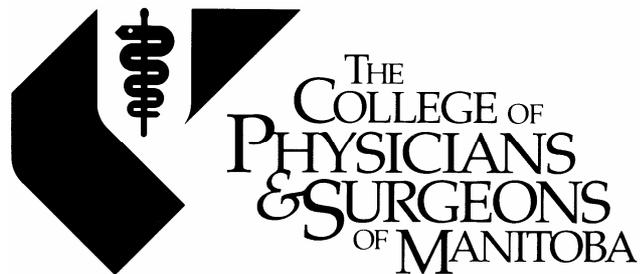


The  
Child  
Health  
Standards  
Committee  
Annual Report

2003



## *Acknowledgements*

The Child Health Standards Committee (CHSC) wishes to acknowledge the continuing support of the following organizations. The information they provide has assisted the CHSC in its deliberations.

- Office of The Chief Medical Examiner
- Manitoba Vital Statistics
- Medical Records Departments, Manitoba Hospitals
- First Nations and Inuit Health Branch, Health Canada
- Insurance Division, Manitoba Health
- Decision Support Services, Manitoba Health
- IMPACT, the injury prevention centre of Children's Hospital

The CHSC acknowledges the interest and cooperation of physicians and health care facilities across the province in providing information for the review process.

The committee is grateful to Manitoba Health for providing financial support.

## *Executive Summary 2003*

- ❖ The Child Health Standards Committee (CHSC) reviewed 107 deaths which occurred in 2003. Seventy-six were children 29 days to 14 years of age, 19 were teens 15 to 17 years of age, three were infants less than 29 days of age, and nine were children whose place of residence was out of province (eight children and one teen).
- ❖ The mortality rate for Manitoba children aged 29 days to 14 years was 32.2 per 100,000 in 2003 compared to 31.9 per 100,000 in 2002 and 32.0 per 100,000 in 2001.
- ❖ The infant mortality rate was 5.9 per 1,000 live births, a slight increase compared to 2002, when it was 5.6. Manitoba continues to have one of the highest infant mortality rates in Canada.
- ❖ The cause of death was preventable for 30 of 76 childhood deaths (39%) and 16 of 19 teen deaths (84%). Injury accounted for all but four of these preventable deaths. Three of the four non-injury-related preventable deaths were related to delays by families in seeking care for their ill children.
- ❖ Injury was the leading cause of death, accounting for 44% of deaths among children and teens. In children aged 29 days to 14 years, the most common causes of injury-related mortality were pedestrian injuries, drowning, choking/suffocation, and suicide. The most common causes of injury-related mortality in teens were suicide and motor vehicle collisions. Young drivers were involved in all of the teen motor vehicle deaths.
- ❖ One third (35%) of the deaths of infants 29 days to one year of age were sudden and unexplained infant deaths during sleep (SIDS, SUID, and asphyxia related to co-sleeping adults). Of nine such cases, three were due to co-sleeping in adult beds, one was placed to sleep alone in an adult bed, one was co-sleeping on a sofa, and four were found in the prone position. Seven of these infants had at least two modifiable risk factors for sudden infant death.
- ❖ First Nations children aged 29 days to 14 years were 6.1 times more likely to die than non-First Nations children. First Nations children accounted for 35 of 76 childhood deaths in Manitoba (46%). Mortality rates on- and off-reserve were similar.
- ❖ In 2003, the CHSC initiated educational actions with nine physicians with respect to medical care provided and six actions were directed to healthcare administrators. One case led to a referral to another professional licensing body. In five cases, educational action was taken by another standards committee.

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## Definitions

**Age-Standardized Rates:** Death rates are adjusted to account for the differing proportions of children by age group in different regions. Because infants are more likely to die than older children, a region with a higher proportion of infants would have an inflated death rate unless adjustments are made.

**Delayed Neonatal Death:** The death of an infant occurring after 28 days of age, who under natural selection circumstances, without the benefit of neonatal intensive care, would have died before 28 days of age.

**Mortality Rate:** The number of deaths occurring in a specified population per 100,000 population per year. Mortality rates for children under five years of age are usually reported as deaths per 1,000 population or 1,000 live births.

**Infant Mortality Rate:** The number of deaths occurring prior to one year of age per 1,000 live births.

**Neonatal Mortality Rate:** The number of neonatal deaths per 1,000 live births.

- **Early:** before the 7<sup>th</sup> full day of life (<168 hours), or
- **Late:** between the 8<sup>th</sup> and 28<sup>th</sup> full day of life (≥168 hours to <672 hours)

**Post-Neonatal Mortality Rate:** The number of deaths from 29 days to one year of age per 1,000 live births.

**Under Five Mortality Rate:** The number of deaths occurring prior to five years of age per 1,000 population.

**First Nations:** An individual who is registered under *The Indian Act of Canada*.

**Non-First Nations or Other:** All non-First Nations people, and those Métis and people of aboriginal descent who are not registered under *The Indian Act of Canada*.

**Three-Year Moving Average:** Three-year moving averages are used in some of the calculations because large fluctuations in rates may occur from year to year in small populations such as Manitoba. This rate is calculated by averaging the rate for 3 one-year periods and presenting that rate using the median year. For example, data for 1999, 2000, and 2001 rates are averaged and presented as a “2000” rate.

# 1. Introduction

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## Background

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In 1976, The College of Physicians & Surgeons of Manitoba established the Paediatric Death Review Committee. In 2001, this committee was renamed the Child Health Standards Committee. This committee reports to the Central Standards Committee of The College of Physicians & Surgeons. The major function of all Standards Committees is to maintain and improve quality of care through education. *These educational functions of the College are separate and distinct from its disciplinary functions.*

Educational strategies used by the Child Health Standards Committee include:

- Sending letters to physicians, hospitals, Area Standards Committees, and regulatory agencies for other health care professionals.
- Publishing articles in the College Newsletters and Annual Reports to draw members' attention to important aspects of medical care involving children.
- Recommendations for clinical practice guidelines to enhance paediatric care.
- Advocating for the health of Manitoba children by informing government and other public agencies of recommendations to improve legislation or public policy.

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## Goals and Objectives

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To monitor and improve the quality of medical care provided to Manitoba children by:

- Reviewing all deaths in the province of children between the ages of 29 days and the day before their 18<sup>th</sup> birthday.
- Determining whether each death was preventable at the family, community or medical care level.
- Communicating with involved practitioners or agencies where care could have affected the outcome.
- Making recommendations to government, medical organizations, and the community at large regarding preventable mortality and morbidity.

## 2. *Committee Activities*

In addition to reviewing deaths, the Child Health Standards Committee functions as a sounding board for child health issues for the College of Physicians and Surgeons.

The Medical Consultant conducts the initial case reviews and with the administrative assistant sends out and receives correspondence, maintains the database, contributes to the development of draft Guidelines and Newsletter items, attends relevant meetings, and collaborates with other interested parties.

Regional mortality rates are reported using the boundaries of the Manitoba Regional Health Authorities. In addition, the Committee divided Manitoba into three broad geographic regions: Urban (Winnipeg and Brandon); South (Assiniboine, Central and South Eastman); and North (Churchill, Burntwood, NorMan, North Eastman, Parkland and Interlake).

*(Please refer to Definitions.)*

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### **Clinical Practice Guidelines, Newsletter Items**

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The CHSC communicates with the profession through the publication of items in the College Newsletter. The CHSC also participated in the development of the Clinical Practice Guidelines in 2003 with the Clinical Practice Guideline Program. This program is no longer active and as such the guidelines are no longer available.

