



Child and Youth Health and Well-Being Indicators Project: Appendix A—The Foundations of Child Well-Being in British Columbia

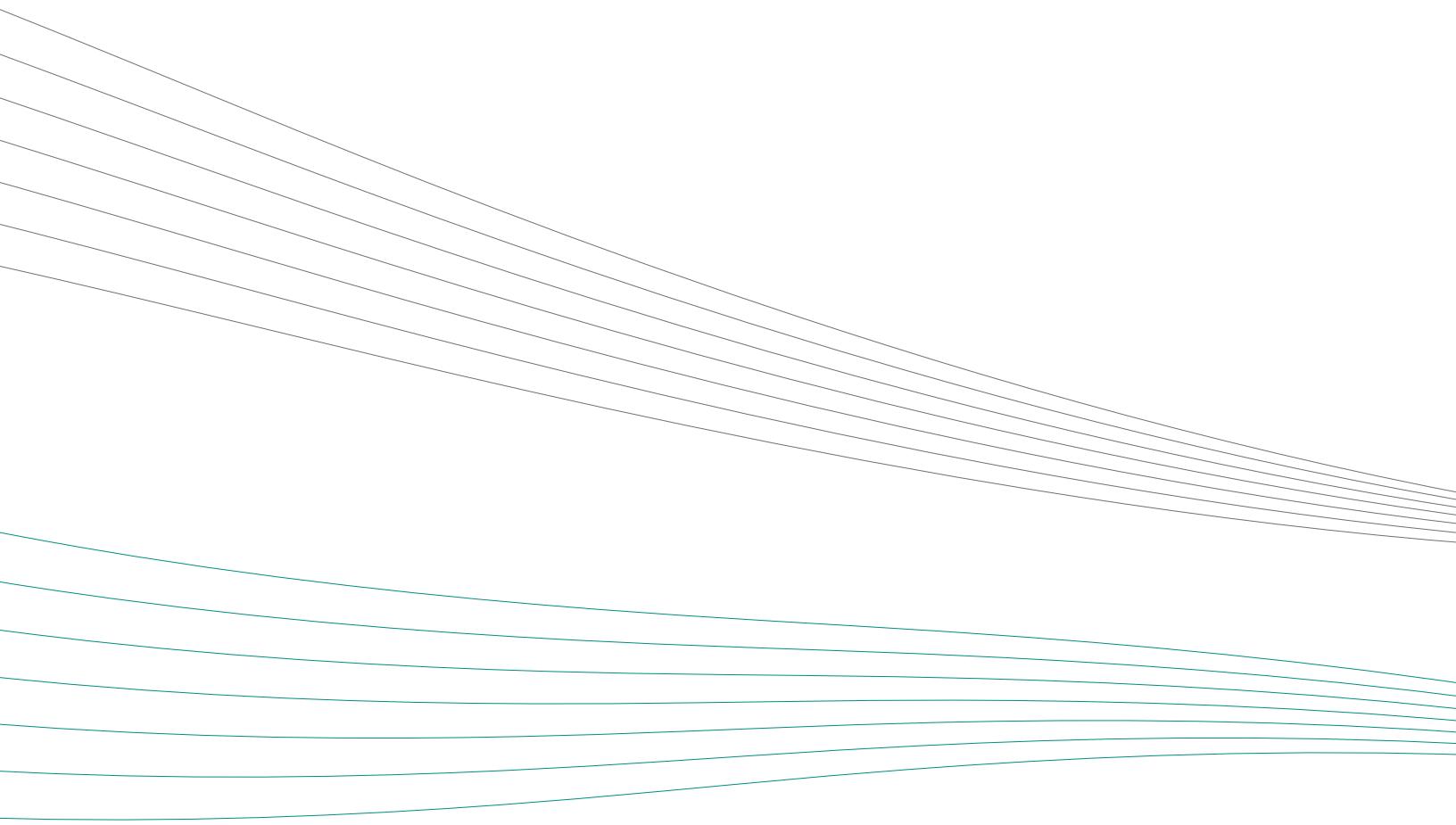


Office of the Provincial Health Officer



Canadian Institute
for Health Information

Institut canadien
d'information sur la santé



8JgWgg|cb'DUdYf. The Foundations of Child Health and Well-being in British Columbia

*A discussion document in preparation for the development
of child health indicators in British Columbia*

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October 9, 2009

The true measure of a nation's standing is how well it attends to its children – their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they are born.

UNICEF, *Child poverty in perspective:*
An overview of child well-being in rich countries,
Innocenti Report Card 7, 2007
UNICEF Innocenti Research Centre, Florence.

Executive Summary

British Columbia currently lacks a comprehensive set of indicators to define and track child health and well-being as well as appraise the impact of childhood experiences on future health outcomes. Without these data it is impossible to assess demographic trends for their relevance, health policy and practice initiatives for their effectiveness, and the implications of these factors and interventions for future health outcomes. The lack of data also curtails the capacity for pinpointing areas in the province where child health needs may be more pronounced and additional interventions therefore warranted.

The Office of the Provincial Health Officer (PHO), in complying with its mandate to report on the health of British Columbians, intends to produce a comprehensive document on the state of affairs of child health and well-being in this province. In preparation, the PHO has requested 1) a full review of the factors and conditions that contribute to the health and well-being of children, 2) identification of those child health and well-being factors and conditions that can be changed or modified by policies, programs and services, and 3) a method of tracking the health and well-being of children in the province. In support of this work the PHO, in partnership with the Ministry of Health Living and Sport (MHLIS) and the Canadian Institute for Health Information (CIHI), has launched a project to identify, refine and prioritize a set of child health and well-being indicators for British Columbia.

