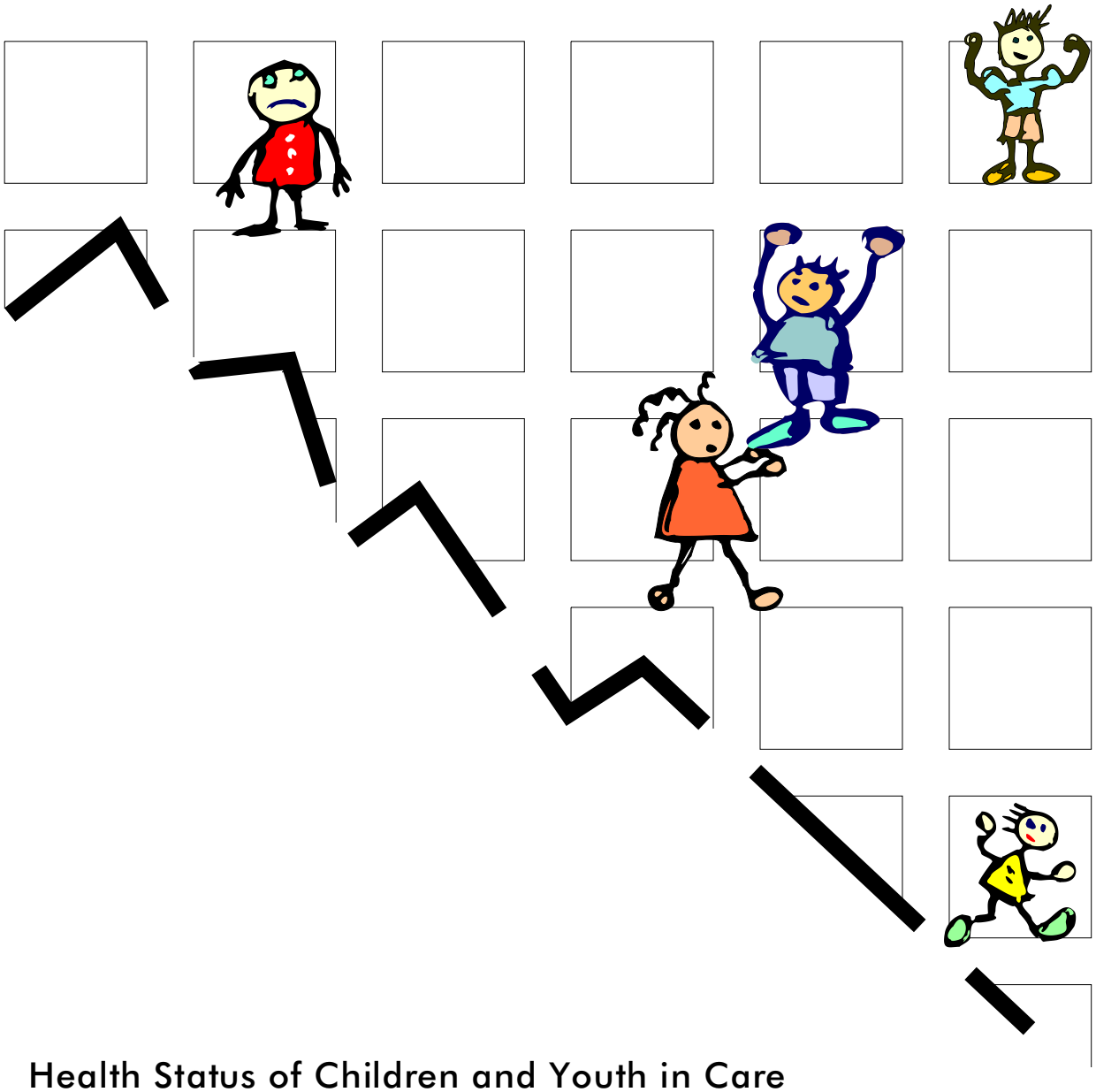


Health Status of Children and Youth in Care
in British Columbia

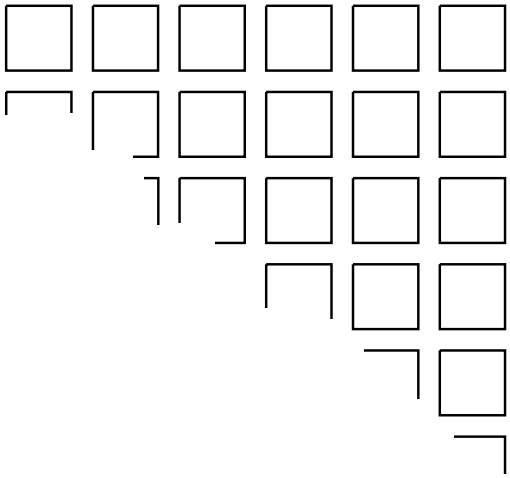
What do the Mortality Data Show?

Ministry of Health and
Ministry Responsible for Seniors

Office of the Provincial Health Officer
May 2001

HEALTH STATUS OF CHILDREN AND YOUTH IN CARE IN BRITISH COLUMBIA

What do the Mortality Data Show?



A Report from the Provincial Health Officer

in cooperation with

the Population Health Surveillance and Epidemiology Branch
B.C. Ministry of Health

the B.C. Ministry for Children and Families

the Children's Commission and the

British Columbia Vital Statistics Agency

May 2001

Copies of this report are available from:

Office of the Provincial Health Officer
B.C. Ministry of Health and Ministry Responsible for Seniors
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An 88-page *Technical Report* is also available on request.
The *Technical Report* contains detailed statistics and a
full explanation of the research methods.

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Message from the Provincial Health Officer

This report represents a step forward in our ability to measure and monitor the health status of one particularly vulnerable group of children and youth – those who have come into government care.

For the first time, death rates for children and youth in care have been calculated and compared with those of the general population. Trends are examined over a 15-year period, during which there were 226 deaths to children in care and a total of 7,842 deaths in the B.C. population age 0 to 18. While not a measure of health per se, mortality (death) provides an indication of the health problems and risk conditions that children and youth experience.

Results show an encouraging trend. Death rates have declined among all groups of children and youth, including those in care. For B.C. children and youth as a whole, death rates have decreased 50 per cent since 1985, which means that the risk of death today is half what it was 15 years ago. Death rates have decreased nearly as much – about 40 per cent – among children and youth in care, although rates are subject to year-to-year volatility because of the small numbers.

Over the study period, those in care had an average annual death rate of 22.5 per 10,000 children, compared to the provincial rate of 6 per 10,000. The standardized mortality ratio, which measures the likelihood of death for those in care relative to the general population, has remained at about four to one over the past 15 years. About 30 per cent of the in-care deaths were due to congenital anomalies, nervous system diseases, and childhood cancer – conditions that are not highly amenable to prevention at this time.

These findings confirm what we know intuitively. As a group, children and youth in care face a greater risk of death, either because of medical conditions they were born with, their early childhood circumstances, or other problems that caused them to come into care. As a result of these pre-existing conditions, their life expectancy is shorter than children and youth in the general population.

This report, together with the *Technical Report* containing detailed statistics, establishes a set of baseline data that can serve to evaluate further progress in reducing child and youth mortality in B.C. The two reports also provide information about specific causes of death among children and youth – information that can serve as a guide for prevention strategies.

This is the first time that deaths of B.C. children and youth have been analyzed using this particular epidemiological approach, and the data presented in this report are subject to some limitations. To use and improve the data, I encourage experts in the fields of child protection and epidemiology to review and refine the statistical methods we have used. I also recommend that British Columbia establish an ongoing means to produce death rates for children and youth in care and to compare them with the provincial population experience.

