



**Interior Health**  
*Every person matters*

# Child Health Report



**Office of the Medical Health Officer  
Population Health  
2018**

**This report has been compiled for and is brought to the Interior Health Authority Board under Order in Council by a Medical Health Officer, pursuant to section 73 of the *Public Health Act* of British Columbia (BC). It describes a significant and/or time sensitive risk to the health of persons residing in BC's interior region, and provides recommendations for which the health authority is responsible.**

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Notice of Errata: The 'Hospitalization for Injury' indicator (pages 25-27) was updated in March 2019.

## Introduction from the Medical Health Officer

This report tells a story of children aged 0 to 18 years living in the southern interior of B.C. Children depend on caregivers and their communities; they put their trust in us. The social, emotional, intellectual and physical development that occurs during childhood lays the foundation for a lifetime of health and accomplishments.



You can't improve what you don't measure. In this report, we present a selection of indicators that describe the health status of children in IH. The intention of this report is to encourage thought, reflection, conversation and the desire to know and do more. We hope to engage our internal and external partners about important questions such as: What do we need to know to make the changes that will benefit children? What needs to change to make more of a difference? How can we make this happen?

All children deserve to have the building blocks of success available to them in ways that are accessible and acceptable. This may mean different things for different families and it is the responsibility of adult caregivers and communities to be responsive to all children's needs. Research indicates children that grow up in less healthy environments are more prone to experience obesity, failure in school, pregnancy and criminality in their teens; obesity, elevated blood pressure and depression in their 20's and 30's; coronary heart disease and diabetes in their 40's and 50's; and premature aging and memory loss in older years.<sup>1</sup> Support networks in childhood help to prevent these and other negative outcomes by setting the stage for lifelong success.

The mandate for Interior Health (IH) to contribute to healthy childhood development is explicitly indicated in the Healthy Families BC Policy Framework.<sup>2</sup> One of the focused Interventions Streams is Healthy Early Childhood Development and recommended strategies are outlined in the report. Within the British Columbia (B.C.) Guiding Framework for Public Health, improving maternal child health is identified as one of the overarching goals.<sup>3</sup>

Recently an updated Growing up in B.C. 2015 report was released in partnership with the Office of the Provincial Health Officer (PHO) and the Representative for Children and Youth.<sup>4</sup> This comprehensive report on the well-being of children in B.C. has a particular focus on more vulnerable children, namely Aboriginal children and children in care. Furthermore, the Office of the PHO and Child Health BC have recently released a report on the health and wellbeing of children and youth in B.C.<sup>5</sup> Our report compliments these prior publications by providing more granular detail specific to the IH region.

Thank you for taking the time to learn about the children living in the southern interior of B.C. Together we can make a difference.

Sincerely,

A handwritten signature in black ink that reads "Sue Pollock". The signature is written in a cursive, flowing style.

Dr. Sue Pollock MSc, MD, FRCPC  
Medical Health Officer

## Executive Summary

This report documents selected child health indicators, which identify strengths and vulnerabilities across the southern interior of B.C. This knowledge is intended to raise awareness, start conversations and bring people together who can contemplate and plan change. This report is intended for IH staff, community partners and the public.

Providing children with the best possible opportunity for healthy growth and development is the overarching goal of all communities. IH has the primary responsibility for some essential services; however, our role in many healthy childhood development programs (e.g. mental health and education) is often supportive or advisory rather than one of direct delivery. We need to continue to strengthen our partnerships with other provincial ministries, community stakeholders and families to provide the best possible advantage to our children.

The life course trajectory model examines how various conditions at different critical stages affect peoples' outcomes later on in life - both positive and negative. It is recognized that interventions in childhood are particularly influential as this is the time of tremendous physical, neurological and emotional growth. Evidence shows that interventions made in the earliest stages of life, prenatal and in early childhood, provide the greatest returns. By recognizing the power of investing in children, we can make a positive difference in future health and success of individuals.

Canadian children are some of the most fortunate in the world as they experience high life expectancies and low infant mortality rates. However, this advantage is not universally felt and there remain subgroups of children with less favourable outcomes. Infant mortality rates are a stark example of differences in outcomes that B.C. First Nations people experience when compared to others in the province. Vulnerable groups including Aboriginal people and children in care are not extensively detailed in this report; however, both groups have been a focus of the most recent Growing up in B.C. 2015 report which describes the barriers these children experience in achieving good health.<sup>4</sup>

Children from conception to age 18 years are included in this report. There are 18 indicators included based on a subset of indicators from the Growing up in B.C. 2010 report.<sup>6</sup> Most indicators are examined by geographic distribution.

Maternal smoking is one indicator where all Local Health Areas (LHAs) in IH fared worse than the provincial average which suggests that this behaviour could be a priority for additional IH-specific interventions. Youth were also twice as likely to report daily smoking compared to their provincial counterparts (2.9% vs. 1.5%).

Exclusive breastfeeding rates at six months were low, with only 50% of IH mothers following the B.C. recommended guideline of exclusive breastfeeding to six months.

The infant mortality rate for IH is lower than the provincial rate but geographic variation is evident (2.2-4.5 deaths/1,000 live births) across the Health Service Delivery Areas (HSDAs).

The IH rate for up-to-date immunizations of two year olds continues to be at par or exceed the provincial rate in three of four IH HSDAs. Kootenay Boundary remains substantially below the provincial average for immunization coverage in this age group.

Physical and social vulnerabilities among kindergarteners have been increasing in IH since 2007, whereas emotional, language and communication vulnerabilities appear to have generally remained stable. More IH kindergartners are cavity-free compared to the provincial average (69% vs 67%).

Economically, children in IH are more vulnerable than the provincial average; a higher proportion of young children are in low income families (20.3 % vs 18.5%) and a higher proportion of children access food banks (4.6% vs 3.8%). Economic stress is one of the most significant negative factors in healthy childhood development.

Youth in IH are more likely than the provincial average to report the presence of a caring adult in their lives and regular engagement in vigorous physical activity. IH youth are equally likely to report good/excellent mental health but are slightly less likely to report a healthy weight compared to their provincial counterparts. IH youth are also slightly less likely to attain a dogwood high school certificate compared to the provincial average. Acute mental health hospitalizations among youth appear to be increasing in IH.

Children at risk is an index indicator that combines information that measures economic stress, education, crime, children in care and infant mortality. Overall, IH fares better than the provincial average, however there are LHAs along the western border that are among the ten worst LHAs in B.C.

Injury is a significant issue in IH and rates exceed that of the province, with the exception of children under one year of age. Self-harm injuries become significant in IH youth aged 15-19 years.

Average asthma rates in IH are lower than that of the province (10% vs 11%) although there are LHAs including Trail, Princeton, South Okanagan and Penticton where the rates exceed that of B.C.

For most indicators, variation exists across IH LHAs, with some faring better than the provincial average and some worse. The findings of this report highlight a west to east gradient; the western portion of the health authority shows overall higher vulnerabilities compared to the east with the central portion of the health authority falling in-between.

Only a portion of an individual's health is influenced by direct health care, with the balance determined by the influence of the social determinants of health, environment and genetics. Addressing the social determinants of health is critical to determining which groups have the greatest need and what targeted actions could be considered.

In this report, a series of recommendations are proposed for consideration. The following recommendations are intended to begin addressing the gaps in health outcomes seen across geographic areas and within vulnerable population groups:

1. Interior Health should convene a cross portfolio working group to provide direction, leadership and accountability for maternal child health in IH.
  - a. The working group should include representation from the First Nations Health Authority.
  - b. The working group should be responsible for identifying priorities, setting goals, identifying outcomes, and monitoring the progress on implementation of both the goals and the recommendations in this report.
  - c. The working group should engage with families, youth and communities to incorporate their perspectives.
2. The Medical Health Officers, Epidemiologists and maternal child & youth health program staff should develop and implement a surveillance system to measure and periodically report key childhood indicators across the age continuum (0 to 18 years).
  - a. The selection of indicators should align with provincial indicators and reflect IH priorities.
  - b. Vulnerable populations should be stratified to inform programming and monitor progress.
3. Interior Health should conduct a scan and evaluate current child health programs to ensure they are evidence-based and effective. Evaluation should incorporate an equity lens to determine if services are available, accessible and acceptable to families.
4. New or modified IH services for children should ensure proportionate universality, allowing equal access to care, with a focus on reducing barriers for the most vulnerable groups.
5. The maternal child & youth health program should continue to engage and expand internal and external partnerships to improve children's health, including Aboriginal partner communities and organizations.

## Acknowledgements

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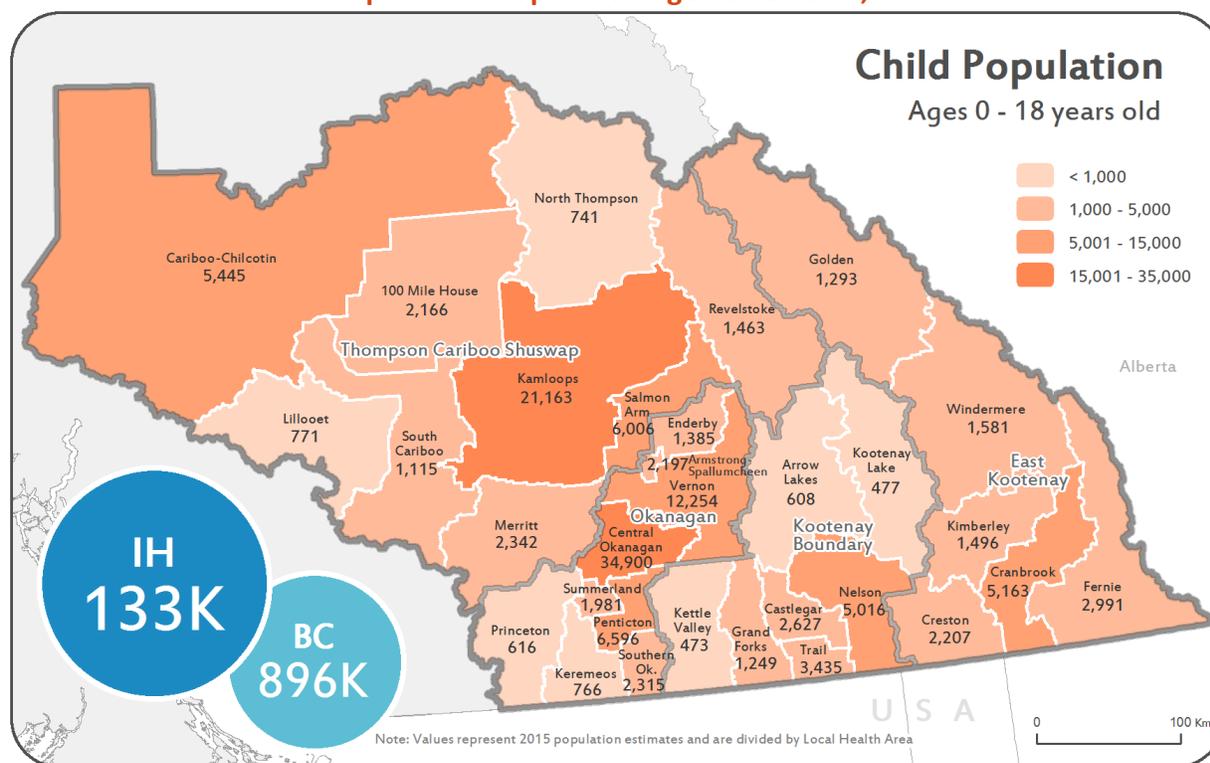
## Population

Interior Health is one of five regional health authorities in B.C. and is located in the south-central portion of the province. There are two additional health authorities that are not geographically tied: Provincial Health Services Authority (PHSA) and the First Nations Health Authority (FNHA).

Interior Health is situated within the traditional, ancestral and unceded territories of the seven Interior Nations peoples: Ktunaxa, Syilx, Secwepemc, Tsilhqot'in, Dalkelh Dene, St'at'limc, and Nlaka'pamux Nations. We acknowledge that residents of Interior Health gather on Indigenous lands and we are grateful to the leaders of the Nations for meaningful partnerships that are forming and continuing. The traditional territories of the seven Interior Nations are depicted in Appendix A.

The IH catchment area covers 215,000 km<sup>2</sup> and has an estimated population of 743,471 (2016).<sup>7</sup> About 18% (n=133,000) of the population in IH is under the age of 19 years, a similar proportion to B.C. (19%). Approximately 8% of the population identifies as First Nations (status and non-status), Metis or Inuit. About 36% of aboriginal population self-identify as Metis (n=16,200). IH is divided into four geographic administrative Health Service Delivery Areas (HSDA): East Kootenay (EK), Kootenay Boundary (KB), Okanagan (OK) and Thompson Cariboo Shuswap (TCS). The HSDAs are further divided into LHAs as documented on Map 1. Map 1 also outlines the estimated population of children aged 0-18 years in each LHA.