The purpose of this discussion paper is to:

- a) identify the major, modifiable factors and conditions that are known to enhance health and well-being in young people, and
- b) recommend specific criteria for establishing indicators that will identify the modifiable health and well-being factors and conditions among children in British Columbia.

Crucial to the development of child indicators is a thorough understanding of antecedents to child health and well-being—the environments, opportunities, intrinsic factors, determinants and supports in a child's development that are most likely to attribute to either positive or negative outcomes. In other words, it is essential to know which antecedents contribute most to positive health and well-being and which are modifiable to affect positive change.

To accomplish these objectives, the authors propose an integrated framework for predicting child health and well-being that is a distillation of four internationally recognized theoretical approaches to understanding children's healthy development:

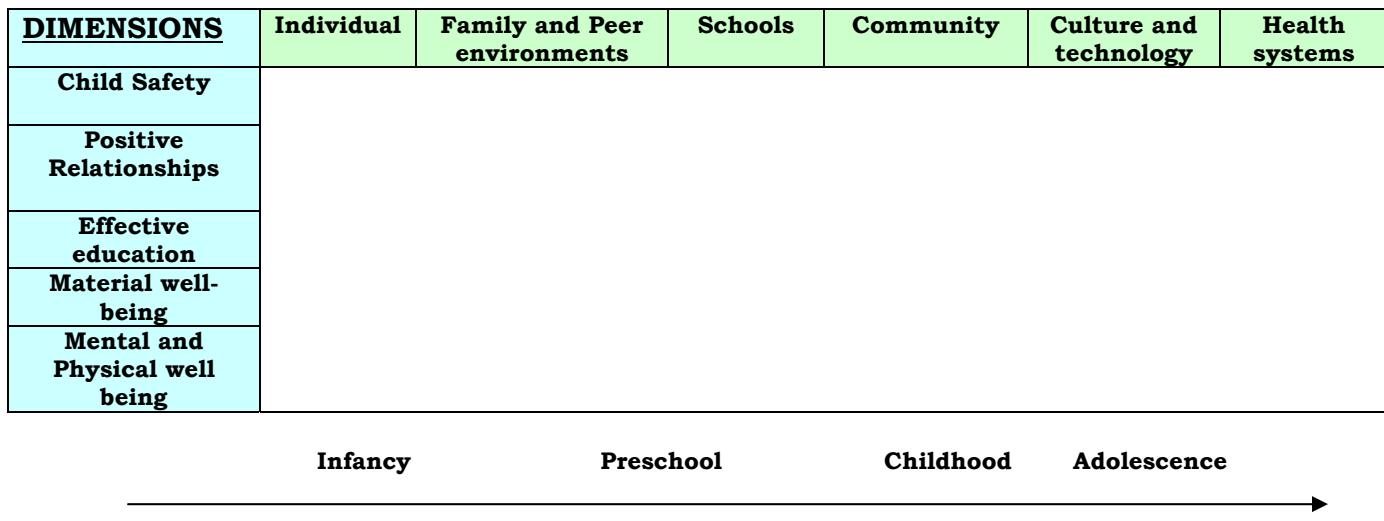
- **An integrated systems theory** - which highlights how children interact with their environments and play an active role in creating their well-being by balancing proximal and distal factors, developing and making use of resources, and responding to challenges and successes.

- **A theory of the health and well-being of vulnerable children** - which shows how resiliency and protective factors work in both children and their environments sustain child health and well-being and healthy development.
- **A strengths-based perspective** - which recognizes the positive aspects of children and their environments.
- **A social structure and determinants** of child health perspective- which identifies the inequities that exist in relation to cultural values, distribution of family resources, and the technological changes that advance consumerism and individual self-interest and how these can affect children's health and healthy development.

The proposed integrated conceptual framework for British Columbia depicts, in matrix form, the inter-connectedness among the many aspects of a child's environment, referred to here as *ecologies*—individual, family and peer, school, community, culture and technology, and health systems—and the interaction of these ecologies with recognized *dimensions* of child health and well-being, namely child safety, positive relationships, effective education, material well-being and physical well-being.

An integrated framework for predicting child well-being across contexts and over time

ECOLOGIES



Based on indicator development initiatives adopted throughout Canada and internationally, the paper also proposes the criteria that will be appropriate for selecting specific child health and well-being indicators for British Columbia:

- **Significant to the well-being of children:** All domains of child well-

being should be adequately represented by the data including key measures of mental, physical and behavioral health, social and emotional development, civic engagement, education and intellectual development. In addition, indicators of the social influences that shape child development and well-being from the family, peer, school, and neighborhood or community, should also be included.

- **Relevance to policy:** Indicators should be amenable to effective action. Specifically, they should be oriented towards recognised policy variables, and, as such, relate to both the sources of the current status of children and the outcomes of existing policies and programs.
- **Rigorous methods:** The data should consist of objective statistical measures gathered through sound research techniques, and address issues of validity, consistency, sensitivity, feasibility and data construct ambiguity.
- **Positive and negative dimensions of children's lives:** Indicators should highlight the positive aspects of children's lives—such as level of happiness with their circumstances and degree of participation in making school rules—and also the negative dimensions, including referral to a juvenile diversion programme, for example.
- **Gives consideration to well-being and well-becoming:** Indicators should recognise childhood as an important time in its own right but also as a crucial period of preparation for adulthood. For example, indicators should include the percentage of children who report that there are good places to spend their free time (well-being) and the proportion of children who leave school before the statutory school-leaving age (detriment to well-becoming).
- **Capable of Producing Estimates for Key Subgroups:** The data system should be capable of generating separate, reliable estimates for children from a variety of social backgrounds including groups defined by gender, ethnicity, income level, and disability status.
- **Readily understood by multiple stakeholders:** Indicators should avoid complex statistical measures. To be given credibility they must be clear and easily understood. They should also be appealing and compelling to decision-makers, the media, advocacy groups and the general public.
- **Common interpretation and comparability:** Indicators should have the same meaning in varied population sub-groups and be comparable across jurisdictions to enhance valid comparisons.
- **Forward-looking:** Indicators should anticipate the future and provide baseline data for subsequent trends.