I welcome your comments on this report. In particular, I am interested in your thoughts as to how we can continue to improve the health and well-being of British Columbia's children and youth, including those in care.

P.R.W. Kendall
MBBS, MSc, FRCPC
Provincial Health Officer

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Introduction

Overall, the children and youth of British Columbia are among the healthiest in the world. Yet, previous reports by the Provincial Health Officer have shown that not all children in the province share equally in this good health.

This report presents new information about deaths (mortality) in one particular group of children and youth – those who are in government care. Using an epidemiological approach, this report describes death-related trends and patterns among children and youth in care. Trends are examined over the 15-year period April 1985 to March 2000, during which 226 children in care died. Comparisons are made with the British Columbia child and youth population as a whole, in which there were 7,842 deaths. This report also provides facts about the leading causes of death among these two groups; this information can serve as a guide for prevention strategies. More detailed mortality statistics and a full explanation of the research methods are provided in a separate 88-page *Technical Report*, which is available on request.

Context

On most measures of child health, there are well-known differences. On average, girls have lower rates of death and disease, while boys are more likely to say that they feel healthy and physically good. Aboriginal children, children living in northern areas of the province and in parts of Vancouver, and children from low-income families, including those on income assistance, are less likely to survive and more likely to experience serious illnesses and injuries.

What do we know about the health of British Columbia's children and youth in care? These children – about 10,000 at any point in time – are unable to live with their families for one or more reasons. As a result, they have come into the care of the Ministry for Children and Families.

At the time the Provincial Health Officer's 1997 report on child health[1] was prepared, provincial information systems did not produce regular or comprehensive statistics about the health and well-being of children and youth in care. Since then, using available data, it has been possible to study the deaths of children and youth in care as a group, and to compare their trends and patterns to those of other groups of British Columbia children.

Children and Youth in Care

If a family is unable to care for a child, child welfare authorities may temporarily or permanently assume responsibility for the child, by authority of the *Child, Family and Community Service Act*. Children who require this custody, care, or guardianship come into the care of the Ministry for Children and Families and are referred to in the *Act* as "children in care." The term "children and youth in care" is used in this report, to reflect the fact that many children in care are youth aged 13 to 18.

Children come into care for a variety of reasons. Protection may be required due to abuse or neglect, parents may be absent or unable to care for their child, or the child may require medical or other special care of some type.

Why focus on death statistics?

Statistics about death are not ideal indicators of child health, a term that encompasses physical, mental, emotional, and social well-being. However, death rates are traditional and internationally-accepted measures, and they are the only health status information that is available over a long period of time.

All children have the right to survive, grow, and develop to their full potential. Yet, most children who come into care are already economically disadvantaged, are medically fragile or severely disabled, or have been injured psychologically or emotionally – factors that put them at increased risk of dying at a young age.

Death rates tell us whether children and youth in care are surviving their childhood years, and this provides a starting point for measuring the health of a vulnerable group of children. As databases on children and youth in care are developed and improved, we will be able to learn more about their health, in the broader sense of the term.

For more information about the health and well-being of British Columbia's entire child and youth population, some recent publications are *Measuring Our Success*[2] and *Healthy Connections: Listening to BC Youth*.[3]

Data Sources

The statistics presented in this report are derived from information systems maintained by the Ministry for Children and Families, the B.C. Vital Statistics Agency, and the Children's Commission. Research and preparation of this report was a cooperative effort involving several individuals and groups.

For this project, the Ministry for Children and Families provided data about the number and characteristics of children and youth in care. Annual numbers were available for the fiscal years 1974/75 to 1984/85. More detailed data, including a listing of children and youth who died while in care, were available for the 15-year period April 1, 1985 to March 31, 2000.

Table ①

Definitions and Data Sources

		Comparison Groups	
	Children and Youth in Care	B.C. Population Age 0-18	Status Indian Population Age 0-18
Deaths	Number of children and youth whose reason for discharge from care was recorded as being deceased. Ministry for Children and Families Management Information System - Social Work System (MIS SWS).	Number of deaths to B.C. residents age 0-18, based on death registrations. B.C. Vital Statistics Agency.	Number of deaths to Status Indians age 0-18 who were resident in B.C. Statistical database maintained by B.C. Vital Statistics Agency, using three sources to identify Status Indians: vital statistics registrations, Health Canada's Status Indian Verification file, and the Medical Services Plan database.
Population (denominator for calculating death rates)	Number of children and youth in care as of March 31 each year. Ministry for Children and Families Management Information System - Social Work System (MIS SWS).	Mid-year population estimates prepared by BC STATS, Ministry of Finance and Corporate Relations.	Status Indian population estimates prepared by the B.C. Vital Statistics Agency, based on vital statistics registrations and the Medical Services Plan database.
Time frame	Fiscal years (April 1 to March 31) 1985/86-1999/00	Calendar years 1985-1999	Calendar years 1991-1999

The B.C. Vital Statistics Agency reviewed the list of children who had died while in care to determine the officially-recorded cause and date of death. The Children's Commission checked the list against the Commission's child death records for the years 1997 onward. For the 15-year period, a total of 7,842 deaths were available for analysis, of which 226 were children and youth in care.

Calculations for this report were carried out by staff from the Office of the Provincial Health Officer and from the Population Health Surveillance and Epidemiology Branch, B.C. Ministry of Health. A separate *Technical Report*, which describes the research methods and detailed findings, is available on request. Both reports were reviewed by a panel of experts in the fields of pediatrics, epidemiology, public health, and child protection.

This report does not look at the circumstances of individual deaths. Rather, it describes the deaths of children and youth as a population group. The Children's Commission, established in 1996, reviews the facts surrounding each child death that occurs in British Columbia, including deaths of children and youth in government care. The Children's Commission also reviews all critical injuries that happen to children and youth in care. Based on its case findings, the Commission issues reports, with recommendations for improving services, protecting children, and preventing further deaths. Readers wishing to learn more about child fatality and critical injury reviews may refer to reports produced by the Children's Commission.[4, 5]

Limitations

In preparing this report, the statistics about deaths and characteristics of children and youth in care were derived from an information system that social workers use to record details about their caseloads. It is a common and accepted practice to use existing, administrative data for research purposes. However, this "secondary analysis" presents some limitations. Because the information system was not designed for epidemiological purposes, definitions and coding may not have been uniformly applied. The death rates – and the analysis by disability status and Aboriginal status in particular – should be considered as estimates rather than precise counts and rates. Improvements to information systems are discussed on pages 26-28.

Findings

What do we know about children and youth in care?

In the year 2000, there were approximately 10,000 children and youth in care at any point in time – about 1 per cent of British Columbia's population under age 19. The number and proportion of children in care declined through the 1970s and 1980s, then rose dramatically in the mid-1990s. British Columbia is not the only jurisdiction to show this rising trend. A national survey found that five of the six other provinces that were able to provide statistics had also shown an increase in children in care over this time period.[6]

Roughly one-third of children and youth in care are teens age 15 to 18, and about two-thirds are children from birth to age 14. Traditionally, the population in care has had relatively more teens and fewer young children than the provincial child population. However, the age composition of children and youth in care has been changing. The proportion of younger children has been increasing, and teens have been decreasing, such that the age composition is gradually becoming more like that of the provincial child population.

More boys than girls are in care, except among 15 to 18 year-olds, where girls outnumber boys by about 2 per cent.