The CHSC worked on the development and/or revision of three Clinical Practice Guidelines in 2003:

- Guideline 920 – Sickle Cell Disease: Early Diagnosis and Treatment of Children.
- Guideline 910 – Eye Screening of the Infant and the Young Child.
- Guideline 902 - Initial Fluid and Electrolyte Management of Diabetic Ketoacidosis (DKA) in Childhood.

The CHSC published four Newsletter items in 2003:

- Croup Morbidity Audit (May 2003).
- Diagnosis of Type I Diabetes in Children (May 2003).
- Reporting Child Abuse (September 2003).
- New Vaccines (Dec 2003).

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## Other Committee Activities

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The CHSC conducted three Morbidity/Mortality Audits in 2003:

- Suicide: Children and Teens
- Child Oncology (Cancer)
- Croup Morbidity (Hospitalizations)

The CHSC advocated for the following issues in 2003:

- That bicycle helmet legislation be introduced in Manitoba, coupled with public education, in order to reduce bicycle-related head injuries.
- That documentation of vital signs in WRHA Emergency Departments should be improved, and that guidelines should be developed for documentation and reassessment of vital signs.
- That a small group of the City of Winnipeg paramedics be trained and maintain competency in advanced paediatric airway management.
- That the use of propofol by continuous infusion for sedation of children and teens in medical intensive care units be reviewed based on case reports in the medical literature of severe metabolic acidosis and cardiac failure.
- That communication of reports regarding mental health services provided to youth be improved, so that nursing stations and health centres have timely access to mental health related assessments and recommendations.

Other committee activities in 2003:

- Review of Child Protection and Abuse Booklets to be distributed to all Manitoba physicians, developed by the Departments of Family Services, Health, Justice, and Education and Training through the Provincial Advisory Committee of Child Abuse.
- Presentation at the Canadian Paediatric Society's Annual Meeting: "Paediatric Mortality in Manitoba: a ten year review".
- Publication of "Childhood Drowning in Manitoba: A 10-year review of provincial Paediatric Death Review Committee data" in the journal *Paediatrics and Child Health*.
- Development of a new Microsoft Access database for improved data capture and reporting.

### 3. Statistical Summary

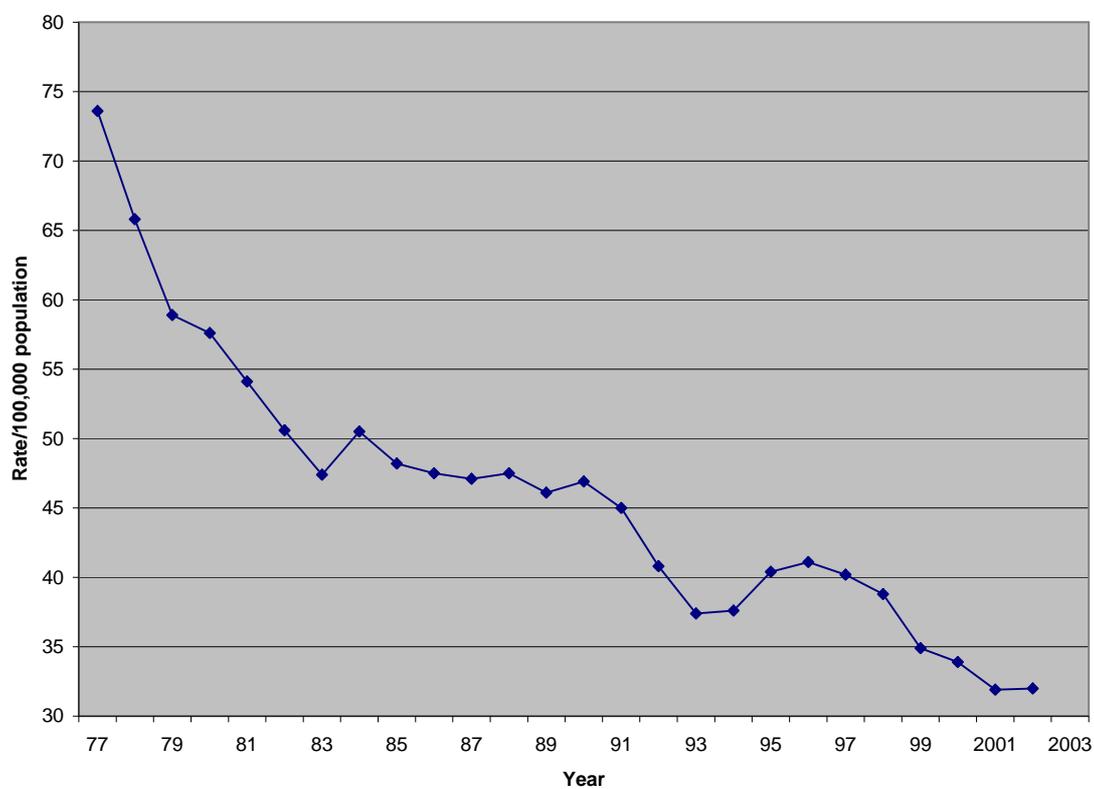
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#### Mortality Rates

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**Figure 1** shows the three-year moving average trends in paediatric mortality from 1977 to 2003 for Manitoba residents. *The 2003 data is included in the three-year moving average for 2002.*

**Figure 1 – MORTALITY RATES  
In Children 29 Days to 14 Years  
(Three-Year Moving Average)**



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## Deaths Grouped by Age and Gender For Manitoba Residents

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<b>Table 1 – MORTALITY RATES BY AGE GROUP 2003</b>				
<b>Age Group</b>	<b>Number of Deaths</b>	<b>Population</b>	<b>Rate/100,000</b>	<b>Three-Year Average (2001 – 2003)</b>
29 days to <1 year	26	13,775	188.7	218.1
1 to 4 years	25	57,760	43.3	32.0
5 to 9 years	6	79,522	7.5	12.7
10 to 14 years	19	84,978	22.4	20.1
<b>Total 29 days to 14 years</b>	<b>76</b>	<b>236,035</b>	<b>32.2</b>	<b>32.0</b>
15 to 17 years	19	49,941	38.0	55.4

<b>Table 2 – MORTALITY RATES BY GENDER 2003</b>				
<b>Gender</b>	<b>Number of Deaths</b>	<b>Population</b>	<b>Rate/100,000</b>	<b>Three-Year Average (2001 – 2003)</b>
Male 29 days to 14 years	50	120,911	41.4	39.4
Female 29 days to 14 years	26	115,124	22.6	24.4
Male 15 to 17 years	11	25,592	43.0	80.7
Female 15 to 17 years	8	24,349	32.9	28.8

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## **Infant Mortality Rates**

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In 2003, there were 26 deaths in the Manitoba population between 29 days and one year of age. The number of live births based on Manitoba Health registrations was 14,189. This gives a post-neonatal infant mortality rate of 1.8 per 1,000 live births. There were also 58 neonatal deaths in the first 28 days of life. The neonatal mortality rate was 4.1 per 1,000 live births.