**Map 1. Child Population Aged 0-18 Years, IH.**



Source: PEOPLE 2016, BC Stats, Ministry of Technology, Innovation and Citizens' Services, 2016

## Process and Approaches

### Visioning & Development

This report was developed by a Child Health Data Working Group (working group) on behalf of the Chief Medical Health Officer. This group was comprised of members from the Office of the Medical Health Officer (MHO), Aboriginal Health, Public Health – Promotion and Prevention, Allied Health, Strategic Information, Mental Health and Substance Use, IH Perinatal and Child Health Network (2013-2015) and a community pediatrician.

The indicators presented in this report are a subset of indicators from Growing up in BC.<sup>6</sup> The indicators were selected by the working group and, in some cases, in consultation with external partners. The indicator selection process included a survey of working group members, ranking of choices and data availability reviews. Selected indicators were matched to a list of nationally recommended childhood indicators to ensure comparability.<sup>8</sup> Our indicators also align with the recently released Office of the Provincial Health Officer and Child Health BC joint report on the health and wellbeing of children and youth in B.C.<sup>5</sup> Group consensus ultimately identified eighteen indicators as the most appropriate to broadly represent the childhood experience in IH and to highlight some of the key issues related to childhood development. Indicators chosen are not intended to be exhaustive; instead they highlight a broad spectrum of measures, encouraging further thought and exploration to inform future program planning and evaluation.

Data sources used in this report are outlined in Appendix B. Data sources were selected based on availability of recent and local level data, as well as validity. At minimum, data are provided at the HSDA level. Where available, more granular School District (SD) or LHA level data are provided. Notable trends are highlighted in the text.



## Maps

Throughout the report, maps are coloured to highlight the most vulnerable 10% and the least vulnerable 10% of LHAs and SDs. This method is used to detect geographic trends across the IH region. The most vulnerable LHAs and SDs may be identified for intervention, while the least vulnerable LHAs or SDs may be used to inform best practice. The colours and their meanings are described in Table 1.

In some cases there are “ties” (identical scores) where a division should occur. In this instance, both regions are coloured to the “more extreme” category. Numbers on the map are rounded, however non-rounded numbers are used to assign rankings. The result is that some LHAs appear to have the same value but are coloured differently. Due this classification method, the reader is encouraged to examine the range and spread of the values in and between categories. When the differences in values are small, and there is no geographic trend, colour classifications may be less meaningful than when the differences in values are larger or a geographic trend is apparent.

## Summary Map

A summary map has been developed to represent a composite score of several indicators presented in this report. Each LHA is assigned a score for included indicators, the total is averaged and rankings are assigned. Results are presented in Cumulative Risk Map (Map 9). This map is an unweighted index that is particular to this report and its indicators; however, cumulative health index scores are commonly used both in primary care and public health to report multiple indicators together.<sup>9,10</sup>

**Table 1. Description of Categories Used on Maps**

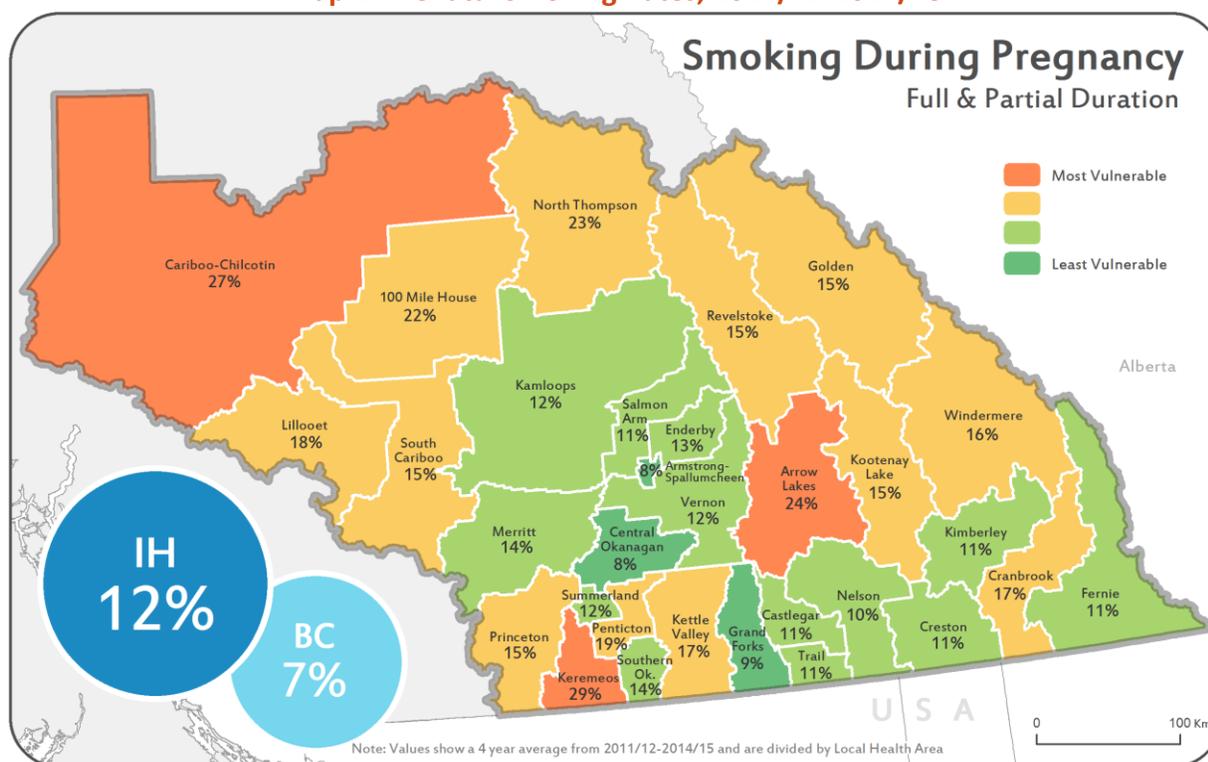
Colour (on Map)	Classification (approximate)	No. of SDs (n=16)	No. of LHAs (n=31)	Points (Risk Summary)	Map Legend
	Top 10%	2	3	0	Least Vulnerable
	Upper 50-89%	6	13	3	-
	Lower 11-49%	6	12	7	-
	Bottom 10%	2	3	10	Most Vulnerable

## Indicators

### Smoking During Pregnancy

Smoking during pregnancy increases risk for miscarriage, perinatal mortality, low birth weight, premature birth and congenital anomalies. Not only does maternal smoking have a profound influence on the development of the fetus and newborn, it can also have long lasting, ongoing negative impacts on the future health of the child. Smoking during pregnancy is strongly linked to the social determinants of health. In Canada, younger mothers (<25 years old), mothers with lower socioeconomic status, without a regular family physician and reporting mental illness were more likely to smoke than others.<sup>11,12</sup> Subsequent exposure to second hand smoke is a significant on-going health risk for infants and children.

**Map 2. Prenatal Smoking Rates, 2011/12-2014/15**



Source: Perinatal Services BC. British Columbia Perinatal Data Registry. Years Provided: 2011/12 to 2014/15.  
Resource Type: Tabulated data. Data Provided on August 4, 2016.

In the IH region, a general geographic gradient in maternal smoking rates exist across LHAs from west to east (Map 2). The highest rates of smoking are reported in the west portion of IH (i.e. Cariboo-Chilcotin, Keremeos, North Thompson, 100 Mile house). The rate for Arrow Lakes is similarly high. In fact, all LHAs have maternal smoking rates that exceed that of the B.C. average.

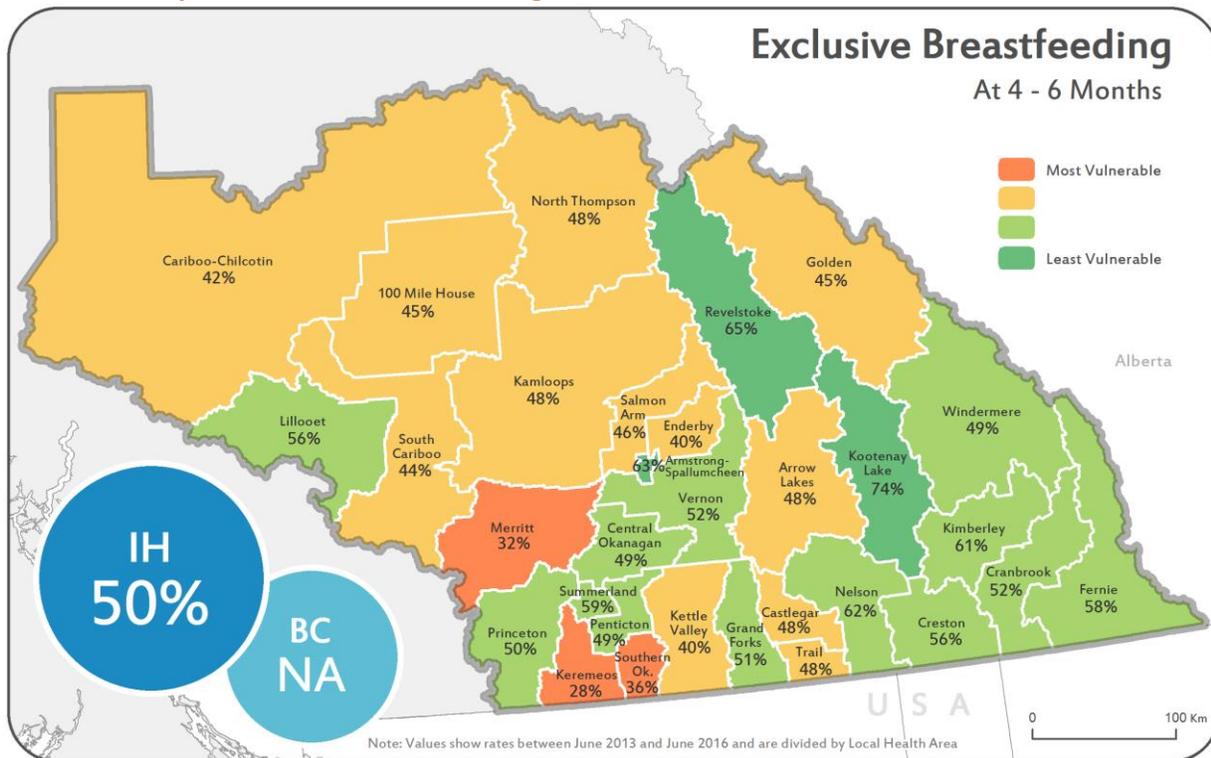
Despite the relatively high rate of maternal smoking in IH, the prenatal smoking rate appears to be declining. From April 2004 to March 2009, the average IH prenatal smoking rate was 16.1%, while the rate declined to 12.4% between April 2014 and March 2015. This may be a reflection of a broader declining trend in smoking; during the same periods smoking in the general B.C. population declined from 15.1% to 13.6%. B.C. has the lowest smoking rate in Canada and overall smoking rates continue to decline throughout the country.<sup>13</sup>

### Exclusive Breastfeeding at 4 to 6 Months

Breastfeeding is recognized as the best possible start to life for babies. Breast milk provides optimal nutritional and immunological protection to developing infants. Breastfeeding also fosters emotional nurturing and attachment of infants and toddlers. Benefits of breastfeeding continue to be seen throughout life. The World Health Organization (WHO) and Health Canada both recommend exclusive breastfeeding for the first six months and after that, continuing to breastfeed up to 2 years, or more, along with age-appropriate solid foods.<sup>14</sup>

The exclusive breastfeeding indicator measures the proportion of babies, aged four to six months, who were assessed by the Public Health Nurse (PHN) to be exclusively breastfed when they visited the PHN at a well-baby appointment. Exclusive breastfeeding is defined as consuming only breast milk without the supplementation of food or other liquids (including water). The values reported need cautious interpretation as some public health nurses were applying a less stringent definition, allowing some solid food introduction or rare supplementation. More stringent processes are currently being adopted in IH that will allow this rate to be determined more precisely. About 70% of babies born in IH had this measure assessed between June 2013 and June 2016. It is unclear how the breastfeeding practices of the unmeasured 30% would affect rates reported on Map 3.

**Map 3. Exclusive Breastfeeding at 4 to 6 Months, June 2013 to June 2016**



Source: Panorama, June 2013 - 2016

Over the three year reporting period, half of babies aged six months are reported to be exclusively breastfed. Rates for LHAs with relatively small populations such as Keremeos, Kettle Valley, and Kootenay Lake may fluctuate from year to year and rates should be interpreted with caution. Breastfeeding rates in IH do not follow a strong geographic pattern. According to 2011 Canadian Community Health Survey, 40.3 percent of B.C. mothers exclusively breastfed their infants for the first six months.