A disproportionate number of Aboriginal children and youth are in government care, especially in the younger age groups. About one-third of children and youth in care are Aboriginal, a pattern that has remained fairly consistent over the years. Yet, Aboriginal children make up only 8 per cent of the B.C. child and youth population.[7]

Note: On March 22, 2001, First Nations leaders and government signed an agreement that firmly establishes a commitment to reduce the number of Aboriginal children and youth in care and to return Aboriginal children to their home communities. http://www.mcf.gov.bc.ca/news.htm

This high rate of Aboriginal children and youth in care reflects the historical disadvantages experienced by Aboriginal communities. Residential schools caused generations to grow up without opportunities to develop parenting skills. Poverty, relative isolation, unemployment, and inadequate housing all contribute to family disruption. When Aboriginal families experience difficulties, they have not always been given the resources and supports they need to ensure that children are raised in their home communities and culture.

Almost one in every five children and youth in care (18 per cent) has a severe disability of some type, either physical, intellectual, or behavioural, based on their social worker's determination of functional status. Children and youth in care are much more likely to have a disability than are their counterparts in the provincial population, where severe disabilities are estimated to occur in fewer than 1 per cent of children (Table 2).

Table ②

Demographic Characteristics
Children and Youth in Care Compared to Provincial Population Age 0 to 18
British Columbia, 15-Year Period 1985/86-1999/00

	Children and Youth in Care	B.C. Population Age 0-18
AGE		
0 to 4 years	16.3%	26.1%
5 to 14 years	44.5%	52.7%
15 to 18 years	39.3%	21.2%
Total	100.0%	100.0%
GENDER		
Male	51.5%	51.3%
Female	48.5%	48.7%
Total	100.0%	100.0%
ETHNICITY		
Aboriginal*	32.4%	5.7%
Non-Aboriginal	67.6%	94.3%
Total	100.0%	100.0%
DISABILITY		
Severe disability	18.3%	0.4%
Mild or moderate disability	33.5%	7.9%
No disability (average functioning)	48.2%	91.7%
Total	100.0%	100.0%

See *Technical Report* for detailed definitions and notes.

* For children and youth in care, the Aboriginal figure (32.4 per cent) includes both Status and non-Status Aboriginal children. The B.C. figure (5.7 per cent) is for the Status Indian population only. Although the definitions differ, it is clear that a disproportionate number of Aboriginal children are in government care.

The Thompson/Cariboo region has the highest rate of children and youth in care (1.7 per cent of the population under age 19 are in care), followed by the North (1.6 per cent) and Central/Upper Island regions (1.5 per cent).[8] In general, regions with the highest proportions of children and youth in care are those with the lowest socio-economic status, as measured by rates of poverty, unemployment, and educational attainment.[9] About 60 per cent of children and youth in care are from families on Income Assistance, and 60 per cent are from single-parent families.[1]

About 40 per cent of children and youth come into care because they suffered from physical, emotional, or sexual abuse. Another 40 per cent enter care because their parents abandoned them or were unwilling or unable to care for them. The remaining children and youth are in care for a variety of other reasons, usually because they have emotional, behavioural, physical, or developmental needs that their parents could not meet.

About three-quarters of children and youth taken into care are able to return home within one year. Some children and youth require longer-term care, often because they have special needs that continue into adulthood. Of those discharged from care in 1998/99, 3.5 per cent had been in care for more than five years.[10]

Because of the circumstances that bring children into care, they are especially vulnerable to poor outcomes. While there has been little research in this area, we do know that, overall, children and youth in care experience poorer health and do less well in school than other children.[4]

What is the death rate among children and youth in care in British Columbia?

Over the 15-year period studied, 226 children and youth died while in care, an average of 15 deaths per year. This is an average annual death rate of 22.5 per 10,000 children – almost four times the provincial rate (6 per 10,000). Higher rates are not unexpected, given that many children and youth in care are medically fragile or have other special needs.

For children and youth in care who died, the patterns by age, gender, and cause of death were similar to, but the rates were consistently higher than, those in the provincial population (Table 3).

As in the total population, death rates for those in care were highest among the youngest children (age 0 to 4), followed by youth age 15 to 18, with children age 5 to 14 having the lowest rate. About two-thirds of the deaths were due to illnesses of various types (natural causes), and one-third were caused by injuries (external causes). Among youth age 15 to 18, boys were more likely to die than girls, especially from injuries.

Aboriginal youth in care (age 15 to 18) had a higher death rate than non-Aboriginal youth (relative risk = 2.7). In the younger (0 to 14) age groups, however, death rates for Aboriginal children in care were lower than those of non-Aboriginal children. For all age groups combined, the overall death rate was about the same for Aboriginal and non-Aboriginal children and youth in care (Table 3). This differs from the general population, where Status Indian death rates have traditionally been two to three times the provincial rates, in all age groups. Further review and analysis of the Aboriginal data are needed, however, and the statistics for Aboriginal children in care in Table 3 should be considered preliminary.

Children in care who had a physical disability had by far the highest death rate - almost six times that of children and youth recorded as having “average functioning.” Those with a physical disability were relatively few in number (13 per cent of children and youth in care), yet accounted for more than half (53 per cent) of the deaths over the 10-year period for which disability information was available. Compared with others in care, those with a physical disability had higher death rates for both natural causes (relative risk = 8.6) and external causes (relative risk = 2.2).

Table ③

Death Rates
Children and Youth in Care Compared to Provincial Population Age 0 to 18
British Columbia, 15-Year Period 1985/86-1999/00

	Children and Youth in Care		All B.C. Children	Relative Risk*
	Deaths	Rate	Rate	(All B.C. children = 1)
AGE				
0 to 4 years	95	53.2	14.7	3.6
5 to 14 years	49	10.1	1.7	6.0
15 to 18 years	82	19.1	6.0	3.2
Total	226	22.5	6.0	3.7
GENDER				
Male	122	23.1	7.1	3.3
Female	104	22.6	5.0	4.6
Total	226	22.5	6.0	3.7
ETHNICITY**				
Aboriginal	77	22.9	11.3	-
Non-Aboriginal	149	22.3	4.7	-
Total	226	22.5	5.1†	-
DISABILITY***				
Physical disability	78	94.0	-	-
Intellectual/behavioural disability	21	8.4	-	-
No disability (average functioning)	41	15.8	-	-
Functional status not recorded	8	15.6	-	-
Total	148	23.0	6.6†	-
CAUSE OF DEATH				
Illnesses (natural causes)	144	18.3	4.2	4.3
Injuries (external causes)	82	5.5	1.8	3.0
Total	226	22.5	6.0	3.7

Rates are per 10,000 population. See *Technical Report* for detailed definitions and notes.

* Relative Risk: Death rate for children and youth in care compared to provincial population. For example, for children in care age 0 to 4, mortality was 3.6 times the provincial rate (53.2 divided by 14.7 = a relative risk of 3.6).

** Children and youth in care: Aboriginal data include Status and non-Status Aboriginal children. All B.C.: Data are for period 1991-1999; Aboriginal rate (11.3) is for Status Indians only. Because of these differences, relative risk is not calculated.

*** Data are for the10-year period 1986/87 to 1995/96.

† Rates differ due to different time periods.

