

Child Mortality in British Columbia

2015

Prepared by the Child Death Review Unit of the British Columbia Coroners Service

BC Coroners Service Ministry of Public Safety and Solicitor General

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INTRODUCTION

ABOUT THE CHILD DEATH REVIEW UNIT

By law, every child's death in British Columbia is reported to the Coroners Service, an agency within the Ministry of Public Safety and Solicitor General. Once the coroner's investigation is concluded, all deaths are additionally reviewed by the Coroners Service Child Death Review Unit (CDRU). Under the *Coroners Act (2007)*, the CDRU has a legislated mandate to review, on an individual or aggregate basis, the facts and circumstances of child deaths in British Columbia for the purposes of discovering and monitoring trends in child deaths, and determining whether further evaluation of the deaths of children is necessary or desirable in the public interest. In fulfilling its mandate the CDRU reviews child deaths considering the impact of public health and safety and how to prevent similar child deaths in the future.

ABOUT THIS REPORT

Purpose

This report presents findings of the 281 deaths of children occurring in British Columbia during 2015. This report consists primarily of descriptive data intended to characterize child mortality in British Columbia through demographics, causes and circumstances surrounding the death of these children.

This report summarizes recommendations distributed by the BCCS in 2015, but does not formulate new recommendations pertaining to policy, practices and services. Those will be included in future CDRU special reports, which will provide in depth discussion and analysis of specific causes of infant and child death.

Key terms

The *Coroners Act* defines a **child** as a person under the age of 19 years. In some contexts, child mortality may be used to refer to deaths of infants and children under the age of five. For the purposes of this report, child mortality refers to the deaths of children under the age of 19, and children have been grouped by their age at the time of death as follows: neonate (0-28 days), infant (29 to 365 days), 1-4 years, 5-9 years, 10-14 years, and 15-18 years.

Limitations and confidentiality

Examining individual causes of child mortality in a given year in B.C. often involves analyzing and reporting on a relatively small number of events, which can present challenges both in protecting privacy and ensuring data accuracy. Under the *Coroners Act* and *Freedom of Information and Protection of Privacy Act*, provisions are made that allow the BC Coroners Service to disclose information to meet its legislative mandate and support the findings and recommendations generated by the review process. The BC Coroners Service is sensitive to the privacy of the children and families that we serve and proceeds with caution when reporting case review findings. Efforts have been made throughout the report to mitigate risks associated with analyzing and reporting on small case numbers, including collapsing data categories. In general, statistical results based on a small number of cases should be interpreted with caution given the potential for random variation.

Small discrepancies in mortality counts and rates may be evident between BCCS mortality data and that of BC Vital Statistics. This discrepancy is attributable to coding differences between the two agencies and the time delay involved in reconciling any changes between preliminary and final certifications of death. Small discrepancies could also arise with future reports as 44 cases were still under investigation at the time of writing.

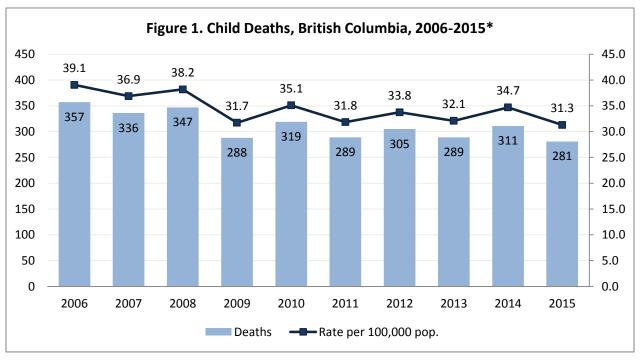
Of note, there are slight variations between BC Coroners Service regions and the regional boundaries applied by other agencies in the province, including the Regional Health Authorities and the Ministry of Children and Family Development. A map and description of the BCCS regional boundaries is provided in Appendix A.

In this report mortality data is presented based on health authority boundaries. This is a change from previous BCCS reports and was done to improve use of BCCS findings for planning or delivering health services.

OVERVIEW OF CHILD MORTALITY IN BRITISH COLUMBIA

Although tragic and devastating to the families, friends and communities, children's deaths are a relatively rare event in British Columbia, especially beyond infancy. There were an estimated 895,953 children age 0-18 living in British Columbia in 2015, and 281 child deaths, a rate of death of 31.3 children per 100,000 population.

