

# Infant Mortality Report 2014 to 2016

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A Three Year Review of Infant Deaths  
in the Island Health Region

Infant Mortality Review Committee

August 2019

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## Executive Summary

This report provides a summary of the infant deaths that occurred between 2014 and 2016 in the Island Health region and builds on findings and recommendations from previous reports starting from 2008. It is intended to provide Island Health leadership with a better understanding as to why infants are dying, and what factors may be modifiable in order to prevent these deaths.

Island Health's Infant Mortality Review Committee (IMRC) has been reviewing infant deaths since its inception in 2007 when findings revealed higher rates of infant mortality in the Health Authority than the rest of the Province. In addition, the rate of infant deaths to infants of Indigenous ancestry was higher than the rate of non-Indigenous infants; therefore, one of the main goals of the IMRC is to strive to eliminate the disparity of Indigenous infant deaths to non-Indigenous infants. The role of the committee is to analyze data and to try to determine the reasons for these high infant death rates, and develop recommendations and monitor activities to reduce infant mortality in Island Health.

From 2014 to 2016, there were 77 infant deaths in Island Health that met the IMRC review criteria; a rate of 4.0 infant deaths per 1,000 live births. This is lower than the 2013-2015 period rate of 4.6 per 1,000 live births. The number of infant deaths decreased from 87 deaths to 77 over the three year time period. It is important to note that caution should be exercised when dealing with a small number of cases as an increase or decrease may indicate random variation rather than a significant change in rates.

This report summarizes the cause of death into four main categories: extreme prematurity, Sudden Unexplained Death in Infancy (SUDI), congenital anomalies and unknown or other.

Similar to the 2013-2015 report, extreme prematurity was the largest category with 38% (29) of infant deaths falling into this group. The mechanism of premature delivery of a high-risk infant varied and included Premature Rupture of Membranes (PROM), acute chorioamnionitis, placental abruption, bacterial sepsis and incompetent cervix. Cause of death included complications related to extreme prematurity such as severe Respiratory Distress Syndrome, respiratory arrest, perinatal asphyxia and early acute hypoxic ischemic injury.

Congenital anomalies were listed as the reported cause of death in 22% (17) of cases from 2014-2016. These included congenital nephrotic syndrome, brain malformation, intracranial hemorrhage, metabolic anomalies, as well as Trisomy 13 and Trisomy 21 related anomalies.

The smallest category was SUDI with 10% (8) of cases, with the majority occurring in the Post Neonatal Period (28-364 days). The majority of these were also infants born at term. In all eight cases, potential sleep practice factors – sleep surfaces, sleep environments and sleep positions – were identified, and in many of the cases broader social complexities were also noted.

An additional 30% (23) of cases were listed as "Other/unknown" and included complications related to infectious disease, perinatal asphyxia, severe hyperbilirubinemia, and hypoxic events that may or may not have been related to prematurity of infant.

## **Conclusions and Recommendations**

Infant mortality is known world-wide as a key indicator of child health and, more generally, of societal well-being. It is influenced by a multitude of factors, including not only the robustness of the health care system but also the economic, social and physical conditions of women and their infants and of the communities in which they live. While the IMRC reviews and reports on all cases of infant death that meet the criteria, the recommendations over the years have been focused on those deaths that have a preventable component, or a modifiable risk factor.

In 2013, the IMRC created its first 3 year rolling report using 2009-2011 data. Since then, the committee has conducted aggregate reporting in 3 year rolling reports such as this in order to stabilize small numbers in the data and give a clearer picture of trends in infant deaths in the Health Authority. The 2014-2016 review builds on the findings and recommendations of the previous reports which are centered on reducing preventable infant deaths related to unsafe sleep, and quality improvement aimed at pre and post-natal care and services to support optimal reproductive health. The profile of infant deaths at Island Health has remained consistent since the previous 2013-2015 report and therefore, recommendations regarding Safe Sleep and the Baby Bed Program will continue as Committee priorities.



# Island Health Infant Mortality

## 2014-2016

### Rates



4.0 infant deaths per  
1,000 live births

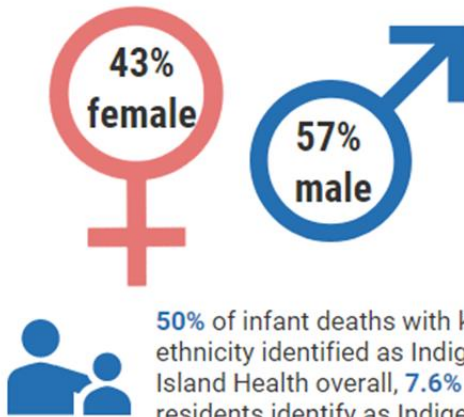


higher than the rate for BC  
(3.7 per 1,000)



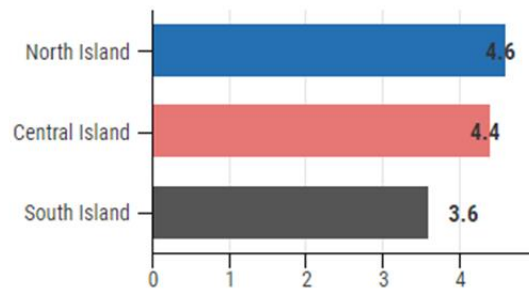
lower than the Island Health  
rate for 2013-2015  
(4.6 per 1,000)

### Demographics

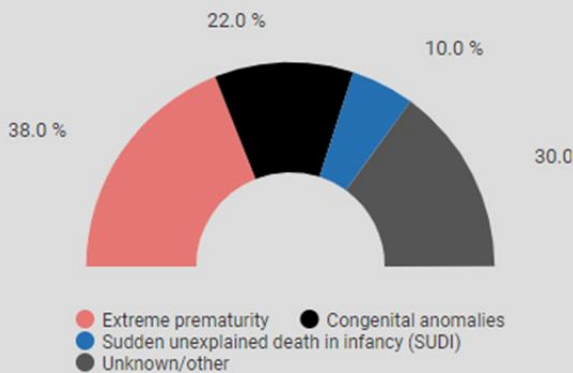


50% of infant deaths with known ethnicity identified as Indigenous. In Island Health overall, 7.6% of residents identify as Indigenous.

### Infant deaths per 1,000 live births



### Causes



**21%**  
of infant deaths had a sleep  
related risk factor reported



**31%**  
of infant deaths occurred in the  
post neonatal period



**59%**  
of infants were born prematurely;  
38% were born extremely pre-term

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# 1. Introduction

Infant mortality refers to the death of a live born baby during the first year of life, and is normally expressed as a number of deaths per 1,000 live births in a specified population. Infant mortality is influenced by a multitude of factors including maternal health, quality of and access to medical care, and socioeconomic conditions, and as such infant mortality rate is a commonly used measure of a population's health and wellbeing<sup>1</sup>. The Island Health Infant Mortality Review Committee (IMRC) has been reviewing cases of infant deaths in the health Authority since 2007 in response to findings that revealed higher rates of infant mortality in Island Health compared to other regional health authorities in the Province.

The following report is a summary of the infant deaths that occurred in the Island Health region from 2014 to 2016. The intention of this review is to inform the leadership of Island Health with the findings concerning the deaths occurring in this period, and with an update of the work of the IMRC.

While aggregation of IMR data over a three-year period allows for more robust comparisons, it should be noted that there is an issue of small numbers when breaking down infant deaths over specific years or across descriptive categories.

The infant mortality rate for Island Health for 2014-2016 was 4.0 per 1,000 live births – slightly higher than the provincial rate of 3.7 per 1,000. A total of 77 infant deaths were reported for Island Health between 2014 and 2016. The rate is lower than the previous 3-year period of 2013 to 2015 (4.6 deaths/1,000 live births), and the total number of 87 infant deaths.

BC Guiding Framework for Public Health, the Ministry of Health has set a target of 2.5 infant deaths per 1,000 live births to be reached by 2023. This can be considered the ultimate target or benchmark. Island Health has set annual targets based on a 5.5% decline per year in order to meet the 2023 target. The current target for 2019/2020 is 3.44 per 1,000 live births. Island Health reports on the rate annually as a 5-year aggregate.

## 1.1 Methodology

The Island Health Infant Mortality Review Committee (IMRC) works collaboratively with the British Columbia Coroners Service, and the Ministry of Children and Family Development. Using a database template developed by the IMRC in 2008, chart reviews of the infants that meet the IMRC criteria and their mothers were conducted (list of database fields can be seen in Appendix D). The work done by the Committee is mandated under the Health Authorities Act to plan, deliver, monitor, and report on health services and is a function of Island Health quality improvement with a purpose to provide recommendations based on aggregate data on modifiable risk factors to reduce infant mortality. This data was supplemented with data from BC Vital Statistics.

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<sup>1</sup> Reidpath DD and Allotey P. Infant mortality rate as an indicator of population health. *J Epidemiol Community Health* 2003; 57:344-346.

As in previous years, the Island Health IMRC used the following inclusion criteria for inclusion of cases into the review:

- Infant deaths are defined as the death of a child less than 12 months of age<sup>2</sup>.
- The *Vital Statistics Act* defines a live birth<sup>3</sup> as “The complete expulsion or extraction from its mother, irrespective of the duration of the pregnancy, of a product of conception in which, after the expulsion or extraction, there is:
  - a) Breathing;
  - b) Beating of the heart;
  - c) Pulsation of the umbilical cord; or
  - d) Unmistakable movement of voluntary muscle, whether or not the umbilical cord has been cut or the placenta attached.”
- The infant deaths studied were those whose maternal residence was within the Island Health boundary, whether they died on Vancouver Island or at BC Children’s and Women’s Hospital in Vancouver. Not included are infants who may have died on Vancouver Island but whose mother’s normal place of residence is outside of the Island Health boundary.
- For the purpose of the case review, stillbirths are not included, as stillbirths do not meet the definition of an infant death.
- Infant mortality rates are calculated using the number of infant deaths divided by the total number of live births, multiplied by 1000.

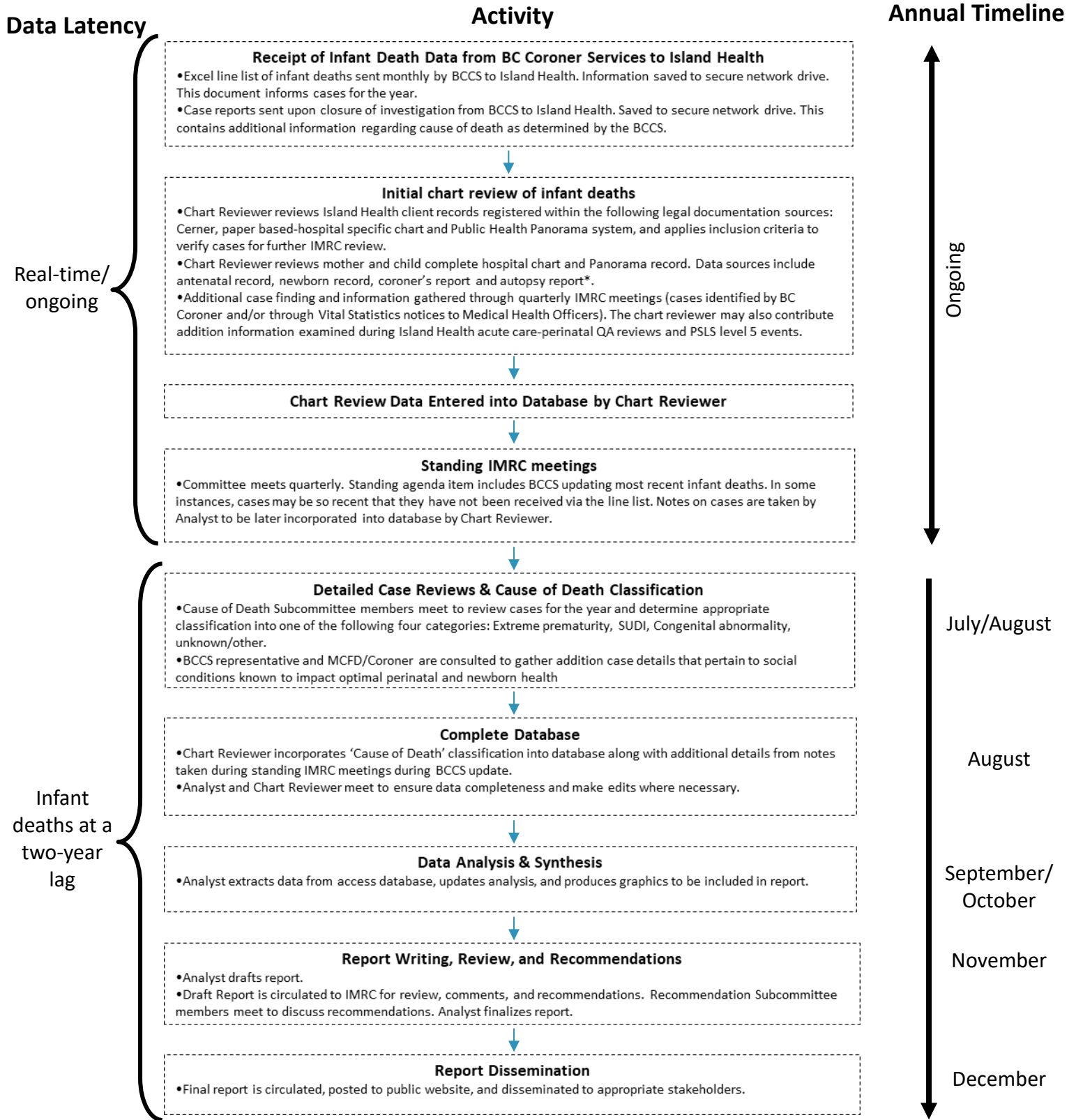
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<sup>2</sup> Conference Board of Canada, N.D.