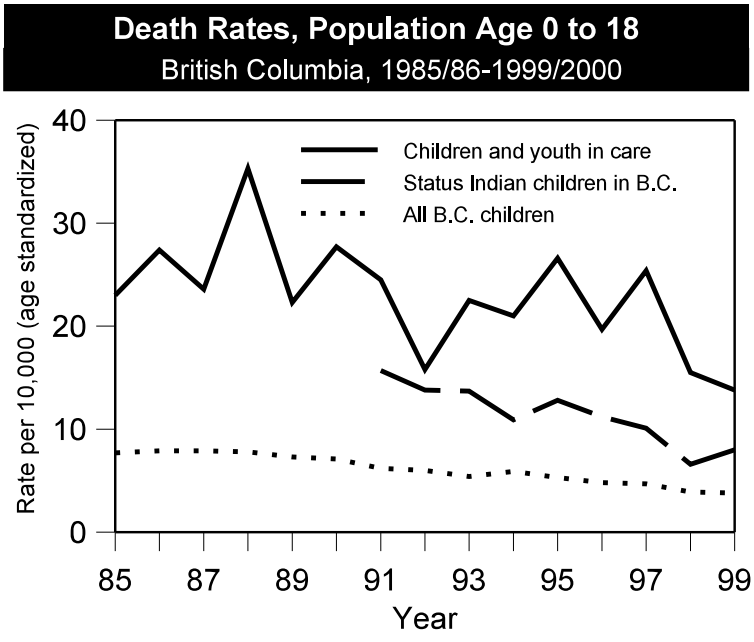
Do death rates show an improving trend?

Child and youth death rates are showing an improving trend among all groups of children, including those in care.

Between 1985 and 2000, death rates declined among children and youth in care. Throughout the 15-year period, there were large year-to-year fluctuations due to small numbers, with annual rates ranging from 14 to 35 per 10,000 (Figure 1). However, the death rate in 1999/2000 was 40 per cent lower than in 1985/86, and statistical tests indicate that the long-term trend was downward and "statistically significant."

Death rates have also been declining for the total child and youth population and for the Status Indian population – a group that traditionally has much poorer health status than other groups. Over the 15-year period, death rates decreased 50 per cent for B.C. children and youth as a whole. For the Status Indian population age 0 to 18, death rates have dropped dramatically, too - a 50 per cent decrease since 1991 (data not available for earlier years).

Figure ①



Note: A table showing the annual number of deaths and death rates is provided in the Appendix.

What has caused the death rate for children and youth in care to decline? Since the decrease in death rates occurred among all age groups and both sexes, the improving trend could indicate that health status has improved overall, so that there are fewer high-risk children and youth in the community. It could also indicate that high-risk children are being better cared for and that advances in medical treatment have helped children survive into adulthood (cystic fibrosis is an example of this).

Is the death rate improving because there are growing numbers of children in government care? With increasing numbers in care, we might expect the death rate to decline, if more low-risk children were coming into care (a "dilution of the denominator" effect). However, the data do not support this conclusion. Firstly, the death rate began to decline in the early 1990s, at a time when the numbers of children in care were falling. Furthermore, there was no correlation between mortality rates and the proportion of the provincial population in care over the 15-year study period. Thus, there is no evidence that the improvement in the death rate is related to changes in the number or mix of children in care.

We can't say precisely what has caused the 40 per cent improvement in death rates. However, based on the available data, we must conclude that for children and youth in care, as for other B.C. children, the risk of death is much lower today than in the past.

Because death rates have been declining for all groups, the mortality ratio for children and youth in care relative to the general population has remained about the same. For children and youth in care, death rates have continued to be about four times as high as those of the B.C. population. This is not unexpected, as these children and youth have come into government care on the basis of being "at risk" compared to other children.

How does British Columbia compare with other jurisdictions?

Death rates and patterns for British Columbia's children and youth in care are similar to those in Alberta, Ontario, and California – the only three jurisdictions for which comprehensive reports could be located.

There are no standardized national or international statistics on death rates of children and youth in care. Published results from Alberta, Ontario, and California are not directly comparable due to differences in study definitions and research methods. However, there are similarities with British Columbia, in terms of the higher and pre-existing risks that children who come into care face, and the contribution that severe disabilities make to this elevated risk of death (Table 4).

Table ④

Studies of Deaths to Children in Care

Jurisdiction	Reference	Study Group	Deaths	Findings
Alberta	Thompson and Newman, 1995[11]	Cohort of 20,000 children in care in 1980, followed for 7-year period.	182	• Death rate for children in care was almost twice that of the general child population (SMR = 1.7). • Almost 20 per cent of children in care had a handicapping condition; this sub-group had about half of the deaths, mostly due to natural causes.
Ontario	Ontario Child Mortality Task Force, 1997[12]	Children receiving services from Children's Aid Societies during 2-year period 1994 and 1995.	100	• Children in care had proportionately more deaths due to natural causes than did children receiving other types of child welfare services. • Death rates and comparisons with provincial child population were not provided.
California	Barth and Blackwell, 1998[13]	233,000 children in foster care during period 1988 to 1994.	1011	• All age groups of foster children had higher mortality rates than did the general child population (Relative Risk = 1.6). • Most of the excess deaths among foster children were due to natural causes.
British Columbia	Provincial Health Officer, 2001[14]	Children and youth who died while in care, during 15-year period April 1985 to March 2000.	226	• Death rate for children and youth in care was almost 4 times that of the general child population (SMR = 3.8). • 13 per cent of children and youth in care had a physical disability. This group had 53 per cent of the deaths, mostly due to natural causes (Relative Risk = 5.9 for all causes, 8.6 for natural causes, compared with those who had average functioning).

Opportunities for Action

How can we continue to reduce child and youth death rates?

Overall, child and youth deaths are much less common today than in past. However, continued improvements are possible. Table 5 provides information that can help identify areas where increased prevention efforts can best be directed.

Table 5 shows the ten leading causes of death for children and youth in care and the total number who died from each of those causes over the past 15 years. The Standardized Mortality Ratio (SMR) compares the actual number of deaths to the number that would be expected, if children and youth in care had died at the same rate as B.C. children overall. For example, an SMR of 5.4 for congenital anomalies means that for children in care, the risk of dying from this cause was more than 5 times that of all B.C. children. The table also shows specific groups of children in care who had death rates that were significantly higher than the provincial population average.

Table ⑤

Leading Causes of Death, Children and Youth in Care
15-Year Period 1985/86-1999/00

Rank	Cause of Death	Deaths over 15 years		SMR	Groups with significantly higher mortality rates
		Children in care	All B.C. children		
	LEADING CAUSES				
1	Congenital anomalies	41	1,357	5.4	Children age 0-4
2	SIDS	29	804	7.8	Aboriginal infants
3	Motor vehicle accidents	24	1,087	1.8	Youth age 15-18
4	Suicide	21	298	5.1	
5	Nervous system diseases	19	231	10.8	
6	Accidental poisoning	9	70	9.4	Youth age 15-18
6	Respiratory diseases	9	194	6.9	
6	Homicide	9	185	5.2	
9	Infectious diseases	8	122	9.1	Children age 0-4
9	Cancer	8	389	2.4	
	Subtotal - top 10 causes	177	4,737	-	
	All other causes	49	3,105	-	
	All causes	226	7,842	3.8	Physical disability

Table 5 does not imply that all deaths to children and youth could have been prevented, or that children and youth in care should be able to achieve rates as low as the general population (an SMR of 1.0). But it does provide some guidance as to the relative contribution of the various causes of death to the overall mortality rate. In identifying opportunities for prevention, we should consider health problems that cause the largest numbers of deaths, as well as those where the risk is highest, relative to the general population. Another important consideration is amenability to prevention.

The ten leading causes of death vary in their preventability. Congenital anomalies, nervous system diseases, and childhood cancer are the least preventable, given our current knowledge; these three causes accounted for 68 (30 per cent) of the 226 deaths among children in care. Accidents and violence are, in theory, almost entirely preventable, while SIDS, respiratory diseases, and infectious diseases fall somewhere in between (Table 6).