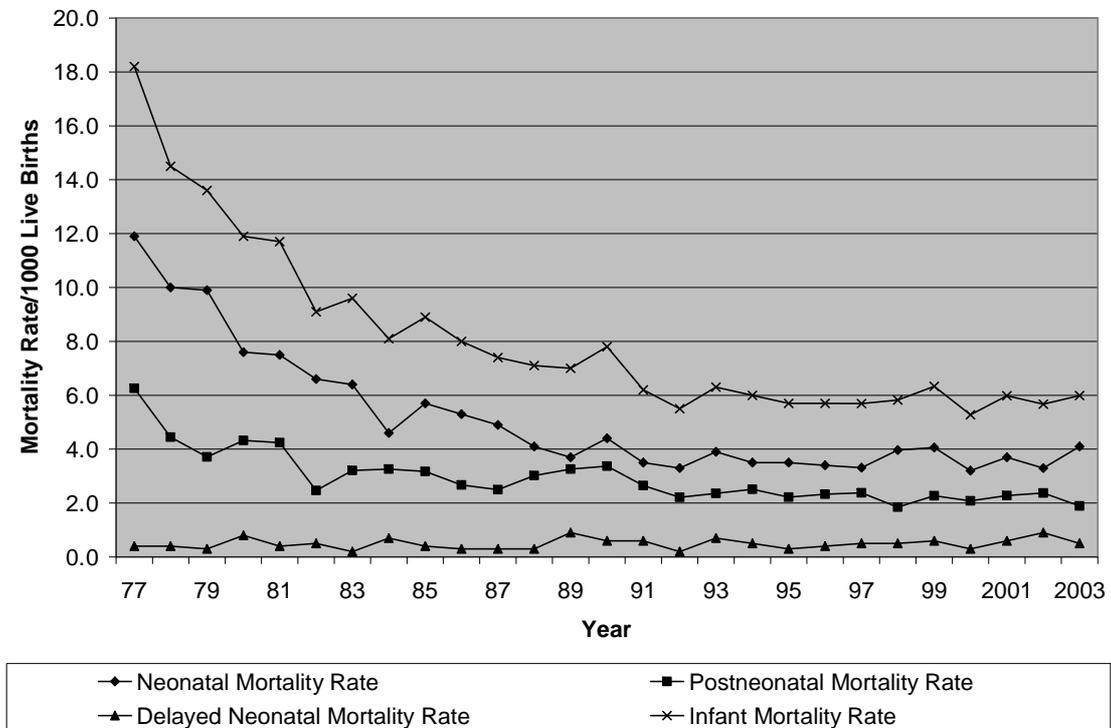
Combining the neonatal mortality rate with the post-neonatal mortality rate gives an overall infant mortality rate of 5.9 per 1,000 live births. This rate has been fairly stable for the past five years. These figures do not include neonates born weighing <500 grams.

For First Nations infants, there were 12 neonatal deaths and 12 post-neonatal deaths among 2,015 deliveries for an infant mortality rate of 14.9 per 1,000 deliveries. For non-First Nations infants, there were 51 neonatal and 14 post-neonatal deaths among 12,258 live deliveries for a rate of 8.2 per 1,000 deliveries. The First Nations infant mortality rate was 1.8 times that for non-First Nations infants.

## Infant Mortality Rates *Continued*

**Figure 2** shows Manitoba infant mortality rates over time. Also plotted are neonatal, post-neonatal and delayed neonatal infant mortality rates. When children's lives are prolonged by technology and they die from neonatal illnesses after 28 days, they are classified as delayed neonatal deaths and become a part of the post-neonatal infant mortality statistic. In 2003, seven infants less than one year of age were classified as a delayed neonatal death. This represents 27% of post-neonatal infant mortality. Infant mortality rates have remained stable for the past decade.

**Figure 2 – INFANT MORTALITY RATES**



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## Infant Mortality Rates *Continued*

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**Table 3** shows Statistics Canada infant mortality rates for Canada, and then is broken down by province. The Statistics Canada figures for Manitoba are slightly different than those presented in this report due to the fact that Statistics Canada counts babies born in Manitoba to mothers from out of province as being the responsibility of Manitoba. They also count registered births and neonatal deaths weighing less than 500 grams, which are not included in our statistics.

Province/Country	1996	1997	1998	1999	2000	2001	2002	2003
<b>Canada</b>	<b>5.6</b>	<b>5.5</b>	<b>5.3</b>	<b>5.3</b>	<b>5.3</b>	<b>5.2</b>	<b>5.4</b>	<b>5.3</b>
British Columbia	5.1	4.7	4.2	3.8	3.7	4.1	4.6	4.2
Nova Scotia	5.6	4.4	4.6	4.0	4.9	5.6	4.2	5.7
Alberta	6.2	4.8	4.8	5.8	6.6	5.6	7.3	6.6
Ontario	5.7	5.5	5.0	5.4	5.6	5.4	5.3	5.3
Yukon	-	8.4	5.1	2.6	2.7	8.7	8.8	6.0
Quebec	4.6	5.6	5.6	4.9	4.7	4.7	4.8	4.4
Newfoundland	6.6	5.2	6.2	4.9	4.9	4.9	4.5	5.0
New Brunswick	4.9	5.7	6.5	5.0	3.5	4.3	3.8	4.1
<b>Manitoba</b>	<b>6.7</b>	<b>7.5</b>	<b>6.7</b>	<b>8.4</b>	<b>6.5</b>	<b>7.0</b>	<b>7.1</b>	<b>8.0</b>
Saskatchewan	8.4	8.9	7.1	6.3	6.8	5.5	5.7	6.3
Prince Edward Island	4.7	4.4	8.0	6.6	3.5	7.2	1.5	4.9
Northwest Territories	12.2	10.9	18.5	16.7	8.9	4.9	11.0	5.7
Nunavut				10.9	12.3	16.9	11.0	19.8

Sources: Statistics Canada. Tabulations from Health Statistics Division. *The Daily*, July 1998, June 1999.

Statistics Canada. 1998 Catalogue No. 840211XPB.

Statistics Canada. 1999 Catalogue No. 84F0211XPB

Statistics Canada. Table 102-0507, Table 102-0504

[http://www.statcan.ca/english/freepub/84F0211XIE/2002/tables/html/t018\\_en.htm](http://www.statcan.ca/english/freepub/84F0211XIE/2002/tables/html/t018_en.htm)

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## First Nations Mortality Rates

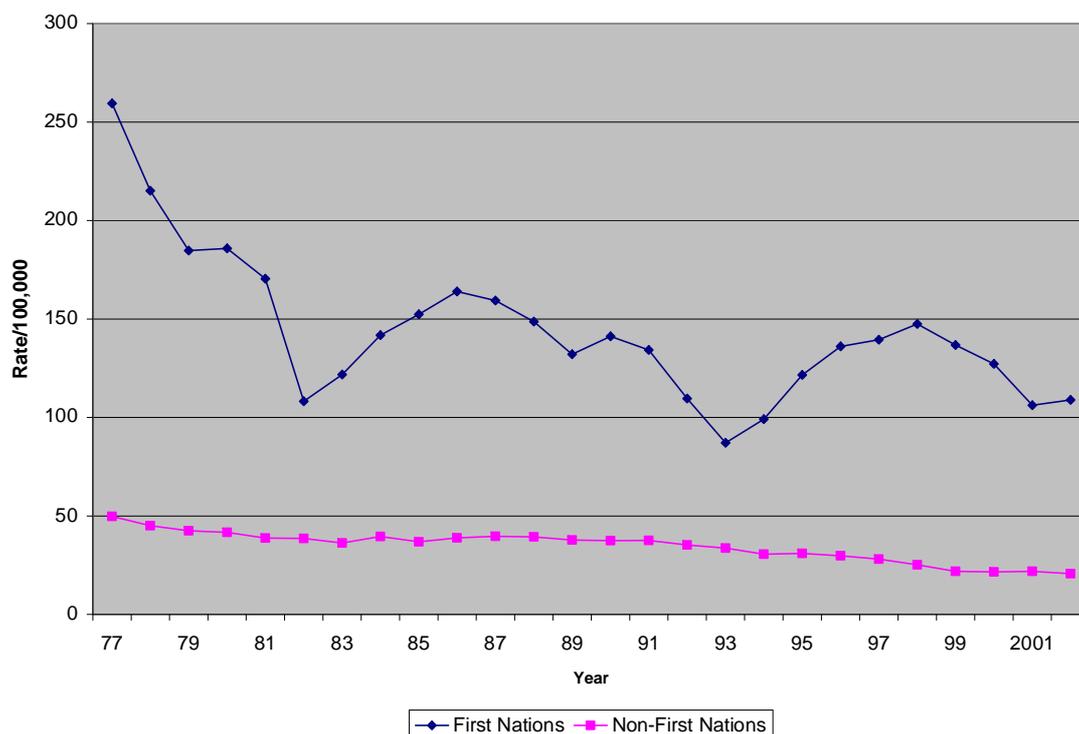
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In 2003, First Nations children in Manitoba accounted for 12.2% of the population aged 29 days to 14 years and 46% of childhood deaths. There were 35 deaths among registered First Nations children (population 28,831) and 41 among all others (population 207,204). The mortality rate for First Nations children was 121.4 per 100,000, and for non-First Nations children it was 19.8. Therefore, First Nations children were six times more likely to die than non-First Nations Manitoba children. This is an increase from 5.0- and 4.2-fold increases in mortality rates for First Nations vs. non-First Nations children in 2001 and 2002 respectively.