In September of 2007, a revision to the Coroners Act specified that all child deaths must be reported to the BCCS. As a result of this legislative change, a greater number of child deaths are investigated each year, beginning 2008, than in previous years. This increase is primarily in natural deaths. As the BCCS did not investigate all child deaths in BC until 2008, Figure 1 (below) uses British Columbia Vital Statistics Agency counts for child deaths by year for 2006 to 2015. However, BC Vital Statistics data and BCCS data are not directly comparable due to coding differences between the two agencies and the time delay involved in reconciling any changes between preliminary and final certifications of death.



^{*} This figure presents BC Vital Statistics Agency death data.

Identifying how children die each year in British Columbia provides valuable information on overall child mortality, and looking at child deaths in terms of specific causes and ages is particularly important when looking at any future preventative opportunities.

Patterns of mortality change from birth to adolescence. Children may experience changing risk exposure as they move through different ages and stages of development, resulting in a shift of leading causes of mortality from primarily biological conditions to predominantly injury causes. This is reflected

in Table 1 which lists the three most common causes of death within the different age groups identified in this report for 2015.

TABLE 1

| Leading causes of child death by age group, 0-18 years, BC, 2015 | | | | | |
|------------------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|---------------------------|
| Rank | Under 1 year | 1-4 years | 5-9 years | 10-14 years | 15-18 years |
| 1 | Perinatal causes | Congenital, chromosomal, or metabolic disorders | Cancers | Cancers | Unintentional injuries |
| 2 | Congenital and chromosomal anomalies, metabolic disorders | Injuries | Injuries | Injuries | Suicide |
| 3 | Sudden infant deaths of undetermined cause | Cancer | Congenital, chromosomal, or metabolic disorders | Congenital, chromosomal, or metabolic disorders | Cancer |

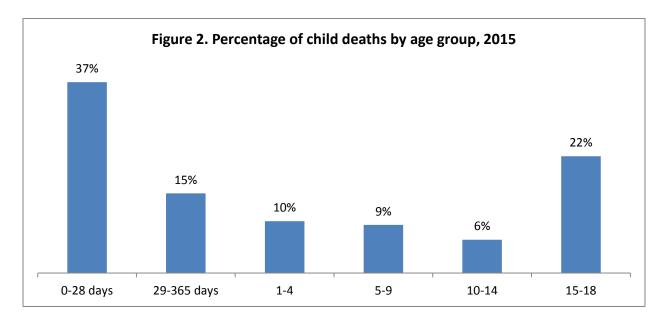
In general, children are most vulnerable to illness or death during the neonatal period of infancy (Table 2). Following the neonatal period, mortality rates decline and remain lower throughout early childhood. Mortality rates increase once again as children approach adolescence, when injuries take over as the leading cause of child death.

TABLE 2

| Child deaths by age group, 2015 | | | | |
|---------------------------------|--------|-------------|--|--|
| Age Group | Deaths | Death Rate* | | |
| 0-28 days | 103 | 232.6 | | |
| 29-365 days | 43 | 97.1 | | |
| 1-4 years | 28 | 15.7 | | |
| 5-9 years | 26 | 11.3 | | |
| 10-14 years | 18 | 7.8 | | |
| 15-18 years | 63 | 29.5 | | |
| Total | 281 | 31.4 | | |

^{*} Death rate is per 100,000 live births for children less than 1 year, and per 100,000 population for children aged 1 to 18 years.

Overall, the greatest percentage of child deaths in 2015 were infants less than 29 days (37%), followed by children 15 to 18 years of age (22%) and infants 29 to 364 days (15%) (Figure 2).



Health Authority differences in child mortality in 2015

In 2015, Fraser Health Authority had the highest percentage of child deaths (38%) in the province. Northern Health Authority and Interior Health Authority had the highest child mortality rates (46.9 and 36.1 respectively per 100,000 population) (Table 3).