Following are the suggested next steps in preparing for the indicators workshop scheduled for November 2009, and for the protocols necessary to select a set of child health and wellness indicators that are sufficiently rigorous and have utility. Steps 1 - 3 are activities/outcomes to be completed within Project 1 (the Framework Development) while Steps 4 - 5 are the domain of Project 2 (Indicator Review and Selection).

- Step 1. Convene an advisory committee to the Office of the Provincial Health Officer that consists of representatives from relevant ministries and sectors (e.g. Ministry of Education, Ministry for Children and Families, Office of the Child and Youth Representative), the academic community and non-governmental organizations.
- Step 2. Form a workshop planning committee consisting of representatives from MHLS and CIHI to develop an agenda for the upcoming workshop, identify and invite speakers and delegates, and ensure that the logistics for the workshop are in place. Delegates to the workshop, selected provincial, national and international experts in child health and well-being indicator development, will be asked to provide feedback on the content and recommended next steps outlined in the current paper. The workshop, which will convene over a two-day period, will focus on discussion of the proposed integrated child health and well-being framework on the first day and the proposed list of child health and well-being indicator criteria on the second day.
- Step 3. Finalize the framework based on the outcomes of the workshop. This task will be undertaken by the authors, the workshop facilitator and a representative from MHLS.
- Step 4. Convene a small group of academic experts and government representatives after the workshop to review the workshop outcomes and accordingly identify a set of suggested child health and well-being indicators.
- Step 5. Submit the draft child health and well-being indicators to the Advisory Committee of the Office of the Provincial Health Officer for discussion and endorsement.

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The Foundations of Child Health and Well-being in British Columbia

I. Introduction and Purpose

The Government of British Columbia, as the steward of the health system, strives to provide leadership, direction, and support to ensure the health and well-being of the province's children. But such a mandate cannot be fully achieved without a comprehensive set of indicators with which to assess child health and well-being. The purpose of this discussion paper is to:

- a) identify the major, modifiable factors and conditions that are known to enhance health in young people, and
- b) recommend specific criteria for establishing indicators to address the modifiable health and well-being factors and conditions among children in British Columbia.

A wealth of research affirms that childhood experiences impact future health outcomes.¹ However, British Columbia lacks a comprehensive set of indicators to define and track child health and well-being as well as appraise the impact of childhood experiences on future health outcomes.² Without these data it is impossible to assess demographic trends for their relevance, health policy and practice initiatives for their effectiveness, and the implications of these factors and interventions for future health outcomes.

The dearth of data also curtails the capacity for pinpointing areas in the province where child health needs may be more pronounced and additional interventions therefore warranted.

*...the experiences
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The number of children in British Columbia is not inconsequential: Residents under the age of 19 number approximately one million and form 21% of the province's population. Table 1 illustrates, by region, their distribution throughout the province.³ Most reside in urban settings: The Fraser and Vancouver Coastal Health Authorities collectively have the largest number of children in their areas, more than a half million. The Northern Health Authority, on the other hand, has the highest percentage of children, 26% of the area's total population.

The challenge of meticulously investigating the status quo for all of the situations and circumstances that either benefit or impede child health and development is huge and not as yet being addressed in a concerted way in this province. Hence it is currently impossible to determine how well children—fully

¹ See B.C Atlas of Child Development, British Cohort Study, Early Adversity Study (EAS).

² National Child and Youth Health Coalition-Child and Youth Health Indicators

³ Obtained from B.C. Stats

<http://www.bcestats.gov.bc.ca/data/pop/pop/dynamic/PopulationStatistics>SelectRegionType.asp?category=Health>

one-fifth of the province's population—are being served with respect to their health and well-being. The task of filling this crucial information gap is the impetus for this paper: Even a marginal improvement in the understanding of those factors and conditions that enhance child health and well-being will yield tremendous results in terms of human benefit.

Table 1. Percentage of population in each region who are children (2008)

Health Authority	% of Children Within Age Category			# in Health Authority 0-18 yrs	% of Regional Population Who Are 0-18 years	Total Population In Region N
	0-5 yrs %	6-12yrs %	13-18 yrs %			
Interior	26%	36%	39%	147,369	20%	722,556
Fraser	29%	36%	36%	354,745	23%	1,541,479
Vancouver Coastal	29%	35%	35%	195,006	18%	1,092,358
Vancouver Island	27%	35%	38%	142,066	19%	741,299
Northern	29%	36%	35%	73,399	26%	283,911
Provincial Total	28%	35%	36%	912,585	21%	4,381,603

The need for the current document is based on the following background information:

- The Office of the Provincial Health Officer (PHO), in complying with its mandate to report on the health of British Columbians, intends to produce a comprehensive document on the state of affairs of child health in this province. In preparation, the PHO has requested: 1) a full review of the factors and conditions that contribute to the health and well-being of children, 2) identification of those child health and well-being factors and conditions that can be changed or modified by policies, programs and services, and 3) a method of tracking the health and well-being of children in the province.
- Healthy infant, child and youth development has been identified

by MHLs as a Core Public Health Function, and therefore seeks to identify a range of child and youth health indicators and determinants from 0 to 18 yrs of age that will support the work of the Regional Health Authorities, the Provincial Health Services Authority, and ministries of the Government of British Columbia.⁴

- A 2008 report released by the Representative for Children and Youth, British Columbia, recommends the establishment of a "...common set of measures to determine the real and long term impacts of its programs and services on children, youth and their families."⁵

In support of this work the PHO, in partnership with the Canadian Institute for Health Information (CIHI), has launched a project to identify, refine and prioritize a set of child health and well-being indicators in British Columbia. CIHI is interested in work that will:

- Assist the PHO in the production of a child health and well-being report, and the MHLs with regards to their efforts to develop childhood frameworks and indicators;
- promote the use of data and evidence to improve child and youth health and the delivery of health care services for that population; and,
- inform the development of provincial and national indicators of children's health and well-being.