## Infant Mortality

Infant mortality refers to the death of a live born baby during the first 12 months of life. The Infant Mortality Rate (IMR) is the number of deaths per 1,000 live births in a specified population. IMR is a commonly used measure of population health and well-being.<sup>15</sup> It is influenced by a multitude of factors including maternal health, quality and access to medical care, and socioeconomic factors. Extreme prematurity, congenital malformations and Sudden Infant Death Syndrome have been identified as major causes of infant mortality. Sleep-related factors contribute to the majority of sudden infant deaths, which may be preventable through implementation of programs promoting safe sleep practices. Although the IMR for IH is lower than the provincial rate, geographic variation is evident (2.2-4.5 deaths/1,000 live births) across the HSDAs (Table 2).

**Table 2. Infant Mortality Rate, 2004-2011 (Infant Deaths/1,000 Live Births)**

Region	EK	KB	OK	TCS	IH	B.C.
Infant Mortality Rate	3.6	2.2	3.4	4.5	3.6	3.9

Source: British Columbia Vital Statistics Agency. Selected Vital Statistics and Health Status Indicators (2004-2011)

In Canada, the IMR rises with the proportion of the population experiencing low income. First Nations people also have higher infant mortality rates than the general.<sup>16</sup> This disparity is believed to be true for B.C. aboriginal communities as well. For example, while First Nations/Aboriginal/Metis peoples make up 6.6% of the general population in Island Health, they are markedly overrepresented among infant deaths (33%) and sudden infant deaths (50%).<sup>17</sup> This is a stark example of how income and ethnicity affects an infant’s survival, providing a strong rationale to enhance services, both health care and social services, to allow infants to survive at identical rates regardless of socioeconomic status, geographic location and ethnic descent.



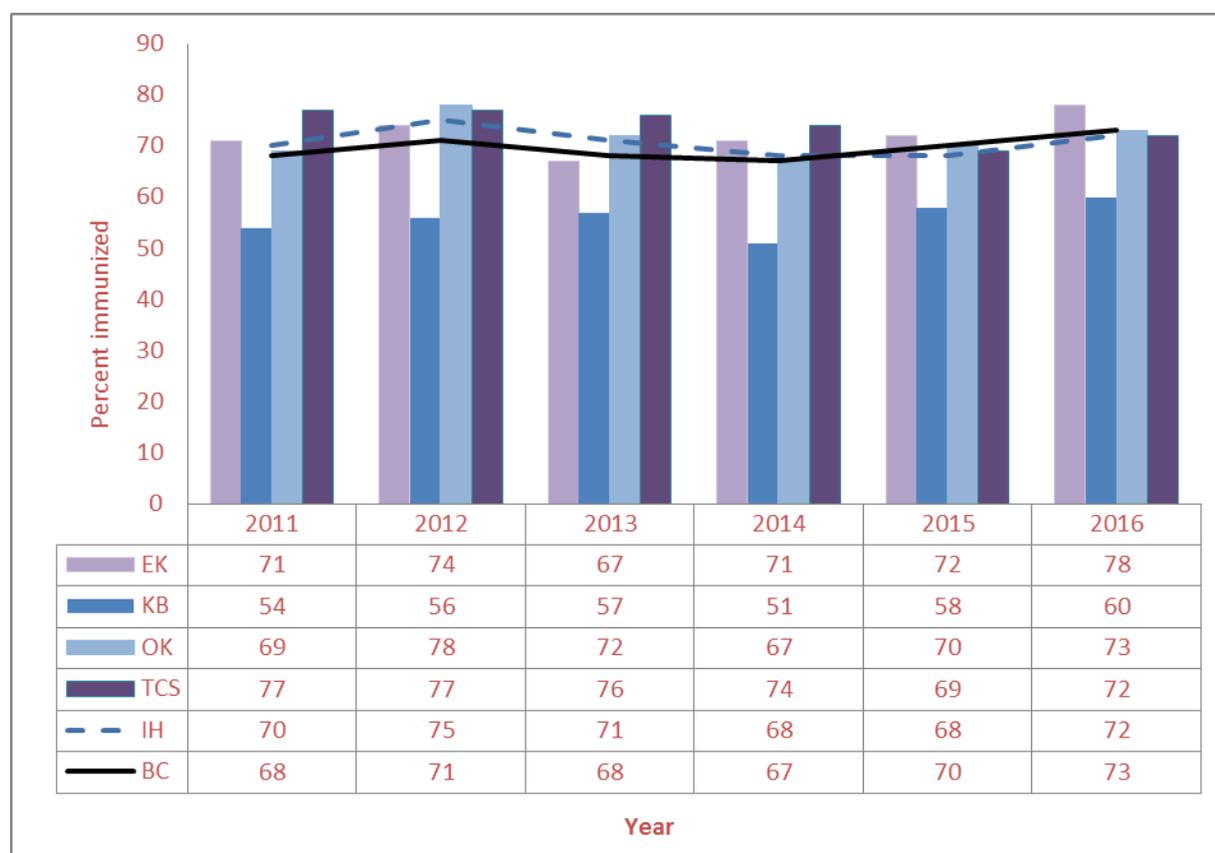
With the purpose to decrease IMR in IH as well as eliminate population-specific disparity in incidence of infant mortality, it is necessary to comprehensively review underlying causes of infant deaths so that appropriate action can be taken to avoid deaths that are preventable. A multi-disciplinary Infant Mortality Review Committee has been formed to this effect so that monitoring and comprehensive review of infant mortality in IH can lead to recommendation for action.

## Two Year Old Up-To-Date Immunization

Vaccination is one of the most effective and cost efficient health interventions.<sup>18</sup> Continued uptake of vaccination is critical to prevent outbreaks and ensure the sustained health of the population. Significant morbidity can arise when children are infected with vaccine preventable diseases such as measles, mumps and pertussis. Public health resources can be heavily utilized when outbreaks occur and require public health management.

The two year old up-to-date (UTD) immunization indicator measures children that are up- to-date on all recommended vaccines by the child’s second birthday. Children that do not meet this standard may be partly vaccinated, on a parent directed delayed schedule (which may or may not result in the child eventually catching up on recommended vaccines) or may be completely unvaccinated.

**Figure 1. Two Year Old Up-to-Date Immunization Rates, 2011-2016**



Source: BCCDC, Immunization for Children by their Second Birthday, 2011-2016

The vast majority of childhood vaccinations are given by PHNs in IH. The two year old UTD immunization rates in IH's HSDAs generally exceed that of B.C., with the exception of KB. The KB rate is consistently well below that of both the IH and B.C. averages (Figure 1). Lower vaccination rates, such as those observed in KB, leave populations vulnerable to future outbreaks.

In 2013, 2014 and 2015 there were significant spikes in the incidence of pertussis (whooping cough) in KB. Outbreaks of pertussis have also occurred in other areas in B.C. The increasing rate of pertussis demonstrates the need for continued vigilance and focus on maintaining high rates of immunization throughout IH and the need for enhanced focus in areas with lower coverage.



## Early Childhood Developmental Vulnerability

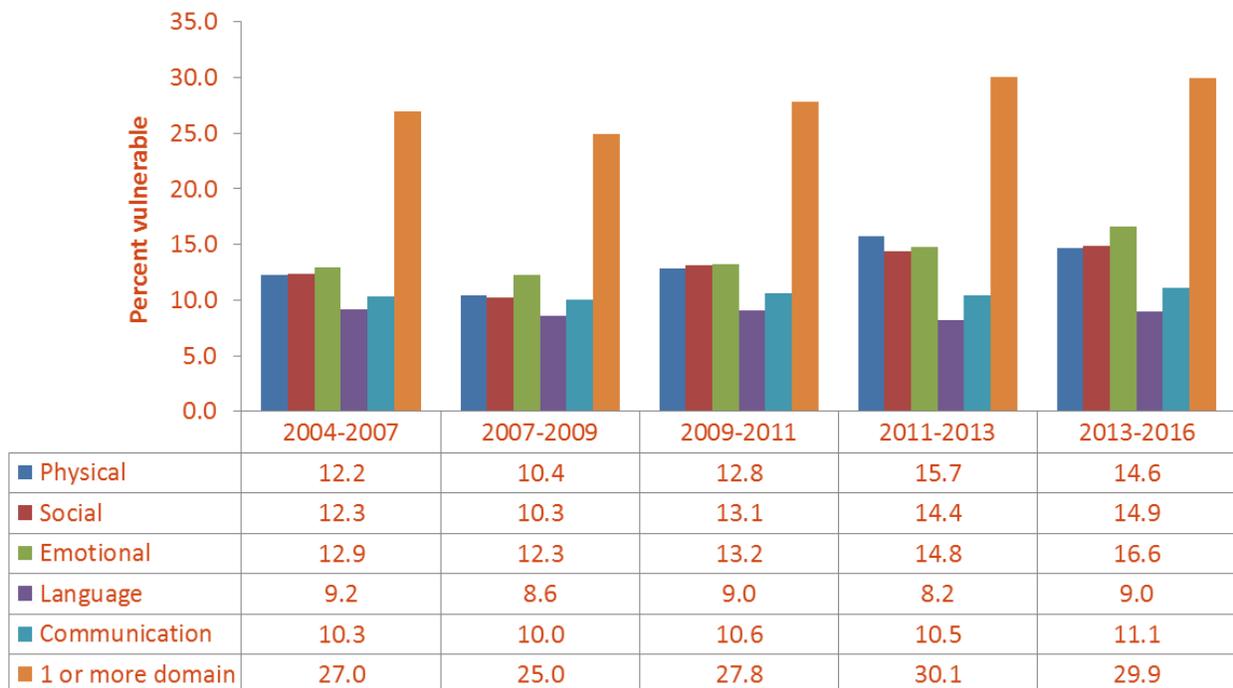
The Early Development Index (EDI) measures children’s readiness for kindergarten. It examines and summarizes the culmination of experiences and learnings children have in their critical first five years of life. The EDI is a good predictor of adult outcomes, including social, health and education. For example, children who are vulnerable in kindergarten are at least twice as likely to experience academic failure in later grades.<sup>19</sup>

The EDI measures five domains<sup>20</sup>:

- Physical Health and Well-Being (e.g. physical co-ordination, readiness to learn [i.e. not hungry])
- Language and Cognitive Development (e.g. basic literacy, numeracy)
- Social Competence (e.g. works well with others, responsible for actions, independent)
- Emotional Maturity (e.g. pro-social behaviour)
- Communication Skills and General Knowledge (e.g. able to communicate and understand)

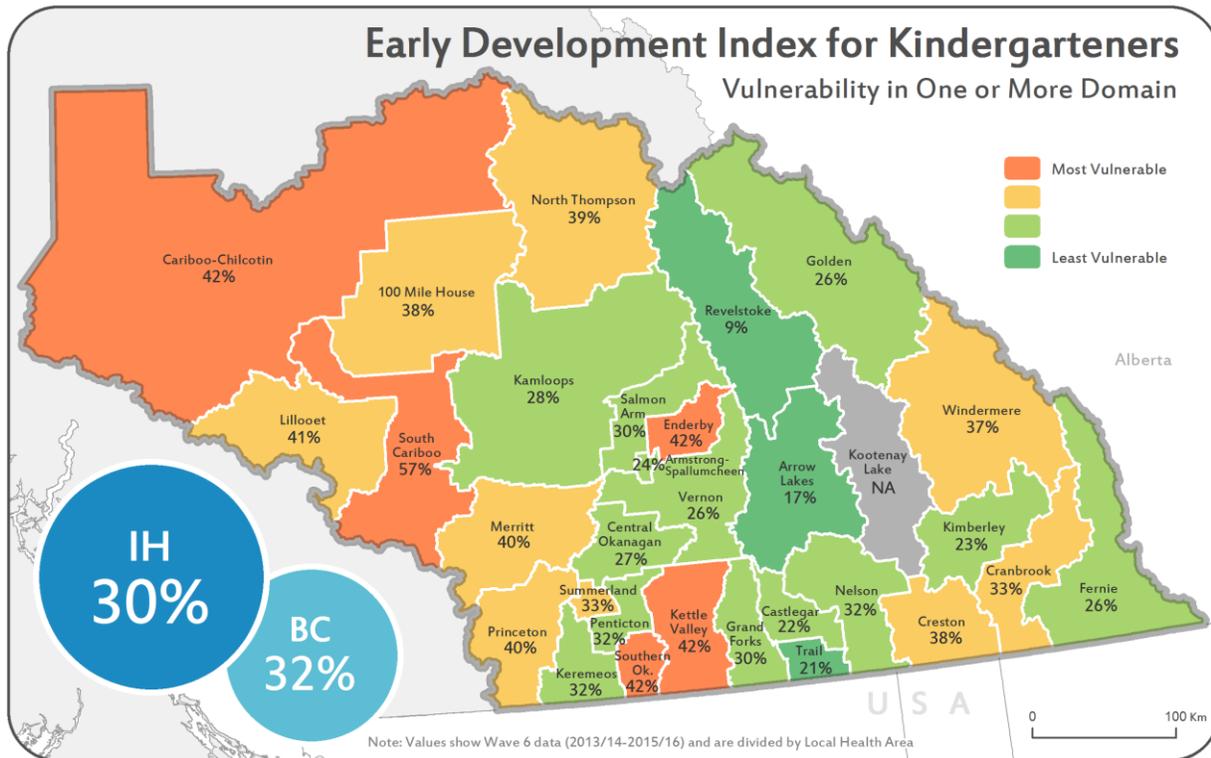
The EDI can be used to identify regions and communities with the highest proportion of vulnerable children. This knowledge is helpful in directing targeted planning and service provision to children with the highest needs. Some of these programs are directly provided or facilitated within the health care system including nutrition, speech and autism services. Disadvantaged children that participate in early childhood development programs demonstrate improved outcomes that extend into adulthood.<sup>21</sup>

**Figure 2. Kindergartener Vulnerabilities as Measured by the EDI, 2004-2016, IH**



Source: Human Early Learning Partnership, UBC, 2004 - 2016

**Map 4. Early Development Index for Kindergarteners, Vulnerable On One Or More Domain 2013/14-2015/16**



Source: Human Early Learning Partnership, UBC, 2013/14 - 2015/16

Figure 2 indicates that physical and social vulnerabilities have increased in IH since the 2004 to 2007 cycle, which is consistent with the provincial trend.<sup>22</sup> This increase is an ongoing area of research at the B.C. Human Early Learning Partnership. The overall increasing rates of vulnerability on one or more domain (3% increase since 2004 to 2007) indicates more children are at risk for less advantageous outcomes including not graduating from high school. This provides rationale for enhanced intervention and increased investment in the early years. Many communities in B.C. are using the EDI as a “thermometer” of need to direct resources and planning for young children.