In Manitoba in 2003, 58% of First Nations children resided in First Nations communities. Of the 35 First Nations children who died, 21 resided on reserves and 14 resided in other communities. Mortality rates for First Nations children were 124.8 per 100,000 residing on reserves, and 116.7 per 100,000 for First Nations children residing in all other communities.

(The Manitoba Health Client Registry is used for these calculations for both deaths and population figures. These data are felt to represent approximately two-thirds of First Nations individuals in Manitoba.)

**Figure 3 – MORTALITY RATES FOR FIRST NATIONS vs. NON-FIRST NATIONS CHILDREN  
In Children 29 Days to 14 Years  
(Three-Year Moving Average)**

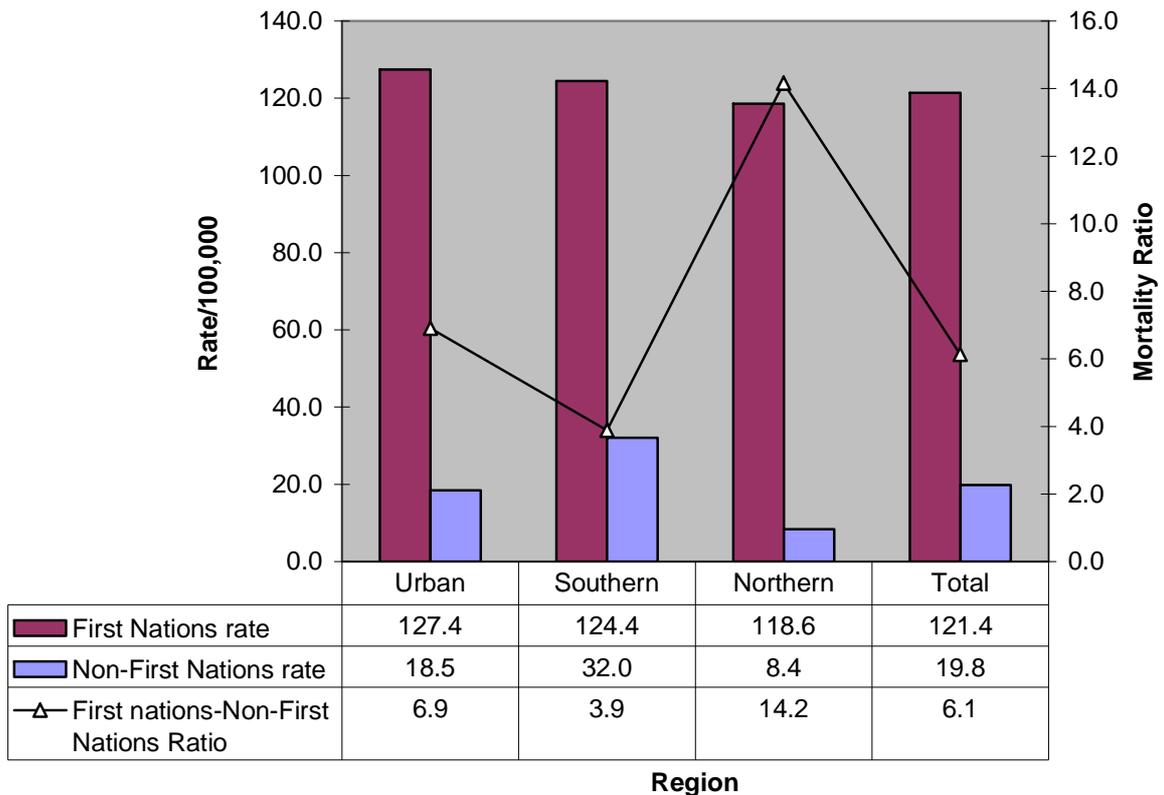


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**First Nations Mortality Rates** *Continued*

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**Figure 4 – MORTALITY RATES BY GEOGRAPHIC REGION  
FIRST NATIONS vs. NON-FIRST NATIONS  
In Children 29 days to 14 years**



Definition of geographic regions for the purpose of this report:

- North Rural – Churchill, Burntwood, NorMan, North Eastman, Parkland and Interlake RHAs
- South Rural – Assiniboine, Central and South Eastman RHAs
- Urban – Winnipeg and Brandon RHAs

## Regional Mortality Rates

**Table 4 – REGIONAL MORTALITY RATES 2003  
In Children 29 Days to 14 Years**

**Note: Data are presented in descending order of three-year average rates**

<b>RHA</b>	<b>Number of Deaths</b>	<b>Population</b>	<b>Rate per 100,000</b>	<b>Three-Year Average Rates (2001 – 2003)</b>
Burntwood	16	15,279	104.7	<b>93.3</b>
Assiniboine	6	13,205	45.4	<b>56.4</b>
NorMan	3	6,604	45.4	<b>50.1</b>
Parkland	2	8,489	23.6	<b>42.6</b>
Central	11	23,238	47.3	<b>37.2</b>
<b>All Manitoba</b>	<b>76</b>	<b>236,035</b>	<b>32.2<sup>^</sup></b>	<b>32.0</b>
Winnipeg	31	122,256	25.4	<b>23.3</b>
North Eastman	0	8,613	0	<b>22.8</b>
South Eastman	2	13,588	14.7	<b>22.2</b>
Interlake	4	15,136	26.4	<b>21.7</b>
Brandon	1	9,369	10.7	<b>17.4</b>
Churchill	0	258	0	<b>0</b>

<sup>^</sup> See Figure 1 for Mortality Rates in Children 29 days to 14 years (Three-Year Moving Average).

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## Causes of Childhood Death

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**Table 5** shows the causes of death in children 29 days to 14 years of age.

In 2003, there were 76 deaths of Manitoba children reviewed. Injury accounted for 34% of these deaths. The CHSC reviewed nine deaths of children from out of province. Three deaths of children less than 29 days of age were also reviewed under the CHSC mandate.

<b>Table 5 – CAUSES OF DEATH In Children 29 Days to 14 Years</b>		
<b>Cause of Death</b>	<b>Deaths</b>	<b>Rate per 100,000</b>
Unintentional Injury	17	7.2
Intentional Injury*	9	3.8
<b>Injury Total</b>	<b>26</b>	<b>11.0</b>
Congenital Anomaly	6	2.5
Sudden Infant Death Syndrome	4	1.7
Infectious Disease	1	0.4
Sudden Unexplained Deaths	7	3.0
Conditions Originating in Perinatal Period	6	2.5
Circulatory System	4	1.7
Nervous System	4	1.7
Respiratory System	8	3.4
Neoplasm	8	3.4
Endocrine, Nutritional, Metabolic	2	0.8
<b>Total</b>	<b>76</b>	<b>32.2</b>

\*Intentional Injury includes homicide and suicide.