There is a need to identify which of these antecedents are connected to intervention measures that are the most modifiable and have been shown to make the most significant difference in the health and well-being of children when programs and services are implemented as planned.

Crucial to the development of a set of child indicators is a thorough understanding of antecedents to child health and well-being—the environments, opportunities, intrinsic factors, determinants and supports in a child's development that are most likely to attribute to either positive or negative outcomes. As well, there is a need to pinpoint which specific antecedents are connected to intervention measures that are readily modifiable and have been shown to make the most significant difference in the health and well-being of children. In other words, it is essential to know which antecedents contribute most to child health and well-being and which are modifiable to affect positive change.

⁴ The age range from 0 to 19 yrs includes up until the child's 19th birthday

⁵ Representative for Children and Youth, 2008 Progress Report on the implementation of the recommendations of the BC Children and Youth Review. December 11, 2008. p. 26.

To accomplish these objectives, the paper begins with a review of the current theories and models that attempt to explain and/or predict the factors and conditions that create health among young people. Based on this information, the authors propose an integrated theoretical framework for predicting child health and well-being that is a distillation of the vast amount of research that acknowledges individual capacities and environmental supports. The review is followed by a brief discussion on how indicators are used to help better understand a child's safety, security, and developmental progress, and gage whether childhood circumstances improve or erode over time. Next, based on indicator development initiatives adopted in a number of other Canadian provinces and internationally, the paper proposes the criteria that will be appropriate for selecting specific child health and well-being indicators for British Columbia, as well as the factors that will facilitate their application. The final section of the paper presents the suggested next steps in preparing for the up-coming indicators workshop and the protocols necessary to select a set of child health and wellness indicators that are sufficiently rigorous and have utility.

The completed document will form the basis for a workshop planned for the latter part of 2009. Delegates to the workshop, selected provincial, national and international experts in child health and well-being indicator development, will be asked to provide feedback on the content and recommended next steps outlined in the current paper.

II. What Creates Health? Contemporary Models and Theories

a. Dimensions of child health and well-being

It's easy to recognize a thriving child: The bright eyes, animated smile, active body and socially engaged behaviour all point to optimal physical and mental health. Despite the clarity of these indicators, however, the task of honing in on the key predictors of child health and well-being remains a daunting one. Each child comes with a unique and intricate slate of circumstances surrounding genetic and medical history, prenatal and early childhood environments, and family and community support. As well, all children in the course of their upbringing are highly dependent on many multi-layered contexts of care, which include schooling, medical services, and the many policies, laws and regulations in place for their support and protection.

Because child health rests squarely on these myriad and intertwined factors, the faltering of any one context of care can have a direct and lasting negative impact. Dysfunctional families, toxic schools, violence in the community, poverty, and lack of government regulation all pose a threat to children's health. Hence, it is not enough to simply tally the after-the-fact health or ill health outcomes for British Columbia children; also required is the monitoring of family, school, community and regulatory contexts that promote and sustain child health.

If child health is multidimensional, an empirically-based framework is needed to show the *key points of contact* between the child and the contexts of care experienced, and also among these contexts themselves. To help identify such a framework, this paper delves into a review of the literature in developmental psychology, resilience of vulnerable children, positive development, and social determinants of child health.

b. Defining health and well-being

Finding a starting point or consensus on the meaning of the terms 'health' and 'well-being' is an elusive exercise in itself. The World Health Organization defines health holistically as "a state of complete physical, mental and social well-being, and not merely the absence of disease"⁶ but then typically limits its list of child health indicators to incidences of childhood diseases. Likewise, the organization's thinking around health promotion is mainly focused on reducing pathology. It is now generally acknowledged that this approach is limiting and in need of an update.

In 1986, the Ottawa Charter for Health Promotion defined health as "...the extent to which an individual or group is able to develop aspirations and satisfy needs and to change or cope with the environment. Health is a resource for

⁶ http://www.who.int/topics/mental_health/en/

everyday life, not the objective of living. It is a positive concept emphasizing social and personal resources, as well as physical capacities".⁷

In keeping with the concept of health as a fundamental human right, the Ottawa Charter emphasizes certain pre-requisites for health that include peace, adequate economic resources, food and shelter, and a stable eco-system and sustainable resource use. Recognition of these pre-requisites highlights the inextricable links among social and economic conditions, the physical environment, individual lifestyles and health. These links provide the key to a holistic understanding of health and well-being. All people should have access to basic resources for health.

A comprehensive understanding of health and well-being implies that all systems and structures that govern social and economic conditions and the physical environment should consider the implications of their activities with respect to their impact on individual and collective health and well-being.⁸ The Ottawa Charter emphasized building healthy public policy, creating supportive environments, strengthening community action, developing personal skills and re-orienting health care services toward prevention of illness and promotion of health. This broad approach to promoting a population's health, however, has yet to be fully realized, particularly as it relates to child health and well-being outcomes.

A systematic review of definitions, domains and measures of child well-being by Pollard and Lee⁹ points to further variability in the meaning of 'health' and 'well-being'. The definition of well-being itself is onerous: Pollard and Lee compiled five definitions, including the presence of individual attributes that can be represented along a health continuum ranging from positive to negative, and the implications of social and environmental influences. Pollard and Lee conclude that well-being is, in the words of Columbo¹⁰, "a multidimensional construct incorporating mental/psychological, physical, and social dimensions."