Table ⑥

Continuum of Preventability
10 Leading Causes of Death, Children and Youth in Care, 1985/96-1999/00

Absolutely preventable		**No known prevention**
Motor vehicle accidents (24 deaths)	SIDS (29)	Congenital anomalies (41)
Accidental poisoning (9)	Infectious diseases (8)	Nervous system diseases (19)
Suicide (21)	Respiratory diseases (9)	Cancer (8)
Homicide (9)		

Preventability: Ability to prevent the disease or condition from occurring ("primary prevention").

SIDS (Sudden Infant Death Syndrome): Risk can be reduced by having healthy babies sleep on their backs, not smoking during pregnancy or around babies, and breastfeeding. However, even when every known action is taken to reduce risk, a SIDS death may still occur.

Infectious and respiratory diseases: Many of these diseases are preventable through vaccines or other measures. Some infections are difficult to prevent, and death sometimes occurs, especially in children with severe, underlying medical problems.

See pages 16-25 for more information on each of the above causes of death.

The following section provides information about the 10 leading causes of death for children and youth in care and gives some general recommendations for prevention. These preventive actions are broad, systemic actions – examples of what we, as a society, can do to have healthier children in general and to prevent, where possible, the need for being taken into government care.

In British Columbia, the importance of child health and well-being has been recognized. In recent years, governments, health and social service agencies, and other organizations have taken many concrete steps to improve child and youth health in this province. A $9-million dollar investment to support early childhood development announced in the year 2000 – and a further $26.8 million in 2001 – is just one example. Safe Babies projects, discharge planning for Fetal Alcohol Syndrome and high-risk infants, SIDS prevention efforts, suicide prevention demonstration projects, expanded alcohol and drug services for youth, and inter-ministry family violence initiatives are just a few of the many actions that have been undertaken to reduce child deaths and injuries in B.C.

Knowledge about the factors that influence children's health is fundamental to taking action. Based on child fatality reviews, the Children's Commission provides recommendations for preventing further child deaths – a major step forward since the years prior to the Commission's establishment in 1996. With continued efforts and a planned, systematic approach, we can expect to see child and youth deaths become even more rare in the future.

Congenital anomalies (birth defects)

Number of deaths over 15 years
- Children and youth in care: 41
- B.C. population age 0-18: 1,357

Congenital anomalies were the leading cause of death for children in care, and the second most common cause of death for the provincial child population. Forty-one deaths occurred to children in care in the 15-year period, 33 more than would have occurred at B.C. rates.

Spina bifida and other serious conditions of the central nervous system caused the largest number of deaths in this category (15), followed by congenital heart defects (9), and chromosomal anomalies (5). Children born with these conditions often require lifelong medical care, including hospitalizations. Because of their special health needs that parents may be unable to meet, children with serious birth defects often come into government care, and so we would expect children in care to have a higher death rate from these conditions.

Congenital anomalies may be inherited or may be caused during gestation. While not all birth defects can be prevented, scientific research is improving our understanding of the causes of birth defects and how to prevent them. Folic acid – one of the B vitamins – reduces the risk of spina bifida and other types of life-threatening defects. Increasing women's consumption of folic acid – through adequate diet, supplements, and fortification of food supplies – would be a major step towards preventing some of the most serious birth defects. For birth defects that cannot be prevented or cured, sensitive care and support services can reduce the level of disability and improve quality of life for children and their families.

Preventive actions:
- Screen women for health risks and chronic conditions before conception.
- Encourage women to maintain a healthy diet, with adequate amounts of folic acid and iron, before and during pregnancy.
- Provide caregivers, social workers, health professionals, and teachers with the information and supports they need to care for children with severe disabilities.

Sudden Infant Death Syndrome

Number of deaths over 15 years
- Children and youth in care: 29
- B.C. population: 804

Sudden Infant Death Syndrome (SIDS) accounted for 29 deaths to children in care over the 15-year period, an average of almost 2 deaths per year. The standardized mortality ratio was 7.8, indicating that children in care had almost 8 times as many SIDS deaths as would be expected, based on the provincial rate.

The SIDS rate was highest among Aboriginal children in care – about three times the rate of non-Aboriginal children. The incidence of SIDS has been dropping in British Columbia, and separate reports have analyzed this trend.[15, 16] However, the rate among Status Indian infants in B.C. was 6 times that of other B.C. infants, based on provincial data for the period 1991 to 1998.[17]

The exact cause of SIDS is not known, but the risk can be reduced by having babies sleep on their backs, not smoking during pregnancy or around babies, and breastfeeding.

The Ministry for Children and Families and the Ministry of Health have undertaken a number of SIDS prevention activities, including production of a video and other educational materials. Given the higher rate of SIDS among Aboriginal infants, a special effort has been made to target prevention efforts to First Nations communities. The Ministry for Children and Families is currently developing policies to promote smoke-free homes for children in care. Providing smoke-free environments will help in preventing SIDS, as well as respiratory diseases (see page 22).

Preventive actions:
- Increase awareness among parents, caregivers, and professionals of actions that are known to reduce the risk of SIDS, including not smoking during pregnancy or around a baby, having a healthy baby sleep on its back, breastfeeding, and keeping babies at a comfortable temperature – not too hot or too cold.
- Target SIDS awareness efforts to parents and caregivers of babies in high-risk groups, Aboriginal babies in particular, and provide culturally-appropriate strategies.
- Aim to have all children, and particularly children at risk, brought up in smoke-free environments.

Motor vehicle traffic accidents

Number of deaths over 15 years
- Children and youth in care: 24
- B.C. population age 0-18: 1,087

Motor vehicle traffic injuries were the third leading cause of death for all children and youth, as well as those in care. Five of the 24 children in care who died were pedestrians, and the others were vehicle drivers or passengers. Not surprisingly, youth age 15-18 was the age group with the highest death rate due to motor vehicle accidents.

In British Columbia, motor vehicle deaths have been declining steadily over the past ten years. However, deaths in traffic remain a major cause of death for children and youth. As the Children's Commission said in the October 1999 fatality review report, "too many young lives are being lost as a result of traffic crashes – often the result of speed, alcohol, and failure to wear seatbelts."[18] A recent analysis found that alcohol was involved in 40 per cent of the 123 motor vehicle accident fatalities investigated by the Children's Commission as of December 2000.[19]

Seat belts, bicycle helmets, graduated licensing for novice drivers, enforcement of speed limits, and stricter sanctions against drinking and driving are some of the many strategies that have proven effective in reducing traffic injuries, based on studies in British Columbia or other jurisdictions.

Preventive actions:
- Develop injury prevention plans at the community level.
- Involve youth in the development of injury prevention programs.
- Promote correct usage of seat belts, infant car seats, bicycle helmets, and other safety equipment.
- Promote strategies that address the often-fatal effects of combining alcohol with driving and other activities.
- Support police enforcement of traffic laws.
- Promote improvements in road and traffic control systems.

Suicide

Number of deaths over 15 years
- Children and youth in care: 21
- B.C. population age 0-18: 298

Suicide claimed 298 lives over the 15-year study period. Twenty-one deaths were to children and youth care, with 7 of the 21 of the deaths occurring in the last two years (4 deaths in 1998/99 and 3 in 1999/2000). The majority of deaths were to youth age 15 to 18. Hanging was the most common method, followed by firearms.