TABLE 3

| Child Deaths by Health Authority of Residence, 2015 | | | | |
|-----------------------------------------------------|--------|------|--------------------------|--|
| Region | Deaths | % | Rate per 100,000 pop. | |
| Fraser | 108 | 38% | 28.8 | |
| Vancouver Coastal | 50 | 18% | 26.3 | |
| Interior | 48 | 17% | 36.1 | |
| Island | 37 | 13% | 27.9 | |
| Northern | 31 | 11% | 46.9 | |
| Lived outside BC | 7 | 2% | n/a | |
| Total | 281 | 100% | 30.6 | |

BC Coroners Service Categorization of Deaths

The BC Coroners Service categorizes child deaths into three main cause groups:

Group One: Natural Causes

Natural deaths refer to fatalities primarily caused by an internal disease process, such as an underlying medical condition or acquired illness, or from complications of the condition or treatment. In cases of natural death, the child is generally under the care of a physician and death is often expected. Occasionally, natural death is sudden and unexpected due to a previously undiagnosed medical condition or sudden unexpected deterioration.

Group Two: Injury Causes

Injury deaths include fatalities caused by damage to the body from external forces as well as when vital elements such as heat or oxygen are denied. Injury deaths are generally classified as **unintentional** (not purposely inflicted, such as death due to a motor vehicle crash), or as **intentional** (purposely inflicted by self or others, such as death due to suicide or homicide).

Group Three: Undetermined Causes

Undetermined causes include deaths that (because of insufficient evidence or inability to otherwise determine) cannot be reasonably categorized as natural or injury deaths. This includes some sudden infant deaths and fatalities due to other unknown or undetermined causes.

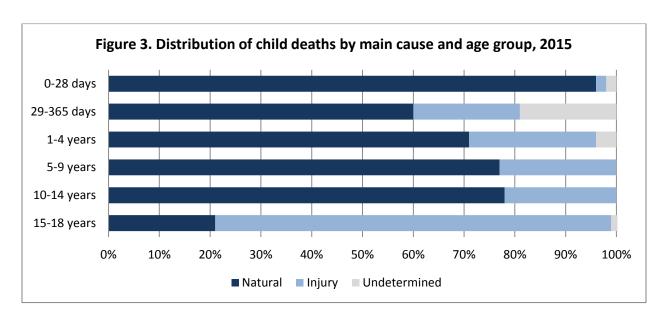
More natural deaths in childhood occur in hospital and health care facilities in larger, urban cities. In contrast, injury deaths occur throughout the province, on road systems, outdoors and in home settings, with emergency medical transport to regional or urban centers for care. Undetermined deaths more commonly occur in the child's home.

Table 4 shows that overall, natural causes of death comprise the greatest proportion of deaths involving children (68%) and that most of the natural deaths occur in the first 28 days of life (52%). Injury deaths comprise the second greatest proportion of deaths involving children (27%) and most injury deaths occur in young people ages 15 to 18 (64%). Undetermined causes of death occur most often with infants (83%).

TABLE 4

| Child deaths by main cause and age group, 2015 | | | | |
|------------------------------------------------|---------|--------|--------------|-------|
| Age Group | Natural | Injury | Undetermined | Total |
| 0-28 days | 99 | 2 | 2 | 103 |
| 29-364 days | 26 | 9 | 8 | 43 |
| 1-4 years | 20 | 7 | 1 | 28 |
| 5-9 years | 20 | 6 | - | 26 |
| 10-14 years | 14 | 4 | - | 18 |
| 15-18 years | 13 | 49 | 1 | 63 |
| Total | 192 | 77 | 12 | 281 |

Figure 3 shows that the cause of death varies considerably within different age groups.



SECTION TWO

CHARACTERISTICS OF CHILD DEATHS

DEATHS UNDER 12 MONTHS OF AGE

Number of deaths: 146 (72 Females, 73 Males, 1 Unknown) **Mortality Rate:** 3.3/1,000 live births

British Columbia had one of the lowest infant mortality rates in Canada (3.3 deaths per 1,000 live births vs. the Canadian average of 4.8 deaths per 1,000 live births for 2012).

In 2015, 70% of the infants that died before one year of age died in the first month of life (the neonatal period) (Figure 4). This group will be considered separately (below) from infants aged 29-364 days.