Andrews et. al.¹¹ define child health and well-being as, "...healthy and successful individual functioning (involving physiological, psychological and behavioural levels of organization), positive social relationships (with family members, peers, adult caregivers, and community and societal institutions, for instance, school and faith and civic organizations), and a social ecology that provides safety (e.g. freedom from interpersonal violence, war and crime), human and civil rights, social justice and participation in civil society". This definition also recognizes the many dimensions of children's lives and

⁷Ottawa Charter for Health Promotion. WHO, Geneva, 1986

⁸ Health Promotion Glossary. (1998) WHO. http://www.who.int/hpr/NPH/docs/hp_glossary_en.pdf

⁹ Pollard, E. L. & Lee, P. D. Child well-being; as systematic review of the literature. *Social Indicators Research* 61:51-78, 2003.

¹⁰ Columbo, 1986, p288

¹¹ Andrews, A., Ben-Arieh, A., Carlson, M., Damon, W., Dweck, C., Earls, F., et al. (2002). (Ecology Working Group). *Ecology of Child well-being: advancing the science and the Science-Practice Link*. Georgia: Centre for Child Well-Being.

underscores the importance of children's relationships and their formal and informal supports.

In this review, we use the terms 'child health' and 'child well-being' interchangeably, to refer to the positive dimensions of these terms, and for clarity indicate the absence of health or illness when that is what is intended.

But can a construct as broad and nebulous as 'well-being' be sufficiently monitored? Both the health-problem and wellness-focused approaches to child health indicators have merits and drawbacks. Indicators intended to reduce and respond to pathology—the health-problem approach—have the advantage of informing public needs for health services. Experts routinely focus attention on patient safety, injury prevention/trauma, mental health, and primary care. The Canadian Child and Youth Health coalition (CCYHC)'s Indicators Program in 2004 aimed "...to identify existing

indicators and develop new indicators that will be used to monitor and evaluate the health of and the health services provided to infants, children, youth and their families...(with the aim of) improving services and thereby, the health and well-being of infants, children, youth and their families."¹² Researchers and decision makers in partnership with the Canadian Institute of Health Research have been funded to "develop and apply indicators" of child and youth health and health care in these areas.

However, a pathology-focused approach also has its limitations. Typically it locates responsibility for the health of children in the realm of highly trained experts who are often in short supply. It also suggests that child health is mainly a function of disease and injury and that solutions must be provided by professional expertise and available health services. This overlooks the broader determinants of health and wellness and the role of families and communities in child health promotion. That lack of pathology does not imply wellness is an aphorism from the point of view of today's health promotion focus.

A wellness-focused approach to child well-being considers healthy child development as well as the individual, family, community and societal processes that can strengthen or challenge child health and well-being. From this perspective, responsibility for child health is broadly distributed across individuals, families, and communities and societies. However, this approach can be unwieldy with respect to monitoring and influencing child health. Furthermore, omitting any focus on pathology risks overlooking the ramifications of illnesses and health problems such as diabetes, obesity, asthma, depression and anxiety, marijuana and alcohol use, and fetal alcohol effects, all of which are increasing in British Columbia's children. The social determinants of many of these concerns have been well researched and can be clearly located in poverty, inadequate housing, alcohol and drug misuse, family violence, poor air quality, community disintegration, and other social problems.

It would be difficult to find consensus on a single, all-encompassing list of indicators, and efforts to do so run the risk of becoming mired in controversy

¹² Canadian Child and Youth Health Coalition at (www.caphc.org/programs_indicators.html)

and inaction rather than instigating empirically informed action. A better approach would be an integrated one that seeks *both* to reduce pathology and to promote the social and individual determinants that provide the foundations of well-being in childhood and set the paths to sustained health in adulthood.¹³

Such an approach calls for a conceptual framework for monitoring both healthy child development and child health. Medical approaches that identify child illness, govern health care delivery to ill children and guide public health strategies for health promotion are a vital component of any conceptual model of child health and well-being. So too are the many processes and considerations of the wellness-focused approach. When both are woven together in a single strategy, what emerges is a comprehensive framework for child health-monitoring.

Identifying specific targets that can be influenced to improve child health and well-being requires more than amassing a vast collection of pathology and wellness-oriented indicators. Rather, an understanding of healthy child development and the major influences that lay the foundations for, and sustain or challenge child health and well-being, is needed to guide the identification of key child health and well-being indicators that can be influenced to improve the health of children. Several theoretical approaches including research on resiliency, strengths-based or positive development and the social determinates provide an excellent place to begin the discussion.

Recent research confirms that child development is highly influenced by both individual characteristics (genetics, prenatal environments, nutrition) and experiences in differing contexts and environments.

c. Theories of healthy child development

Theories of child development have made recent strides in creating integrated models of children's healthy development that account for both child characteristics and the diverse family, peer, and community contexts that children experience. Progress has also been made in linking these models to policy and practice for child health.^{14 15 16}

As recently as the 1970's healthy child development was perceived as a

¹³ Solarz, A. Leadbeater, B.J. Sandler, I. N., Maton, K. I., Schellenbach, C. J. & Dodgen, D. (2004) A blueprint for the future. In K. I. Maton, C. J. Shellenbach, B.J. Leadbeater & A. Solarz. *Investing in Children Youth, Families, and Communities: Strengths-based research and policy*, American Psychological Association. Washington, DC

¹⁴ Lerner, R. M. Fisher, C./B. & Weinberg, R. A. (2000). Toward a science for and of the people: Promoting civil society through the application of developmental science. *Child Development*. 71, 11-20.