Among Aboriginal youth in care, the suicide rate was almost three times that of non-Aboriginal youth. The difference between the Aboriginal and non-Aboriginal rate was not "statistically significant." However, the higher Aboriginal rate is consistent with the provincial pattern, in which Status Indian youth are four to five times more likely to take their own lives than other B.C. youth.[17] Nearly one in five Aboriginal youth in the province has considered suicide, and most (64 per cent) know someone personally who has attempted or committed suicide, according to a survey of B.C. adolescents; these rates are higher than for non-Aboriginal youth.[20]

Suicide among young people has been linked to a number of risk factors and precipitating events including sexual and emotional abuse, academic failure, unplanned pregnancy, problems concerning sexual preference, low self-esteem, depression, family disruption, access to guns, imprisonment, and running away from home.

Suicide rates can be reduced by addressing underlying causes such as poverty and family disruption, helping young people develop support networks and coping skills, and treating depression and addictions. Programs that provide early identification and support can often help young people who are facing circumstances that increase their vulnerability to suicide.

Preventive actions:
- Focus on the underlying factors that lead to suicide, such as feelings of alienation, substance abuse, and untreated depression.
- Implement programs that provide early identification and support to young people who show signs of distress or suicide contemplation.
- Develop mentoring, peer counselling, and other culturally-appropriate prevention strategies in communities that experience high rates of youth suicide.

Nervous system diseases

Number of deaths over 15 years
- Children and youth in care: 19
- B.C. population age 0-18: 231

Nervous system diseases caused 231 deaths in the provincial child population. Nineteen (19) deaths were to children in care, and the Standardized Mortality Ratio was 10.8, indicating that the children in care had a death rate from this cause that was more than 10 times the provincial population rate. About half (10) of the in-care deaths were due to cerebral palsy, 4 were due to epilepsy, and 5 were caused by other neurological disorders.

Cerebral palsy is a condition that results from an injury to the brain, usually before, during, or soon after birth. Illness during pregnancy, premature delivery, or lack of oxygen supply to the baby are some of the known causes. A less common type is caused in early childhood, usually the result of a head injury or an infection such as meningitis.

Good prenatal and maternity care can reduce risk of cerebral palsy, but in many cases, no one knows for sure what causes the brain injury or what could have been done to prevent it. For children with cerebral palsy, different kinds of therapy can help improve skills and allow children to lead a long and productive life. Depending on the severity of their disability, children with cerebral palsy may need specialized medical care and other help throughout their lives.

Epilepsy is usually treatable and can often be maintained under control with drug therapy.

Preventive actions:
- Screen pregnant women for risk factors, such as Rh or blood incompatibility factors, German measles and other infections, genetic disorders, poor nutrition, and exposure to tobacco and alcohol.
- Provide access to high quality, coordinated care throughout pregnancy, labour and delivery, and during the post-partum period.
- Provide information and advice on ways to protect children from falls, car crashes, and other causes of head injury.
- Provide all infants and preschoolers with immunizations and screening for growth and development.
- When developmental problems are identified, provide children and their families with education, therapy, and support early – when it helps the most.

Accidental poisoning

Number of deaths over 15 years
- Children and youth in care: 9
- B.C. population age 0-18: 70

Nine youth in care (age 15-18) died from accidental poisoning over the 15-year period. Most (7) of the deaths were due to drug overdose - heroin, cocaine, tranquillizers, or other substances, either alone or in combination.

Overdose deaths and other harms resulting from substance abuse can be greatly reduced. Experience in Switzerland, the Netherlands, and Germany has shown that overdose deaths can be prevented by providing a comprehensive program that reduces the supply and demand for drugs, while addressing the health and social problems that drug users face.

In British Columbia, several recent reports have called for major improvements to the design and delivery of addiction services. In December 2000, the provincial government appointed a task group of addictions experts to recommend the approach British Columbia should take to reduce the harms arising from drug and alcohol use. In March 2001, the B.C. government accepted all six of the task group's recommendations for establishing a comprehensive addictions system for the province.[21]

Preventive actions:
- Develop a comprehensive plan for addiction services, with a focus on reducing the harms caused by alcohol and other drugs.
- Promote harm reduction strategies that address youth risk-taking behaviours.
- Involve youth in planning and implementing alcohol and drug education programs.

Respiratory diseases

Number of deaths over 15 years
- Children and youth in care: 9
- B.C. population age 0-18: 194

Respiratory diseases, mostly pneumonia and other infections, caused a total of 9 deaths to children in care during the study period. Deaths have become less frequent in recent years – only 2 of the 9 respiratory disease deaths occurred since 1991, and this may reflect improvements in medical care for children born with cystic fibrosis and other serious lung diseases. Four deaths were to young children (age 0 to 4), and 5 were children age 5 to 14. All the children in care who died of respiratory diseases were recorded as having a severe physical disability.

When serious respiratory infections occur, most children will recover if they receive early diagnosis, appropriate treatment, and supportive care. The death rate from respiratory diseases is now very low among children in this province, and most children who die from these diseases have other significant, underlying medical problems.

Although not a major cause of death, respiratory diseases have a major impact on the lives and health of children, in terms of hospital bed use, doctors' office and emergency room visits, and school days missed. Avoiding exposure to second-hand smoke and educating parents and caregivers about how to care for sick children are key preventive activities.

Efforts are being made to raise awareness about the dangers of second-hand smoke to children. However, as of 1997 (the most recent data available), almost one in five (18 per cent) of households with children under age 11 had daily or nearly-daily exposure to second-hand smoke in the home.[22]

Children who have certain chronic illnesses are more susceptible to complications and death from respiratory disease; for this group of children, influenza and pneumococcal vaccines are recommended. A new pneumococcal vaccine has been approved for use among infants and young children in the United States, and it is expected that Health Canada will soon approve the use of this vaccine in Canada. The new vaccine could significantly reduce the occurrence of pneumococal disease, a serious and common cause of pneumonia, meningitis, and septicemia (infection of the blood) among young children.

Preventive actions:

- Set regional goals for increasing the proportion of children who are brought up in non-smoking homes.
- Develop ways to educate parents and caregivers about the appropriate treatment of respiratory infections in children. This could be done through the use of tools such as self-care handbooks, internet-based information, and the provision of telephone advice.
- Provide pneumococcal and influenza immunization for children (age 2 and over) and youth who have chronic health conditions.
- Move to a universal pneumococcal immunization program for children, as vaccines become available.

Homicide

Number of deaths over 15 years
- Children and youth in care: 9
- B.C. population age 0-18: 185

Homicide – murder or other purposeful injury – caused 9 deaths among children and youth in care over the 15-year period, 7 deaths more than would have occurred at provincial rates. Four preschool children died, 3 were age 5 to 14, and 2 deaths were to youth age 15 to 18.

Homicide, like other forms of violence, is associated with a complex set of factors. Parenting difficulties (especially among young, single-parent families), poverty, and previous maltreatment are key risk factors for child and youth homicide and maltreatment in Canada.[23]

Many experts believe that children raised in violent and abusive homes are much more likely to grow up to be violent and abusive themselves. In the long term, therefore, homicide and other forms of violence can be prevented by providing children with a good start in life. In the shorter term, violence can be reduced by helping children who live in environments that place them at greater risk.

Actions to prevent violence include helping children develop self-esteem and respect for others, helping young children learn to control violent and aggressive behaviours, and ensuring children's safety in settings inside and outside the home.

Preventive actions:
- Support community-level initiatives that address poverty and other underlying causes of violence.
- Provide parent support programs to high-risk families, e.g., families experiencing parenting difficulties or living in impoverished neighbourhoods.
- Work with parents and caregivers to help them understand how their behaviours may influence violent and aggressive behaviour in young children.
- Provide programs to help parents and caregivers recognize and control violent and aggressive behaviours in young children.
- Increase public and professional awareness of the early signs of violence and abuse. Encourage people to seek help if they are concerned about violent or abusive behaviour in themselves or others.