Neonates (0-28 days)

Number of deaths: 103 (55 Females, 47 Males, 1 Unknown) **Mortality Rate:** 2.3/1,000 live births

Leading Causes of Death:

The majority (96%) of deaths of infants in their first month were caused by prematurity, perinatal complications or congenital, genetic, metabolic or chromosomal anomalies. 21% were born preterm (29-37 weeks) and 49% were born extremely preterm (28 weeks or less) Perinatal More female infants (n=55) died than males (n=47) (53% and 46% respectively). For one infant sex could not be determined. Maternal or pregnancy-related factors influence infant mortality risk. Complications during pregnancy such as preterm labour, premature rupture of membranes, infection, or incompetent cervix, were present for 61% of the infants who died of natural causes. Multiple pregnancies (either twin or triplet) were noted for 13% of Congenital/ Chromosomal infants who died. Other

Infants aged 29-364 days

Number of deaths: 43 (17 Females and 26 Males) Mortality Rate: 0.9/1,000 live births

Leading Causes of Death:

Chromosomal/ Congenital/ Metabolic

Injuries

Undetermined

Other

In 2015, there were 43 infants who died between one month and one year of age.

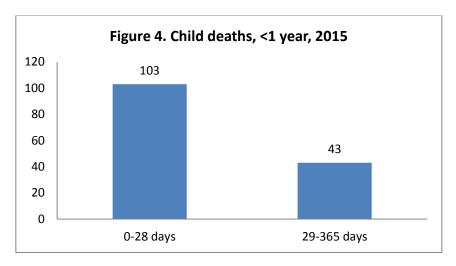
There were 17 deaths due to chromosomal/congenital anomalies or endocrine or metabolic disorders (39%).

Nine infants (21%) died due to injuries. Of these, seven deaths were accidental asphyxia during sleep, and two deaths were homicides. Undetermined deaths occurred during sleep where the cause of death could not be determined (n=8, 19%). Other infant deaths were due to infections/sepsis, respiratory conditions or cancer.

More male infants died than female infants (60% and 40% respectively).

In comparison with neonates:

- A smaller proportion were born prematurely (39% preterm; 5% extremely preterm)



DEATHS BETWEEN 1 AND 4 YEARS OF AGE

Number of deaths: 28 (17 Females and 11 Males) Death Rate: 15.7/100,000 population

Leading Causes of Death:

Chromosomal / Congenital/ Metabolic

Injuries

Cancer

Infections/ Sepsis

Other

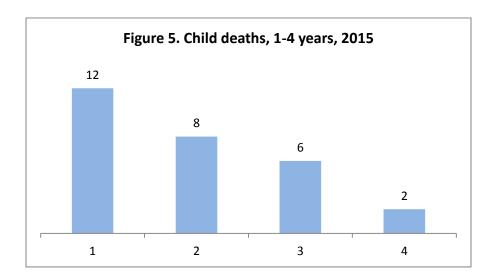
Natural deaths accounted for 71% (n=20) of all deaths in this age group. Chromosomal/congenital anomalies and metabolic disorders accounted for 35%, infections 11%, and cancer 18% of all deaths.

In 2015, injuries accounted for 25% (n=7) of the deaths for children between the ages of 1 and 4 years old. Deaths were due to drowning, motor vehicle crash, falls, and homicide.

There was 1 death where the cause of death was undetermined.

More female children died than males (61% compared to 39% respectively).

Figure 5 shows that the number of deaths at each age within this age group.



DEATHS BETWEEN 5 AND 9 YEARS OF AGE

Number of deaths: 26 (10 Females and 16 Males) Death Rate: 11.3/100,000 population

Leading Causes of Death:

Cancer

Injuries

Chromosomal / Congenital/ Metabolic

> Infections/ Sepsis

> > Other

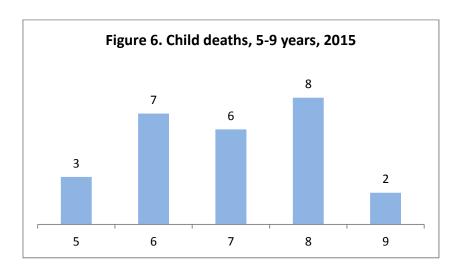
In 2015, 26 children age 5 to 9 years died in BC. For this age group, more deaths (n=20) were due to natural causes.

Cancer was the leading cause of natural deaths for this age group, accounting for 38% of all deaths among 5 to 9 year old children. Chromosomal/congenital anomalies accounted for 15% of all deaths in this age group. Other conditions such as neurological disorders and respiratory conditions accounted for 12% of deaths while infections were responsible for 12% of deaths.

Injuries accounted for 23% of all deaths. These were primarily due to motor vehicle crashes and fire.