¹⁵ Maton, K.I , Shellenbach, C. J. Leadbeater, B. J. & Solarz. A. (2004) *Investing in Children Youth, Families, and Communities: Strengths-based research and policy*, American Psychological Association. Washington, DC

¹⁶ Moore, K. A. & Theokas, C. (2008). Conceptualizing a monitoring system for Indicators in Middle Childhood. *Child Indicators Research*. 1:109-128.

predictable journey or sequences of stages that marked the unfolding of individual capacities. In infancy, healthy maturation was characterized by the achievement of broad milestones that marked age-typical physical, social, language, cognitive, and motor changes. Maturation beyond infancy was also thought to follow predictable and universal stages of cognitive, interpersonal, and biological patterns of development. Similarly, societal responses to the child's developing competencies appeared to follow an orderly sequence of transitions, e.g. from family to kindergarten, kindergarten to elementary school, and then on to middle school, high school, college or work. Children who deviated from these conventional individual and social sequences were thought to show deficits. These deficits have been extensively studied and the findings have informed intervention efforts to reduce pathology, disabilities, ill health, deviant behaviors, delayed development, and intellectual dysfunction. Traditionally, child health indicators have attempted to capture the problems or deficits in child health and well-being.

However, cross-cultural and inter-disciplinary research shows that there are marked individual differences in the rates and sequences of children's healthy and problematic development. Deviations from stage-sequenced expectations do not only reflect the child's maturational timetable but are also the result of differences in the child's family, school, and community and societal contexts. In other words, children's health is multi-dimensional, dynamic, and context-dependant. These contexts—families, communities, environments and societies—are similarly multi-dimensional and dynamic.

What follows is a review of the literature that can be grouped into four empirically supported theoretical approaches to understanding children's healthy development:

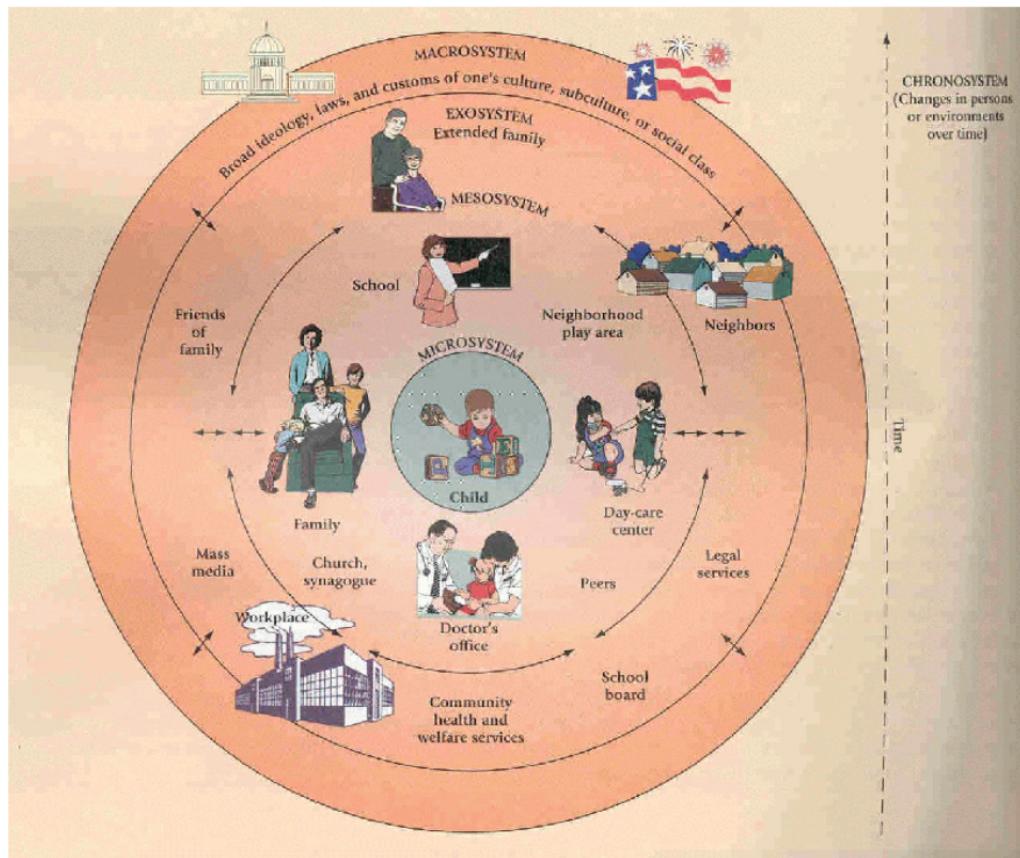
- An integrated systems theory of child health and well-being
- Health of vulnerable children—resiliency and protective factors
- Strengths-based perspectives of child-health and healthy development
- Social structure and determinants of child health

This list is not exhaustive or even fully interdisciplinary. Rather, it is intended to provide the broad underpinnings for a framework that can: a) organize what is known about the foundations of child health and well-being; b) show the common features and overlap across individual and contextual dimensions or attributes of health; and c) illustrate how these attributes change and can be influenced across childhood and adolescence. There are remarkable consistencies across these theoretical approaches, lending credence that the key elements of child health and well-being can be delineated. Together these four perspectives offer a rationale for an integrated conceptual framework for organizing indicators of child health and well-being into a practical blueprint for monitoring and action.

1. An integrated systems theory of child health and well-being

Bronfenbrenner's theory of the Ecology of Human Development, published almost four decades ago, was among the first to postulate that some influences on child development are located in the child's experienced environment. Illustrated in the figure below¹⁷, the theory described the contexts surrounding the child as *layered systems* that have increasingly more direct or proximal influences on the child's development, moving from the outside of the circle—the macrosystem—to the inside—the microsystem. These contexts are seen as systems in the sense that they function independently as self-sustaining units that are also inter-connected and responsive to each other. For example, social policies that influence the safety of neighbourhoods can in turn influence the school and family resources, which directly affect a child's healthy development and well-being.