Infectious diseases

Number of deaths over 15 years
- Children and youth in care: 8
- B.C. population age 0-18: 122

Infectious diseases accounted for 8 deaths among children in care. Four deaths resulted from septicemia (blood poisoning), a condition that most often occurs as a complication of other infections. Two deaths were HIV/AIDS-related, one was due to an intestinal infection, and one was caused by chickenpox. Most of the deaths were to children with severe physical disabilities, who tend to be more susceptible to infections.

Septicemia can be treated with antibiotics, but death sometimes occurs, especially in children who have underlying health problems. Prenatal testing, drug therapy, and HIV care can reduce the number of children born with HIV and can improve survival for those who have the disease.

Many infectious diseases are preventable through the use of vaccines. A vaccine for chickenpox was licensed for use in Canada in December 1998. In December 2000, British Columbia's Communicable Disease Policy Committee recommended that chickenpox vaccine be introduced into the provincial immunization program as soon as funding can be identified.

Preventive actions:
- Ensure that all children have an immunization record, and that immunizations are kept up to date.
- Introduce chickenpox vaccine and new, cost-effective vaccine products into the provincial immunization schedule, as they become available.
- Offer HIV testing to all pregnant women, with counseling and informed consent.
- Provide optimal HIV drug treatment to HIV-infected pregnant mothers and their children.

Cancer

Number of deaths over 15 years
- Children and youth in care: 8
- B.C. population age 0-18: 389

Cancer in childhood is quite rare, compared with cancer in adults. Eight children and youth in care died from cancer between 1985/86 and 1999/2000, an average of one death every two years. Leukemia, the most common childhood cancer, caused 5 deaths, and 2 were due to lymphomas (cancer of the lymph tissues).

Due to improvements in diagnosis, treatment, and care, children with cancer have a much better chance of recovery than they did 20 or 30 years ago. Today, about 75 per cent of children with cancer are cured.[24] The chance of survival depends on the type of cancer and stage of its development when it is diagnosed.

Childhood cancer is not a single disease, as it includes a variety of malignancies. Because the causes of childhood cancer are not well understood, there are few preventive actions to recommend at this time. There are, however, actions that can be taken during childhood to reduce the occurrence of cancer in later life.

Preventive actions:
- Prevent children from starting to smoke, thus reducing the risk of cancer of the lung and other smoking-related cancers.
- Reduce children's exposure to second-hand smoke.
- Promote healthy diets and regular physical activity, which help to prevent a number of common cancers.
- Reduce children's exposure to the sun, which helps to prevent skin cancer.
- Encourage young people to adopt safe sexual practices, to prevent cancer of the cervix and other reproductive cancers.
- Provide immunization and screening for hepatitis B infection, to prevent development of liver cancer.

How can information systems be improved, so that we are able to learn more about the health and well-being of children and youth in care?

Several information systems contain data about children and youth in care. Three examples are the Social Work System, which social workers use to record details about each child or youth in care, the Vital Statistics registration system, which contains legally-required data about each birth and death that occurs in the province, and the Children's Commission Tracking System, which contains comprehensive information about each child fatality.

Other examples are databases about school attendance and graduation, standardized test results, income assistance, and contacts with the health care or criminal justice systems. Because these systems were developed for different purposes, it is not always possible, practical, or permissible to connect the information they contain, even for statistical purposes.

Table 7 illustrates some of the items of information that can be used to describe children and youth in care, their in-care experience, and the results or "outcomes" in terms of their health and well-being. The data presented in this report are based on analysis of just one outcome – death – by cause of death, age, gender, Aboriginal status, and disability status.

Currently, an inter-ministry committee is developing a set of key outcomes and indicators for measuring the well-being of B.C. children and youth, including those in care. Indicator sets are also under development nationally; examples of indicator-related initiatives are the National Children's Agenda and the Canadian Round Table on Child Welfare Outcomes.

Once there is consensus on the best measures to use in British Columbia, information systems may need to be revised – or new methods developed – to collect the necessary information. The Children's Commission is working on a new information system, which will link a number of relevant data sets. This integrated system will provide a mechanism for tracking and reporting child mortality statistics on an ongoing basis.

Table ⑦

Information about Children and Youth in Care

Children and Youth	In-Care Experience	Examples of Outcomes
Children and youth in care ● ***Age*** ● ***Gender*** ● Birth weight ● Gestational age ● Ethnicity (***Aboriginal***) ● ***Disability status*** ● Health conditions, e.g., Fetal Alcohol Syndrome ● Location of residence ● Family background ● Socioeconomic status of family and neighbourhood Comparison groups ● ***B.C. population age 0-18*** ● ***Status Indians age 0-18***	● Age when coming into care ● Reason for coming into care ● Services/treatments provided ● Setting, e.g., foster care, group home, residential ● Cultural placement matching ● Length of time in care ● Number of placement changes ● Reason for discharge	Growth and development ● Physical growth and nutritional status ● Motor and social development ● Language and cognitive development ● Emotional maturity Safety and security ● Abuse and maltreatment ● Critical injuries Learning ● School readiness ● Attitudes toward learning ● Assessment scores ● Grade to grade transition ● School completion Social engagement and responsibility ● Connections with family and school ● Community involvement ● Contacts with criminal justice system Health behaviours ● Tobacco, alcohol, drug use ● Physical activity ● Safety practices Health problems ● Illness episodes, e.g., hospitalizations ● Emotional and behavioural problems Death ● ***Cause*** ● Preventability (from death review)

The information in ***italics*** was the most readily available, and accordingly was used in this study.

The *Technical Report* makes a number of recommendations about how death rates should be calculated in the most valid, yet practical, way. Specifically, the *Technical Report* recommends using the year-end count of children and youth in care as the denominator for rate calculations, because these figures are readily available and provide a good estimate of child-years in care. Another recommendation is that death rates for children and youth in care be age-standardized, using the indirect method, so that trends and comparisons can be made in a valid and reliable way. The use of calendar year (rather than fiscal year) time periods is also recommended, for consistency with other provincial and national mortality statistics.

Some data-related issues identified in this project require further discussion. One example is information about disability status. This designation was contained in children in care records for the period 1986/87 to 1995/96, but has since been dropped from the information system. Given the connection between disability and death rates, it would be helpful to introduce some sort of standardized disability assessment into the information system.

Another data issue is the categorization of Aboriginal children. The Ministry for Children and Families system collects information about Aboriginal children (the child is, or has a biological parent who is, registered under the *Indian Act*, has Aboriginal ancestry, or considers themselves to be Aboriginal), while the Vital Statistics system identifies only Status Indians. Looking to the future, it would be useful to also document cultural ethnicity, as B.C. has become a multi-cultural society, and many family issues occur because of cultural clashes between children and their immigrant parents.

When information needs have been identified and systems are in place to produce that needed information, it will be important to ensure that key statistics are shared with all the groups and individuals who have an interest in the health and well-being of children and youth in care. Annual reports, such as those produced by the Children's Commission, the Ministry for Children and Families, and the Child, Youth and Family Advocate are some of the mechanisms in place to achieve public reporting.

Summary and Next Steps

Summary

This report summarizes the findings of a review of deaths among children and youth who were in government care over the 15-year period April 1, 1985 to March 31, 2000. This is the first time that death rates for this particular group of children have been calculated and compared to those of the general population in British Columbia.

Results show an encouraging trend. Over the 15-year period, death rates have declined among all groups of children and youth, including those in care. For B.C. overall, child and youth death rates are half what they were in 1985, and rates have declined almost as much – about 40 per cent – among children and youth in care.

