some medical practitioners to develop skills and interests in child protection.

Department of Education and Children's Services

The Committee made recommendations that all children should have access to education regardless of their location in the State, and that education systems should be aware of non-attendance at school and should respond positively to encourage school attendance.

3.4 MONITORING OF RECOMMENDATIONS

The Committee's process for monitoring the progress of its recommendations is:

- forward recommendations to the Minister;
- Minister seeks input from relevant portfolios and service providers;
- responses are collated by the Minister and forwarded to the Committee; and
- the Committee uses the same process to follow up progress of action on its recommendations.

In this reporting period, the Committee received responses from various government portfolios relating to three of the reviews it has conducted. In general, the Committee was impressed by the willingness of agencies to address the issues raised in its recommendations. In a number of instances information was provided indicating that changes to policies and procedures had been implemented or planned.

A summary of recommendations and responses arising from the Committee's reviews are detailed below. It should be noted that the future actions include further work suggested by the reviews of 2006 deaths.

RECOMMENDATION:	***INTERAGENCY COLLABORATION - EXCHANGE OF INFORMATION***
Background Information:	The Committee considered that improvements to inter agency collaboration which focused on the timely exchange of information would allow for: - An accurate assessment of risk. - Case planning that could account for a child's family, cultural and community circumstances.
Agency Response:	- Both the Department of Health and Families SA indicated the recent implementation of an Information Sharing Protocol and guidelines. - Families SA indicated that it was developing similar protocols with other agencies.
Future Action:	Follow-up with Families SA regarding development of similar protocols with other agencies.

RECOMMENDATION:	***TARGETED PUBLIC HEALTH CAMPAIGN CONCERNING THE SAFE SLEEPING ENVIRONMENTS OF YOUNG INFANTS***
Background Information:	The Committee recommended that such a campaign be undertaken with careful consideration given to delivery and dissemination.
Agency Response:	Both the Department of Health and the Department for Families and Communities have indicated willingness to consider the ways in which such campaigns might be developed and delivered utilising already existing resources and in conjunction with non-government agencies.
Future Action:	Continue to monitor and support the activities of each portfolio. The Committee will forward more specific recommendations concerning public awareness campaigns and specific services and practical help targeted at specific risk groups.

RECOMMENDATION:	***PRODUCT SAFETY ANALYSIS IN CASES WHERE THE DEATH OF A CHILD HAS BEEN ATTRIBUTED TO A PRODUCT SUCH AS A BED OR COT***
Agency Response:	When appropriate relevant government departments initiate product analysis and liaise with other agencies involved in similar work. The Committee has written to the Coroner with respect to some products outlining its concerns regarding their safety.
Future Action:	Continuing liaison with these agencies regarding product safety analysis.

RECOMMENDATION:	***ACCURATE ASSESSMENT OF RISK***
Background Information:	The Committee recommended policies and procedures which allow for exchange of information between agencies (see previous recommendation).
Agency Response:	Families SA indicated that they had plans to develop alternatives to investigation which would be more inclusive of other agencies and view children and families from an overall wellbeing perspective.
Future Action:	Families SA - regarding plans for alternatives to investigation. The Committee will continue to assist with the development of interagency information sharing guidelines.

RECOMMENDATION:	***ASSESSMENT, INTERVENTION AND MANAGEMENT OF NEGLECT***
Background Information:	The Committee recommended review and/or amendment to practices and procedures in cases where children present with features of neglect, including accurate risk assessment and long term and proactive case management.
Agency Response:	Families SA indicated it recognised that chronic neglect required holistic assessment and longer term intervention and a project was planned to respond to these issues.
Future Action:	Families SA - regarding plans to respond to issues of neglect.

RECOMMENDATION:	***REVIEWS CONDUCTED BY THE ADVERSE EVENTS COMMITTEE***
Background Information:	The Committee made the following recommendations concerning the reviews undertaken by the Adverse Events Committee: - More 'open' terms of reference. - Greater timeliness. - A process of review that would generate strategies to improve or strengthen service delivery and practice responses.
Agency Response:	Families SA indicated that the Adverse Events Committee was undergoing external review.
Future Action:	Families SA - regarding the outcome of the review process.