More male children died than female children (62% and 38% respectively).

Figure 6 shows that the number of deaths across the 5 to 9 year old age group.



DEATHS BETWEEN 10 AND 14 YEARS OF AGE

Number of deaths: 18 (6 Females and 12 Males) Death Rate: 7.8/100,000 population

Leading Causes of Death:

Cancer

Injuries

Chromosomal
/ Congenital/
Metabolic

Neurological
Disorders

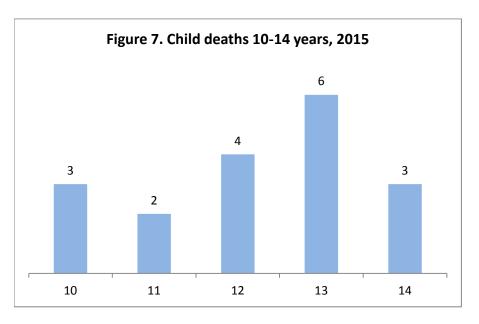
Other

In 2015, natural deaths resulted in 78% (n=14) of deaths in this age group. Natural deaths were attributed to cancer, congenital, chromosomal conditions, neurological and respiratory conditions (n=4,4,4,2).

Injuries (intentional and unintentional) accounted for approximately 22% (n=4) of all deaths. Unintentional injuries resulted in two deaths due to fires and drowning, while homicide and suicide resulted in two deaths.

In this age group, more males died than females (66% and 33% respectively).

Figure 7 shows that the number of deaths across the 10 to 14 year old age group. Although the number of deaths varies by age there is no discernible pattern.



DEATHS BETWEEN 15 AND 18 YEARS OF AGE

Number of deaths: 63 (21 Females and 42 Males) Death Rate: 29.5/100,000 population

Leading Causes of Death:

Unintentional Injuries

Suicides

Cancer
Homicides

Other

Among youth aged 15 to 18 years, the leading cause of death in 2015 were injuries. Collectively, injuries (intentional and unintentional) accounted for 83% of all deaths for this age group.

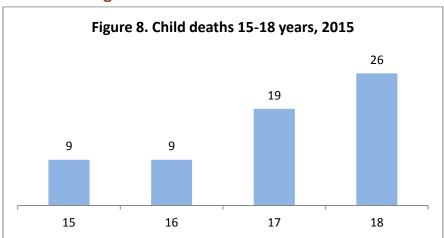
Unintentional injuries accounted for 44% of all deaths in this age group (n=28). Motorized vehicle crashes (n=14) resulted in the greatest number of unintentional deaths. Drowning (n=4), falls (n=4), and accidental alcohol or other drug overdoses (n=5), and anaphylaxis (n=1) were other causes.

Suicides (n=18) accounted for 29% of all deaths in this age group. More males died of suicide than females (72% versus 28% respectively).

Natural deaths (n=13) accounted for 21% of deaths in this age group. Cancers, neurological or chronic conditions including congenital and chromosomal disorders were listed as causes for natural deaths.

In 2015, there were three deaths due to homicide.

Among all 15 to 18 year old youth, 67% of the deaths were males and 33% were females. More deaths within this age group occurred at ages 17 and 18 in 2015 (Figure 8).



CHILD DEATHS BY CAUSE:

NATURAL DEATHS

Number of deaths: 192 (94 Females, 97 Males and 1 Unknown)

Leading Causes of Natural Death:

Chromosomal /Congenital/ Metabolic

Perinatal

Infections/ Sepsis

Cancers

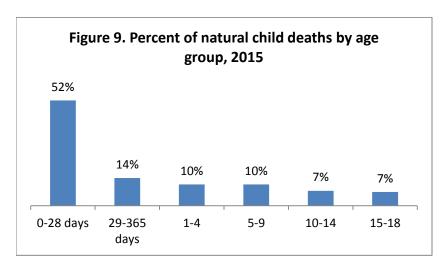
Other

In 2015, 192 (69%) of the 281 child deaths that occurred in B.C. were due to natural causes. Over half (51%) of natural deaths in 2015 involved infants who died in the first month of life.

In 2015, leading causes of natural death include conditions originating in the perinatal period (n=64, 33%), as well as congenital, genetic, metabolic and chromosomal abnormalities (n=72, 38%), and cancers (n=26, 14%). These leading causes of natural child death in 2015 are consistent with longitudinal patterns observed in British Columbia since 2000.