<sup>3</sup> BC Vital Statistics. Glossary of Terms. <http://www.vs.gov.bc.ca/stats/annual/2007/pdf/glossary.pdf>



The following diagram provides an overview of the case review process conducted by the Island Health Infant Mortality Review Committee:



## 1.2 Glossary of Terms

For the purposes of this report, the following are commonly used terms and their definitions.

**British Columbia Perinatal Data Registry-** the British Columbia Perinatal Data Registry (BCPDR) contains data abstracted from obstetrical and neonatal medical records on nearly all births in the province from over 60 hospitals as well as births occurring at home attended by BC registered midwives. The BCPDR also collects data on maternal postpartum readmissions up to 42 days post-delivery and baby transfers and readmissions up to 28 days after birth.

**Antenatal Record-** the Antenatal Record is a tool developed to facilitate the assessment and documentation of important information about the woman's health and pregnancy care in a structured and standardized manner. A number of the fields in the antenatal record are collected as part of a database for the British Columbia Perinatal Database Registry (BCPDR) to ultimately evaluate provincial perinatal outcomes, and to improve health care initiatives.

**Canadian Community Health Survey (CCHS)** - this initiative began in 2000 with its main goals being the provision of population-level information on health determinants, health status and health system utilization. The series of surveys is a joint effort of Health Canada, the Public Health Agency of Canada, Statistics Canada, and the Canadian Institute for Health Information.

**Gestational Age-** The gestational age is the duration of pregnancy measured from the first day of the last normal menstrual period, and is expressed in completed days or completed weeks.

**Safe Sleeping Practices** – includes **sleep position** (back), **sleep environment** (firm surface, without pillows, comforters, quilts or bumper pads), and **sleep surfaces** (crib, cradle or bassinet next to bed).

**Indigenous** – For purposes of this report, a baby is considered to be Indigenous if the parent identifies the infant as having Indigenous blood. It includes First Nations (status or non-status), Inuit and Métis infants.

**Infant death** – the death of a baby who is born alive (i.e. not a stillbirth) between the time of birth and an age of 365 days.

**Neonatal death** – the death of a baby less than 28 days after birth. Neonatal deaths are further divided as follows:

- Early neonatal death- death of children less than 7 days after birth
- Late neonatal death - death of children from 7 to 27 days after birth

**Post-neonatal death** – the death of a baby aged between 28 and 364 days.

**Extremely Preterm** – a baby who is born at a gestational age of less than 28 weeks.

**Very Preterm** – a baby who is born at a gestational age of 28 to less than 33 weeks.

**Late Preterm** – a baby who is born at a gestational age of 33 to less than 37 weeks.

**Full term** – a baby who is born at a gestational age of 37 to less than 42 weeks

**Sudden Unexplained Death in Infancy (SUDI)** – The sudden death of an infant, normally during sleep, where a full autopsy determines no anatomical cause of death and where external risk factors that may contribute to infant death are present (E.g. placed prone to sleep, sleeping on adult bed) but their role in the death cannot be specifically determined.

**Social Determinants of Health** – The social determinants of health influence the health of populations. They include income and social status; social support networks; education; employment/working conditions; social environments; physical environments; personal health practices and coping skills; healthy child development; gender; and culture.

#### **Coroner Categories of Death:**

**Natural Causes:** A death primarily resulting from a disease of the body and not resulting secondarily from injuries or abnormal environmental factors.

**Accident:** A death due to unintentional or unexpected injury. It includes death resulting from complications reasonable attributed to the accident.

**Homicide:** A death due to injury intentionally inflicted by action of another person. Homicide is a neutral term that does not imply fault or blame.

**Undetermined causes:** 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.

## **2. Results from the 2014-2016 Case Review of all Infant Deaths**

### **2.1. Geography**

The IMRC uses the mother's place of residence from the hospital records to determine where infant deaths are occurring in the region and to learn if certain areas are experiencing higher rates of infant mortality than others. Overall, for the three-year period from 2014 to 2016, Island Health had an infant mortality rate of 4.0 deaths per 1,000 live births. This is higher than the provincial rate for the same time period (3.7 per 1,000 live births). There were 35 infant deaths in Island Health in 2014, 18 in 2015 and 24 in 2016. The greatest number of deaths for the combined three-year period occurred in the Greater Victoria Local Health Area (LHA), while the highest rate was in the Alberni/Clayoquot LHA. The number of deaths in the Greater Victoria LHA could be inflated as a result of mothers giving a temporary address if they are required to travel to Victoria for the birth, as Victoria General Hospital (VGH) offers specialized perinatal services for Island residents.

While the South Island Health Service Delivery Area (HSDA) had the highest number of deaths (N=34; rate=3.6 per 1,000), the infant mortality rate was higher in both Central (4.4 per 1,000 live births) and North Island (4.6 per 1,000 live births) (Figure 1). There is a slight discrepancy between infant deaths reported by Vital Statistics for Central Island compared to what was recorded in the Island Health charts (Table 1).

Map 1: Infant Mortality Rates per LHA, Island Health, 2014-2016

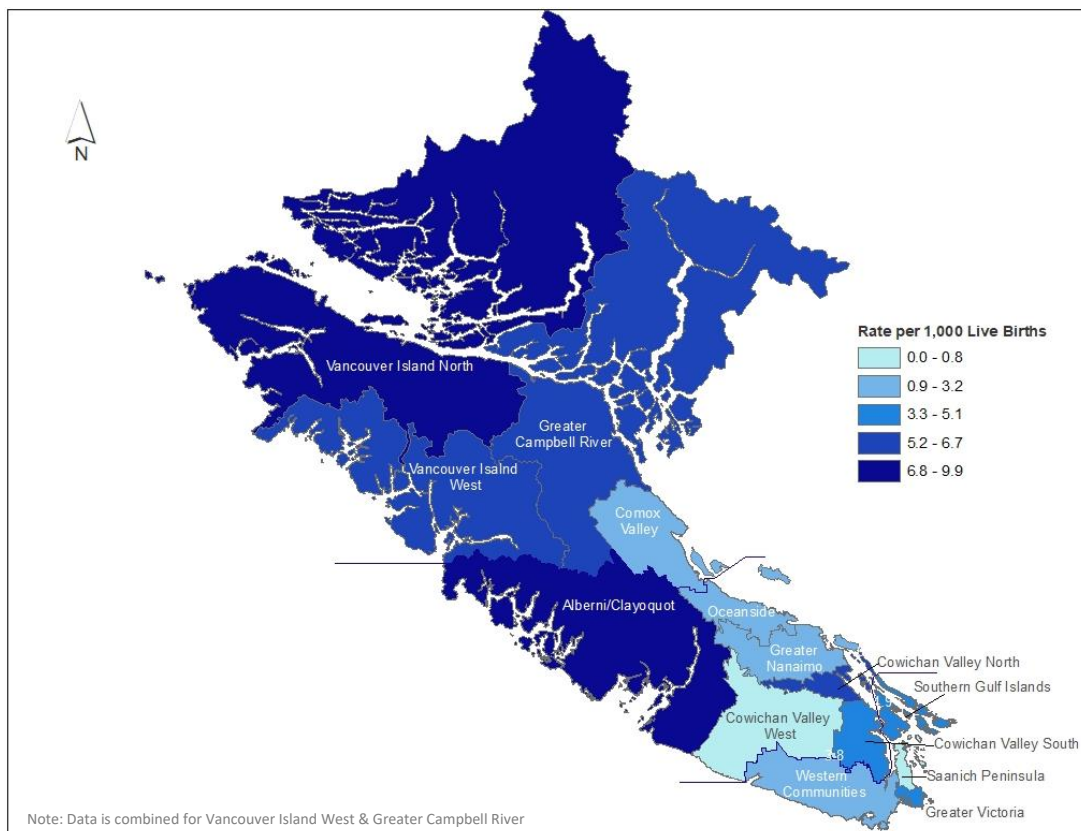


Table 1: Infant Mortality Rates (LHA) & Counts (HSDA), 2014-2016

	LHA	LHA Name	Island Health Case Review			Vital Statistics
			Live Births	Rate per 1,000 live births	Infant Deaths by HSDA	Infant Deaths by HSDA
SOUTH	411 (Previously 61)	Greater Victoria	5,489	5.1	34	34
	412 (62)	Western Communities	2,594	1.5		
	413 (63)	Saanich Peninsula	1,223	0.8		
	414 (64)	Southern Gulf Islands	205	4.9		
CENTRAL	421 (65)	Cowichan Valley South	1,583	3.8	28	27
	422 (66)	Cowichan Valley West	125	0.0		
	423 (67)	Cowichan Valley North	452	6.6		
	424 (68)	Greater Nanaimo	2,793	3.2		
	425 (69)	Oceanside	713	1.4		
	426 (70)	Alberni/Clayoquot	908	9.9		
NORTH	431 (71)	Comox Valley	1,518	2.6	15	15
	423 & 433 (72 & 84)	Greater Campbell River and Vancouver Island West	1,197	6.7		
	(434) 85	Vancouver Island North	338	8.9		
		<b>Island Health</b>	<b>19,137</b>	<b>4.0</b>	<b>77</b>	<b>76</b>

Figure 1: Infant Mortality Rates per Health Service Delivery Area, Island Health, 2009-11 to 2014-16

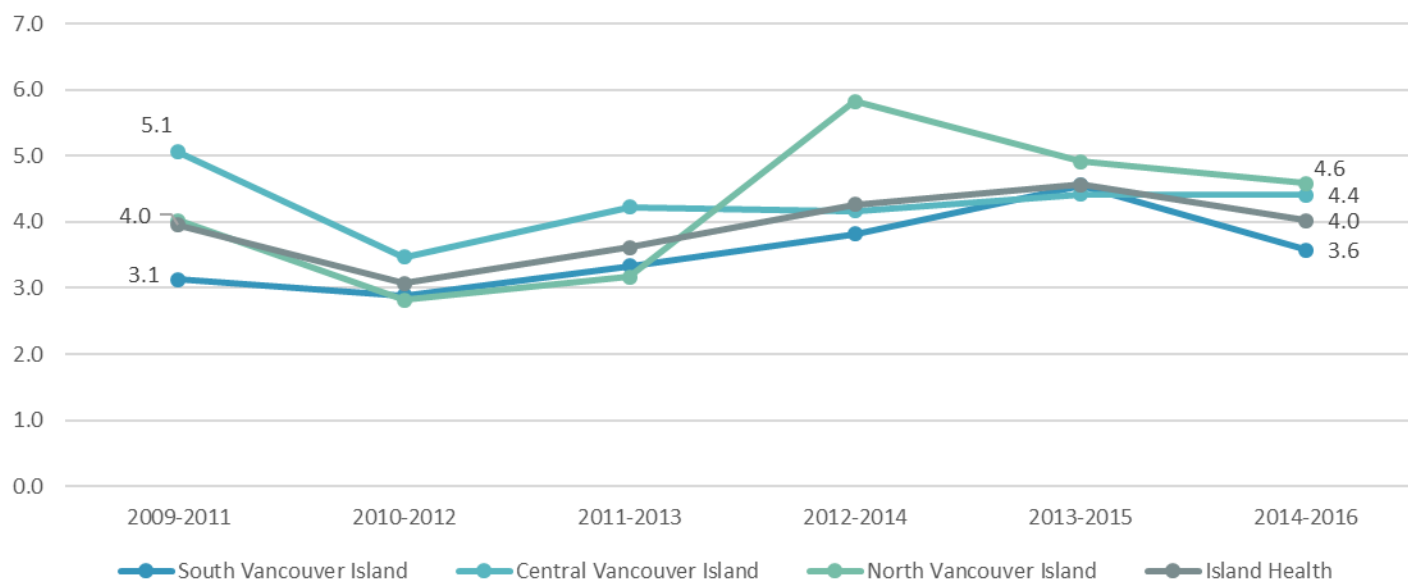


Table 2: Infant deaths, live births & mortality rates per Health Service Delivery Area, 2009-11 to 2014-16