RECOMMENDATION:	***INCIDENT DRIVEN PRACTICE***
Background Information:	In the screening of case files, the Committee found that, particularly in cases involving complex situations and multiple indicators of risk, systematic attention was not paid to the history on file, the pattern of contact and responses to any intervention.
Agency Response:	Pending
Future Action:	Families SA - Changes or amendments to policies and procedures

RECOMMENDATION:	***PRACTICES AND PROCEDURES RELATING TO SUBSEQUENT OR REMAINING SIBLINGS IN FAMILIES WHERE A CHILD OR CHILDREN HAVE PREVIOUSLY BEEN REMOVED FROM THE CARE OF THE PARENT(S) OR CARER(S)***
Background Information:	The Committee recommended: - Comprehensive and multi-disciplinary assessment, especially of parenting skills and the possibility for change. - Decision-making processes that allow for decisions regarding intervention or removal of siblings to be made in a timely and accurate manner.
Agency Response:	Families SA indicated that: - Issues raised in these recommendations were addressed through its Infants at Risk Policy which was endorsed in January 2007. This policy included a structured decision making tool which assists with decision making regarding risk, parenting capacity for change or removal of siblings, and provided guidelines for case planning and management. - To improve service delivery to children Families SA were developing an Assessment Framework which would have application across all developmental ages and at different stages of service delivery.
Future Action:	Families SA - regarding the Assessment framework and evaluation of the implementation of the Infants at Risk policy and guidelines.

RECOMMENDATION:	***CASE MANAGEMENT PLANS FOR CHILDREN WITH CHRONIC AND COMPLEX MEDICAL CONDITIONS***
Background Information:	The Committee recommended that case management plans should be comprehensive and require input from all agencies; however responsibility for monitoring should rest with the senior clinician.
Agency Response:	Department of Health indicated processes were in place to ensure that case plans were used within the Children, Youth and Women's Health Service, but other health and paediatric units would be audited to ensure consistency.
Future Action:	Department of Health - regarding auditing of case management plan processes in health units and paediatric units other than CYWHS.

RECOMMENDATION:	***CHILD RESISTANT BLISTER PACKAGING***
Background Information:	The Committee recommended that the issue of child resistant blister packaging be pursued with Standards Australia and the TGA.
Agency Response:	The Minister for Health wrote to both agencies regarding progress on this issue.
Future Action:	Monitor actions taken by Standards Australia and the TGA.

RECOMMENDATION:	***REVISIONS TO TREATMENT ADVICE AVAILABLE TO MEDICAL AND EMERGENCY ROOM STAFF REGARDING SLOW RELEASE OPIOIDS***
Background Information:	The Committee recommended that if necessary expert pharmacological advice be sought regarding this issue.
Agency Response:	The Department of Health sought expert advice and the South Australian chapter of the College of Emergency Medicine agreed to develop guidelines.
Future Action:	Monitor promulgation of guidelines.

RECOMMENDATION:	***CHILDREN IDENTIFIED AS HAVING SPECIAL EDUCATION NEEDS REQUIRE REGULAR CASE CONFERENCING WHICH INVOLVES AND SUPPORTS PARENTS***
Agency Response:	The Department for Education and Children's Services indicated that children with additional needs have 'negotiated education plans' developed in conjunction with the family, preschool/school staff and all relevant agencies (e.g. health support plan). Plans are reviewed regularly and support is provided to the family for implementation at home, if necessary.
Future Action:	Monitor through in-depth review of similar cases.

RECOMMENDATION:	***PROTOCOLS TO GUIDE POLICE INVESTIGATIONS INTO UNEXPECTED DEATHS OF ALL CHILDREN***
Background Information:	The Committee recommended the development of protocols for all unexpected deaths of children (e.g. suicide deaths) similar to the detailed protocol already in use to guide investigations into the unexplained death of an infant (PD-32).
Agency Response:	SA Police considered its protocols for investigation of deaths and considered that they were appropriate.
Future Action:	SA Police - to continue to ensure that protocols are followed.