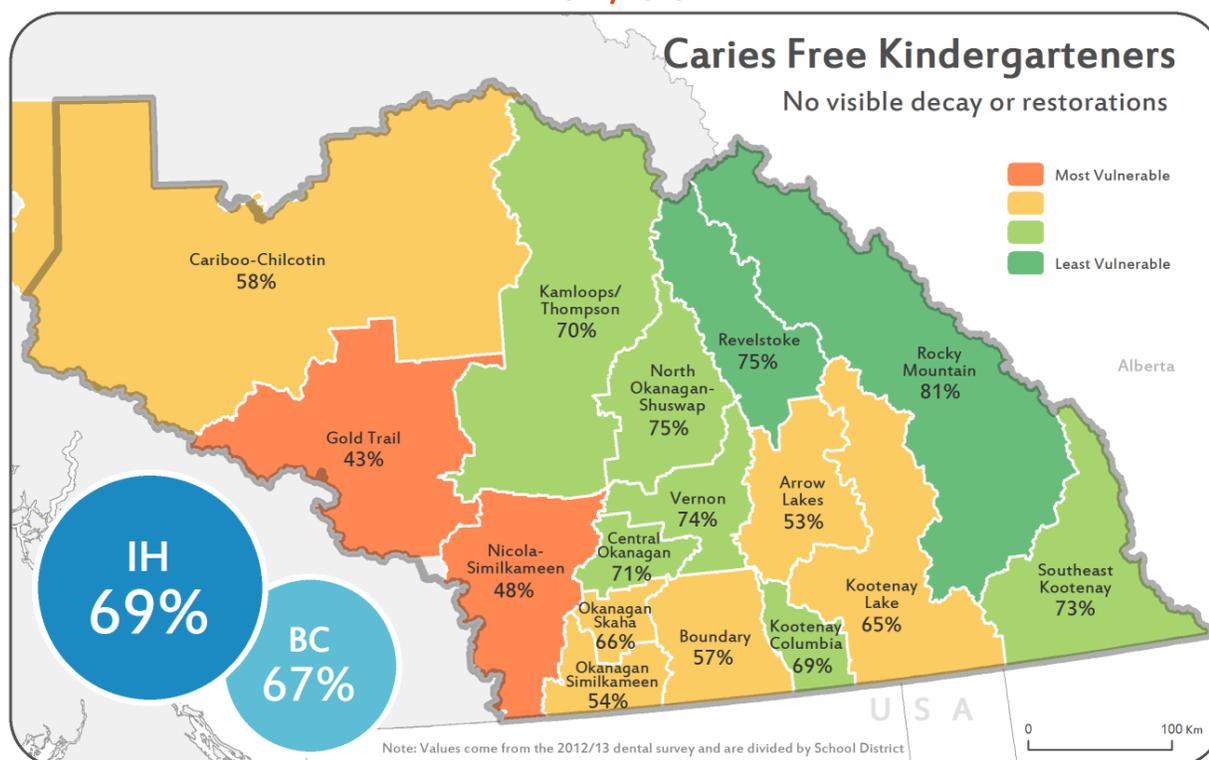
Overall kindergarteners in IH are less likely to be vulnerable on one or more domain than the B.C. average (30% vs 32%). The western portion of IH has increased EDI vulnerability (Map 4) when compared to the central and eastern portion. The impact of the increased vulnerabilities of western LHAs on other indicators highlighted in this report may help explain this EDI gradient.

## Dental Screening

Children who come from families with a lower socioeconomic status are more likely to experience poor oral health. This can have implications on quality of life including pain and infections. Poor dental health can lead to problems with eating, speaking, playing and learning.<sup>23</sup> Early prevention measures include sharing information about oral hygiene practices, applying fluoride, promoting healthy eating and removing barriers to treatment. All of these measures have been shown to improve oral health in children and adults.<sup>24,25</sup>

Every three years, public health dental professionals across B.C. screen kindergarten children for evidence of visible decay, broken enamel, and treated caries. In 2012/13 the B.C. Dental Survey of Kindergarten Children screened 89% of children enrolled in public, private and First Nations schools in IH.

**Map 5. Proportion of Kindergartners that are Free of Visible Decay or Restorations, 2012/2013**



Source: BC Dental Survey of Kindergarten Children, 2012/13

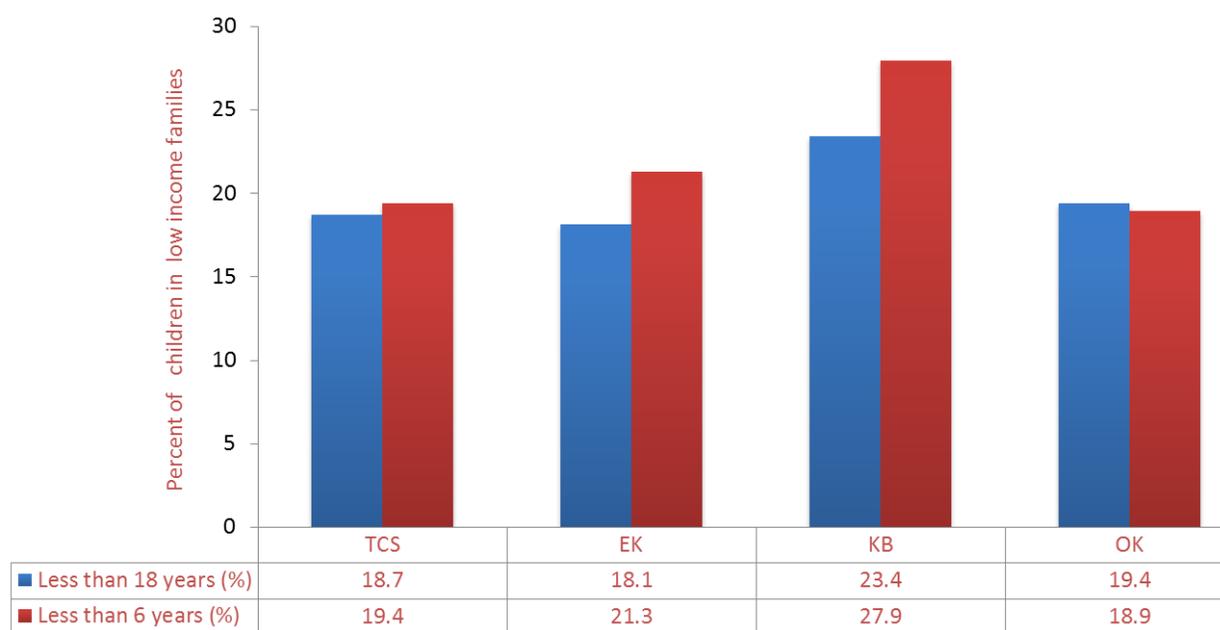
Results showed large discrepancies in dental health across IH SDs (Map 5). For example, the proportion of students who are caries free in the Rocky Mountain SD (81%) far exceeds rates in SDs such as Gold Trail (43%), Nicola-Similkameen (48%), Arrow Lakes (53%) and Okanagan-Similkameen (54%). Aboriginal children have higher rates of dental decay when compared to their non-Aboriginal counterparts.<sup>26</sup> Despite these discrepancies, the proportion of children that were caries free in 2012/13 was nearly 10% more than in the previous survey performed in 2006/07.<sup>27</sup>

### Children and Youth Living in Low Income Families

Low income has far reaching consequences. For example in neighborhoods with low income, children are more likely to be born pre-term and small for gestational age. In addition to negative prenatal outcomes, children from families with low income are 2.5 times more likely to have impaired physical abilities such as vision, hearing, speech and mobility and are more likely to exhibit delayed vocabulary development. They are also more likely to demonstrate high levels of aggression.<sup>28</sup> An individual’s success in adulthood is impacted by poverty in their early years. For example, children that experience ongoing poverty (especially poverty in preschool years) have lower high school graduation rates, significantly impacting their success as an adult.<sup>29</sup>

Children and youth living in low income families indicator measures the proportion of children (0 to 17 years) in families with low income, using Statistics Canada’s Low-income measure after tax (LIM-AT). LIM-AT is a fixed percentage (50%) of median adjusted after-tax income of households observed at the person level, where 'adjusted' indicates that a household's needs are taken into account. A family is considered to be low income when their income is below the LIM-AT for their family type and size.

**Figure 3. Percentage of Children in Low-Income Families Based on Low-Income Measure After Tax (LIM-AT), 2010**



HSDA

Source: Statistics Canada. National Household Survey 2011

Children with economic stress may have increased health needs and may experience barriers in accessing health services. Kootenay Boundary HSDA demonstrated a higher prevalence of children and youth living in low income households than other HSDAs (Figure 3). Overall, in IH, the percentage of children in low-income families is 19.5 % for children and youth aged less than 18 years of age, and 20.3% for children less than six years of age. Overall IH has higher proportion of children in low income

families compared to B.C. average (19.1 % and 18.5 %, for children and youth less than 18 years and less than six years respectively). First Nation children are more likely to experience poverty than other Canadian children.<sup>30</sup> The low income indicator included in this report is based on the 2011 National Household Survey which includes First Nations respondents living in the reserves.

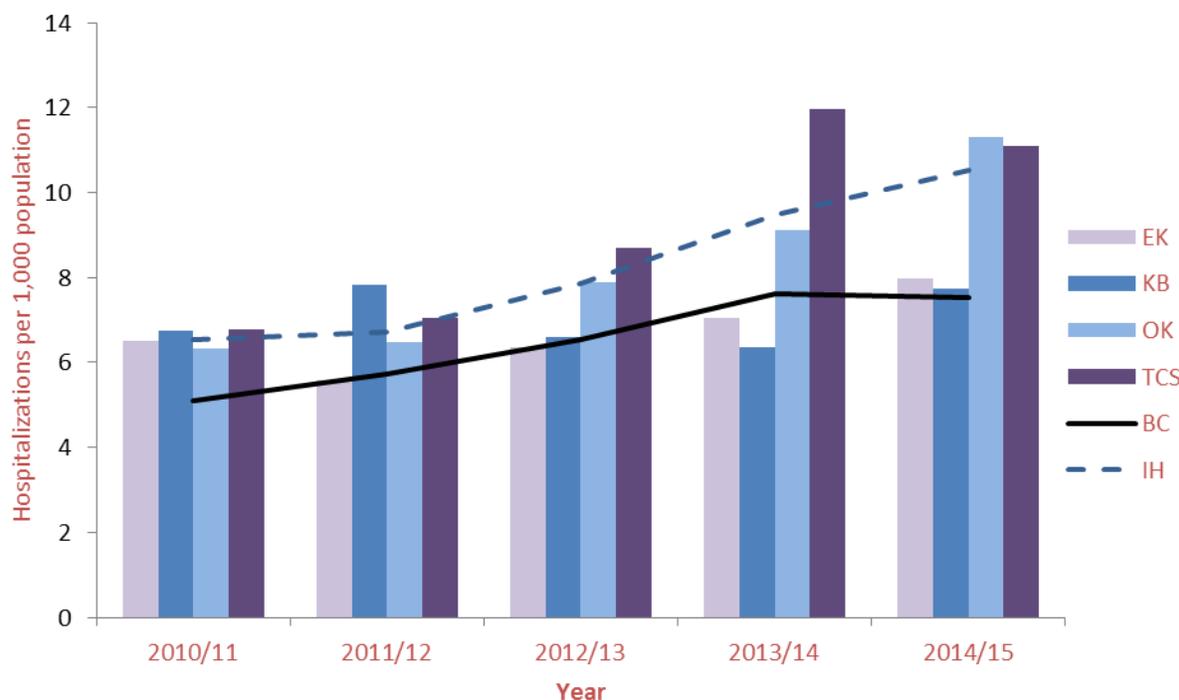
This indicator will continue to be evaluated as data becomes readily available on other comparable measures of poverty/low-income such as Low Income Cut-Off (LICO) and Market Basket Measure (MBM). This is especially important since non-response rates for the 2011 National Household Survey ranged from 25-59% in IH. However, the LIM-AT reported here are comparable to the low income indicator (based on LICO) in the provincial report on the health and well-being of children and youth in B.C.<sup>5</sup> These indicators will also be considered in program planning and evaluation if they have enhanced availability and granularity (e.g. LHA/city/community/census tract level).