---

## Causes of Childhood Death *Continued*

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**Table 6** lists the frequency of various causes of post-neonatal infant mortality among Manitoba residents 29 days to one year of age.

<b>Table 6 – CAUSES OF POST-NEONATAL INFANT DEATH In Children 29 Days to 1 Year</b>		
	<b>Deaths</b>	<b>Rate per 100,000</b>
Unintentional Injury	1	7.3
Intentional Injury*	1	7.3
Injury Total	2	14.5
Endocrine, Nutritional, Metabolic Diseases & Immunity Disorders	1	7.3
Nervous System	1	7.3
Respiratory System	5	36.3
SIDS	4	29.0
Sudden Unexplained Infant Death	4	29.0
Infection	1	7.3
Congenital Anomaly	3	21.8
Certain conditions originating in the perinatal period	5	36.3
<b>Total</b>	<b>26</b>	<b>188.7</b>

\*Intentional Injury (homicide).

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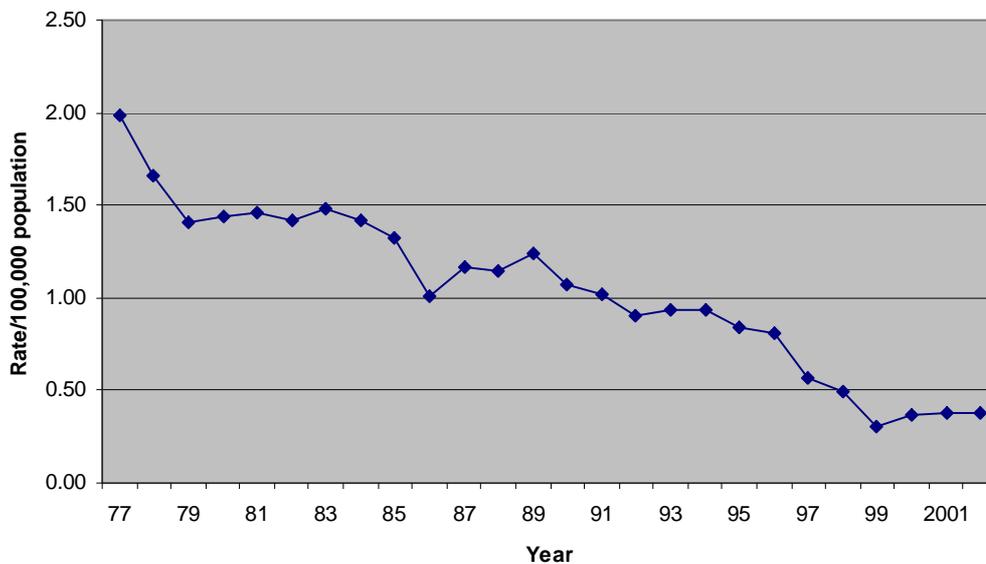
## Sudden Infant Death Syndrome (SIDS)

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Infant deaths are classified as Sudden Infant Death Syndrome (SIDS) if they remain unexplained by clinical history, death scene investigation (by police), and detailed post mortem examination including skeletal x-rays and toxicology. Sudden Unexplained Infant Deaths (SUID) are those with historical, investigative or post mortem findings which suggest, but do not confirm a cause of death.

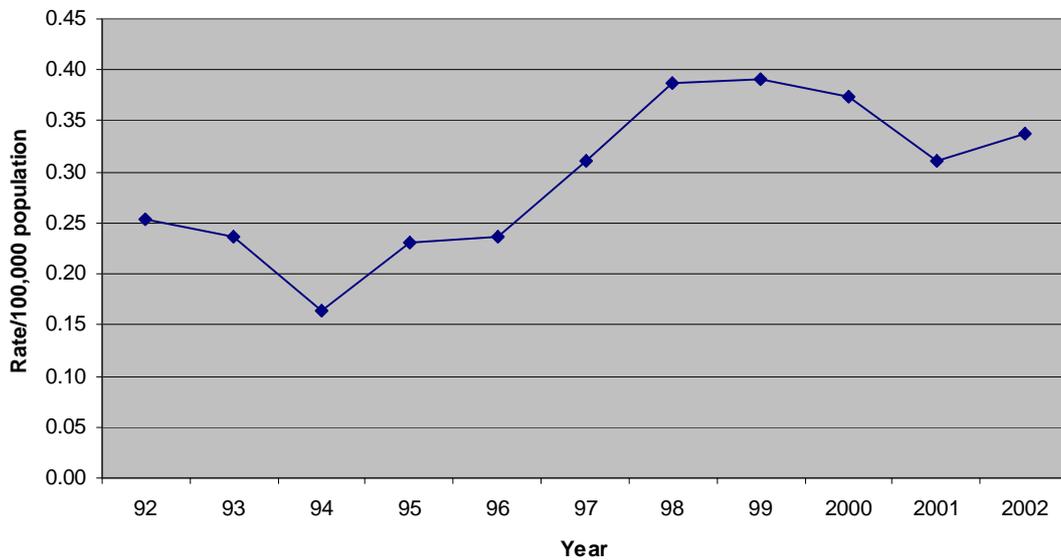
**Figure 5A** shows the three-year moving average rates for Sudden Infant Death Syndrome (SIDS) from 1977 to 2003. Data for 2003 is included in the 2002 three-year average (2001-2003). There was a consistent decline in SIDS rates until 1999. In 2003, there were four cases of SIDS in the 29 days to one-year age group. Known SIDS risk factors included prone sleeping (two cases), adult bed (one case), warm environment (one case) and soft bedding (three cases).

**Figure 5A – SUDDEN INFANT DEATH SYNDROME (SIDS)  
In Children 29 Days to 1 Year  
(Three-Year Moving Average)**



**Figure 5B** shows the three-year moving average rates for Sudden Unexplained Infant Death (SUID) from 1992 to 2003. Data for 2003 are included in the 2002 three-year average (2001-2003). There was an increase in the SUID rates until 1998. In 2003, there were four cases of SUID in the 29 days to one-year age group; one additional case occurred in an infant less than 29 days. Known sleep environment risk factors included co-sleeping (three cases), sleeping on a sofa (one case) or an adult bed (two cases), prone sleeping (two cases), warm environment (one case) and soft bedding (two cases).

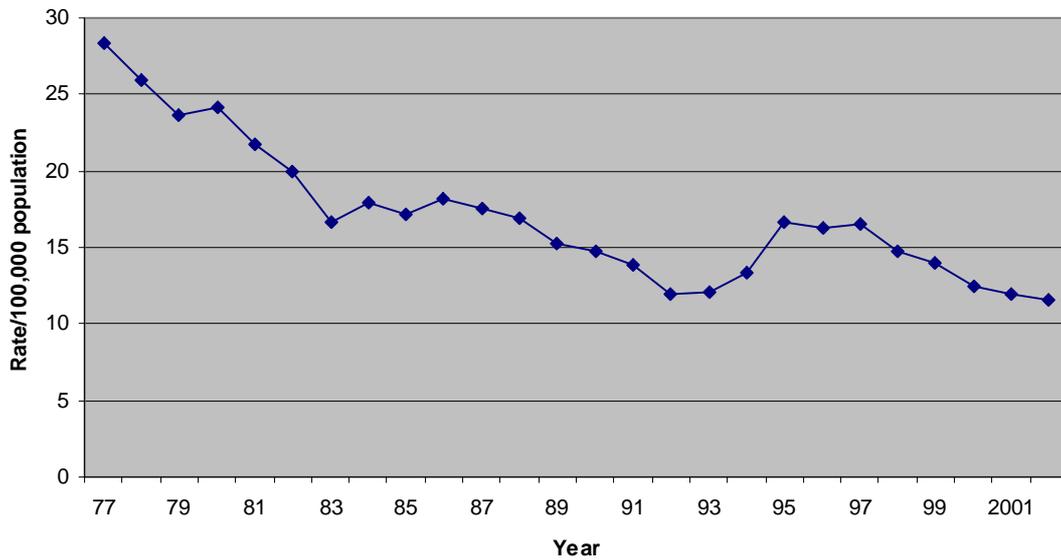
**Figure 5B – SUDDEN UNEXPLAINED INFANT DEATH (SUID)  
In Children 29 Days to 1 Year  
(Three-Year Moving Average)**