RECOMMENDATION:	***EXCHANGE OF INFORMATION BETWEEN FAMILIES SA AND POLICE THAT ALLOWS EACH AGENCY TO MAINTAIN ACCURATE RECORDS OF INVOLVEMENT***
Agency Response:	An agreement regarding notification of deaths by SA Police to Families SA has been negotiated and implemented.
Future Action:	No further action.

The Committee will continue to monitor the recommendations arising from its reviews.

Section 4

Serious Injury 2006-2007

Section 4: Serious Injury 2006-2007

4.1 SERIOUS INJURY

In early May 2007 the Committee commenced work concerning serious injury. Initial tasks for the Committee were to canvass analogous serious injury activities in a Child Death Review context both nationally and internationally, to collate sources of data and other information about serious injury in infants, children and young people in South Australia (SA), and to assess gaps in such sources and information. A steering group of Committee members was established to identify potential sources of data for review, to assess gaps in those sources, and, using this information and examples of serious injury review elsewhere, to recommend a model for reviewing serious injury to children in South Australia. On the recommendation of the steering group, the Committee has sought and awaits advice from the Crown Solicitor on the scope of its powers to review serious injury. Further work by the steering group will be guided by that advice.

Section 5

References 2006-2007

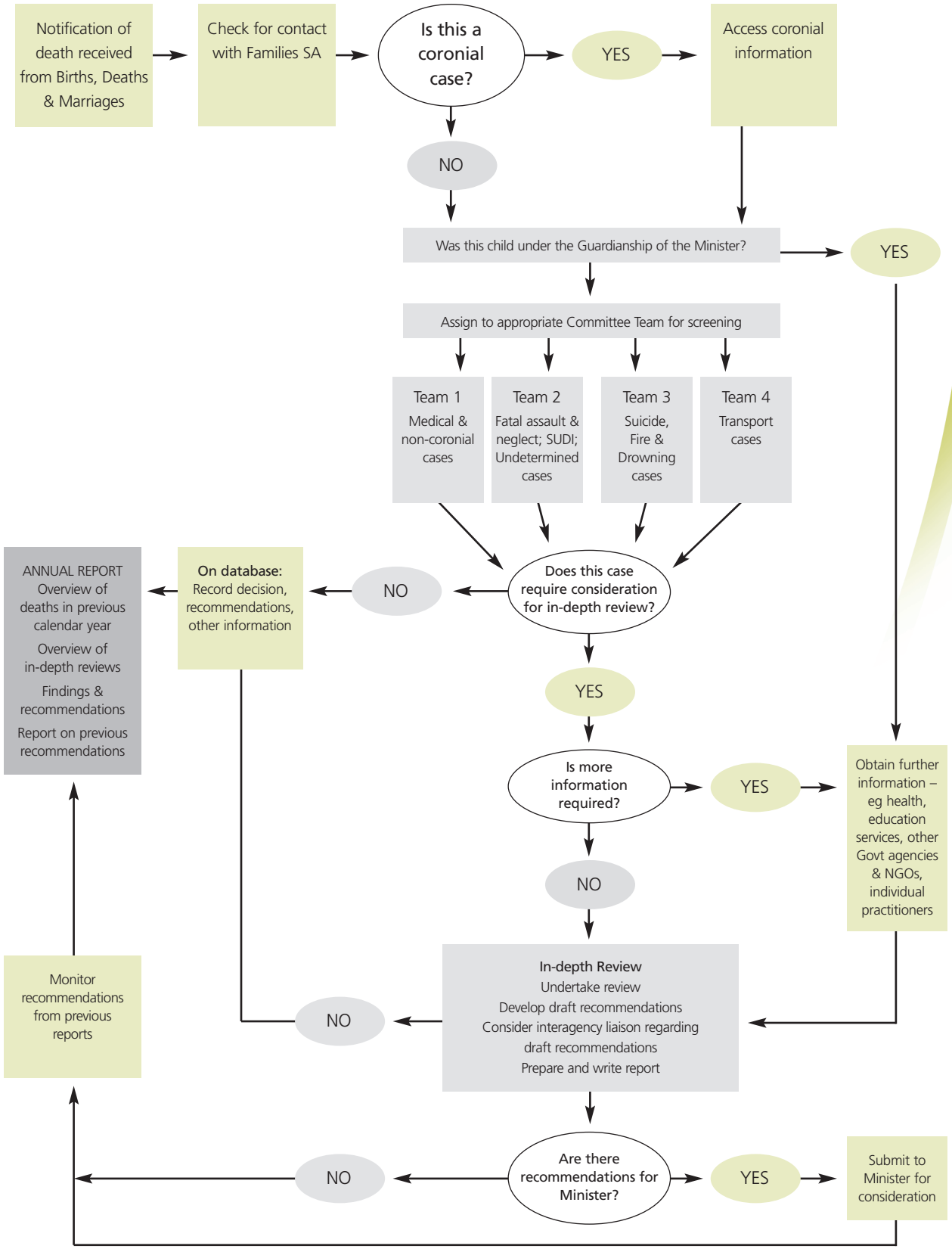
Section 5: References 2006-2007

5.1 METHODOLOGICAL ISSUES

5.1.1 Access to Information and the Process of Screening and Review

Diagram 1 (over page) indicates the key sources of information available to the Committee concerning the deaths of children in South Australia and illustrates the processes the Committee uses to screen and review this information.

Diagram 1: Committee's Screening and Reviewing Process



The Registrar, Births, Deaths and Marriages (the Registrar)

The Committee currently holds a protocol with the Registrar for the release of information concerning the deaths of children and young people in South Australia. This information is provided to the Committee on a monthly basis.

The State Coroner (the Coroner)

Under an arrangement with the Coroner, information is released to the Committee for each reportable death[7] of a child under 18 years of age.

Release of Information from Government Agencies

The Committee has protocols regarding release of information with the Department for Families and Communities, which includes Families SA, the Department of Health, the Department for Education and Children's Services and South Australian Police.

5.1.2 Coding for Cause of Death