## Hospitalization for Mental Health

It is reported that on average 15% of children and youth in B.C. communities are dealing with mental health disorders, impacting their functioning at home, at school, with peers and in the community.<sup>31</sup> Positive mental health has been identified as a priority by the Ministry of Health.<sup>32</sup> Community based mental health services intended for children are offered by the Ministry of Children and Family Development (MCFD) through various programs. In addition, primary care providers provide mental health support and some children, who have the ability to pay, can receive support from private mental health professionals. Some intensive, specialized mental health services reside outside of IH, such as inpatient and outpatient treatment at the B.C. Children’s Hospital in Vancouver.

Under exceptional circumstances, children are admitted into acute care facilities for mental health conditions or in response to self-harm events that require intensive short-term management. Rates of admissions to hospital are not the preferred method for monitoring community mental health as they are highly influenced by characteristics of the system and availability of community based mental health resources. In addition, hospital admissions only recognize the most severe cases and do not represent the average child struggling with mental health needs not requiring hospitalization. Despite the limitations of this measure, it remains one of the most available and demonstrates the acute care needs children and youth have experienced in our region.

**Figure 4. Adolescent (Ages 10-19) Mental Health Hospitalization Rate  
2010/11-2014/15**



Source: Health Ideas, BC Ministry of Health, 2010/11-2014/15 (Ministry of Health, 2016)

Rates of mental health admissions appear to be increasing in IH (Figure 4). Provincially rates have also increased but not at as great a rate as in IH. TCS has the highest average admission rate over the 5 years reported, potentially indicating gaps in primary care services.

## Caring Adult

The availability of supportive adults outside of school and family has been shown to be a protective factor in adolescent lives. A new question in the McCreary Centre Society Adolescent Health Survey asks students whether they have an adult in their community, other than a parent or teacher, who cares about them. This strength based indicator draws attention to the meaningful role that every person plays in ensuring adolescent well-being. Strength based indicators acknowledge and measure a known protective factor or a factor that could facilitate resilience within a population.

McCreary Centre Society Adolescent Health Survey (2012/13)<sup>33</sup> data show that students with a relationship with a local adult that cares are more likely to feel the activities they engaged in are meaningful, their ideas are listened to and to feel good about themselves.

A higher proportion of students across IH report having a relationship with a caring adult outside their school or family compared to the B.C. average (66% vs. 61%) (Table 3). The highest proportion was reported amongst EK youth with TCS and KB regions not far behind.

**Table 3. Students Aged 12-19 Reporting a Relationship With a Local Adult Who Cares, 2013**

Region	EK	KB	OK	TCS	IH	B.C.
<b>Local adult who cares</b>	69%	67%	63%	68%	<b>66%</b>	61%

Source: McCreary Centre Society Adolescent Health Survey, 2013

## Mental Well-Being

Mental health and emotional development are indicators of overall well-being and can predict adult health, educational results and positive social outcomes. Students in IH and across B.C. report good or excellent mental health at similar rates (Table 4). Compared to IH and B.C., youth in KB and EK report slightly higher levels of positive mental health (83%, 82%), whereas OK rates are slightly lower (80%).

Only youth attending main stream public schools were eligible to be included in the McCreary Centre Society Adolescent Health Survey. This survey design may exclude some youth who may be at higher risk for poor mental well-being (e.g. youth not attending school). Because of this limitation, rates provided may overestimate the proportion of youth in IH experiencing good or excellent mental well-being.

**Table 4. Students Aged 12-19 with Good/Excellent Mental Health, 2013**

Region	EK	KB	OK	TCS	IH	B.C.
<b>Mental Health</b> Very good or excellent	82%	83%	80%	81%	<b>81%</b>	81%

Source: McCreary Centre Society Adolescent Health Survey, 2013

## Healthy Weight

Healthy weight in childhood is an important indicator of healthy behaviours including good nutrition and appropriate levels of physical activity. Weight can also influence the risk of diabetes and mental health challenges stemming from negative body image. The McCreary Centre Society’s Adolescent Health Survey asks youth to self-report height and weight measurements and from this, body mass index (BMI) is calculated. A healthy BMI is defined as falling between the 3rd and 97th percentile, classifying severely underweight and obese adolescents as unhealthy. These self-reported measurements are prone to inaccuracies related to body image, social pressures, optimistic estimates, or simply not knowing current measurements.<sup>34</sup> Nevertheless, it remains a highly-used health indicator.

In IH and across B.C., females aged 12 to 19 are more likely to report a healthy weight than males. A higher proportion of males in IH reported a healthy weight (73%) than their provincial counterparts (70%), whereas IH females were less likely to report a healthy weight (77%) compared to the provincial average (81%). IH youth living in OK were most likely to report healthy weights (77%), whereas those living in TCS were least likely to (73%) (Table 5). Summary information is not available allowing unhealthy weights to be stratified into overweight and underweight.

**Table 5. Students Aged 12-19 with Healthy BMI, 2013**

Region		EK	KB	OK	TCS	IH	B.C.
Healthy Weight - Self-reported BMI	Males	79%	70%	72%	69%	<b>73%</b>	70%
	Females	70%	79%	82%	76%	<b>77%</b>	81%
	<b>Total</b>	<b>75%</b>	<b>75%</b>	<b>77%</b>	<b>73%</b>	<b>75%</b>	<b>76%</b>

Source: McCreary Centre Society Adolescent Health Survey, 2013



## Physical Activity

Physical activity is critical to healthy weight and well-being.<sup>35</sup> Active lifestyles and sedentary behaviours learned in childhood are likely to carry through to adulthood.<sup>36</sup> Physical activity includes activities that are designed to increase heart rate (e.g. sports) and activities that inadvertently do so (e.g. chores). Regular physical activity can improve attention and learning, develop self-confidence, increase cardiovascular fitness, and cultivate physical literacy.<sup>37</sup>

Youth classified as physically active had participated in activities that made them breathe hard for at least 60 minutes every day in each of the previous seven days (Table 6). In IH, 18% of youth aged 12 to 19 years old reported this level of physical activity compared to 16% across B.C. Adolescents living in EK and TCS reported some of the highest levels of physical activity across the province (27% and 28%). Females in the OK fell below the provincial average. Across all IH regions females report significantly lower rates of daily physical activity than males. Interestingly, self-reported healthy weights show the reverse trend, where adolescent females were more likely to report healthy weights than males. The relatively low proportion of youth reporting physical activity is partly a function of the measure chosen.

**Table 6. Percentage of Students Ages 12-19 who Exercise for at Least 60 Minutes per Day, 2013**

Region		EK	KB	OK	TCS	IH	B.C.
Physical Activity - At least 60 min daily	Males	27%	23%	23%	28%	25%	22%
	Females	13%	12%	11%	13%	14%	12%
	<b>Total</b>	<b>20%</b>	<b>18%</b>	<b>17%</b>	<b>20%</b>	<b>18%</b>	<b>16%</b>

Source: McCreary Centre Society Adolescent Health Survey, 2013



## Tobacco Use

The 2013 McCreary Centre Society Adolescent Health Survey’s definition of tobacco use includes cigarettes, cigars or cigarillos, chewing tobacco, electronic cigarettes, or using a hookah.

**Table 7. Tried Smoking and Daily Smoking in Past 30 Days among Students Ages 12 to 19 Years Old, 2013**

Region		EK	KB	OK	TCS	IH	B.C.
Tobacco Use	Tried Smoking	29%	31%	29%	27%	29%	21%
	Used daily - Past 30 days	3.5%	3.1%	2.9%	2.7%	2.9%	1.5%

Source: McCreary Centre Society Adolescent Health Survey, 2013

The proportion of youth in IH who have tried tobacco was higher than the provincial average (29% vs. 21%) (Table 7). Province wide, IH has the highest proportion of students that smoke daily. Over the past ten years, regional and provincial trends demonstrate a 13% decline in the proportion of youth who have tried smoking, which is a significant and meaningful decrease in this risk behaviour.

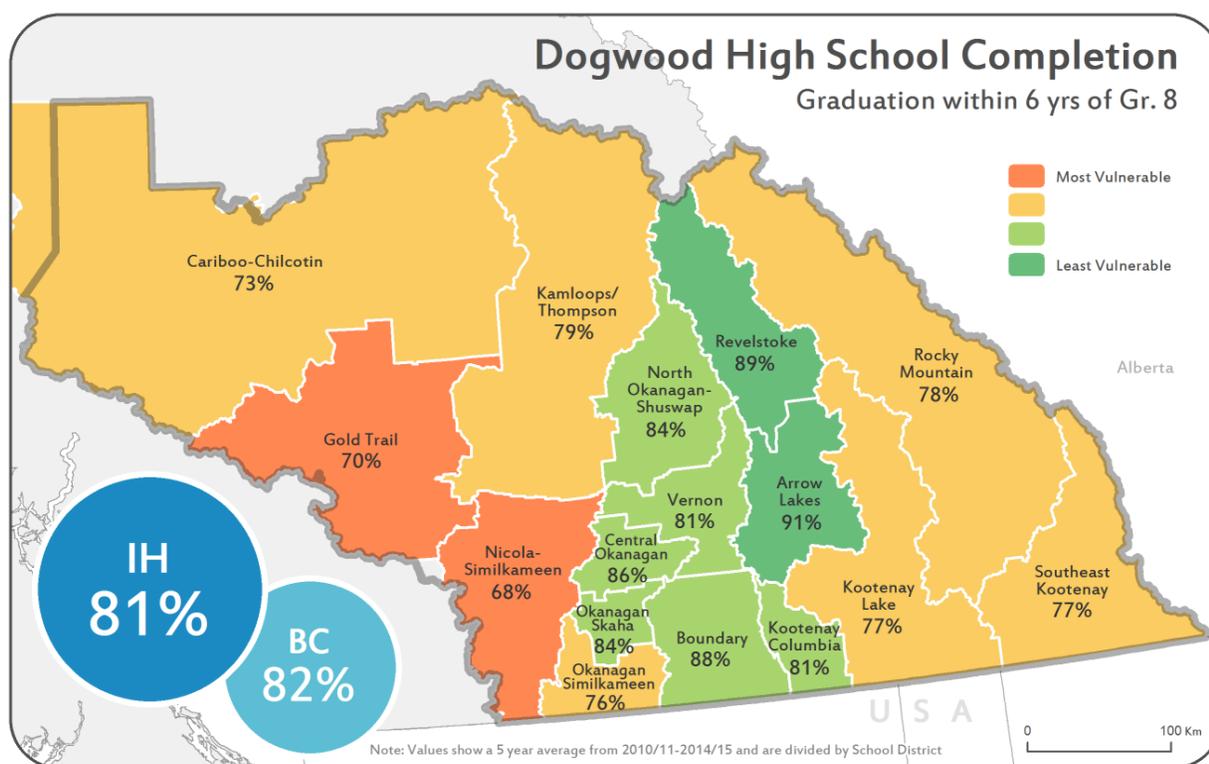


## High School Completion

Not graduating from high school is associated with lower health status, lifelong learning participation, social cohesion and life satisfaction. It results in increased risk taking behaviours. In addition, not graduating from high school reduces economic potential, a powerful lifelong determinant of health. Low levels of education can perpetuate through multiple generations with children born to parents without high school education more likely to experience similar negative outcomes.<sup>38</sup>

The ability to achieve a Dogwood high school certificate (i.e. High School graduation) is a culmination of experiences, life situations, environment and personal factors. For some individuals, services provided by the health authority such as speech therapy and occupational therapy are essential in achieving graduation. From a population level, high school graduation rates inform areas with immediate and potential future needs as populations with lower educational attainment may require additional health services throughout their life course.<sup>39</sup>