South	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016
Deaths	29	27	31	36	43	34
Live Births	9,270	9,363	9,305	9,437	9,443	9,511
Rate/1,000	3.1	2.9	3.3	3.8	4.6	3.6
Central	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016
Deaths	34	23	28	27	29	29
Live Births	6,724	6,623	6,632	6,481	6,559	6,574
Rate/1,000	5.1	3.5	4.2	4.2	4.4	4.4
North	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016
Deaths	13	9	10	18	15	14
Live Births	3,235	3,192	3,151	3,090	3,053	3,053
Rate/1,000	4.0	2.8	3.2	5.8	4.9	4.6
Island Health	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016
Deaths	76	59	69	81	87	77
Live Births	19,229	19,178	19,088	19,008	19,055	19,138
Rate/1,000	4.0	3.1	3.6	4.3	4.6	4.0

## 2.2. Ethnicity of Deceased Infant

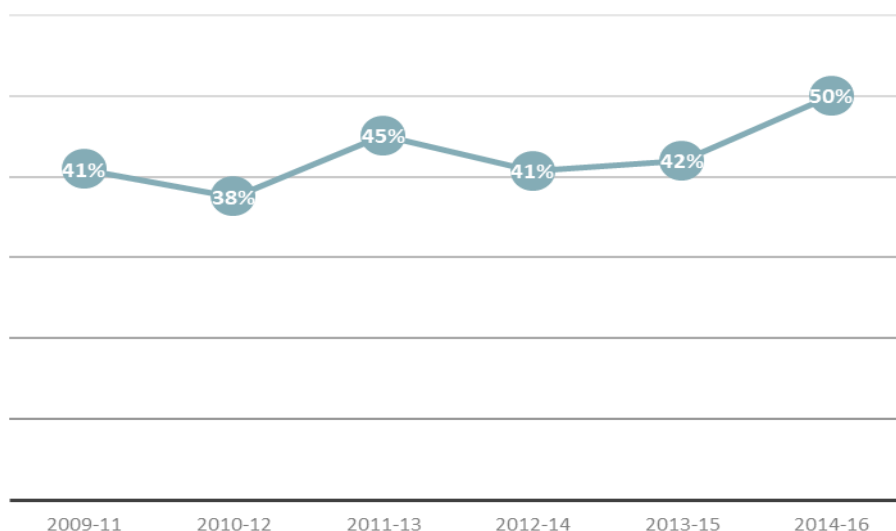
Table 3 identifies the listed ethnicity of the deceased infants based on the maternal ethnicity or nationality as listed on the antenatal record. From 2014-2016, the database includes 74 mothers and fathers for 77 infant deaths, as there are three sets of twins for this period. Ethnicity is known for 44 of the mothers (57%) with the data on the remaining cases listed as “unknown” or “incomplete”. In some cases, ethnicity of an infant was available from BCCS and was incorporated into the database for analysis if maternal ethnicity was missing. From 2014-2016, 23 of the 46 infants with known ethnicity (50%) were listed as Indigenous. The proportion of infants’ deaths where the infant was identified as Indigenous has ranged from 38% to 50% between 2009-11 and 2014-16. Given that in the underlying population of Island Health overall, 7.6%

identify as Indigenous<sup>4</sup>, it is clear that Indigenous infants are over-represented among infant deaths. It is not possible at this time; however, to calculate the Indigenous-specific infant mortality rate as information on live births to Indigenous women is not available.

Table 3: Ethnicity of Deceased Infant, Case Count & Proportion, Island Health, 2014-2016

Ethnicity	Number of infant deaths	% of total cases (where ethnicity is known, N=46)
Caucasian	16	35%
Indigenous (includes First Nations and Metis)	23	50%
Other	7	15%
Unknown	31	40% of total (N=77)

Figure 2: Infant Deaths, Proportion identified as Indigenous\*, Island Health, 2009-11 to 2014-16



\*Note:

- Excluded cases where ethnicity is unknown. From 2009 to 2016, there are 73 cases with unknown ethnicity.
- From 2014 to 2016, an additional data source was used to identify the ethnicity of infants. This may have resulted in higher proportion of those known to be Indigenous compared to the previous years.

## 2.3 Maternal Age

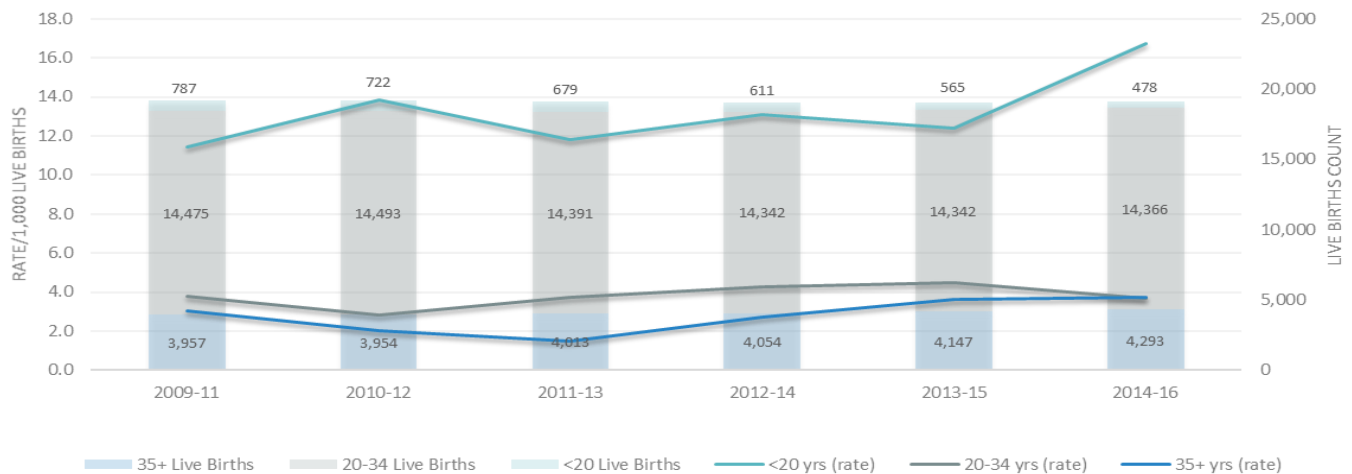
The average age for the 74 mothers of the deceased infants is approximately 29 years with a median age of 28. The data reveals that in the period of 2014 to 2016, the highest rate of infant deaths occurred among young (< 20 years of age) mothers (Table 4). This is consistent across reporting periods (Figure 3); however, the rate among younger mothers increased 35% since the last reporting period (2013-15). While it appears that the number of live births amongst younger mothers is decreasing, the number of infant deaths amongst this age group remains the same.

<sup>4</sup> Census, Calendar year 2016

Table 4: Maternal Age of Deceased Infants, Case Count & Rate per 1,000 live births, Island Health, 2014-2016

Age of Mother (years)	Number of infant deaths	Number of Live Births	Infant Mortality Rate per 1,000
<20 (Younger Mothers)	8	478	16.7
20-34	53	14,366	3.7
≥ 35 (Older Mothers)	16	4,801	3.7

Figure 3: Maternal Age of Deceased Infant, Rate per 1,000 live births, Island Health, 2009-11 to 2014-16



## 2.4 Multiple Gestations

Eleven of the infant deaths in Island Health between 2014 and 2016 were twins, including 3 sets of twins where both infants died, and 5 cases where death occurred to one twin in a set. In Vitro Fertilization or IVF was recorded in 6 infant death cases, of which 5 resulted in multiples (twins). For three infant deaths it is unknown if IVF was present; however, these were all singleton births.

## 2.5 Substance and Alcohol Use during Pregnancy

Reported alcohol and substance use during pregnancy are captured on the Provincial Antenatal Record (Perinatal Services BC). In many of the fields the data was incomplete or was not known. Among the 74 mothers of the 77 infants who died between 2014-16, 50 (66%) of them had an 'unknown' or blank field for alcohol use while 40 mothers (54%) had an 'unknown' or blank field for substance use (Figure 4).

### 2.5.1 Substance Use during Pregnancy

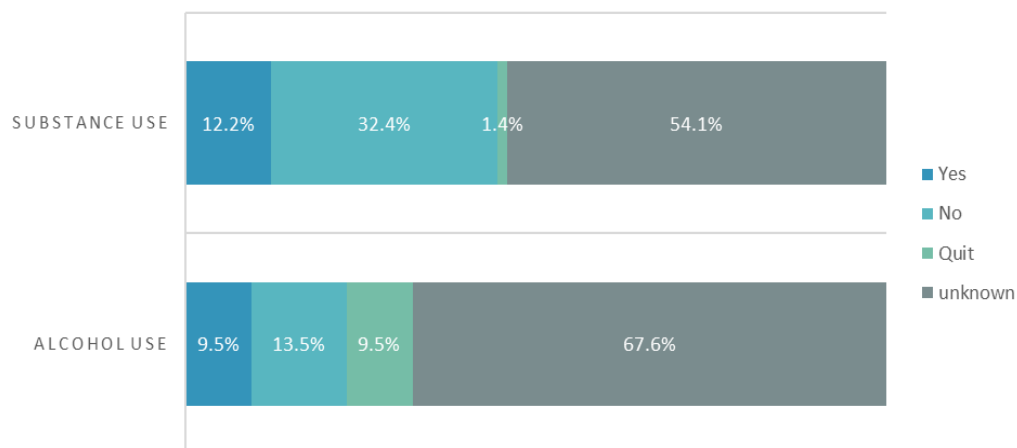
Including records with missing information, substance use was noted for 9 (12.2%) of all antenatal records reviewed (Figure 4). Of the 34 (37 infant deaths including three sets of twins) of 74 mothers where information was available in the antenatal record, 24 (71%) indicated no substance use during pregnancy. Of the 9 (26%) where some form of substance during pregnancy was noted, the majority reported cannabis use (n=7) and 1 reported quitting the use of medical marijuana. According to Canadian Community Health Survey

(CCHS) data, 5% of women of childbearing age (18 to 44 years) in Island Health reported some form of illicit drug use within the last twelve months<sup>5</sup>.

### 2.5.2 Alcohol Use during Pregnancy

Including records with missing information, alcohol use was noted for 7 (10%) of all antenatal records reviewed (Figure 4). Of the 24 (32%) of 74 mothers where information was available in the antenatal record, abstaining from alcohol use during pregnancy was reported for 10 (45%). In Island health, 23% of women of childbearing age (18 to 44 years) are considered a regular drinker<sup>6</sup>, this is similar to BC (24%)<sup>7</sup>.

Figure 4: Proportion reporting Substance (Illicit Drugs) and Alcohol Use during Pregnancy, 2014 to 2016



### 2.5.3 Tobacco Use during Pregnancy

Including records with missing information, tobacco use was noted for 12 (16.2%) of all antenatal records reviewed (Table 5). Tobacco use during pregnancy was unknown for 48 (65%) of 74 mothers. Of the 26 mothers where information was available through chart review, tobacco use during pregnancy was indicated in 12 (46%) pregnancies, 8 (31%) mothers indicated cessation of use and 6 (23%) indicated no tobacco use during pregnancy. One mother reported the use of e-cigarettes during pregnancy. Among those who continued to smoke during pregnancy, information on the quantity smoked was available in 6 records. For these 6, pre-pregnancy tobacco use averaged 13.8 cigarettes per day, while the average number of cigarettes smoked during pregnancy was 4.2 cigarettes per day. The range of use prior to pregnancy was broad, spanning 3 to 20 cigarettes a day while the range during pregnancy was much smaller spanning 3 to 5 cigarettes a day. Exposure to second hand smoke during pregnancy was reported in 7 cases.

The overall rate of tobacco use during pregnancy in Island Health for all deliveries in 2014-2016 was 10.1 percent; compared to a provincial rate of 6.9 percent.<sup>8</sup>

<sup>5</sup> Statistics Canada, Canadian Community Health Survey, 2015/16 cycle

<sup>6</sup> Regular drinker: Survey participant responded with one of the following answers when asked how often they drink alcoholic beverages: once a month, 2-3 times a month, once a week, 2-3 times a week, 4-6 times a week or every day.