For this report, deaths have been coded using the World Health Organization's International Classification of Diseases (Version 10: ICD-10). Using this coding system the underlying cause of death is considered the primary cause of death for classification. The primary cause of death is defined as '(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'. The WHO have agreed that the most effective public health objective is to prevent the precipitating cause from operating and with this in mind, have determined this coding convention.[8]

ICD-10 coding of deaths has been undertaken by the National Centre for Classification in Health - Brisbane (NCCH-Brisbane) under a contractual arrangement and with the agreement of the Minister for Families and Communities, the Registrar, and the Coroner.

It should be noted that there may be some discrepancies between the ICD-10 code assigned to a death, which is based on the underlying cause of death, and the Committee's classification of a death. In this and the previous reporting period, the Committee found a number of discrepancies between the ICD-10 codes assigned to some deaths and the cause the Committee attributed to a death. In many cases, the Committee has available multiple sources of information concerning children (including health, welfare and education records) and is not limited to the causes of death apparent in post-mortem reports or death certificates. Accordingly, the Committee's classification for a particular death may vary from the ICD-10 classification. ICD-10 coding of causes of death for 2005 and 2006 are contained in Table 12 (see opposite page).

Over a two year period, based on ICD-10 coding of deaths, the highest percentage of children (approximately two thirds) died from illness or disease. Nearly one third of children's deaths were attributed to external causes, with much smaller percentages dying from SIDS or undetermined causes. In a very small percentage of cases, the cause of death remained unknown or uncoded at the time of writing.

Apart from the high percentage of deaths from conditions originating in the perinatal period or congenital malformations and chromosomal abnormalities, the most common cause of death from illness or disease, over two years, was cancer, followed by diseases of the nervous system.

In both 2005 and 2006 and overall, transport incidents remained the leading external cause of death. With ICD-10 coding, deaths the Committee may have attributed to suicide may have been coded as intentional self-harm (X60-X84), an event of undetermined intent (Y10-Y34) or be included amongst deaths attributed to other accidental threats to breathing (W75-W84). Thus, the impact of this group of deaths is lost with this system of coding.