**Map 6. Proportion of Individuals Graduating with a Dogwood High School Diploma within 6 Years of Beginning Grade 8, 2010/11-2014/15**



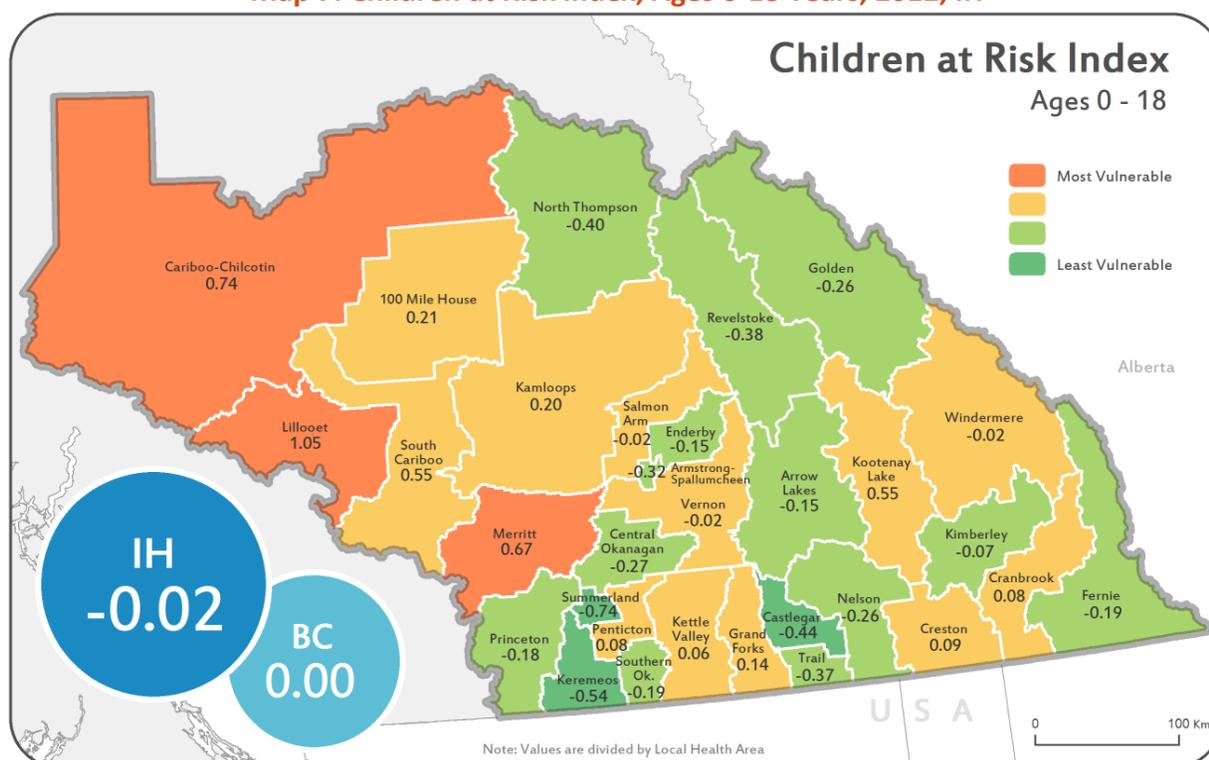
Source: BC Ministry of Education 2010/11 – 2014/15

The westernmost portion of IH has the lowest rates of Dogwood high school completion in IH (Map 6). Aboriginal students also have a significantly lower rate of Dogwood High School completion than their non-Aboriginal counterparts (in 2006, 47% vs 79%).<sup>40</sup> Given the strong association between education and health status, this information is important for future health care planning as well as managing current intervention services.

## Children at Risk

At-risk children represent a critical demographic for whom early intervention could make a considerable impression on their adult lives.<sup>41</sup> The Children at Risk Composite Index provides a snapshot of estimated vulnerability of children.<sup>42</sup> The index includes the following risk measures: families receiving income assistance, children in care, infant mortality, reading levels and serious juvenile crime. Together these factors are weighted and used to estimate the degree of vulnerability children experience in LHAs across B.C. This indicator assigns a negative (better outcomes) or a positive value (worse outcomes) to the geographic region based on how their children compare to the B.C. average.

Map 7. Children at Risk Index, Ages 0-18 Years, 2012, IH



Source: BC Stats Socio-Economic Indices, 2012

IH has a broad spectrum of risk, -0.93 to 1.17. Of the 77 LHAs ranked across the province, Summerland (-0.74), Keremeos (-0.54) and Castlegar (-0.44) predict some of the highest levels of child well-being and were ranked among the top ten in B.C. (Map 7). In contrast, children in Lillooet (1.05), Cariboo-Chilcotin (0.74) and Merritt (0.67) are expected to be at the highest risk of negative outcomes and were ranked among the bottom 10 in B.C. Geographically these high risk regions are clustered in the western portion of IH, revealing a high degree of inequity in child well-being across IH.



## Hospitalization for Injury

Injuries are the leading causes of death among people aged 1 to 44 years.<sup>43</sup> Injuries can either be intentional (e.g. self-harm, assault) or unintentional (e.g. motor vehicle collisions, sporting injuries). Successful injury prevention relies on a multi-faceted approach including education, legislation, regulation, surveillance, prevention tactics, community support and infrastructure.<sup>28</sup>

**Figure 5. Average Yearly Unintentional and Intentional Injury Hospitalization Rates, by HSDA and Age Group 2009/10 - 2013/14**

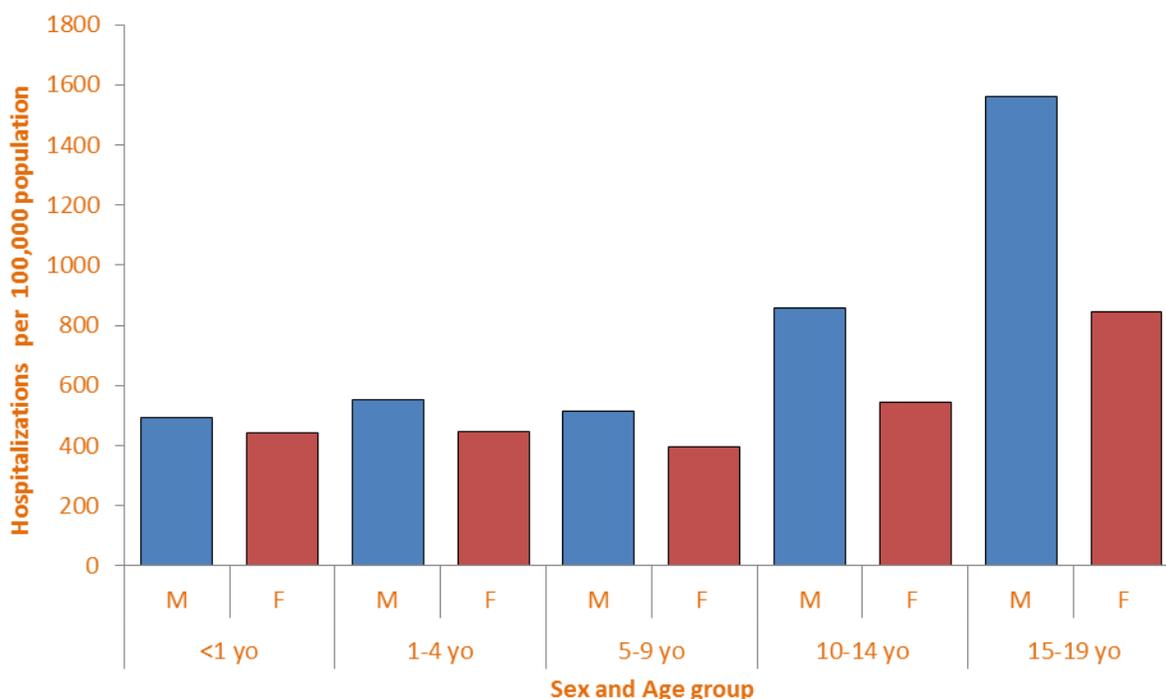


Source: Discharge Abstract Database, Ministry of Health, BCIRPU Injury Data Online Tool 2009/10-2013/14 (BC Injury Research and Prevention Unit 2016)

The BC Injury Research and Prevention Unit (BCIRPU) reports that between 2006 and 2011, 142 IH children and youth (aged 0 to 19 years) lost their lives to unintentional and intentional injuries.

Childhood injury hospitalization rate (919 hospitalizations per 100,000 population per year) is highest in EK. Injury rates increase as children age with the exception of children aged 1 to 4 and 5 to 9 years where a relatively constant injury rate is seen (Figure 5). Aboriginal people have higher injury rates when compared to non-Aboriginal residents.<sup>44</sup>

**Figure 6. Average Yearly Unintentional and Intentional Injury Hospitalization Rate, by Sex and Age Group, IH, 2009/10-2013/14**



Source: Discharge Abstract Database, Ministry of Health, BCIRPU Injury Data Online Tool 2009/10-2013/14 (BC Injury Research and Prevention Unit 2016)

Males sustain more injuries than females across all ages; however this becomes more apparent in older youth (15-19 years) where males have 1.85 times the hospitalization injury rate as females (Figure 6). Higher risk for injury in males and increasing gender gap with age is a well-known phenomenon and research is focused on this disparity.<sup>45</sup>

The mechanism of injury changes as children age as shown in Table 8. Falls are the most common mechanism of injury for 0 to 14 year olds. Transport related injuries climb steadily with age until they become the most common mechanism of injury in 15 to 19 year olds. Intentional injuries (i.e. self-harm, suicide and assault) become much more significant in 15 to 19 year olds and are only second to transport related injuries in this age group.

**Table 8. Common Injuries by Age Group, IH, 2009-2014**

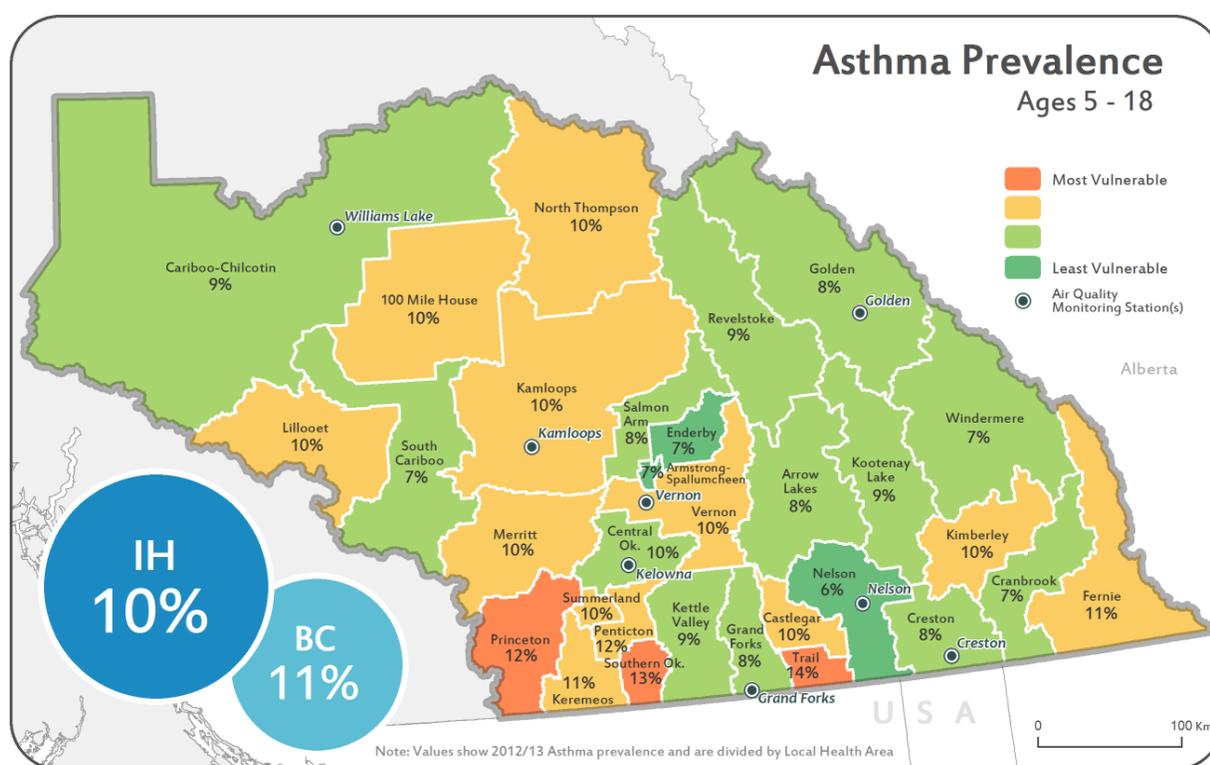
Age Group (Years)	Injury	Hospitalizations (per 100,000 Population)
<1	Suffocation/Choking	35.45
	Foreign Body	35.45
	Unintentional Poisoning	38.68
	Homicide/Assault	61.24
	Other Unintentional	112.8
	Falls	138.59
1-4	Struck by Object	34.03
	Other Unintentional	37.81
	Unintentional Poisoning	52.93
	Foreign Body	102.84
	Falls	176.94
5-9	Foreign Body	36.39
	Other Unintentional	39.91
	Struck by Object	41.09
	Transport Related	63.98
	Falls	223.05
10-14	Suicide/Attempted Suicide	48.46
	Other Unintentional	58.04
	Struck by Object	108.63
	Transport Related	162.95
	Falls	226.32
15-19	Other Unintentional	99.61
	Struck by Object	171.68
	Suicide/Attempted Suicide	174.44
	Falls	232.74
	Transport Related	269.46

Source: Discharge Abstract Database, Ministry of Health, BCIRPU Injury Data Online Tool 2009/10-2013/14 (BC Injury Research and Prevention Unit 2016). Note: Medicare complications not included

## Asthma Prevalence

Asthma is a chronic condition that affects over 10,000 children (aged 5 to 18 years) across the IH region.<sup>46</sup> Asthma is the most common chronic disease in children. Symptoms include wheezing, coughing, and shortness of breath. Poor air quality is a key risk factor for children with asthma.<sup>47</sup> Indoor air quality triggers include the presence of mold, dust mites, allergens and tobacco smoke. Outdoor air quality can also trigger asthma exacerbations. Outdoor air quality can be impacted by motor vehicle emissions, heavy industrial activities, wood combustion and forest fires. Children with persistent asthma have increased school absenteeism<sup>48</sup> potentially affecting their school performance. Children with asthma will have increased contact with the health care system when medical management is required to control symptoms.