In the study period, there were 226 deaths among children and youth in care and 7,842 deaths in the B.C. population age 0 to 18. Those in care had an average annual death rate of 22.5 per 10,000 children, compared to the provincial rate of 6 per 10,000. For children and youth in care who died, the patterns by age, gender, and cause of death were similar to, but consistently higher than, those in the provincial child and youth population.

Among those in care, the overall death rate was about the same for Aboriginal and non-Aboriginal children. However, further review and analysis of the Aboriginal data are needed.

Of the children in care groups studied, those with a physical disability had by far the highest death rate – almost six times that of children and youth recorded as having "average functioning." Children with a physical disability comprised 13 per cent of the in-care caseload, but experienced more than half (53 per cent) of the deaths over the 10-year period for which disability information was available.

The general patterns of mortality for children in care in British Columbia were similar to those in Alberta, Ontario, and California – the only three jurisdictions for which published statistics could be located.

The 226 children and youth in care who died did not die because they were in care. Rather, being in care is a marker for the disadvantages they faced earlier in life prior to entering care, either as a result of medical conditions they were born with, their early childhood circumstances, or other problems that caused them to come into the care of child welfare authorities.

The major causes of death vary in their preventability. Congenital anomalies, nervous system diseases, and childhood cancer are the least preventable, given current knowledge; these three causes accounted for 68 (30 per cent) of the in-care deaths. Other leading causes of death, specifically motor vehicle accidents, drug overdose deaths, suicide, and homicide, are more amenable to primary prevention. SIDS, respiratory diseases, and infectious diseases fall somewhere in between on the continuum.

Although children in care have a higher death rate, the situations that cause their death – and the ways to prevent them – are much the same as those for other children. All children need nurturing, stimulating, and stable environments – in the home, neighbourhood, and community – to help them grow and develop in healthy ways. In recent years, governments, health and social service agencies, and other organizations have taken many concrete steps to improve child health in this province. With continued efforts, we can expect to see child and youth deaths become even more rare in the future.

Early childhood development and prevention programs, public education, good quality child care, and other universal programs play an important role in determining and maintaining children's health. For children and families who face social, financial, or other disadvantages, targeted programs (home visiting, parenting programs, improved income assistance, support programs) can help to overcome those disadvantages and increase the chances of healthy outcomes. Studies show that every dollar spent to improve the environment for vulnerable children can save $2 to $7 in health and social costs down the road.[25]

Many of the children in care who die are medically fragile or have other special needs. For health problems that cannot be cured, our goal should be to reduce the level of disability and to improve quality of life, as well as to provide them with the best preventive health care.

While every child death is a tragedy, it is important to remember that very few children and youth die while in care. In 1999/2000, there were 12 deaths among 10,000 children and youth in care, and 356 deaths among the general child population.

Death rates tell us whether children are surviving their childhood years, but deaths are only the most severe (fatal) outcome that children experience. We need to find additional, practical ways to measure the health and well-being of all children and youth, including those in care, as well as the outcomes and effectiveness of the programs and services they receive. By continuing to monitor death rates and other information, we will be better able to judge our success in helping all children and youth achieve their full potential and in initiating preventive measures that may prevent the need for being taken into care.

Next Steps

To use and improve the data presented in this report, the following next steps are recommended:

1. Establish an ongoing means to produce death rates for children and youth in care and to compare them with the provincial child and youth population.

2. Establish a minimum data set for analysis of child and youth deaths. This should include age, gender, Aboriginal status, cause of death, and if feasible, standardized coding of functional status and medical conditions.

3. Adopt the *Technical Report*'s recommendations regarding age-standardization, the denominator to be used in rate calculations, and the use of calendar years as the time periods for analysis.

4. Assess the feasibility of applying this epidemiological approach to the monitoring and analysis of other child health outcomes, such as those shown in Table 7 of this report.

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Appendix

This appendix provides the number of deaths, age-standardized mortality rates, and standardized mortality ratios (SMRs) for children and youth in care, the Status Indian population, and the total B.C. population age 0 to 18, over the 15-year period 1985/1986 to 1999/2000.

More detailed statistics and definitions are available in a separate technical report titled *Children and Youth in Care: An Epidemiological Review of Mortality, British Columbia, April 1974 to March 2000. A Technical Report of the Office of the Provincial Health Officer.* Copies are available from the Office of the Provincial Officer, telephone (250) 952-0876, or at http://www.hlth.gov.bc.ca/pho/ on the Internet.

APPENDIX

Mortality Rates: Children and Youth in Care, Status Indian Population, and Total B.C. Population Age 0 to 18 British Columbia, 15-year period 1985/86-1999/00

	Year															15-year
	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/00	total [1]
Number of deaths																
Children and youth in care	15	17	14	21	13	16	14	9	13	13	18	15	22	14	12	226
Status Indian population 0-18	-	-	-	-	-	-	74	69	68	58	70	60	54	35	43	531
Total B.C. population 0-18	610	622	630	632	600	591	525	524	482	533	489	448	440	360	356	7,842
Population age 0-18																
Children and youth in care	7,204	6,832	6,459	6,376	6,224	6,084	6,084	6,109	6,200	6,723	7,278	8,338	9,485	10,159	9,987	109,542
Status Indian population	-	-	-	-	-	-	42,772	43,667	45,859	48,273	50,217	51,521	52,565	53,841	54,920	443,635
Total B.C. population	780,484	780,149	785,553	796,308	811,037	830,637	849,062	872,571	895,367	918,217	937,513	954,790	966,546	964,969	957,575	13,100,778
Age standardized mortality rate [2]																
Children and youth in care	23.0	27.4	23.6	35.3	22.3	27.7	24.5	15.8	22.5	21.0	26.6	19.7	25.4	15.5	13.8	22.5
Status Indian population 0-18	-	-	-	-	-	-	15.7	13.8	13.7	10.9	12.8	11.2	10.1	6.6	8.0	11.3
Total B.C. population 0-18	7.7	7.9	7.9	7.8	7.3	7.1	6.2	6.0	5.4	5.9	5.3	4.8	4.7	3.9	3.8	6.0
Difference (gap) in rates, relative to all B.C. children [3]																
Children and youth in care	15.3	19.5	15.7	27.5	15.0	20.6	18.3	9.8	17.0	15.1	21.3	14.9	20.7	11.6	9.9	16.5
Status Indian population 0-18	-	-	-	-	-	-	9.5	7.8	8.3	5.0	7.5	6.4	5.4	2.7	4.2	6.2
Standardized mortality ratio [4]																
Children and youth in care	3.1	3.6	3.1	4.7	3.2	4.1	4.0	2.6	4.0	3.6	5.0	4.1	5.2	4.0	3.4	3.8
Status Indian population 0-18	-	-	-	-	-	-	2.6	2.4	2.4	1.8	2.4	2.3	2.1	1.6	2.0	2.2
Total B.C. population 0-18	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

[1] 15-year total (number of deaths and population) and cumulative average (rates and ratios) for children and youth in care and for all B.C. children. 9-year total for Status Indian population.

[2] Rates are per 10,000 population. See *Technical Report* for detailed definitions and notes.

[3] Amount by which age standardized mortality rate exceeds the provincial rate. For example, in 1985/86 the rate for children in care exceeded the provincial rate by 15.3 (23.0 - 7.7 = 15.3).

[4] A ratio that measures the mortality of specific groups of children relative to the general population. An SMR of 3.0, for example, means mortality is 3 times the provincial rate.

Source: Children and Youth in Care: An Epidemiological Review of Mortality, British Columbia, April 1974 to March 2000. A Technical Report of the Office of the Provincial Health Officer.