<sup>7</sup> Statistics Canada, Canadian Community Health Survey, 2015/16 cycle

<sup>8</sup> Perinatal Services BC – BC Perinatal Database Registry



Table 5: Reported Maternal Smoking, Island Health, 2014-2016

Reported Maternal Smoking	Count (%)
Reported Smoking During Pregnancy	12 (46) N=26
<i>Average Cigarettes a Day (pre-pregnancy)</i>	13.8
<i>Average Cigarettes a Day (during pregnancy)</i>	4.2
Quit	8 (31) N=26
Unknown	48 (65) N=74
Known exposure to 2 <sup>nd</sup> hand smoke during pregnancy	7 (9)N=74

## 2.6 Gestational Age and Birthweight of all 2014-2016 Cases

### 2.6.1 Gestational Age of Infants

The gestational age was reviewed for all infant deaths to determine whether the infant was pre-term (less than 37 weeks), term (37 to 41 weeks), or post-term (42 weeks or more).

Among all infant deaths from 2014-2016, there were 69 infants (90%) with documented gestational age. Of these infants, 40 were classified as pre-term infants (58%), of which 26 (38% of 69) were extremely pre-term (<28 weeks), 6 were very preterm (28 to <33 weeks) and 8 were late preterm (33 to <37 weeks) (Table 7). In 2014-16, there were 80.1 pre-term births per 1,000 live births in Island Health, slightly more than the provincial rate of 76.5 per 1,000. Among Island Health cases, an additional 28 infants (41%) were born full term. The rate of pre-term infant deaths for 2014-16 is 26.1 deaths per 1,000 pre-term live births compared to 1.6 deaths per 1,000 term live births (Table 6). The rate of pre-term infant deaths has seen an overall decrease between 2009-11 and 2014-16 (Figure 5).

Table 6: Gestational Age of Deceased Infants, Case Count, Proportion & Rate per 1,000 live births Island Health, 2014-2016

Gestational Age of Deceased Infant	Number of infant deaths	% of Infant Deaths (when gestational age is known, N=69)	# of Live Births (in category)	Rate per 1,000 live births
Pre-Term (<37 weeks)	40	59%	1,534	26.1
Term (37-41 weeks)	28	41%	17,442	1.6

Of all the infant deaths from 2014 to 2016, over half were born prematurely while 38% very born extremely premature (<28 weeks).

Figure 5: Gestational Age of Deceased Infant, Rate per 1,000 live births, Island Health, 2009-11 to 2014-16

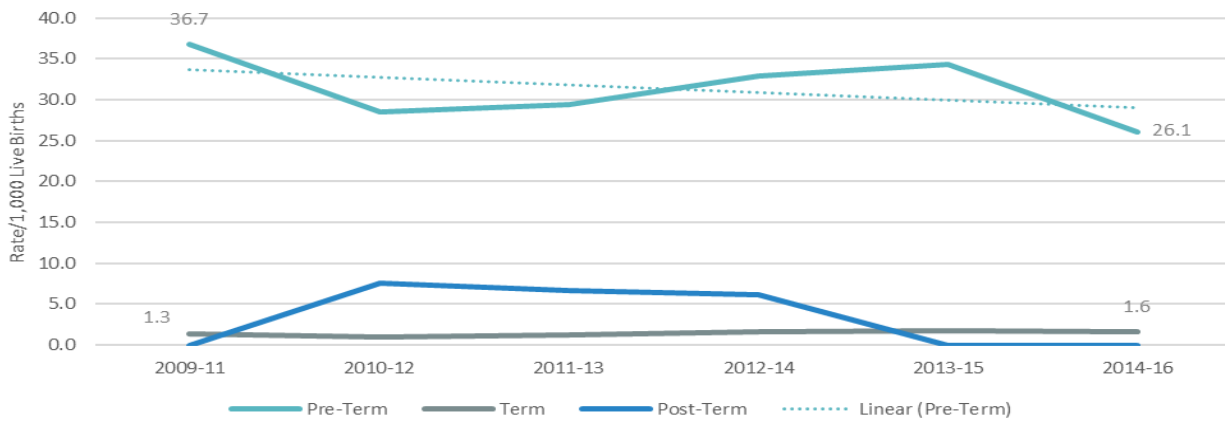


Table 7: Deceased Infants with Extreme and Moderate Prematurity, Case Count & Proportion, Island Health, 2014-2016

Gestational Age of Deceased Infant	Number of infant deaths (N=40 born pre-term)	% of Infant Deaths
Extremely Preterm (< 28 Weeks)	26	38%
Very Preterm (28 to < 33 Weeks)	6	9%
Late Preterm (33 to <37 Weeks)	8	12%

### 2.6.2 Birthweight of Deceased Infants

Among the 77 infant deaths in 2014-2016, birthweight was recorded for 61 (79%) infants. Of these, 26 (43%) were normal birthweight (>2500 grams) and 35 (57%) were low birthweight ( $\leq$ 2499 grams). The rate of deaths to low birthweight infants is 34.8 deaths per 1,000 low birthweight births compared to 1.5 deaths per 1,000 normal birthweight births (Table 8). This is likely due to the high rate of premature deaths. The low birthweight infants can be further broken out into extremely low birthweight (<1000 grams), very low birthweight (1000-1499 grams) and low birthweight (1500-2499 grams). Of the 35 low birthweight cases, 26 were extremely low birthweight, 1 was very low birthweight, and 8 were low birthweight (Figure 6).

Figure 6: Birthweight of Deceased Infants, Case Count, Island Health, 2014-2016

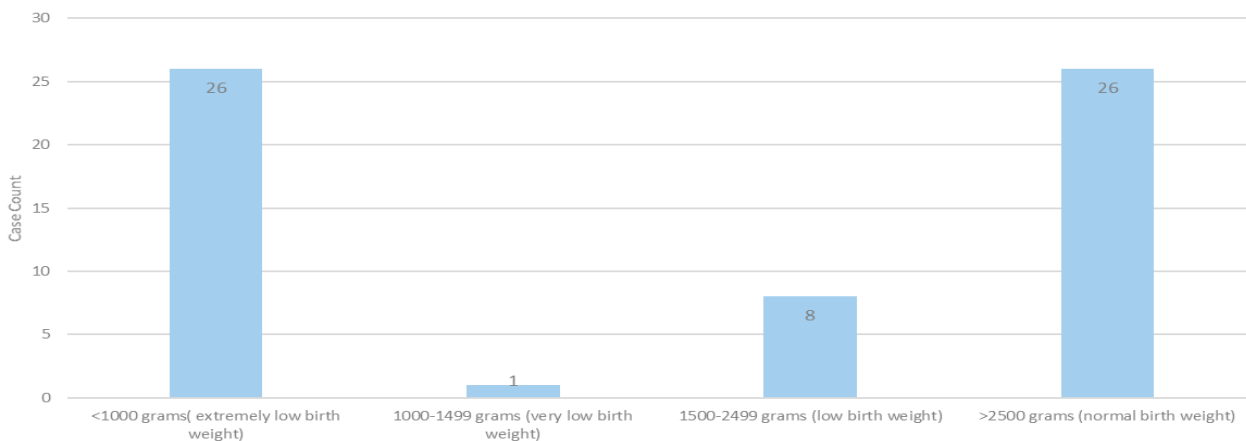
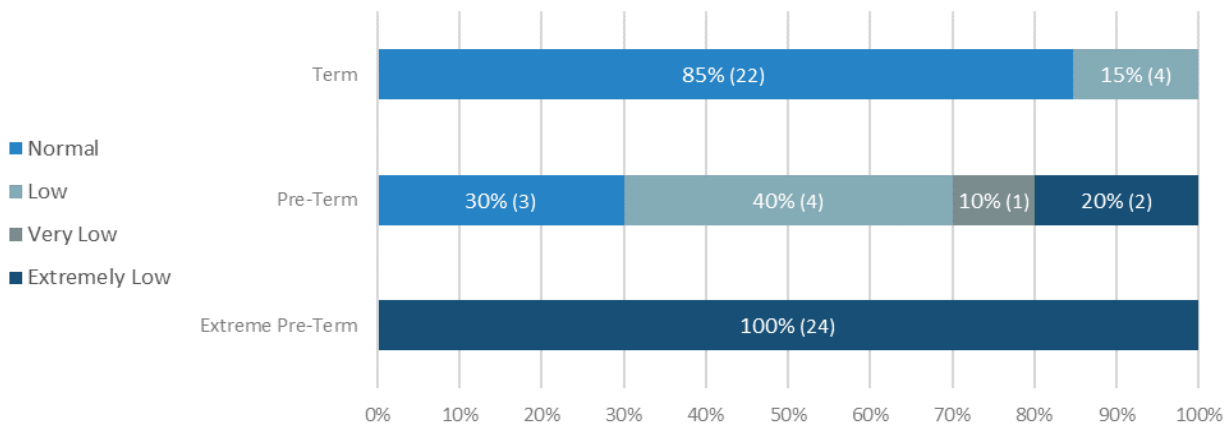


Table 8: Birthweight of Deceased Infants, Case Count & Rate per 1,000 live births, Island Health, 2014-2016

Birthweight of Deceased Infant	# of Infant Deaths	# of Live Births (in category)	Rate per 1,000 live births
Low birth weight (<2500 grams)	35	1,006	34.8
Normal birth weight (>2500 grams)	26	17,673	1.5

Figure 7 (below) illustrates the age of gestation and infant weight at birth. Not surprisingly, infants born prior to 37 weeks gestation tend to experience lower birthweights compared to infants born at term. All infants considered extremely pre-term (<28 weeks) were born weighing less than 1,000 grams. Seventy percent of infants born pre-term (28 to <33 weeks) were born with either a low or very low birthweight while 85% of infants born at term were born at a normal birthweight.

Figure 7: Birthweight and Gestational Age of Deceased Infants for Known Cases, Island Health, 2014-2016



### 2.6.3 Period of Infant Death

The majority (69%) of infant deaths in 2014-2016 occurred in the Neonatal period (< 28 Days). This represents a total of 53 infant deaths, of which 42 occurred in the early neonatal period (< 7 days after birth) and 11 occurred between 7-27 days after birth. In 2008-09 when the Infant Mortality Review Committee was initially formed, the proportion of post-neonatal deaths was much higher, representing 58 percent of cases. This has dropped to 31 percent of cases in 2014-16. Figure 8 illustrates the proportion of neonatal and post-neonatal infant deaths for the 2014-16 time period while figure 9 illustrates the rate of neonatal and post-neonatal infant deaths per 1,000 live births.

Figure 8: Period of Infant Death (days since birth), Proportion, Island Health, 2014-2016

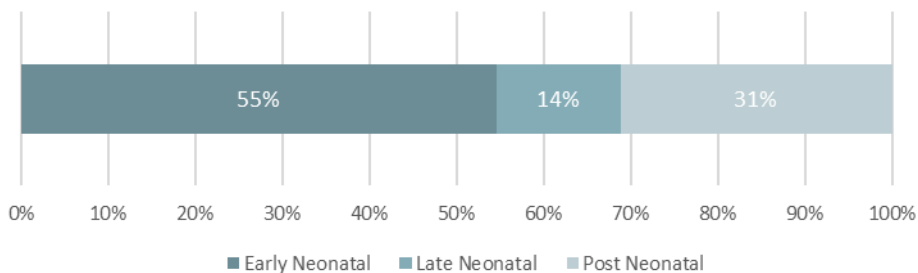
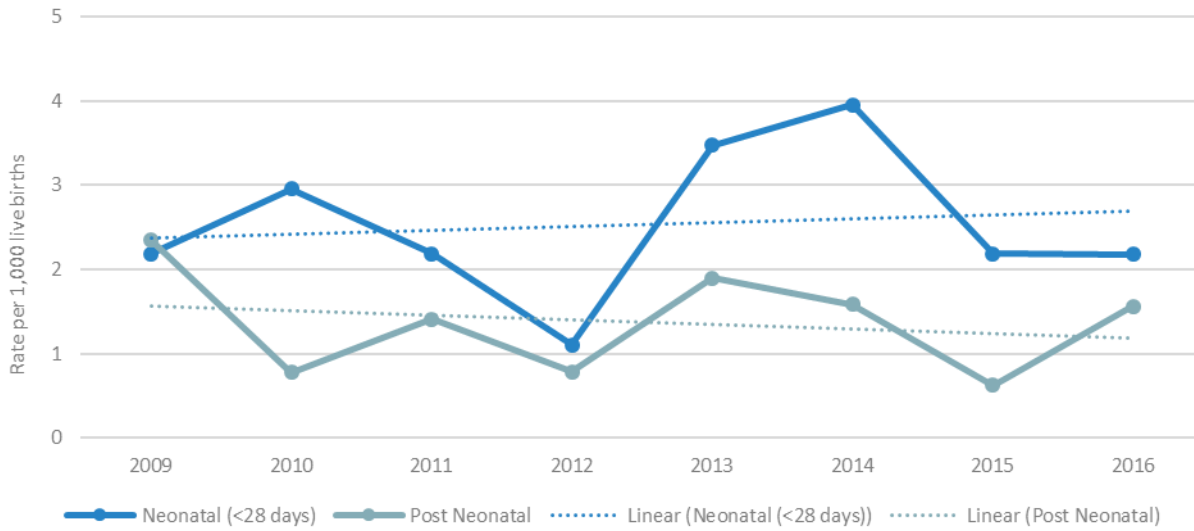


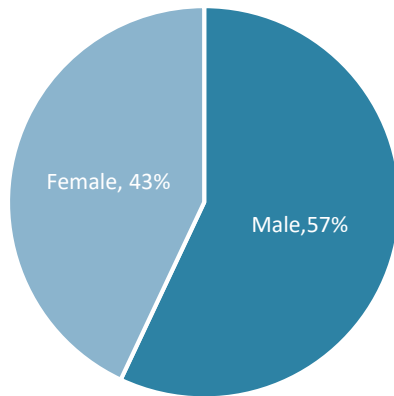
Figure 9: Period of Infant Death (days since birth), Rate per 1,000 live births, Island Health, 2014-2016



## 2.7 Sex of the Deceased Infant

In 2014-2016, 57 percent of the deceased infants were male (43/76) and 43 percent of the infants were female (33/76). One case was missing information on the sex of the infant.