**Map 8. Asthma Prevalence in Children 5 to 18 Years Old, 2012/13, IH**



Source: Primary Health Care Registry (Discharge Abstract Database, MSP, PharmaCare and PharmaNet), 2012/13

The prevalence rate of childhood asthma in IH is lower than that of B.C. (10% vs 11%). Map 8 shows the LHAs with the highest rates are most southerly and along the United States border. They include Trail (14%), South Okanagan (13%) and Princeton (12%). Trail and the South Okanagan (Osoyoos) have permanent air quality monitoring stations. The lowest rates are scattered throughout IH, without an apparent pattern.

## Food Security

Poor nutrition and hunger are known to affect children’s memory, energy levels, and ability to focus. Food banks and other charitable organizations across IH help provide nutritious food to families and children who rely on this support.

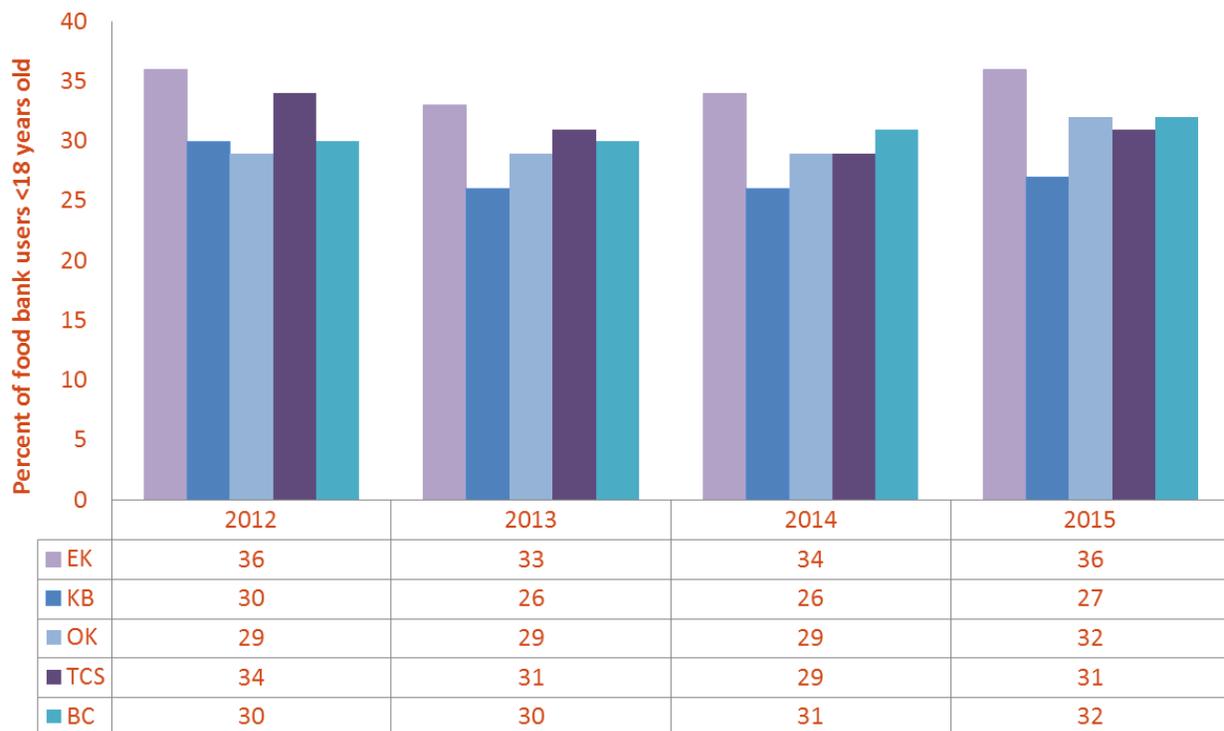
**Table 9. Number and Percentage of Children under Age 18 Using Food Banks, 2015**

Region	EK	KB	OK	TCS	IH	B.C.
Number of unique children using food banks	823	600	1,998	2,239	5,659	31,527
Percent of children in HSDA using food bank	5.9	4.6	3.4	5.8	4.6	3.8

Source: Food Banks Canada, Hunger Count 2015

Approximately 4.6% of all children in IH used a food bank in 2015 which exceeds the B.C. rate of 3.8%. A greater proportion of children in EK and TCS (5.9 and 5.8%, respectively) rely on food banks than in the other two IH HSDAs (Table 9). Nearly 6,000 children in the IH region relied on food banks to meet their nutritional needs in 2015. Other organizations (e.g. churches, food gleaning), not affiliated with Food Banks Canada, also provide food to families in need. This may result in the counts that Foodbanks Canada provides underestimating of the proportion of families that are utilizing charity to acquire sufficient food.

**Figure 7. Percentage of All Food Bank Users That Are Under 18 Years Old, 2012-2015**



Source: Food Banks Canada, Hunger Count 2015

In 2015, 41 food banks operated across IH and of food bank users in IH, 32% are children. Between 2012 and 2014, EK saw a significantly declining proportion of children food bank users, despite a stable provincial rate (Figure 7).

Acquiring food from charitable organizations is one way to measure food insecurity and represents relatively extreme food insecure situations. Some families have inadequate resources to provide a healthy variety and supply of food but do not visit food banks. This situation will also negatively impact healthy childhood development.



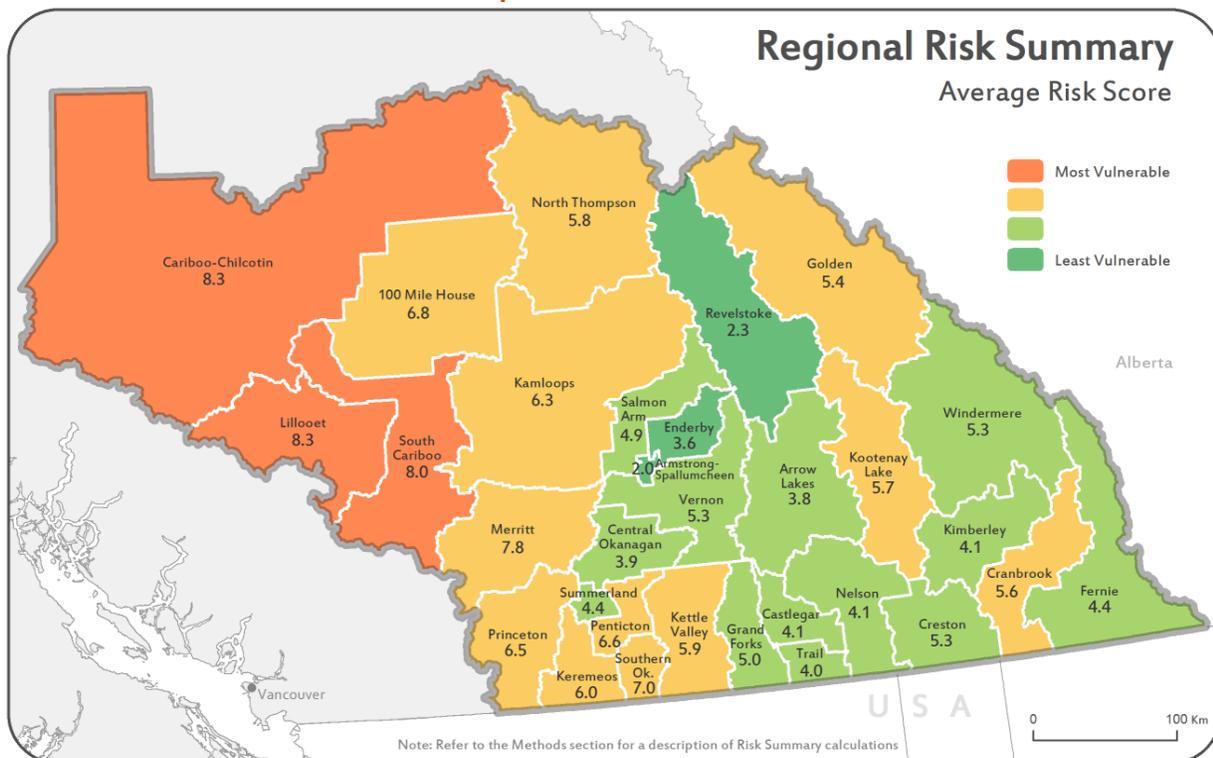
### Summary Indicator – Cumulative Risk

This indicator is a summative measure that combines the following indicators:

- Smoking During Pregnancy
- Exclusive Breastfeeding at 4 to 6 months
- Early Development Index for Kindergarteners
- Caries free Kindergarteners
- Dogwood High School Completion
- Children at Risk Index
- Asthma Prevalence

All indicators that were presented in this report at either the LHA or SD level are included. The map highlights areas that are at higher or lower risk over the broad indicators included. This is valuable in identifying areas with higher global needs and indicates areas that have need for geographically focused, overarching interventions. Public Health actions should be universal (everyone has access), but with scale and intensity that is proportionate to disadvantage and need. Identification of areas with higher concentration of need can help steer resourcing decisions to communities and populations that need more or different services to achieve the same positive outcomes. There continues to be need in areas that are not highlighted.

Map 9. Cumulative Risk

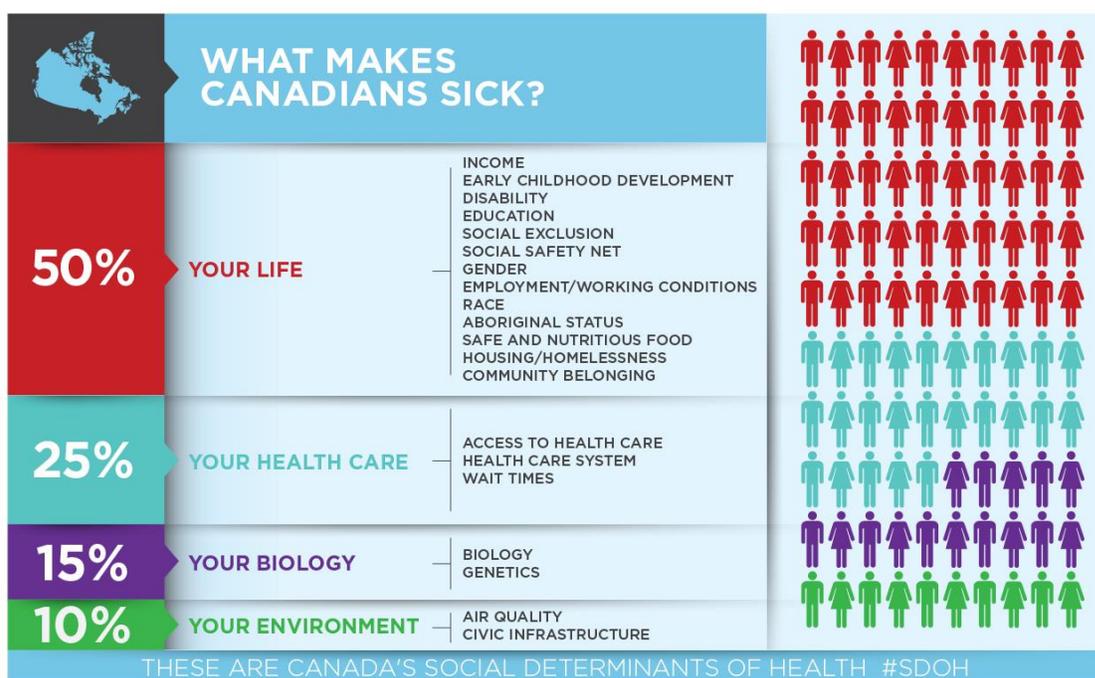


The summary measure (Map 9) clearly demonstrates a west to east gradient, with the western LHAs consistently ranking as more vulnerable than the eastern ones. TCS contains 7/9 of the LHAs in the bottom 10%. Overall the Kootenays tend to fair well, with the Okanagan falling in the middle. The five most vulnerable LHAs are home to 9% (n=11,988) of IH children and youth while 31% (n=40,553) live in the five least vulnerable LHAs.