In 2015, males accounted for 50% of natural deaths and females for 49%. There was one individual of unknown sex.

As figure 9 demonstrates, 66% of the children who died of natural causes in 2015 were under the age of one, with the majority of natural infant deaths occurring in the first month of life.



INJURY RELATED DEATHS

Number of deaths: 77 (27 Females and 50 Males)

Leading Causes of Injury Related Death:

| Motor Vehicle Related | In 2015, 77 (27%) of the 281 child deaths that occurred in BC were injury related. It is well established that older children experience higher injury mortality and hospitalization rates than younger age groups, attributable to increased exposure and experimentation as children progress through different stages of development. Motorized vehicle crashes continue to be the leading cause of injury related death for children 0-18 years in B.C., followed by suicide, and homicide. Other causes of unintentional injury-related deaths in 2015 included airway obstruction, drowning, falls, unintentional |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Suicide | 2015 included airway obstruction, drowning, falls, unintentional poisoning, fire, and blunt force trauma. Motorized vehicle incidents accounted for 26% (n=20) of all injury related child deaths in 2015. Of these deaths, 70% (n=14) involved youth aged 15 to 18. |
| Homicide Drowning | The second leading cause of injury related death was suicide, with 18 of the 19 suicides occurring in youth age 15 to 18. The most common means of suicide in young people is through hanging. In 2015, more suicides were males, their rate being almost three times higher than females. |
| Airway Obstruction | Homicide is defined as a death due to injury intentionally inflicted by action of another person. Homicide is a neutral term that does not imply fault or blame. In 2015 there were 10 deaths caused by homicide. |
| Other | For all injury related deaths, more decedents were males (65%) than females (35%). |

Health Authority rates of fatal injuries

The highest injury mortality rates among children in 2015 were observed in the Northern Health Authority and Interior Health Authority. These were above the provincial rate of 8.6 deaths per 100,000 population (table 5).

TABLE 5

| Injury deaths by Health Authority of residence, 2015 | | | | |
|------------------------------------------------------|--------|------|-----------------------|--|
| Region | Deaths | % | Rate per 100,000 pop. | |
| Fraser | 21 | 27% | 5.6 | |
| Vancouver Coastal | 13 | 17% | 6.8 | |
| Interior | 16 | 21% | 12.0 | |
| Island | 10 | 13% | 7.5 | |
| Northern | 12 | 16% | 18.1 | |
| Lived outside BC | 5 | 6% | n/a | |
| Total | 77 | 100% | 8.6 | |

UNDETERMINED DEATHS

Number of deaths: 12 (5 Females and 7 Males)

Leading Causes of Undetermined Death:

Sudden Death in

Infancy

Other

In 2015, 12 (4%) of the 281 child deaths occurring in British Columbia were due to undetermined causes.

Almost 92% (n=11) of undetermined deaths were characterized as sudden death in infants. Primarily healthy infants under one year of age died suddenly and unexpectedly in circumstances related to sleep. These deaths are investigated by an examination of the scene of death, review of medical and social records, and a complete autopsy. There are typically no causal findings on autopsy in cases of sudden infant death, although scene and social investigation may identify factors that are known to increase an infant's risk of death. Sudden infant deaths typically peak at two to four months of age and begin to drop further after six months. British Columbia has established safe sleep guidelines for infants which can be accessed at

http://www.perinatalservicesbc.ca/NR/rdonlyres/D799441C-3E00-49EE-BDF7-2A3196B971F0/0/HPGuidelinesSafeSleep1.pdf

In 2015, slightly more male infants (n=6) died of sudden infant death as compared to female infants (n=5).

There was one youth who died and where classification of death remains as undetermined.

CHILDREN RECEIVING SERVICES FROM THE MINISTRY OF CHILDERN AND FAMILY DEVELOPMENT

Approximately 40% of children who died in 2015 were in receipt of services from the Ministry of Children and Family Development (Table 6). Many of these 112 children were medically fragile children supported through the province's child and youth special needs programs and services.

Of the 112 children receiving services from MCFD, 69 (62%) died of natural causes, 17 (15%) died of injury-related causes, 13 (12%) died by suicide, seven (6%) died by homicide, and 6 (5%) child died of undetermined causes. Across all causes, twelve children were in care of MCFD at the time of their death.