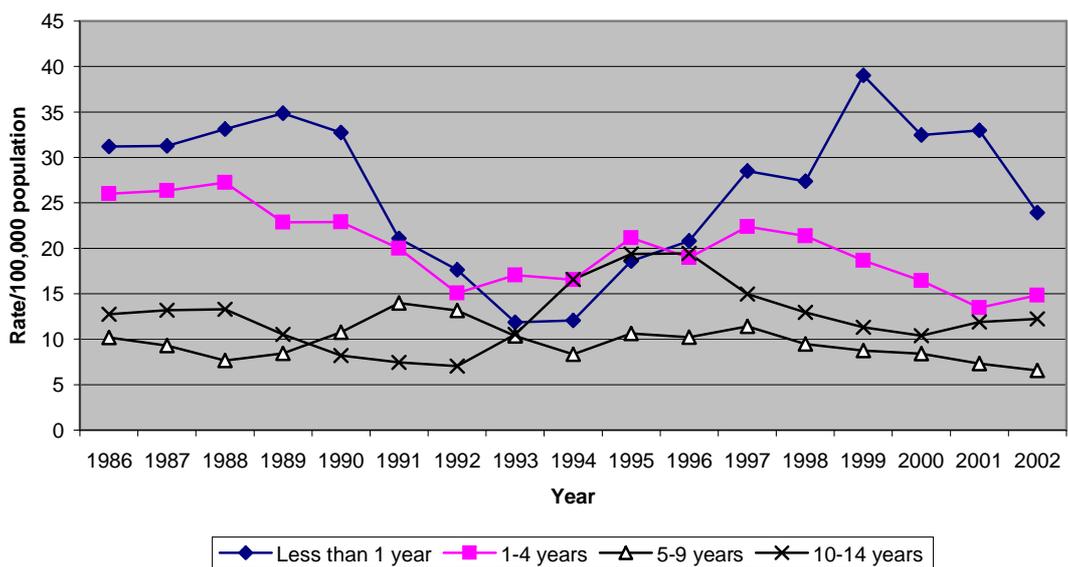
## Deaths from Injury - Trends

Figures 6A and 6B show the three-year moving average rates for injury deaths (unintentional and intentional combined) for children 29 days to 14 years of age. Data for 2003 are included in the 2002 three-year moving average (2001-2003).

**Figure 6A – MORTALITY RATES FROM INJURY In Children 29 Days to 14 Years (Three-Year Moving Average)**

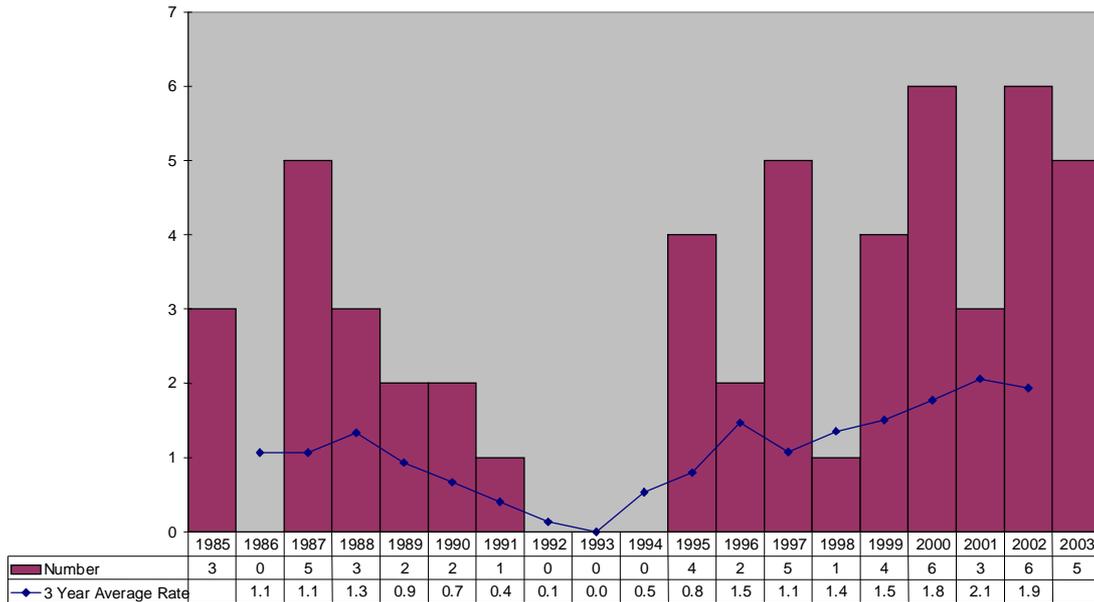


**Figure 6B – MORTALITY RATES FROM INJURY by Age Group (29 Days to 14 Years) (Three-Year Moving Average)**



**Figure 6C** shows the annual number of suicides and the three-year moving average rates for suicide for children 14 years of age and younger. Data for 2003 are included in the 2002 three-year average (2001-2003). The annual number and rates of suicide have been increasing steadily in this age group in recent years.

**Figure 6C – SUICIDES AMONG CHILDREN 14 YEARS OF AGE AND YOUNGER**  
Number per year and Three-Year Moving Averages



In 2003, there were 26 deaths due to injury among Manitoba children 14 years of age and under. Injuries caused 34% of all deaths of children between 29 days and 14 years of age (26 of 76).

**Table 7 – INJURY-RELATED MORTALITY RATES BY AGE GROUP 2003**

Age Group	Number of Deaths	Population	Rate/100,000	Three-Year Average 2001-2003
29 days - 1 year	2	13,775	14.5	23.9
1 - 4 years	10	57,760	17.3	14.8
5 - 9 years	4	79,522	5.0	6.6
10 - 14 years	10	84,978	11.8	12.2
<b>Total</b>	<b>26</b>	<b>236,035</b>	<b>11.0</b>	<b>11.5</b>

<b>Table 8 – TYPES OF INJURY CAUSING DEATH 2003 In Children 29 Days to 14 Years</b>					
<b>Unintentional</b>			<b>Intentional</b>		
<b>Cause</b>	<b>Number</b>	<b>Rate</b>	<b>Cause</b>	<b>Number</b>	<b>Rate</b>
Choking/Suffocation	3	1.3	Suicide (hanging)	5	2.1
Drowning	3	1.3	Homicide		
Falls	2	0.8	Blunt trauma	3	1.3
Hanging	1	0.4	Shaken baby syndrome	1	0.4
Motor Vehicle (passenger)	1	0.4			
Pedestrian	5	2.1			
Other	2	0.8			
<b>Total</b>	<b>17</b>	<b>7.2</b>	<b>Total</b>	<b>9</b>	<b>3.8</b>

There were 17 deaths related to unintentional injuries and nine deaths related to intentional injuries (five suicides and four inflicted injuries). Of note, there were no fire-related deaths in 2003, which has been a leading cause of injury death in recent years.

The most common cause of unintentional injury death was motor-vehicle-related injury. Two children were struck by water trucks in their driveways or in front of their homes. Two young children were crossing the street with their parents when they were struck by trucks. In the single motor vehicle occupant death in this age group a seat belt had been used, the child was seated in the back seat, the driver was an adult, and alcohol was not involved.