Figure 10: Sex of Deceased Infants, Island Health 2014-2016



## 2.8 Carnitine Palmitoyl Transferase 1 or CPT1

Carnitine palmitoyl transferase I or CPT1 is an enzyme in the body that is important in converting fat to energy<sup>9</sup>. A common variant (P479L), which might predispose an infant to having low blood sugar in some cases, is being investigated to determine how common it is and whether it plays a role in infant mortality in Indigenous infants of BC. More than 20 percent of Indigenous infants on Vancouver Island are born with two copies of the variant but the presence of the variant is likely higher in some communities than others.

A total of one infant among the 2014-2016 infant deaths had test results recorded for CPT1 as homozygous for the P479L variant. The remaining cases were listed as either “Not Applicable, Not screened, or Unknown”.

<sup>9</sup> Definition of CPT1 from [http://www.hss.state.ak.us/dph/wcfh/metabolic/downloads/cpt1\\_brochure.pdf](http://www.hss.state.ak.us/dph/wcfh/metabolic/downloads/cpt1_brochure.pdf)

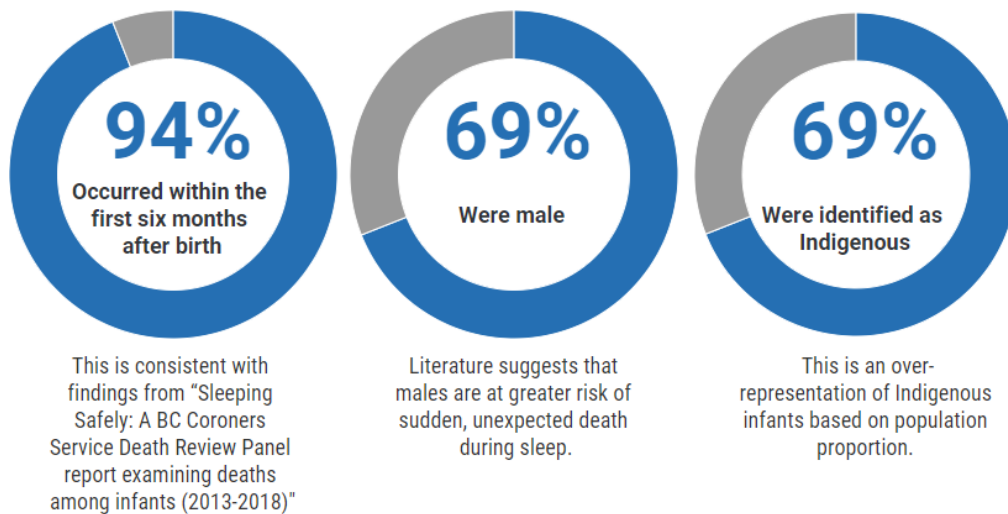
These results need to be interpreted with caution as very few infants are being tested and the results are not representative of the infant population.

## 2.9 Sleep-Related Risk Factors

There are several known risk factors that increase the likelihood of a possible sleep-related death with the likelihood increasing as additional risk factors occur. These factors includes placing an infant to sleep on its abdomen (prone) or side , bed sharing with another person, put to sleep on a soft surface such as, adult beds, daybeds and couches, exposure to tobacco smoke either prenatally or during infancy and overheating through swaddling or excess clothing and layers.

From 2014 to 2016, 16 of the 77 (21%) infant deaths had sleep related risk factors reported which included sleeping in prone or side-lying, bed sharing with an adult, and sleeping on soft surfaces with blankets. It is important to note that determining a single cause of death can sometimes be challenging due to more than one factor possibly contributing to cause of death. In section three of this report, the number of infant deaths reported as sleep-related/sudden unexplained death in infancy (SUDI) as the cause of death is lower than those reported in this section. This is likely due to the challenge of determining cause of death as mentioned above; however, it is important to acknowledge all infant deaths where sleep-related risks were present as sleep-related deaths are preventable with safe sleeping practices<sup>10</sup>.

### Of those infant deaths with sleep-related risk factors identified...



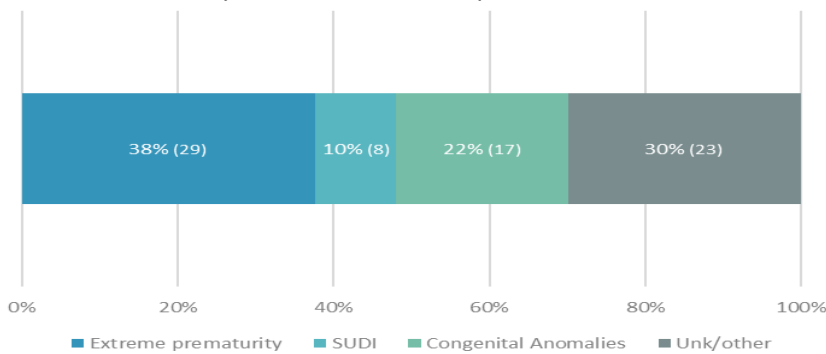
<sup>10</sup> Protective sleep related factors are an infant sleeping on its back, an infant sleeping in its own uncluttered sleep space such as a crib or bassinet, sleeping in the same room as parents, breastfeeding and pacifier use.

### 3. Reported Cause of Death

During the case review process, the IMRC reviews the antenatal records, hospital charts, autopsy reports and Coroner’s data to determine the circumstance around the death including contributing factors, as well as the most likely cause of death. The IMRC groups infant deaths into four main categories:

- Extreme prematurity (Intent to Treat, No Intent to Treat and Mid-trimester Termination, see section 3.1 below)
- Sleep Related/ Sudden Unexplained Death in Infancy (SUDI)
- Congenital Anomalies
- Unknown or Other

Figure 11: Infant Deaths by Cause of Death, Proportion, Island Health, 2014-2016



There are often multiple factors contributing to the death of an infant and while the cases have been categorized into the following four categories for the purposes of reporting, cases could fall into more than one category for cause of death. For example, there are some instances where extreme prematurity was listed as the cause of death; however, it was a mid-trimester termination based on a known congenital anomaly or other health issue. Similarly, there are cases that have been categorized as congenital anomaly as the cause of death; however, the infant might have been extremely premature at the time of the death.

#### 3.1 Extreme Prematurity

Cause of death due to extreme prematurity was listed for 29 of the cases (38%) in 2014 to 2016, similar to that of the previous reporting period of 2013-2015 (39%). Extreme prematurity is further broken down into three sub-categories: 1) intent to treat – those that died in neonatal ICU; 2) extreme premature infants categorized as live births but with perinatal complications leading to early demise (includes infants born with extreme prematurity and no intent to treat, infants assessed to be extremely high risk for poor outcome resulting in early withdrawal of care or where treatment was deemed to be futile); and 3) those that were mid-term terminations (MTT) for congenital reasons or twin-to-twin transfusions (TTT). The majority of deaths that were classified as being due to extreme prematurity (79%) fell into the second category (no intent to treat); while 2 cases had some level of intervention initiated.

#### 3.2 Sleep-Related and Sudden Unexplained Death in Infancy (SUDI)

SUDI was reported as the cause of death in 8 (10%) of the cases in the period of 2014 to 2016. In the majority of these cases accidental suffocation and asphyxiation in bed was noted. All eight of these cases had sleep-related risk factors reported at time of death. Five of the SUDI cases occurred in the post neonatal

period (>28 days after birth). The gestational ages of the infants were known in 7 of the cases with the majority (71%) being born at Term.

### **3.3 Congenital Anomalies**

The cause of death was listed as a result of congenital anomalies for 17 (22%) of the infant deaths in 2014-2016. The anomalies included: Trisomy 13, Trisomy 21, congenital nephrotic syndrome, brain malformation, cardiac anomalies, intracranial hemorrhage, and metabolic abnormality.

It should be noted that 53% of the cases where congenital anomalies were reported as the cause of death were born prematurely (<37 weeks).

### **3.4 Unknown or Other**

There were 23 (30%) infant death cases between 2014-2016 that did not fit under the preceding categories and therefore were listed as “Other” for the reported cause of death. Of the “Other” cases, cause of death included complications from infection, perinatal asphyxia and hypoxic injury possibly associated with prematurity, and one case of homicide. Several cases in this category had had sleep-related risk factors noted (9) ; however, were classified as ‘unknown’ or ‘other’ due to not enough information available to determine whether the sleep-related risk factor was the contributing cause of death or the infant had other factors present and it is unknown which was the primary contributing cause of death.

## **4. Summary and Recommendations**

The IMRC reviews and reports on all known infant deaths within the Island Health region that meet the case criteria; however, the recommendations over the years have been focused on those deaths that have a preventable component, or a modifiable risk factor. The profile of infant deaths at Island Health has remained consistent since the previous 2013-2015 report and therefore, the following recommendations regarding safe sleep and universal baby bed program will continue as Committee priorities. The third recommendation regarding the health of girls and women is new as of this report.

#### **1) Safe Sleep**

- Consistent application of best practice knowledge related to Infant Safe Sleep within acute care settings, Public health, FNHA, MCFD and Primary Care. All healthcare providers need to be supported in access to knowledge exchange specific to safe sleep best practices.
- Health care providers to identify families and infants who may benefit from an offer of more intensive services via family support programs, and/or Public Health family visitation services such as the Nurse Family Partnership or the Mother’s Story.
- Continue to support and evaluate the Baby Bed Program.
- Parents need to be connected to the appropriate resources to support healthy and safe decision making. It is the responsibility of the care providers to employ best practice approaches to engaging with parents; with intent to mutually work towards securing

access to supports and resources that can mitigate the impact of the social conditions of risk.

- IMRC members to work with Island Health communications to develop infographic for public dissemination illustrating key data regarding sleep-related infant deaths with information on best practices for safe sleep.

## 2) Universal Baby Bed Program

- Island Health should embed and normalize universal baby bed program.
- Promote baby bed program as healthy infancy. The baby bed program recognizes the importance of safe sleep practices. The program enables safer sleep practices through the promotion of family health. Areas of focus include: exclusive breastfeeding and supporting new parents to engage with community supports and resources within their communities.

## 3) Health of Girls and Women

With the understanding that the health of girls and women is significant with or without their ability to reproduce the IMRC supports a holistic approach of health promotion and service that supports girls and women in achieving their best health across the age continuum. That said, the IMRC has specific recommendations relating to the reproduction and pregnancy:

- Engage with the Provincial direction to develop a Maternity Care Strategy, pre-conception through post-partum; using momentum to better understand system barriers to access to safe and comprehensive perinatal care across Island Health communities and inform improvement decisions using IMRC data.
- IMRC should work with stakeholders to conduct a review of the Ministry of Health's Women's Health Strategy with an eye to optimizing childbearing women's health and the health of their infants. Use this review to inform an update to the 2008 Island Health report on Women's Health.
- Continue Public Health Nursing program and service planning to intentionally engage in a client-focused, culturally safe care relationship with priority populations of perinatal women.
- IMRC to perform in-depth case review of extreme premature cases to better understand underlying factors and proportion of cases that are preventable and/or predictable in order to inform future recommendations regarding primary (e.g. diet, folic acid) and secondary prevention efforts. Combine these in-depth reviews with analysis using cumulative IMRC database (2009-2016) to inform a special report on infant mortality related to prematurity



#### 4) Application of Aboriginal Data Standard for All Deliveries (as defined by the Government Standard for Aboriginal Administrative Data)

The purpose of the IMRC is “To contribute to the decrease in all infant mortality and the elimination of IMR disparity amongst population groups, through: 1) Monitoring and analysis of infant deaths; and 2) Recommendations and reporting to various stakeholders.” The IMRC is acutely aware that within Island Health there is a disparity in the rate of infant deaths for Aboriginal infants compared to non-Aboriginal infants. Yet, there is no consistent way or method of collecting if an infant is identified as Aboriginal.