Figure 1. Bronfenbrenner's Theory of the Ecology of Human Development



Variations in children's developmental trajectories are the inevitable result of inter-play among multiple, dynamic, organic systems, including, for example,

¹⁷ (<http://www.des.emory.edu/mfp/302/302bron.PDF>),

individual, family and societal systems.¹⁸ Child development research shows that child health problems and healthy development result from changes in both the developing child *and* his or her evolving social contexts. Poor health and developmental outcomes can result from mismatches between a child's needs and the opportunities and challenges experienced as a result of the optimal or suboptimal functioning of the family, school, and community.^{19 20}

Lerner, Overton, and others²¹ expanded upon the Bronfenbrenner model by showing how these layered ecologies behave like interacting systems with mutual effects that are both stable and changing over time—how children's behaviors and health effect their family's behaviors and health and vice versa, for example. Understanding children's healthy development involves understanding the relations among diverse and active children as they interact with diverse and active, multilayered ecologies. This also suggests that children's healthy development is not determined either by their nature (however this is understood—genetics, biological make up, temperament) or by their nurture (contextual or social determinants). Rather, the capacities to resist changes and respond to it create an essential and ongoing “plasticity” or capacity to respond to perturbations and to maintain health at each life stage. It is this plasticity that can be influenced by efforts to improve on child health and well-being, either directly or through environmental supports. While it is well established that the need to initiate positive developmental courses begins in early childhood, it is less well understood what sustains these trajectories through adolescence to adulthood.

The evolution from a child-focused to child-and-context-based emphasis on child health is widely held throughout many independent disciplines. The American Academy of Pediatrics (AAP)²² acknowledges the family as the primary source of strength and support for children and youth, and highlights the role of families as primary partners in the care of their child. Family-centered care focuses on: empowering children, youth and families, fostering independence, supporting children, youth and families in decision-making and care-giving, building on individual and family strengths, respecting individual and family

¹⁸ Lerner, R. M. & Overton, W. F. (2008). Exemplifying the integrations of the relational developmental system. *Synthesizing theory, research, and application to promote positive development and social justice*. *Journal of Adolescent Research*, 23, 3, 245-255.

¹⁹ Eccles, J. S.; Midgley, C.; Wigfield, A.; Buchanan, C., Miller, R. D.; Flanagan, C.; Mac Iver, D.; Development during adolescence: The impact of stage environment fit on young adolescents' experiences in schools and in families. *American Psychologist*, Vol 48(2), Feb 1993. Special issue: Adolescence. pp. 90-101.

²⁰ Benson, P. L. Mannes, M. Pittman, K. & Ferber, T. (2004). Youth development, developmental assets and public policy. Chapter 25 In Lerner, R. M. & Steinberg, L. *Handbook of Adolescent Psychology*, 2nd Ed, John Wiley & Sons, Inc (pp. 781-814).

²¹ Lerner, R. M. & Overton, W. F. (2008). Exemplifying the integrations of the relational developmental system. *Synthesizing theory, research, and application to promote positive development and social justice*. *Journal of Adolescent Research*, 23, 3, 245-255.

²² American Academy of Pediatrics Committee on Hospital Care, Institute for Family Centered Care Policy Statement (2008) Organizational Principles to Guide and Define the Child Health Care System and/or Improve the Health of All Children: Family-Centered Care and the Pediatrician's Role. *Pediatrics* Vol. 112 No. 3 September 2003

choices, and involving children, youth and families in all aspects of the planning, delivery and evaluation of health care services.

Similarly, the comparatively new subfield of the sociology of childhood has begun to focus attention on both the stage of childhood as a social construction that is affected by an array of contextual factors and on children as distinctive agents who construct and experience their own worlds. Children's perspectives and cultural values are intertwined in most conceptions of child well being but increasing research to unravel these distinctions may be important.²³

Health economists, too, have argued for a broad model of child health that examines the "jointness" of the household production of child health that takes stock of multiple combinations of good—warm parenting, for example—and bad—parent smoking near a child—inputs that can lead to multiple good and bad outcomes for child health.²⁴ A similar model can be applied to adequate urban planning, where community spaces can integrate health and social care with numerous other aspects of public service delivery to contribute to child health. For example, health care services and health promotion spaces and programs—child care, activity spaces, fruit and vegetable shops—can be purposefully built into the development plans of new communities²⁵

2. Well being of vulnerable children - resiliency and protective factors

Child development research shows that most children thrive in contexts that included family warmth, adequate family income, positive attachments to an adult, and opportunities for learning and involvement. However, researchers also noted that some children appeared to thrive even in adverse circumstances—living with mentally ill parents, in violent communities, in poverty, or having teenage parents. Research with these “resilient” or “stress-resistant children” initially focused on the characteristics that allowed them to retain competence despite the presence of adverse circumstances.^{26 27} At first these successes were attributed to certain characteristics (e.g. intelligence, optimism, internal locus of control) and achievements (being at the appropriate grade level, having positive peer relationships). Then resilience researchers began noting that the essential foundations of children’s resiliency could be found in the taken-for-granted contexts provided by adequate housing,

²³ Shanahan, S. (2007). Lost and Found: the sociological ambivalence toward childhood. *Annual Review of Sociology*, 33, 407-428.

²⁴ Agee, M.D. Atkinson, S. E. & Crocker, T. D. (2008). Multiple-outputs child health production functions: The impact of time-varying and time –invariant inputs. *Southern Economic Journal* 75(3) 909-927.

²⁵ Sorrell, J. (2006). Healthy places, healthy people. *The Journal of the Royal Society for the Promotion of Health*, Nov 120(6) 253-254 .