Four young children died as a result of choking/suffocation or hanging (unintentional asphyxia). A toddler choked on a hot dog and could not be resuscitated. Two infants were sleeping in adult beds and suffered from asphyxia; one was alone in the bed and was found wedged between the mattress and headboard whereas the other was co-sleeping with parents. Another child suffered a fatal strangulation injury related to a crib modification.

There were three deaths due to drowning. All three incidents occurred in natural bodies of water; one child was swimming in a river and was swept away in the current, one child had fallen into a river several years prior to death and had suffered a severe asphyxial injury, and a toddler fell into a pond on a rural property.

Two children died as a result of falls. One child who had been ice skating, collided with another skater and suffered a severe head injury. Another child fell from a height and died due to a spinal cord injury.

The remaining causes of unintentional injury death included dog mauling, machinery-related (snow blower), and railway-related (pedestrian) incidents.

There were five children 14 years of age and younger who committed suicide in 2003. All were First Nations children living on reserve. Family and friends were not aware of mental illness or suicidal thoughts, and medical attention had not been sought related to mental health concerns.

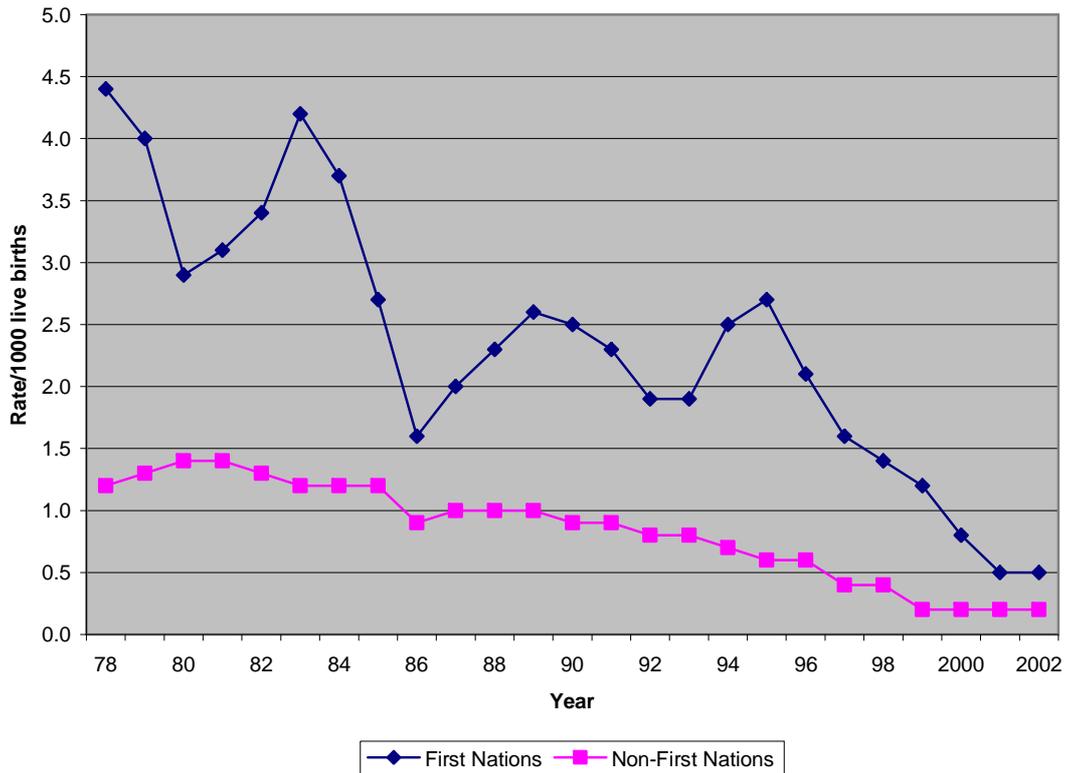
Three children died related to child abuse, including one case of shaken baby syndrome. One youth died related to homicide.

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## Selected Cause-Specific Mortality – First Nations Children

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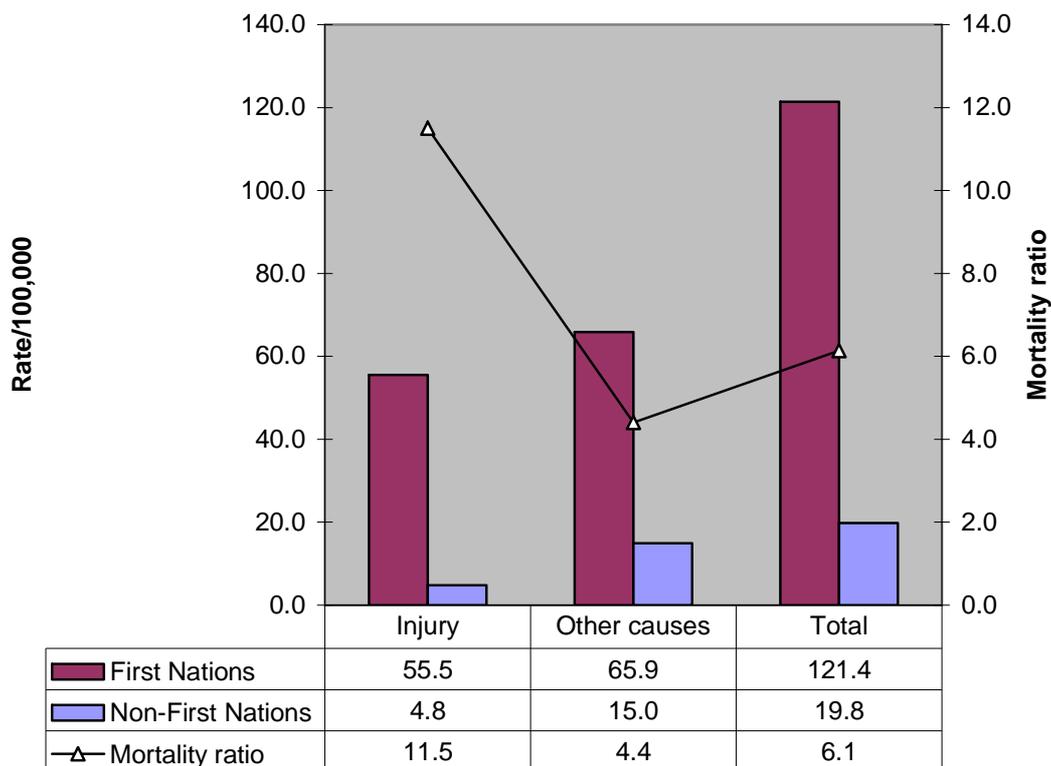
**Figure 7 – SUDDEN INFANT DEATH SYNDROME  
FIRST NATIONS vs. NON-FIRST NATIONS  
(Three-Year Moving Average)**



SIDS rates have been declining for all Manitoba children since the late 1970s. The gap between First Nations and non-First Nations rates has also been steadily declining over this time period. In 2003 First Nations children had a 2.5-fold increased risk of SIDS when compared to non-First Nations children.

**Selected Cause-Specific Mortality – First Nations Children** *Continued*

**Figure 8 – MORTALITY RATES FROM INJURY  
FIRST NATIONS vs. NON-FIRST NATIONS  
In Children 29 Days to 14 Years**



First Nations children had an elevated risk of death for all causes combined, with 6.1 times the rates experienced by non-First Nations children. For injury, there was an 11.5-fold increased risk of death.