5.1.3 Aboriginal and Torres Strait Islander Status

The information received from the Registrar has an Aboriginal or Torres Strait Islander indicator for each case. The Committee has determined that, in the absence of any other form of reliable indicator of Indigenous status, this indicator will be used.

5.1.4 Usual Place of Residence

The information received from the Registrar indicates the 'last place of residence' for each case. This information is taken to indicate the child's usual place of residence for review and reporting purposes. The

Reference:

7 Deaths that are reportable to the Coroner are those indicated in Part 1 of the *Coroner's Act 2003*

8 Extracted from ICD-10 Second Edition, 2005, 4. Rules and guidelines for mortality and morbidity coding.

*Table 12: Deaths of children by ICD-10 chapter description of cause of death, South Australia 2005-2006**

		2005		2006		TOTALS	
ICD-10 CODE	**ICD-10 CHAPTER DESCRIPTION**	**No.**	**%**	**No.**	**%**	**No.**	**%**
ILLNESS OR DISEASE							
A00-B99	Certain infections and parasitic diseases	3	2.2	1	0.8	4	1.6
C00-D48	Neoplasms	8	5.9	10	8.4	18	7.1
E00-E90	Endocrine, nutritional and metabolic diseases	5	3.7	1	0.8	6	2.4
G00-G99	Diseases of the nervous system	5	3.7	11	9.2	16	6.3
H00-H59	Diseases of the eye and adnexa	-	-	1	0.8	1	0.4
I00-I99	Diseases of the circulatory system	2	1.5	2	1.7	4	1.6
J00-J99	Diseases of the respiratory system	3	2.2	2	1.7	5	2.0
K00-K93	Diseases of the digestive system	1	0.7	1	0.8	2	0.8
M00-M99	Diseases of the musculoskeletal system and connective tissue	2	1.5	-	-	2	0.8
P00-P96	Certain conditions originating in the perinatal period	44	32.6	22	18.5	66	26.0
Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities	20	14.8	24	20.2	44	17.3
TOTAL DEATHS - ILLNESSES OR DISEASE		***93***	***68.9***	***75***	***63.0***	***168***	***66.1***
SIDS AND UNDETERMINED							
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	***6***	***4.4***	***8***	***6.7***	***14***	***5.5***
EXTERNAL CAUSES							
V01-V99	Transport accidents	17	12.6	8	6.7	25	9.8
W00-W19	Falls	-	-	1	0.8	1	0.4
W20-W49	Exposure to inanimate mechanical forces	1	0.7	1	0.8	2	0.8
W65-W74	Accidental drowning and submersion	2	1.5	5	4.2	7	2.7
W75-W84	Other accidental threats to breathing	6	4.4	6	5.0	12	4.7
X00-X09	Exposure to smoke fire and flames	2	1.1	-	-	2	0.8
X40-X49	Accidental poisoning by exposure to noxious substance	-	-	1	0.8	1	0.4
X60-X84	Intentional self harm	1	0.7	2	1.7	3	1.2
X85-Y09	Assault	3	2.2	6	5.0	9	3.5
Y10-Y34	Event of undetermined intent	4	3.0	-	-	4	1.6
TOTAL DEATHS - EXTERNAL CAUSES		***36***	***26.7***	***30***	***25.2***	***66***	***25.9***
CAUSE NOT YET KNOWN							
-	-	***-***	***-***	***6***	***5.0***	***6***	***2.4***
TOTAL OF ALL DEATHS		**135**		**119**		**254**	

** Source: Child Death and Serious Injury Review Committee database*

Committee acknowledges that this information may have been variously interpreted by the person giving the information and may not reflect a consistent definition of a person's usual residence.

The Committee will indicate the number of cases where the information from the Registrar shows that the child's last place of residence was outside South Australia. Where relevant, this information will be noted.

5.1.5 Reporting Period

Section 52W of the Act outlines the reporting responsibilities of the Committee. It requires the Committee to report periodically to the Minister, and also to provide an annual report on the performance of its statutory functions during the preceding financial year.