- In the absence of an Aboriginal Patient Identifier, it is not yet possible to calculate the Aboriginal-specific infant mortality rate and the current Island Health IMRC reporting of Aboriginal specific infant mortality will under represent the true rate.
- The application and use of the Aboriginal Data Standard must be preceded by an implementation plan that includes training to staff on how to ask Aboriginal identity questions in a culturally safe manner.

In addition to the above recommendations, the Island Health IMRC supports three recommendations made by the BC Coroners Service, Death Review Panel Report examining deaths among infants (2013-2018) released November 19, 2019. Full report available [here](#).

- Expand low-barrier and culturally safe public health services to vulnerable families from birth to one year postpartum
- Improve continuity of care and service coordination
- Determine the need for a provincial approach for Infant Mortality Review

## 5. IMRC Activities

Many of the IMRC members actively participate in other committees, or are engaged in other projects and initiatives around the Island and in the Province. Appendix B provides a summary of these initiatives and identifies who was involved, when it took place and a description of each initiative.

The activities relate to recommendations in the previous reports pertaining to the creation of a clear, preventative strategy for Safe Sleep, supporting socially and culturally sensitive messaging about sleep conditions for infants and ensuring support for families in general but also for those identified ‘at risk.’

Members of the committee have also been involved in genetic research regarding CPT1 and ensuring that the messages about feeding infants and children when they are ill are included in discussions and planning with Aboriginal communities.

**A full list of the recommendations from the previous reports and the progress made on corresponding initiatives can be found in Appendix B.**

## Appendix A – Infant Mortality Review Committee Members

Current as of October 2019

Listed in alphabetical order (last name)

Dr. Laura Arbour

Geneticist, Clinic Lead- Medical Genetics, Department of Laboratory Medicine

Island Health and UBC Medical Genetics

Dr. Hayley Bos

Perinatologist- Director Maternity

Island Health

Deborah Chaplain

Director, Child Youth & Family and Child Youth Mental Health and Substance Use Services

Island Health

Dr. Richard Crow

Executive Medical Director, Population & Community Health

and Adult Mental Health & Addictions Services,

Island Health

Dr. Jerome Dansereau

Physician - Director, Perinatology Services

Island Health

Dr. Kirsten Duckitt

Obstetrician, Geography 1

Island Health

Kathy Easton

Manager, Public Health

Island Health

Michael Egilson

Office of the Chief Coroner

BC Coroners Service, Ministry of Public Safety and Solicitor General

***Continued on following page...***

Dr. Charmaine Enns (IMRC Chair)  
Medical Health Officer – North Island  
Island Health

Maritia Gully  
Manager, Population Health Assessment & Epidemiology  
Island Health

Dr. Shannon MacDonald  
Deputy Chief Medical Officer, Vancouver Island Region  
First Nations Health Authority

Erin O’Sullivan  
Leader, Perinatal Program Development  
Island Health

Dr. Gustavo Pelligra  
Physician - Section Head, Neonatology, Physician  
Island Health

Angela Reid  
Surveillance Analyst, Population Health Assessment & Epidemiology  
Island Health

Courtney R. Smith  
Field Epidemiologist, Population Health Assessment & Epidemiology  
Island Health

Carla Springinotic  
Review Coroner, Child Death Review Unit,  
BC Coroners Service, Ministry of Public Safety and Solicitor General

Dr. Richard S. Stanwick  
Chief Medical Health Officer  
Island Health

Tom Weber  
Executive Director of Service,  
Ministry of Children and Family Development  
Central/North Vancouver Island

## Appendix B – Previous IMRC Report Recommendations and Progress of Activities

Recommendations (from Previous Reports- year in brackets)	Progress
<b>Sleep-related deaths and SUDI</b>	
<p><b>Island Health and partners will use a variety of evidence- informed strategies to reduce the number of sleep-related deaths occurring in Island Health (2008 IMRC Report)</b></p> <ul style="list-style-type: none"> <li>- Supporting and strengthening the Island Health Medical Health Officer’s team in working with Island communities to deliver safe sleep messages. All Island Aboriginal communities must be included in this work wherever opportunities exist. (2008 IMRC Report)</li> <li>- Supporting effective education for all new parents with consistent guidelines and tools for primary care providers, prenatal educators, community, and hospital staff. Provide particular educational emphasis on the importance of safe sleep practice for at-risk populations such as teen mothers, families with premature infants and those at social risk. (2008 IMRC Report)</li> </ul> <p><b>A clear preventative strategy for “Safe Sleep” for infants needs to be in place. This must begin during the prenatal period, early in postnatal care (pre-discharge) and be aligned with Government initiatives for postnatal care and follow up by Public Health. The committee’s work has also identified that SUDI cases are often associated with poverty, and housing conditions, especially in Aboriginal families. This reflects that it may not be the infant’s ethnic background per se that is the risk, but the living conditions of the family that is the determinant of risk. (2009 IMRC Report)</b></p> <ul style="list-style-type: none"> <li>- Develop clear preventative strategy for “Safe Sleep” for infants.</li> <li>- We must support socially and culturally sensitive messaging about sleep conditions for infants and support for families in general but also for those identified ‘at risk.’</li> </ul>	<p>Members of the IMRC engaged with the Provincial Safe Sleep Working Group as well as with community partners on safe sleep initiatives.</p> <p><b><u>Safe Sleep Promotion:</u></b></p> <p><b>Activities completed in 2009:</b></p> <ul style="list-style-type: none"> <li>- Island Health Brochures and Fridge magnets on Safe Sleep Practices and B.O.B. for Aboriginal Communities</li> <li>- MCFD Brochure on Safe Sleeping for Babies</li> </ul> <p><b>Activities from 2008-2012:</b></p> <ul style="list-style-type: none"> <li>- Community and/or organization presentations on “How to reduce infant mortality through safe sleep practices” (partnership w/ USMA/MCFD, FN communities, health providers, CYF, day care operators, family medicine residents).</li> <li>- Provincial Safe Sleep parent resources – distributed via acute and community perinatal services.</li> <li>- Safe Sleep Education – provided to licensed daycare operators and Island Health facilities.</li> <li>- In 2012, Provincial Safe Sleep guidelines adopted as regional standards within Island Health: posted on intranet for use in acute care settings, included in neonatal guidelines and posted on Public Health SharePoint for PHN use.</li> </ul> <p><b><u>Provincial Aboriginal Safe Sleep Working Group (2011-2013):</u></b></p> <ul style="list-style-type: none"> <li>- Provincial Aboriginal Safe Sleep Working Group struck in 2011 to design, deliver and evaluate a safe sleep training initiative for Aboriginal and First Nations peoples.</li> <li>- Developed and posted the “Honouring our Babies: Safe Sleep Toolkit” on the FNHA website. Available at: <a href="http://www.fnha.ca/about/news-and-">http://www.fnha.ca/about/news-and-</a></li> </ul>

- Issues of housing and broader social determinants of health may be beyond the defined scope of this committee’s work, but remains a central point of emphasis to be brought forward.

**IMRC should continue to liaise and work with the Provincial Safe Sleep Working Group as well as with community partners on safe sleep initiatives. IMRC should work to ensure families receive consistent messaging on safe sleep from both the acute care and public health service providers in Island Health (2010 IMRC Report)**

**Facilitate the connection between parents and parenting resources available in their communities AND ensure that those resources, whether Island Health, FNHA, or private physicians, can evaluate parents’ needs and deliver information and tools to allow them to make healthy and safe choices. Identify, using data from IMRC review work, and additional reviews as necessary, regions and communities of particular risk and potential for more focused intervention (2009-2011 IMRC Report)**

**Work with health care providers to identify families and infants at risk, in a way which compliments programs such as the Nurse Family Partnership (2009-2011 IMRC Report)**

**Continue to support and evaluate approaches for primary prevention, including dissemination of information, such as “Baby’s Own Bed” and the more concrete approach of the Baby Bed program (2009-2011 IMRC Report)**

[events/news/new-safe-infant-sleep-toolkit-honouring-our-babies-safe-sleep-cards-and-guide](#)

**Provincial Safe Sleep Working Group (2016-2017)**

- Provincial working group formed for the purpose of a harm reduction approach for health providers regarding safe sleep. Guidelines to be posted – date TBD.
- Perinatal Services BC convened a provincial working group in November 2016 for the purpose of “developing a practice support tool to assist and facilitate health care professionals in applying PSBC’s Safe Sleep Environment Guideline to practice and to have health focused discussions with families about safer infant sleep.” These materials took a harm reduction approach to infant safe sleep. The working group was also asked to provide input and feedback into a ‘refresh’ of the Ministry of Health’s “Every Sleep Counts!” materials. Island Health was represented on this working group.
- The Safer Infant Sleep: Practice Support Tool and companion parent resource were completed in August 2017 and can be found at: <http://www.perinataleservicesbc.ca/health-professionals/professional-resources/health-promo/safer-sleep>

**Baby Bed Project:**

- **2014-15** grant received from Children’s Health Foundation Vancouver Island (CHFVI) for Baby Bed pilot in Cowichan Valley started in spring 2015. Baby Beds provided to all mothers in 3<sup>rd</sup> trimester to 3 months postpartum during 1:1 interaction with PHN and included bed, supplies, and safe sleep information.
- **2016-2018** West Coast General Hospital (WCGH) Foundation and the WCGH Auxiliary provided funding to expand the Baby Bed program to Port Alberni and the West Coast

	<ul style="list-style-type: none"> <li>- <b>2017-18</b> CHFVI, Nanaimo and Campbell River Hospital Auxiliaries provided funding to expand the program to Nanaimo, Mt Waddington, Comox Valley and Campbell River.</li> <li>- <b>Fall 2017- spring 2018</b>, with free beds from Baby Box Co (from US), Baby Bed Program expanded throughout Island Health. The universal program ended in Spring 2018 except in communities with charitable funding and a beds were made available to families by PHNs on an as needed basis.</li> <li>- <b>In 2017</b>, a Provincial Baby Bed project and evaluation was explored with MOH to expand the pilot to additional HAs but not implemented due to the short partnership with Baby Box Co.</li> <li>- <b>2019-2022</b> CHFVI funded 3 year expansion of universal program to Centre and Northern Vancouver Island.</li> <li>- <b>2020-2022</b> implement evaluation plan for universal program.</li> <li>-</li> </ul>
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**Deaths related to CPT1**

<p><b>Follow the best genetic/ public health guidance on fever and acute illness as it relates to CPT1. Also, ensure that the messages about feeding infants and children frequently when they are ill be included in the discussions and planning with Aboriginal communities (2008 IMRC Report)</b></p> <p><b>Careful assessment of the variant in the context of other infant mortality risk factors for cases on Vancouver Island needs to be carried out (2009 IMRC report)</b></p> <p><b>Further research is also needed to understand if this common variant is affecting the health of First Nations infants and children negatively (2009 IMRC Report)</b></p>	<p><b>Activities completed in 2011:</b></p> <ul style="list-style-type: none"> <li>– Provincial CTP1 Working group struck to work on public health messages, parent info and guidelines for health care professionals.</li> <li>– First Nation parent Resource: <i>Preventing low blood sugar in health First nation babies</i>. Link: <a href="https://www.divisionsbc.ca/CMSMedia/Divisions/DivisionCatalog-victoria/News/Family%20brochure.pdf">https://www.divisionsbc.ca/CMSMedia/Divisions/DivisionCatalog-victoria/News/Family%20brochure.pdf</a></li> </ul> <p><b>Activities completed in 2012:</b></p> <p>Two papers on CPT1 published by committee members (Collins et al., BMC Pediatr. 2012 Dec 12;12(1):190, and Sinclair et al., Pediatrics. 2012 Nov;130(5):e1162-9).</p> <p><b>Activities completed since 2015:</b></p> <p>Posted: <i>Medical Guideline: Prevention and Management of Hypoglycaemia in First Nations Infants and Young Children Including Screening for CPT1a Variant in Infants and Young Children who Present with Ketotic and Hypoketotic</i></p>
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*Hypoglycemia.*

*Link:*[http://www.childhealthbc.ca/sites/default/files/FINAL%20April%205%202016%20Medical%20guideline%20prevention%20and%20management%20of%20hypoglycaemia%20in%20First%20Nations%20infants\\_0.pdf](http://www.childhealthbc.ca/sites/default/files/FINAL%20April%205%202016%20Medical%20guideline%20prevention%20and%20management%20of%20hypoglycaemia%20in%20First%20Nations%20infants_0.pdf)

## Extreme Prematurity

Prevention strategies around effective and accessible prenatal care are required to identify and modify risks for premature labor and delivery. These risks include young age, multiple gestations, and complications of twin or multiple pregnancies. The underlying risk factors for extreme prematurity are multi-factorial and complex (2009 IMRC Report).