TABLE 6

| Child deaths by type of MCFD service received at time of death, 2015 | | |
|----------------------------------------------------------------------|------------------|--|
| Type of MCFD service | Number of Deaths | |
| Child/Youth Special Needs | 59 | |
| Family Services/Child Protection 42 | | |
| Child in Care | 12 | |
| Child Youth Mental Health | 3 | |

^{*} A total of 112 children were in receipt of services from the Ministry of Children and Family Development (MCFD) at the time of their death. The total does not equate to 112 as some children were in receipt of more than one type of service.

SECTION THREE

CHILD DEATH REVIEW PANEL

In 2015, the BC Coroners Service convened two death review panels to address child mortality topics with the goal of preventing future similar deaths.

A death review panel is mandated* to review and analyze the facts and circumstances of deaths to provide the Chief Coroner with advice on medical, legal, social welfare and other matters concerning public health and safety, and the prevention of deaths.

The Chair of the CDRU leads the child death review panel, whose membership includes professionals with expertise relating to children including: injury prevention, public health, medicine, law enforcement, emergency response, Aboriginal health, education, advocacy, academics and child welfare.

In 2015, two topics selected for panel review were residential fires, and pedestrian, cyclist and non-motorized vehicle deaths. These two panels resulted in 6 key recommendations to agencies and ministry partners to improve awareness, services, and practice to address and prevent child and youth deaths (Table 7 - Table 8).

Table 7

| A Review of Fire-Related Deaths (2005-2014) | | | |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--|
| Recommendations | | Status | |
| Recommendation 1: Fire Safety Education and awareness | By December 2017, the Fire Commissioner in collaboration with the Fire Chiefs Association of BC (FCABC) and the Fire Prevention Officers Association of BC (FPOBC) to adopt, develop and utilize standardized provincial fire prevention/ safety training materials, including the Juvenile Fire Setter Program. | To be updated in 2018 | |
| Recommendation 2: Fire Safety Prevention | By September 2016, the Fire Commissioner to work to expand partnerships with provincial programs and community agencies working with vulnerable families to improve access to and use of smoke alarms. The Ministry of Natural Gas Development and Responsible for Housing, Office of Housing and Construction Standards to investigate the evidence and feasibility of mandating sprinkler system installation in new homes in the BC Building Code. | Information pending | |

^{*} Under the Coroners Act

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Recommendation By December 2017, the Fire Commissioner To be updated in 2018 3: Data Quality and in collaboration with the Fire Chiefs Information Association of BC to identify common Sharing datasets (relevant to injuries/fatalities) for collection and incorporation into the fire reporting requirements and annual statistical reporting. The Fire Commissioner to collaborate with appropriate national organizations to ensure consistency in data collection with the National Fire Information Database. The BC Coroners Service share coroners' reports of fire-related deaths with police and fire officials in order to improve policy and best practices between the agencies.

Table 8

| Review of Road-Related Pedestrian, Cyclist and Boarder Deaths (2005-2014) | | | | |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| Recommendations | | Status | | |
| Recommendation 1: Adopt Safe Road System Design and Infrastructure | By December 2017, the Ministry of Public Safety and Solicitor General and Ministry of Transportation and Infrastructure (MOTI) will work collaboratively to expand crosswalk safety through the use of: dedicated pedestrian phases at traffic lights, leading pedestrian intervals at high incident locations, and also encourage municipalities to adopt these practices. By July 2016, the Ministry of Transportation and Infrastructure will require applicants accessing cycling infrastructure funding to meet best cycling infrastructure design standards. In a previous 2015 death review panel on young drivers, the BC Coroner Service made a recommendation that the Ministry of Transportation and Infrastructure consult with road safety, injury prevention and public health agencies to ensure that road safety and injury prevention are the paramount criteria used in the course of monitoring and reviewing existing speed | The Ministry has been working on developing engineering criteria that aligns with the recommendation to expand crosswalk safety at signalized intersections. This will be completed December 2017. Results will be posted to ministry's engineering website for municipality consideration and adoption as they see fit. The Ministry is developing criteria for dedicated pedestrian phases and leading pedestrian intervals to use on improvement projects in areas of high pedestrian activity. There is a plan to review existing intersections for potential retroactive upgrades. MOTI will ensure that BikeBC funding meets best | | |

limits and setting new speed limits on BC provincial road system. This recommendation should extend to all remaining road systems in BC, including residential streets.