5.1.6 Deaths Included in the Report

The Committee considered the two common ways of reporting on deaths - either through the date of registration of the death with the Registrar or the date of the child's death. It was decided that for ease of understanding, the date of death would be used as the marker for its inclusion in the data set for that year.

5.1.7 ARIA+ Index of Remoteness and Accessibility

ARIA stands for Accessibility/Remoteness Index of Australia. This Index is a distance-based measure of remoteness. It defines five categories of remoteness based on road distance to service centres: Major City, Inner and Outer Regional, Remote and Very Remote. The Very Remote category indicates very little accessibility of goods, services and opportunities for social interaction. ARIA+ Index is an indicator of the degree of geographic remoteness of an area and is a more accurate indicator of disadvantage than subjective labels such as 'rural' or 'country'.

5.1.8 SEIFA Index of Socioeconomic Disadvantage

The SEIFA (Socio-Economic Indexes for Areas) Index of Relative Disadvantage (IRDS) draws on a variety of personal and household characteristics (available from the 2001 Census) to rank household and socioeconomic status. The IRDS is calculated to show the relativity of areas to the Australian average for the particular set of variables which comprise it. This average is set at 1000. Scores below 1000 indicate areas with relatively disadvantaged populations under this measure, and scores above 1000 indicate areas with relatively advantaged populations. In this report SEIFA scores are divided into five quintiles, with the least disadvantaged populations represented in quintile 1.

5.1.9 Storage and Analysis of Information

Information concerning the circumstances and causes of child deaths in South Australia for 2005 and 2006 are stored in the prototype database developed in conjunction with the Epidemiology Branch of the Department of Health. This database was developed using EPI-INFO. EPI-INFO is a 'public shareware' program which allows for the customisation of data entry and analysis. This program has been designed and is supported by the Centers for Disease Control and Prevention (USA). Analysis of data is also undertaken using EPI-INFO.

In January 2006, work commenced on the development of the permanent database. The permanent database is a custom built Windows application, utilising the Microsoft.NET 2.0 Framework and SQL Server 2005 database, designed for use in a Microsoft Windows environment. Data concerning 2007 cases is stored in this database. Information concerning 2005-2006 cases will be imported into this database.

5.1.10 Death Rates

Crude death rates have been calculated using ABS population projections (ABS, 2006). Rates are not calculated when there are less than four deaths. Given the small numbers of deaths of children in South Australia, this is often the case.

A further consideration in calculating crude death rates for this population was the high number of children who died in South Australia but whose usual residence was outside of the State in 2006. These deaths were excluded from the calculation of crude death rates.

Deaths rates have not been calculated for individual categories of death (e.g. transport, suicide etc) as small numbers will make these calculations unreliable.

The Infant Mortality Rate is calculated according to the deaths of children less than one year old per 1000 live births in the same year. The South Australian Maternal, Perinatal and Infant Mortality Committee provided data concerning live births in the previous year.

5.2 DEFINITION OF SUDDEN INFANT DEATH SYNDROME

The definition of SIDS has undergone several modifications in the past decade. Recently Krous and colleagues (2004) have proposed a further redefinition of SIDS. This definition has been adopted by other Child Death Review Teams nationally (e.g. the Queensland Commission and Victorian Consultative Council on Obstetric and Paediatric Mortality and Morbidity both used this definition in their most recent *Annual Reports*) and is being considered for use by other Australian teams and committees. The Committee will also use this definition in classifying SIDS. The details of the definition are given in Table 13.

Table 13: Definition of sudden infant death syndrome

General Definition of SIDS

SIDS is defined as the sudden unexpected deaths of an infant <1 year of age, with onset of the fatal episode apparently occurring during sleep, that remains unexplained after a thorough investigation, including performance of a complete autopsy and review of the circumstances of death and the clinical history.

Category IA SIDS: Classic features of SIDS present and completely documented

Category IA included deaths that meet the requirements of the general definition and also all of the following requirements.

Clinical

- > 21 days and < 9 months of age;
- Normal clinical history including term pregnancy (gestational age > 37 weeks);
- Normal growth and development;
- No similar deaths among siblings, close genetic relatives (uncles, aunts or first degree cousins), or other infants in the custody of the same caregiver.