- The Infant Mortality Review Committee plans to obtain a more detailed understanding of the lives of the mothers and families in which this occurs.
- Consideration should be given to reduction in post discharge risks (discharge planning) for complex infants cared for in NICU.

**The IMRC should seek to participate in and inform any multi-year, multi-agency strategies conducted by the Health Authority and the Province (2010 IMRC Report)**

**Perform in-depth case review of extreme premature cases to better understand underlying factors and proportion of cases that are preventable and/or predictable in order to inform future recommendations regarding primary (e.g. diet, folic acid) and secondary prevention efforts. Combine these in-depth reviews with analysis using cumulative IMRC database (2009-2014) to inform a special report on infant mortality related to prematurity (2011-2013 IMRC Report).**

### Activities ongoing from 2012

- **Right from the Start** program to provide universal as well as enhanced services for childbearing families from pregnancy up to two years of age begun in fall of 2012

### Activities ongoing from 2013

- **Complex Care Planning and Support** model begun at VGH in 2013 including perinatal risk assessment and care planning and pregnancy support and planning care teams.

#### **Since 2015:**

- Permanent 0.5 FTE in place. Referral criteria established; including early referral to coordinator. Directly working with Maternal Fetal Medicine (MFM) Physician team. This includes regional referrals and may also contribute to the second recommendation in the Perinatal Care section.

### Activities ongoing from 2018

- **Preterm Birth Pathway Project** initiated by Dr. Kirsten Duckitt and Dr Jennifer Kask and funded by the Campbell River Medical Staff Engagement Initiative Society. With these funds, clinicians in Northern Vancouver Island were engaged and provided education with the aim of reducing preterm birth. Aims included identifying risk factors for preterm birth so evidence based interventions could be instituted early and then managing women presenting in suspected preterm labour in a coordinated way according to Island Health policies. The intervention was repeated in Campbell River including health care providers from Gold River and the

	Comox Valley and is also being presented at the Quality Forum in Vancouver in February 2020.
<b>Perinatal Care</b>	
<ul style="list-style-type: none"> <li>- <b>Perform a jurisdictional review of access to primary maternity care across Island Health. The purpose of which is to identify accessibility gaps and strengths. Accessibility should be broadly defined to include both local primary maternity care service availability and women’s experiences of safety in care (2009-2011 IMRC Report).</b></li> <li>- <b>Explore a regional approach to complex care planning for women with health complications that may precipitate preterm birth (2009-2011 IMRC Report).</b></li> <li>- <b>Work with the Chief Medical Health Officer to update the 2008 Island Health report on Women’s Health in order to inform public health based interventions known to prevent preterm birth (2009-2011 IMRC Report).</b></li> <li>- <b>Continue Public Health Nursing program and service planning to intentionally engage in a client focused, care relationship with priority populations of perinatal women (2009-2011 IMRC Report).</b></li> </ul>	<ul style="list-style-type: none"> <li>- <b><i>(Complementary to Extreme Prematurity- Recommendation 1 )</i></b> Implementation of the Mother’s Story Approach to care is complete. This paradigm shift intentionally shifts away from a medical model to an intentional relational model of nursing care. This guides the provision of family visitation services to prenatal and postpartum women who may be considered vulnerable to poorer prenatal health outcomes due to higher exposure to social conditions of risk.</li> <li>- Continued partnership with the NTC Nursing Program to grow the approach with Island Health PHNS and NTC Community Nurses.</li> <li>- Process evaluation to be initiated in January 2018.</li> </ul>
<b>Committee Structure – Partnerships and Collaboration</b>	
<p><b>Island Health will continue to endorse the infrastructure of collaboration/ partnership of the Infant Mortality Review Committee to improve the methods of data collection and exchange and the quality of the information collected (2008 IMRC report)</b></p>	<ul style="list-style-type: none"> <li>- IMRC continues to collaborate with the BC Coroners Service and the Ministry of Children and Family Development in information sharing and in developing these reports. This includes a formal information sharing agreement between Island Health, the BC Coroner’s Office, and the Ministry of Children and Family Development.</li> </ul>



<p><b>The IMRC should seek to participate in and inform any multi-year, multi-agency strategies conducted by the Health Authority and the Province (2010 IMRC report).</b></p>	<ul style="list-style-type: none"> <li>- In 2017, Island Health signed an Integrated Sharing Protocol (ISP) with BC Coroner’s Office to formalize the data sharing of infant deaths between the Health Authority and the Coroner’s Office.</li> </ul> <p><b>Activities ongoing from 2012</b></p> <ul style="list-style-type: none"> <li>- <i><b>Right from the Start</b> program to provide universal as well as enhanced services for childbearing families from pregnancy up to two years of age begun in fall of 2012.</i></li> </ul> <p><b>Activities ongoing from 2013</b></p> <ul style="list-style-type: none"> <li>- <i><b>Complex Care Planning and Support</b> model begun at VGH in 2013 including perinatal risk assessment and care planning and pregnancy support and planning care teams.</i></li> </ul>
<p><b>Commitment to Surveillance and Health Promotion</b></p>	
<p><b>Island Health should make a commitment to ongoing health promotion and surveillance for infant mortality on Vancouver Island. The work of the Infant Mortality Review Committee in surveillance and review of all infant deaths within Island Health, including the provision and tracking of subsequent recommendations from that review needs to be considered as foundational and sustained by the Health Authority (2010 IMRC report)</b></p> <p><i>In upcoming years, the Island Health IMRC will continue to collaborate with the BC Coroners Service and the Ministry of Children and Family Development in information sharing and in developing these reports. In addition, the IMRC will review its data sources and the mechanism of how this information flows to the Committee (2009 IMR report).</i></p> <p><b>In future years, the IMRC should create a rolling report that covers a minimum of three years of aggregate data when reporting infant deaths. The aggregate reporting will help to stabilize small numbers in the data and give a clearer picture of trends in infant deaths in the Health Authority (2010 IMRC report).</b></p>	<ul style="list-style-type: none"> <li>- The committee has refined the data review process to improve the flow of information between the Coroner, MCFD and the Health Authority which has enhanced the quality of the data. The database has also provided the IMRC with a central repository for managing and analyzing the data (2009)</li> <li>- Production of Annual Reports up to 2011, at which point the IMRC started the aggregate three year rolling reports.</li> <li>- The 2009-2011 infant deaths were combined into one report for the subsequent reporting period, and since then, there have been three year rolling reports on an annual basis.</li> <li>- Review of access database including assessment and summary of data entry issues and suggestions for reducing number of fields, reducing text entry requirements and improving data validation processes</li> <li>- In 2017, Island Health signed an Integrated Sharing Protocol (ISP) with BC Coroner’s Office to formalize the data sharing of infant deaths between the Health Authority and the Coroner’s Office.</li> </ul>

**Continued review of data collection, entry and analysis to determine areas for quality improvement in data collection and review process (2010 IMRC Report).**

– IMRC surveillance system in the early stages of evaluation by epidemiologist from the Canadian Field Epi Program.

## Appendix C – Data Fields and Definitions

Data for Mothers collected from antenatal record	
Infant_Death_date	Infant's date of death (day/month/year)
Mother_Personal Health No	Mother's Personal Health Number (10 digits, no spaces)
Mother_MRN	Mother's Medical Record Number
Mother_firstname	Mother's given name
Mother_lastname	Mother's surname
Mother_Date of Birth	Mother's Date of Birth (dd/mm/yy)
Residence	City or Town (i.e. Victoria, Sidney, Parksville etc)
Mother_ethnicity	Mother's ethnicity
Paternal_ethnicity	Father's ethnicity
Mother_Aboriginal	Is the mother aboriginal (First Nations, Metis, Inuit etc.)? (Yes, No, Unknown, N/A or blank)
Mother_reserve	Does the mother live on reserve? (Yes, No, Unknown, N/A or blank)
Marital Status	Mother's marital status ( Single, Married, Common-law, Divorced, Separated, Widowed, Other)
Employment_status	Is the mother employed? (Yes, No, Unknown)
Medications	Is the mother taking any kind of medication? (Enter "No", "Unknown" or if yes, list types)
EDD_confirmed	Confirmed estimated date of delivery (as per section 4)
Ultrasound_weeks	If ultrasound was performed, enter gestational day and weeks of infant (Antenatal record)
PresPregnancy_IVF	InVitro fertilization present during pregnancy? Enter "No" or if "yes", specify treatment (Antenatal record)
PresPregnancy_Complication	Enter "No" or if "yes", specify complication (Antenatal record)
Mat_Preexist_condition	Does the mother have any disease or pre-existing condition? Enter "No" or if "yes", specify (Antenatal record)
Mat_hist_STIs_infections	Has the mother had STIs or infections? Enter "No" or if "yes", specify complication (Antenatal record)
Mat_HX of mental illness	Does the mother have any history of mental illness? Enter "No" or if "yes", specify complication (Antenatal record)
Mat_Mental_illness_type	List illnesses selected (Anxiety-1; Depression-2; Bipolar-3; PP Depression-4; Unknown-5; Other-6; N/A-7) If more than one selected, enter semi-colon between selection (e.g. 4;5)
Mat_issues_other	Does the mother have any history of other issues or pre-existing conditions? Enter "No" or if "yes", specify complication (Antenatal record)
Mat_diet_concerns	Indicate diet concerns (per Antenatal record) Enter 'N/A' if no answer or not applicable

Mat_folic acid	Indicate folic acid concerns (per Antenatal record) Enter 'N/A' if no answer or not applicable
OTC_drugs	Indicate OTC drug/ vitamin concerns (per Antenatal record) Enter 'N/A' if no answer or not applicable
Alcohol	Does the mother drink alcohol? (Select "Yes," "Never," or "Quit" as per the Antenatal record)
Pregnancy_alcohol	During pregnancy (current), how many drinks per week? (per antenatal form)
TWEAK_Score	Score between 0-7 to determine alcohol dependency (< 3 - too low to be considered a problem; 3-7- Patient has a problem)
Substance Use_Type	Does the mother use substances? (Enter type of substance or No, or 'N/A' as per antenatal sheet)
Smoking	Does the mother smoke? (Select "Yes", "Never" or "Quit" as per the antenatal record)
Pre_Pregnancy_smoking	Before pregnancy, how much did the mother smoke (cigarettes/ day) (select '0' if not applicable)
Pregnancy_smoking	During pregnancy (current), how much does the mother smoke (cigarettes/ day)? (select '0' if not applicable)
Secondhand_smoke_expos	Was the mother exposed to 2nd hand smoke? Enter either "No" or if yes, indicate comment
Financial_housing_issues	Did the mother have any financial or housing issues? Describe support system in place. Indicate comments as per antenatal record.
IPV_Issues	Did the mother have any issues with Inter Partner Violence? Indicate comments as per antenatal record
Blood_Pressure_result	Enter result of blood pressure test
Mother_PP_BMI	Mother's pre-pregnancy BMI (body mass index) (if blank, enter '0')
Phys_swabs_cervix	Indicate results from antenatal record relating to Swabs/ cervix cytology (if blank, enter N/A)
Summary_comments	Any additional comments listed in section 11 of antenatal record
Mother Rh factor	Mother's Rh Factor (Rh positive, Rh negative or Unknown)
STS_results	Serology Testing for Syphilis. Indicate negative or positive
HIV Test_results	Results of the HIV test? Enter "yes", "no" or "declined"
HBsAg_results	What was the results of the HBsAg test? Enter either positive or negative
Other_test_results	Document other tests conducted (e.g. Hep C, TSH, Varicella etc.)
Gest_diabetes_results	Enter results from gest. diabetes screen. Enter positive or negative
GBS_results	Enter results from Group B Strep screen. Enter either positive or negative
EPDS_Score	Score of Edinburgh Postnatal Depression Scale (28-32 weeks). Enter score as per antenatal record.
EPDS_Follow-up	Is follow-up care required for the EPDS Scale? Enter "yes", "no" or "n/a"

Potential_concerns	Indicate any concerns related to lifestyle, pregnancy, labour or birth, postpartum, or newborn (as per section 15 of antenatal record)
Amniocentesis_Performed	Was amniocentesis performed?