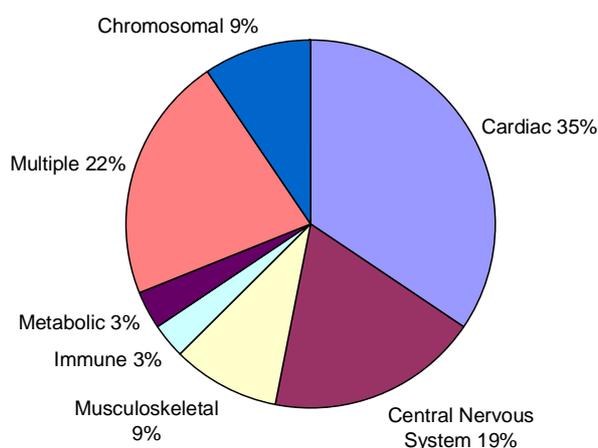
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## Congenital Disorders

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In 2003, 38% of the deaths (21 out of 76 deaths) involved children with congenital disorders. In many cases these disorders were directly related to the cause of death. However in some cases, these were incidental findings or did not contribute directly to the cause of death. In Figure 9, the total number of major disorder types and the number of multiple malformations and/or disorders are indicated, such that the total number of disorders (32) is represented, rather than the total number of children (21). The most common types of congenital disorders were cardiac lesions (11), primarily complex congenital heart disease, but also Ventral-Septal Defect, Atrial-Septal Defect, Atrio-Ventricular canal, Tetralogy of Fallot, and coronary artery abnormalities were noted.

**Figure 9 – TYPES OF CONGENITAL DISORDERS in Children 29 Days to 14 Years**



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## Autopsies

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In 2003, autopsies were performed on 56 of the 76 Manitoba children (74%) who died between the ages of 29 days and 14 years. All the teens aged 15 to 17 years had autopsies.

## 4. Teenage Deaths, 15 to 17 Years

Since 1994, the Child Health Standards Committee has reviewed the deaths of Manitoba youth aged 15 to 17 years. The death rate in 2003 was 38.0 per 100,000, lower than the three-year average of 55.4 per 100,000. The male to female mortality ratio was 1.3 to one (see Table 2). **Table 9** shows the causes of death for this age group and **Table 10** shows the types of injuries causing death. The injury-related mortality rate was 32.0 per 100,000. The male-to-female ratio was 1.6:1 for injury-related deaths. There were no organ donors in this age group.

Table 9 – CAUSES OF DEATH in Children 15 to 17 years		
	Deaths	Rate per 100,000
Injury	16	32.0
Unintentional Injury	6	12.0
Intentional Injury*	10	20.0
Central Nervous System	1	2.0
Circulatory System	2	4.0
<b>Total</b>	<b>19</b>	<b>38.0</b>

\*Intentional injury includes homicide and suicide.

Table 10 – TYPES OF INJURY CAUSING DEATH in Children 15 to 17 Years					
	Unintentional		Intentional		
	Cases	Rate / 100,000		Cases	Rate / 100,000
Motor Vehicle	4	8.0	Homicide	2	4.0
Overdose	1	2.0	Suicide		
Hypothermia	1	2.0	Asphyxia	7	14.0
			Other	1	2.0
<b>Total</b>	<b>6</b>	<b>12.0</b>		<b>10</b>	<b>20.0</b>

In 2003, 16 of the 19 teen deaths were due to injuries. Motor vehicle related deaths were the leading cause of unintentional injury death. Four teens died in motor vehicle collisions: two drivers and two passengers. One of the drivers was wearing a seat belt and neither of the two passengers was wearing a seat belt. *All four of these deaths involved inexperienced drivers.* None of the motor vehicle related deaths involved substance abuse. One of the passenger deaths was due to a collision with a train at a marked but uncontrolled crossing.

There were 10 intentional injury deaths, of which eight were suicides and two were homicides. Seven of the suicides were by hanging. Five were First Nations teens. Substance abuse or alcohol use was a factor at the time of suicide for two of these deaths.

## 5. *Preventability of Death*

The CHSC divides preventability into two categories: (i) preventability of the disease or the injury that caused the death, and (ii) preventability of the outcome once the disease or injury has occurred. Medical care is sometimes involved in the preventability of outcome, but rarely is implicated in the cause of death. Educational action was taken by the committee or another standards committee where there was deemed to be an error in medical management, with the expectation that this will result in improved care in the future.

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### **Childhood Deaths**

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#### *(i) Preventable Cause*

In 2003, 30 out of the 76 childhood deaths were deemed to have a preventable cause. This included 26 injuries and one medication dispensing error. Three children died of preventable conditions but medical care was not sought by the family.

#### *(ii) Preventable Outcome*

In 2003, the classification system was simplified to two categories: preventable and not preventable. There were only two deaths classified as preventable. The first case related to a failure to appropriately investigate and treat a child with a toxic appearance who later died of bacterial meningitis. The second case with a preventable outcome related to parental delay in seeking care.

There were several additional cases where the care provided did not alter the outcome but could have been improved:

- Failure to bag-mask ventilate a child for transfer, when intubation failed.
- Failure to seek assistance with intubation prior to transfer.
- Medication errors during resuscitation that did not affect the outcome (several cases).
- Delay in the investigation and treatment of a child with suspected seizures.
- Use of needle biopsy to diagnose an inoperable tumour.
- Failure to appropriately investigate and treat a case of severe neonatal hyperbilirubinemia.
- Failure to comply with reporting requirements for childhood deaths and vaccine-associated events.

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## Teenage Deaths

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(i) *Preventable Cause*

In 2003, 16 of the 19 teenage deaths were judged to have a preventable cause. Fifteen of the preventable deaths were due to trauma (injury) or suicide. One death related to the use of a Fentanyl patch for headache and sore throat in an opioid naïve adolescent, which resulted in respiratory arrest and ultimately death.

(ii) *Preventable Outcome*

There were zero teen deaths in 2003 that were judged to have had a preventable outcome. However, medical care could have been improved in one case in which medical attention was sought for a previous suicide attempt but no mental health referral or follow-up was recommended by the physician.

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## Educational and Other Actions

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In 2003, the Child Health Standards Committee took educational action for 16 cases. An additional six actions taken by other Child Health Standards Committees were reviewed by the committee.

<b>Table 11 – EDUCATIONAL ACTIONS</b>	
<b>Action Taken</b>	
Physician Providers	9
Health Administrators	6
Referrals to other professional licensing bodies	1
<b>Total</b>	<b>16</b>

## 6. Recommendations

The Child Health Standards Committee made the following recommendations related to child health in 2003. (\* denotes recommendations continuing from previous annual reports.)

1. That the use of propofol by continuous infusion for sedation of children and teens in WRHA medical intensive care units be reviewed based on case reports in the medical literature of metabolic acidosis, cardiac failure, and death complicating this therapy (propofol infusion syndrome).
2. That communication of reports regarding mental health services provided to children and youth be improved, such that nursing stations and health centres have timely access to mental health related assessments and recommendations.
3. That physicians suspecting a new diagnosis of type 1 diabetes should “dipstick” the urine for glucose and ketones immediately (before the child leaves the office). If the urine is positive for glucose, the patient should be referred immediately to the paediatric diabetes consultant.
4. That a small group of City of Winnipeg paramedics be trained and maintain competency in advanced paediatric airway management.
5. That bicycle helmet legislation be introduced in Manitoba, coupled with public education, in order to reduce bicycle-related head injuries.\*
6. That health care providers reinforce the supine sleeping position at every health contact until six months of age in order to reduce the risk of SIDS.\*
7. That documentation of vital signs in WRHA Emergency Departments be improved and that guidelines be developed for documentation and reassessment of vital signs.\*
8. That physicians who suspect child abuse or neglect must report these concerns to Child and Family Services.\*
9. That children who need hospitalization for croup be treated with dexamethasone, and that croup tents not be used.\*

# Child Health Standards Committee

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