Circumstances of Death

- Investigations of the various scenes where incidents leading to death might have occurred and determination that they do not provide an explanation for the death;
- Found in a safe sleeping environment, with no evidence of accidental death.

Autopsy

- Absence of potentially fatal pathologic findings. Minor respiratory system inflammatory infiltrates are acceptable; intrathoracic petechial haemorrhage is a supportive but not obligatory or diagnostic finding;
- No evidence of unexplained trauma, abuse neglect or unintentional injury;
- No evidence of substantial thymic stress effect (thymic weight < 15g and/ or moderate/severe cortical lymphocyte depletion). Occasional 'starry sky' macrophages or minor cortical depletion is acceptable;
- Negative results of toxicologic, microbiologic, radiologic, vitreous chemistry and metabolic screening studies.

Category IB SIDS: Classic features of SIDS present but incompletely documented

Category IB includes infant deaths that met the requirements of the general definition and also meet all of the criteria for category IA except that investigation of the various scenes where incidents leading to death might have occurred was not performed and/ or >1 of the following analyses were not performed: toxicologic, microbiologic, radiologic, vitreous chemistry or metabolic screening studies.

Category II SIDS

Category II includes infants that meet category I except for > 1 of the following.

Clinical

- Age range outside that of category IA or IB (i.e. 0-21 days or 270 days (9 months) through to first birthday);
- Similar deaths among siblings, close relatives or infants in the custody of the same caregiver that are not considered suspect for infanticide or recognised genetic disorders;
- Neonatal or perinatal conditions (e.g. those resulting from pre-term birth) that have resolved by the time of death.

Circumstances of Death

- Mechanical asphyxia or suffocation caused by overlaying not determined with certainty.

Autopsy

- Abnormal growth or development not thought to have contributed to death;
- Marked inflammatory changes or abnormalities not sufficient to be unequivocal causes of death.

Unclassified sudden infant death

Includes deaths that do not meet the criteria for category I or II SIDS, but for which alternative diagnoses of natural or unnatural conditions are equivocal, including cases where autopsies were not performed.

Post resuscitation cases

Infants found in extremis who are resuscitated and later die ('temporarily interrupted SIDS') may be included in the aforementioned categories, depending on the fulfilment of relevant criteria.

Source: Krous, Beckwith, Byard et al. 2004

5.3 CAUSES OF DEATH BY AGE

This section provides greater detail concerning the causes of child deaths by age grouping.

Table 14: Deaths of children less than 28 days old by cause of death, South Australia 2006*

CHILDREN < 28 DAYS	F	M	Total	%
Illness or Disease				
Certain conditions originating in the perinatal period	11	6	17	48.5
The following being the most common conditions:				
Affects of maternal complications of pregnancy (4)				
Affects of forms of placental separation & haemorrhage (3)				
Affects of multiple pregnancy (2)				
Affects of chorioamnionitis (2)				
Necrotising enterocolitis (2)				
Congenital malformations, deformations and chromosomal abnormalities	10	6	16	45.7
The following being the most common conditions:				
Hypoplastic left heart syndrome(4)				
Renal hypoplasia (2)				
Congenital diaphragmatic hernia (2)				
Congenital malformation syndromes affecting facial appearance (2)				
Illness or Disease - Total			***33***	***94.3***
External Causes				
Transport	1	-	1	2.9
Health-system related	1	-	1	2.9
External Causes - Total	***2***	***-***	***2***	***5.7***
Children < 28 Days - TOTALS	**23**	**12**	**35**	**100**

** Source: Child Death and Serious Injury Review Committee database*

*Table 15: Deaths of children 28 days to one year by cause of death, South Australia 2006**