## Discussion

Child health is influenced by social factors including family wealth, parental education, ethnicity, gender, housing and rurality, amongst others. These are referred to as the social determinants of health. The Canadian Medical Association (CMA) only attributes 25% of an individual’s health status to direct health care, with the balance determined by the influence of the social determinants of health, environment and genetics (Figure 8). Although IH does not have direct influence over many social determinants of health, knowledge about the state of these critical factors can guide and influence program development and customization. IH can also inform and advocate with key stakeholders when policies influencing the social determinants of health are being developed.

**Figure 8. What Makes Canadians Sick?**



Source: CMA, Health Equity and the Social Determinants of Health, <https://www.cma.ca/En/Pages/health-equity.aspx> retrieved: June 17, 2015

There is value in exploring other ways to stratify the data. For example, if one was able to stratify health care needs by social determinants (e.g., family income, ethnicity and education of parents) it may become more apparent which groups have the greatest need and what targeted actions could be contemplated. Unfortunately with currently available data, most indicators only have demographic characteristics (e.g., age, sex, and geographic locator) that are easily extractable and reportable.

The western portion of the health authority consistently has higher vulnerabilities, the central portion has moderate overall vulnerabilities and the eastern portion of the health authority has lower overall vulnerabilities. Mapping average rates of indicators by geography only explores one facet of assessing need. For instance, the Central Okanagan has 34,900 children under the age of 19 years while Merritt

has 2,342. If a condition has double the rate in Merritt compared to the Central Okanagan, the number of children affected in the Central Okanagan will be 7.45 times greater than in Merritt. The number of children affected needs to be considered in concert with the proportion of children affected.

Proportionate universality is a concept that describes the distribution of resources and interventions in a population. It describes the need for the entire population to benefit (universality) but the need for there to be additional focus and resources (proportionate) on populations that will require different or more intensive assistance to reach similar outcomes. Evaluating opportunities to increase the amount of resources and effort applied to the proportionate component of programming may result in increased service and opportunities for children that may have been underserved historically. This may result in a decrease in the amount of effort that can be applied to the universal components of programs. This rebalancing of effort may be required for children to have equal chances for success.

The ability for IH to measure and evaluate health equity (the ability to achieve equal health outcomes despite limiting social conditions), is a significant way the health authority can influence positive health outcomes amongst all children. Childhood programs must specifically address health equity in program development, operations and evaluation. This will ensure more vulnerable children are disproportionately benefiting from interventions leading to reductions in health inequities.

The differences in the health status of Aboriginal children compared to the general population have not been discussed extensively in this report. In some instances this is because data is not available, and in others the indicators do not report information in a strength based fashion, the preferred methodology of Aboriginal communities. However, it is well recognized that some Aboriginal children have increased vulnerabilities<sup>5</sup> leading to poorer health outcomes both immediately and in later years. The measures that are presented in this report do reflect the higher vulnerabilities experienced by Aboriginal children. Some LHAs, particularly those in the western portion of IH, have a higher proportion of Aboriginal children which likely influences the overall higher vulnerability of these regions. For more information about Aboriginal children's health, please refer to "First Nations Child Poverty: A Literature Review and Analysis".<sup>30</sup>

Children are an investment and represent our future. When well targeted resources are devoted to infants, children and youth, immediate results may not be dramatic and curative. However, the advantages gained are far reaching and returns continue over the life course. It may be difficult to redirect resources to preventative programs, or programs dealing with issues that are less acute, but this must be done in order for IH to make more of an impact to the coming generations. There will be a return on this investment, however it will be delayed. The positive outcomes realized will not only be seen in health but also over the much broader context of wellness.<sup>4</sup>

## Recommendations

The recommendations are intended to begin addressing the gaps in health outcomes seen across geographic areas and within vulnerable population groups:

1. Interior Health should convene a cross portfolio working group to provide direction, leadership and accountability for maternal child health in IH.
  - a. The working group should include representation from the First Nations Health Authority.
  - b. The working group should be responsible for identifying priorities, setting goals, identifying outcomes, and monitoring the progress on implementation of both the goals and the recommendations in this report.
  - c. The working group should engage with families, youth and communities to incorporate their perspectives.
2. The Medical Health Officers, Epidemiologists and maternal child & youth health program staff should develop and implement a surveillance system to measure and periodically report key childhood indicators across the age continuum (0 to 18 years).
  - a. The selection of indicators should align with provincial indicators and reflect IH priorities.
  - b. Vulnerable populations should be stratified to inform programming and monitor progress.
3. Interior Health should conduct a scan and evaluate current child health programs to ensure they are evidence based and effective. Evaluation should incorporate an equity lens to determine if services are available, accessible and acceptable to families.
4. New or modified IH services for children should ensure proportionate universality, allowing equal access to care, with a focus on reducing barriers for the most vulnerable groups.
5. The maternal child & youth health program should continue to engage and expand internal and external partnerships to improve children's health, including Aboriginal partner communities and organizations.

## Conclusion

Although IH provides vital services to our child population, many critical activities are provided outside of our control; we need to collaborate with these organizations to ensure maximum benefit for children. Services in IH are far reaching and we must ensure our services are provided in a manner that is available, accessible and acceptable to all children. Services must be provided in a manner and in intensity that allow all children to have opportunities for equal outcomes, regardless of the social circumstances they experience. This will necessitate increased collaboration with partner organizations, increased focus on program evaluation and innovative thinking. The efforts we invest will be far reaching, enhancing the life- long success of our residents.

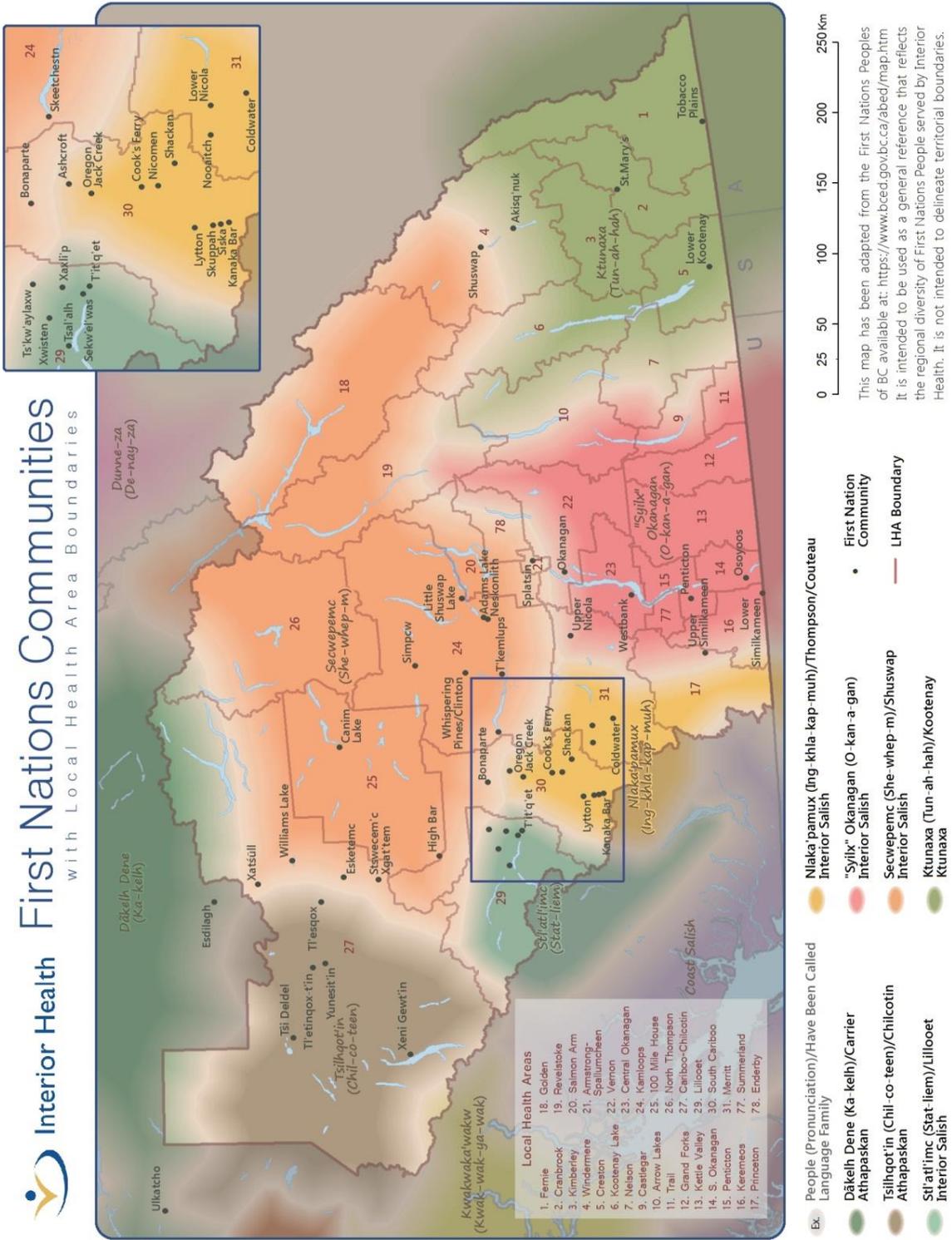
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# Appendix A First Nations - IH



## Appendix B: Data Sources

### Early Development Instrument (EDI)

Human Early Learning Partnership, University of British Columbia

This is a questionnaire that is completed by kindergarten teachers every February on students in their class. It evaluates 5 core areas of early childhood development that are known to be good predictors for future health, education and social outcomes.

### McCreary Adolescent Health Survey

McCreary Centre Society

This is a survey provided every 5 years to randomly selected classes (Grade 7-12) in public schools across the province. The survey gathers information on physical and emotional health influencing health and development. It has been collecting information for similar questions in a systematic fashion since 1992.

### B.C. Ministry of Education

The proportion of students that graduated with a dogwood certificate within 6 years of beginning grade 8, reported at the school district level. This measure does not capture students that have discontinued schooling prior to grade 8 and is adjusted for migration in and out of B.C. The dogwood diploma is granted if a student has met the requirements for full high school graduation.

### Perinatal Services BC

Perinatal Services BC (PSBC) provides comprehensive perinatal information through the British Columbia Perinatal Data Registry (BCPDR), a quality-controlled database containing clinical information collected from standardized antenatal, intrapartum, postpartum and newborn forms on all deliveries and births from obstetrical facilities and births occurring at home attended by Registered Midwives throughout the province of British Columbia.

Smoking During Pregnancy, Full and Partial Duration: Mother smoked throughout pregnancy or part of the pregnancy. Mother is included if smoked when she became pregnant and quit at any time during the pregnancy.

\*All inferences, opinions and conclusions drawn in this publication are those of the authors, and do not reflect the opinions or policies of Perinatal Services BC.

### **B.C. Dental Survey of Kindergarten Children**

Since 1990, public health dental professionals (registered dental hygienists and certified dental assistants) have visited kindergarten in school settings to conduct a visual examination every three years. Caries free children are those with no evidence of existing restorations or visible decay (broken enamel).

### **B.C. Stats Socioeconomic Indices**

The Composite Index of Children at Risk summarizes the relative threat to child well-being from a provincial perspective. The index incorporates: The proportion of children ages 0-14 in families receiving income assistance for less than one year (10%), and more than one year (20%), the rate of children in care (10%), the infant mortality rate (20%), the proportion of students below reading standards in grades 4 and 7 (20%), and the rate of serious juvenile crime charges for children ages 12-17 (20%).

### **Primary Health Care Registry**

Asthma prevalence is recorded on the basis of one hospitalization coded with asthma or two medical visits coded with asthma within 365 days or one medical visit with 2 prescriptions for asthma medications within 365 days. Data is derived from the Discharge Abstract Database, MSP, PharmaCare (1992/1993 – 1995/1996) and PharmaNet (1996/1997 onward).

### **Food Banks Canada Hunger Count**

The Hunger Count offers an annual snapshot of food bank use and food insecurity across Canada. It explores the causes of hunger and segments of the population that rely on food banks to meet daily nutritional needs.