<b>Data for Infants collected from antenatal record, labor and delivery summary, newborn record, autopsy</b>	
Mother_PHN	Mother's Personal Health Number
Mother_Last_Name	Mother's Last Name
Infant_MRN	Infant's Medical Record Number
Infant_DoD	Infant's Date of Death (day/month/year)
Mat_Gravida	Total number of prior plus pregnancies regardless of gestational age, type, time or method of termination/ outcome
Mat_Term	Total number of previous pregnancies with birth occurring at >= 37 weeks gestation
Mat_Preterm	Total number of previous pregnancies with birth occurring between 20-36 weeks gestation
Mat_Abortion_spontaneous	Total number of previous spontaneous terminations of pregnancies ending prior to 20 completed weeks gestation, weighing < 500g
Mat_Abortion_induced	Total number of previous induced terminations of pregnancies ending prior to 20 weeks gestation, weighing < 500g
Mat_Living	Total number of children the woman has given birth to, and are presenting living
Gravida_health	Present health of other children (as indicated on antenatal record)
Prenatal_StartDate	Date of 1st prenatal visit (as per antenatal record)
Total_Prenatal_visits	Total number of prenatal visits
Comments_Prenatal	Any comments (prompts etc) from prenatal visits (as per antenatal record)
Kotelchuck_Index	Kotelchuck Index Score
Location_Death	Place of death (Hospital, Community, or Other)
Mother's Hospital ID	Mother's Hospital ID Number
Newborn Hospital ID	Newborn's Hospital ID Number
Birth_Quantity	Is the infant a singleton, twin, or triplet (as per birth and labour summary)
Labour_Status	What is the status of the labour (select from drop down list as per birth and labour summary)
Intrapartum_liquor	Was the intrapartum liquor meconium, bloody, or N/A? (As per birth and labour summary)
Date of Delivery	Actual Date of delivery
Time of Delivery	Actual Time of delivery

Delivery_Type	Is the delivery a SVD- Spontaneous Vaginal Delivery, or CS, Repeat CS, or VBAC? (indicate as per B & L summary)
Delivery_Assist	Was the delivery assisted? If so, indicate type of method of assistance (select from dd list as per B & L summary)
Delivery_CS	Was the delivery by CS? Indicate primary or repeat (select from dd list as per B & L summary)
Cord_Anomalies	Any anomalies or complications with the umbilical cord (as per B & L summary)
Sex_newborn	Sex of newborn according to labour and birth summary
Age_Newborn	Gestational Age of the newborn in weeks (from Antenatal History)
Status_Infant	Status of newborn- either alive or stillbirth (as per B & L summary)
Newborn_Apgar_1 min	Apgar Total Score at 1 minute
Newborn_Apgar_5 min	Apgar Total Score at 5 minutes
Newborn_Apgar_10 min	Apgar Total Score at 1 minute at 10 minutes
Amniotic Fluid__newborn	Amniotic Fluid during Transition to 1 hour of age (Select Clear, Meconium, Bloody, or Unknown)
Heart rate_newborn	What is the newborn's heart rate at transition to 1 hour of age?
Respirations_newborn	Respirations at transition to 1 hour
Eval_Development_BW	Birthweight (grams) at evaluation of development
Eval_Development_Length	Length (cm) at evaluation of development
Eval_Development_HC	Head circumference (cm) at evaluation of development
Development_assess	Was the newborn Preterm, Term, Postterm, SGA, AGA, or LGA?
GenAppearance_Comments	Comments re: the general appearance of the newborn (from newborn record)
PhysExam_Comments	Comments from the Physical exam- summary of newborn record exam
CPT1_Screen	Enter results from the CPT1 Screen (positive or negative, with comments)
Hearing_Screen_Date	Date of the hearing screening (from part 2 of the newborn record)
Hearing_Screen_Result	Results from the hearing screening (from part 2 of the newborn record)
Metabolic_Screen_Date	Date of the metabolic screening (from part 2 of the newborn record)
Metabolic_Bilirubin	If "Yes: indicate Age (h) that the Bilirubin screen was conducted. If "No", enter 0 (from part 2 of the newborn record)
Prophylaxis_HBsAg_ind	Was the HBsAg Prophylaxis indicated? (from part 2 of the newborn record)
Prophylaxis_HIV_ind	Was the HIV Prophylaxis indicated? (from part 2 of the newborn record)
Prophylaxis_GroupB_Strep	Group B Strep Intrapartum Prophylaxis conducted? (from the newborn record)
Nutrition_Date	Date of Newborn Nutrition Screen
Nutrition_Type	What type of nutrition was initiated? (Select from list as per newborn record)

ProblemList_Date	Date of the Problem list from part 2 of the newborn record
ACoRN_Sequence	Was ACoRN (Acute, Care of at Risk Newborns) sequence initiated? (Select from list as per newborn record)
ACoRN_Narrative	Indicate narrative notes (comments) from Problem List in part 2 of newborn record
ProgressNotes_Date	Date of Progress Notes
Progress_Notes	Indicate narrative notes (comments) from Progress Notes in part 2 of newborn record
Discharge_Age	Indicate Newborn Age at discharge (hours) Select from list as per newborn record
Discharge_Loss%	Percentage of weight loss of the newborn at discharge
Discharge_Gen_appear	General appearance of the newborn at discharge
Discharge_Status	Status of newborn at discharge- indicate comments from part 2 of newborn record
Autopsy_Date	Date of Autopsy
Autopsy_Time	Time of Autopsy
Autopsy_Place	Place of Autopsy (Name of Hospital or Lab)
Autopsy_Summary	Summary of the findings as described in the autopsy report.
Autopsy_Diagnosis	Indicate Diagnosis as described in the autopsy report.
Cause_Of_Death	Indicate cause of death of infant, as described in the autopsy report

<b>Postpartum Data for Mothers and Infants from Newborn Record, Autopsy, Coroner's Report</b>	
Postpartum Unique_ID	Postpartum Unique ID
Mother's Last Name	Mother's Last Name
Mother's PHN	Mother's 10 digit personal health number
Discharge_Nutrition	Newborn nutrition at discharge (as per part 2 of newborn record)
Discharge_Problems	Problems at discharge requiring follow-up (as per part 2 of newborn record)
Discharge_Location	Location where newborn was discharged (home, MCFD, etc) (as per part 2 of newborn record)
Discharge_Follow_up	Has a follow-up been recommended for the newborn? (as per part 2 of newborn record)
Neonatal_Death	Was this a neonatal death?
Autopsy_consented	Was an autopsy consented? (as per part 2 of newborn record) **
Coroner_Report	Was a Coroner's Report completed?
Coroner_Case.	Coroner's Case Number (BC Coroner's Service Infant Death Investigation Protocol)
Place_of_Death_township	Name of City or Town where incident occurred

Date_of_Death	Date of death as per BC Coroner's Report
Time_of_Death	Time of death as per BC Coroner's Report
Premise_of_Death	Premise of death as per Coroner's Report (e.g. private residence, foster home, daycare)
Deceased_Name	First and Last Name of deceased
Deceased_Age_days	Age of deceased infant (days)
Deceased_Ethnicity	Ethnicity of Deceased
Deceased_onreserve	Does the deceased live on reserve?
Adults_Present	No. of adults present at time of death as per BC Coroner's Report
Children_Present	No. of children present at time of death as per BC Coroner's Report
No_other_fatalities	No. of other fatalities in this incident as per BC Coroner's Report. Enter '0' if N/A
Primary_Caregiver_relation	Relationship of Primary care giver to infant (mother, father, aunt etc)
Infant_LivingWith	Who was the infant living with at the time of death?
No_household	Total number of people living in household
No_non-relatives_household	Total number of non-relatives (non-immediate) living in household
Supervisor of Infant	Who was responsible for supervision at time of incident (relationship to infant)
Contributing_factors_death	Contributing factors to death (Coroner's Report)
MCFD_Involvement	Was there Ministry of Childrens and Family Development involvement? Known to MCFD? etc. (As per BC Coroner's Report)
Autopsy Performed?	Was an autopsy performed? (As per BC Coroner's Report)
Death_circumstance	Circumstance of death (As per BC Coroner's Report)
Cause of Death	Cause of Death (As per BC Coroner's Report)
Significant_Medical_Conditions	Other Significant Medical Conditions contributing to death (As per BC Coroner's Report)
Hospitalizations_post	No. of hospitalizations since birth (As per BC Coroner's Report)
Home_visit	Was there Post-natal Public Health home visit? (As per BC Coroner's Report)
No_Siblings	Number of Siblings of deceased infant
Recent Medical Event	Recent Medical Event occuring in the last 72 hours before death
Date_Phys_Visit	Date of last visit to Physician
Medical_Event_details	Details of recent medical event or procedure (As per BC Coroner's Report)
Medical_Event_Date	Date of Medical Incident or procedure (As per BC Coroner's Report)
Medication Prescribed	Was medication prescribed to treat recent medical event? (As per BC Coroner's Report)
OTC_Medication	Was an over the counter medication given to treat a recent medical event?



Concerns_Medical Treatment	Indicate any concerns from the child's last medical treatment (As per BC Coroner's Report)
Previous Diagnosis_Allergies	Did the Infant have any previously diagnosed allergies? (Indicate "Unknown", "No", or if Yes, describe)
Congenital_Anomalies	Did the infant have any congenital anomalies? If yes, describe.
Hist_Respiratory	Did the Infant have any history of respiratory issues? (Indicate "Unknown", "N/A", "No", or if Yes, describe)
PD_Seizures	Did the Infant have any history of seizures or convulsions? (Indicate "Unknown", "N/A", "No", or if Yes, describe)
Other_Factors	Other concerns, factors or circumstances that might have impacted the infant (not yet identified)
In-house_Illness	Was there anyone in the house living with an illness? Indicate "Unknown", "N/A", "No", or if Yes, describe)
Condition_Infant_deceased	Status of Infant when found
Condition_Scene	What was the condition of the scene of death? (as listed in look-up)
Caregiver_Behaviour	List all items that the caregiver is currently using (e.g. OTC Medication, Prescription Medication, Herbal Remedies, Cigarettes, Alcohol, other)
Caregiver_Smoking	Does the caregiver smoke? If yes, enter # of cigarettes is the caregiver using a day? If no, enter "0"
Caregiver_Alcohol	If using alcohol, what is the daily consumption? (drinks per day) If no, enter "0"
Scene_Hazards	List all environmental hazards at the scene of death- enter "N/A" if not applicable. (e.g. none, 2nd hand smoke, recent renovations, dampness mold, toxic gases, etc.)
Evidence_Overlay/wedging/pallor	Is there evidence of overlay, Pressure Pallor, or Wedging? Specify which and details. Indicate N/A if not applicable
Caregiver_Testimony	Did the caregiver notice anything unusual or different about the infant in the last 24 hours? (As per BC Coroner's Report)
Date_Last_Alive	Date and time that the child was last seen alive (As per BC Coroner's Report)
Sleeping_Practice_issue	Is sleeping situation considered an issue or factor in the death?
Infant_Last_placed	Where was the infant last placed? Indicate specific Location (crib, chair, adult bed etc)
Infant_Last_checked	Where was the infant last known alive? Indicate specific Location (crib, chair, adult bed etc)
Infant_Last_Found	Where was the infant found? Indicate specific Location (crib, chair, adult bed etc)
Infant_Placed_position	Position in which infant was last placed (side, back, front etc) (as per BC Coroner's Report)
Bedding_List	List all types of bedding/ items/ pillows in the bed with the infant (as per BC Coroner's Report) separate list with semi-colon

Objects_Face	List all types of objects by the face, nose or mouth of the infant? (as per BC Coroner's Report) separate list with semi-colon
Sleep_Additional	Was anyone sleeping with the infant? (as per BC Coroner's Report)
Sleep_Additional_Person	What was the relation of the person sleeping with the infant to the infant? (as per BC Coroner's Report)
Appearance_comments	What was the appearance of the deceased (bruises, rash, scratches, secretions, etc.) Describe and specify location. Enter "N/A" if not Applicable
Infant_General_Dietary	List all foods and/or liquids that are included in infant's regular diet? List all that apply (as per BC Coroner's Report) separate list with semi-colon
Infant_Last_Dietary	List all foods and/or liquids that were fed the infant in the last 24 hours before death? List all that apply (as per BC Coroner's Report) separate list with semi-colon
History of Abuse	Is there history of abuse in the family? If yes, select type of abuse
Abuse_Related	Was the death a result of abuse? If yes, indicate type of abuse (e.g. head trauma, blunt trauma, bruising, fractures, burn/ scald, drowning, suffocation/ strangulation etc)
Vehicular_Related	Was the death the result of a vehicular incident? If yes, list all contributing factors to injury (Infant seat, Vehicle type, Stolen vehicle, licensed driver, incident type etc)
Fire or Burn	Was the death the result of a fire or burning? If yes, list all contributing factors to injury. (Source of fire, type of structure, working smoke detector)
Fall_Related	Was the death the result of a fall? If yes, list all contributing factors to injury (Place, Barriers present, Fell onto, distance of fall)
Drowning_Related	Was the death the result of a drowning? If yes, list all contributing factors to injury (Place, Activity of carer, H2O temp, Private or public pool, lifeguard present etc)
Poisoning/ Drug_Related	Was the death the result of poisoning or drug intoxication? If yes, list all contributing factors (Type of drug, Prescribed to, Source of CO)
Additional_Comments	Any Additional Comments attributed to the deceased infant?