CHILDREN 28 DAYS – ONE YEAR	F	M	Total	%
Illness or Disease				
Diseases of the nervous system	3	1	4	14.3
Certain conditions originating in the perinatal period	1	2	3	10.7
Congenital malformations, deformations and chromosomal abnormalities	1	1	2	7.1
Certain infectious and parasitic conditions	-	1	1	3.6
Illness or Disease - Total	***5***	***5***	***10***	***35.7***
SIDS & Undetermined Causes				
SIDS	2	1	3	10.7
Undetermined	3	2	5	17.8
SIDS & Undetermined Causes - Total	***5***	***3***	***8***	***28.6***
External Causes				
Accidental asphyxia	2	2	4	14.3
Drowning	-	1	1	3.6
Fatal assault	1	-	1	3.6
Health-system related	1	-	1	3.6
External Causes - Total	***4***	***3***	***7***	***25.0***
Causes Not Yet Known				
	-	3	3	10.7
Causes Not Yet Known - Total	***-***	***3***	***3***	***10.7***
Children 28 Days – One Year - TOTALS	**14**	**14**	**28**	**100**

** Source: Child Death and Serious Injury Review Committee database*

*Table 16: Deaths of children aged one – four years by cause of death, South Australia 2006**

CHILDREN ONE – FOUR YEARS	F	M	Total	%
Illness or Disease				
Neoplasms	3	-	3	15.8
Congenital malformations, deformations and chromosomal abnormalities	2	-	2	10.5
Endocrine, nutritional and metabolic diseases	1	-	1	5.3
Diseases of the nervous system	1	-	1	5.3
Illness or Disease - Total	***7***	***-***	***7***	***36.8***
External Causes				
Fatal assault	-	3	3	15.8
Health-system related	2	1	3	15.8
Suspected fatal neglect	1	1	2	10.5
Transport	1	1	2	10.5
Drowning	1	1	2	10.5
External Causes - Total	***5***	***7***	***12***	***63.2***
Children One – Four Years - TOTALS	**12**	**7**	**19**	**100**

** Source: Child Death and Serious Injury Review Committee database*

*Table 17: Deaths of children aged five – nine years by cause of death, South Australia 2006**

CHILDREN FIVE – NINE YEARS	F	M	Total	%
Illness or Disease				
Cancer	2	1	3	25
Diseases of the nervous system	1	1	2	16.7
Diseases of the circulatory system	-	1	1	8.3
Congenital malformations, deformations and chromosomal abnormalities	1	-	1	8.3
Illness or Disease - Total	***4***	***3***	***7***	***58.3***
External Causes				
Drowning	1	1	2	16.7
Transport	1	-	1	8.3
Fatal assault	1	-	1	8.3
Fire	-	1	1	8.3
External Causes - Total	***3***	***2***	***5***	***41.7***
Children Five – Nine Years - TOTALS	**7**	**5**	**12**	**100**

** Source: Child Death and Serious Injury Review Committee database*

*Table 18: Deaths of children aged 10 – 14 years by cause of death, South Australia 2006**

CHILDREN 10 – 14 YEARS	F	M	Total	%
Illness or Disease				
Cancer	1	-	1	16.7
Diseases of the nervous system	1	-	1	16.7
Diseases of the circulatory system	1	-	1	16.7
Disease of the respiratory system	1	-	1	16.7
Illness or Disease - Total	***4***	***-***	***4***	***66.7***
External Causes				
Fatal assault	1	-	1	16.7
Suspected fatal neglect	-	1	1	16.7
External Causes - Total	***1***	***1***	***2***	***33.3***
Children 10 – 14 Years - TOTALS	**5**	**1**	**6**	**100**

** Source: Child Death and Serious Injury Review Committee database*

*Table 19: Deaths of children aged 15 – 17 years by cause of death, South Australia 2006**

CHILDREN 15 – 17 YEARS	F	M	Total	%
Illness or Disease				
Cancer	1	2	3	15.8
Diseases of the nervous system	1	-	1	5.3
Congenital malformations, deformations and chromosomal abnormalities	1	1	2	10.5
Illness or Disease - Total	***2***	***4***	***6***	***31.6***
External Causes				
Transport	3	4	7	36.8
Suicide	3	2	5	26.3
Accident	-	1	1	5.3
External Causes - Total	***6***	***7***	***13***	***68.4***
Children 15 – 17 Years - TOTALS	**8**	**11**	**19**	**100**

** Source: Child Death and Serious Injury Review Committee database*

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