- cycling design standards by adding this requirement to the application web site and approvals process. This will be completed during the summer of 2016 in advance for call for applications for the 2017/18 funding year.
- Ministry engineers follow internationally accepted standards developed by the Institute of Transportation Engineers and take into account factors such as highway design, current operating speed, safety history and adjacent land use when setting and reviewing speed limits. The ministry and its safety partners will continue to monitor speed limits across the province to ensure safety is maintained and to determine if modifications are necessary. It is important to note that within municipalities, municipal councils are empowered to set speed limits for roads under their jurisdiction.

Recommendation 2: Enhance Road Safety Education and Awareness

- The Ministry of Education and School Districts will solicit the views of students about how they get to school, road safety and what would make students feel safer when biking or walking.
- The Ministry of Education and School
 Districts will work with students to increase
 awareness and knowledge of road safety
 when travelling on foot, on boards and by
 bike. This could be supported through
 'road safety theme weeks', road safe
 campaigns, or curriculum, and should
 include the topics of general road safety,
- MEd has worked with classroom teachers on revising BC's curriculum.
 Within the revised curriculum, safety has been explicitly included. Road safety is being introduced in the early grades. For example, in Kindergarten and grade 1, students will learn about hazards and potentially unsafe situations and examples will include cars on the road.

| | the importance of being seen and bike helmet use. | Local school boards work with organizations (ICBC, DASH BC, BCAA) to address safety topics such as road safety. Events (e.g. Walk to Wheels) and activities (e.g. Parachute – Preventing Injuries, Saving Lives) are held to build awareness and understanding of the issue of injury and to keep children safe at home, on the road and at play. Local school boards may also work with HASTe (Hub for Active School Travel) BC's leading active and safe routes to school programmer and resource centre. HASTe works with communities and partners across the province to connect kids, schools and communities through walking and cycling. |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommendation 3: Enact Vehicle Safety Legislation | By 2018, Transport Canada will enact regulations that require all new vehicles in Canada to have rear-facing technology to alert drivers to the presence of pedestrians when backing up. | Pending |

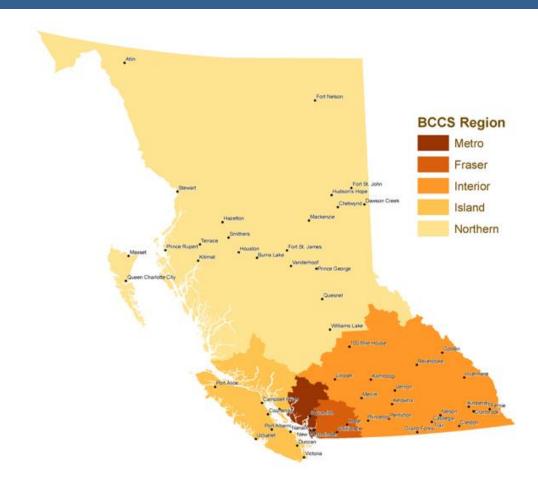
RECOMMENDATIONS MADE BY LOCAL CORONERS/INQUEST

A total of 4 recommendations were distributed in 2015 with respect to two children who died. Recommendations were made to four agencies or Ministries.

The Coroner recommendations encouraged the sharing of the summary findings for information and educational purposes and to support a review of services, policy development and practice.

APPENDIX

BC CORONERS SERVICE REGIONS



<u>Northern Region</u>: Includes the region north, east and west from 100 Mile House to all Provincial borders, and Haida Gwaii.

<u>Metro Region</u>: Sunshine Coast, Sea to Sky Corridor, North Shore, Vancouver, UBC, Burnaby, Richmond, and Delta.

<u>Fraser Region</u>: Includes Coquitlam and Surrey to the Coquihalla Highway summit, east to Manning Park and north to Jackass Mountain bordering Merritt.

<u>Interior Region</u>: Includes the region north to 100 Mile House and Blue River, east to the Alberta border, south to the USA border and west to the Manning Park gate, including Ashcroft, Lytton and Lillooet.

<u>Island Region</u>: All of Vancouver Island, the Gulf Islands, and Powell River.