²⁶ Werner, E.E. (1993). Risk, resilience and recovery: Perspectives from the Kauai Longitudinal Study. *Developmental Psychopathology*. 5, 503-515.

²⁷ Haggerty, Sherrod, Gramezy & Rutter (1996) .Stress, risk, and resilience in children and adolescence. Process, Mechanisms, & Interventions. New York, Cambridge University Press. p. 11

nutrition, education, parenting, and health care²⁸.

Researchers concluded that environmental circumstances and protective resources can offset risks and change children's developmental trajectories away from the mental, behavioral and health problems typically associated with adversity. Families and even communities that weather adverse circumstances with sustained positive growth can be described as resilient.²⁹ However, resilience is not inevitable. The plasticity or resilience of children who face formidable challenges to healthy development can be overwhelmed if adversities are widespread and sustained.^{30 31} Resilience can be eroded by the prolonged absence of protective processes or the chronic presence of excessive adversities, especially in childhood when a base of protective processes has not yet been solidly established. Therefore child health monitoring must include a dynamic focus on building the protective processes that are the foundation of healthy child development across time. More to the point, the outcomes of policies designed to build protective processes in childhood also require monitoring, and not as peripheral initiatives but as essential aspects of healthy child development.

Resilience researcher Masten³² speaks to the "ordinary magic" of the interrelated systems that provide the foundation for child health and well-being:

The great surprise of resilience research is the ordinariness of the phenomena. Resilience appears to be a common phenomenon that results in most cases from the operation of basic human adaptational systems. If those systems are protected and in good working order, development is robust even in the face of severe adversity: If these major systems are impaired, antecedents or consequent to adversity, then the risk for developmental problems is much greater, particularly if the environmental hazards are prolonged.

²⁸ Masten (2001) Ordinary Magic, Resilience processes in Development. American Psycholgist. 56, p 227

²⁹ Leadbeater, B J, Schellenbach, C.J., Maton, K. I. & Dodgen, D.W. (2004) research and policy for building strengths: Processes and Contexts of Individual, Family, and Community Development. In K. I. Maton, C. J. Shellenbach, Bj. Leadbeater & A. Solarz. Investing in Children Youth, Families, and Communities: Strengths-based research and policy, American Psychological Association. Washington, DC.

³⁰ Rolan, Sherrod, Groman-Smith & Henry, (2004). Building protection, support, and opportunity for inner-city children and youth and their families. In K. I. Maton, C. J. Shellenbach, Bj. Leadbeater & A. Solarz. Investing in Children Youth, Families, and Communities: Strengths-based research and policy, American Psychological Association. Washington, DC.

³¹ Sandler, I., Ayers, T. s. Suter, J. C. Schultz, A. & Twohey-Jacobs, (2004) Adversities, strengths and Public Policy. In K. I. Maton, C. J. Shellenbach, Bj. Leadbeater & A. Solarz. Investing in Children Youth, Families, and Communities: Strengths-based research and policy, American Psychological Association. Washington, DC

³² Masten, A, (2001). Ordinary Magic, Resilience processes in Development. American Psycholgist. 56, 227-238.

Masten³³ claims that the greatest threats to children's resilience are those that jeopardize their adaptive processes, and notes that child and environmental attributes that promote or allow for healthy child development comprise a relatively small set of global factors; these include connections to competent and caring adults in the family and community, cognitive and self-regulation skills, positive views of self, and motivation. 'Opportunities' could also be added to the list.

Considerable research has also identified how protective processes work to sustain healthy child development. These processes:

- prevent, interrupt, or reverse risks associated with downward developmental trajectories
- diminish or compensate for the causes or impact of stressful situations
- reduce the negative chain reactions that characterize pathogenic family, school or community challenges
- promote positive development, the maintenance of personal attributes—self-efficacy, for example—and environmental assets, such as supportive parenting through and after divorce
- create beliefs or loyalties that are incompatible with health risk behaviours, and
- provide opportunities for positive education, vocation, personal growth and community inclusion and involvement.³⁴

Research on resilience and protective factors points to the "ordinariness" of the supports needed to promote child health and well-being, and also to the possibility of identifying key targets in individuals and their environments that can influence positive child health. In childhood, health and well-being is about *being healthy, staying healthy, and becoming healthy*. Enhancing the protective factors in children, families and communities that help resist stress and adversity is central to preserving child health and healthy development. Furthermore, these protective factors are better predictors of future health and health challenges than outcomes such as morbidity and mortality.

3. Strengths-based perspectives of child health and healthy development.

A strengths-based perspective also recognizes the value of monitoring the positive aspects of children's environments. But the notion of promoting positive development and environmental assets often conjures up the viewpoint—and for some experts a firmly held conviction—that the traditional

³³ Ibid. p. 234

³⁴ Masten (2001); Leadbeater et al. (2004) p. 18. Sandler et al. (2004)

monitoring focus on child problems and deficits should be cast aside entirely. However, both approaches to preventing problems and promoting strengths can be synergistic when combined. As Sandler and his colleagues argue, "A policy

Policies that promote positive child development, prevent adversities, protect children from adversities and counteract the negative effects of adversities can make a difference in the health of children.

that promotes strengths may also provide the most sustainable and effective approach to reducing problems."³⁵ For example, school policies that promote social responsibility and prevent bullying and peer rejection can affect children's sense of self-control, self-esteem and self-efficacy. Similarly, efforts to reduce stress on divorcing parents enable them to continue providing the support and discipline that children need.³⁶

Addressing concerns that include domestic violence, family disruption, parent mental illnesses or divorce, school transitions, community violence, academic researchers and decision makers, Maton and his colleagues reviewed the current literature and analyzed available programs that promoted strengths in the contexts of adversities. They argue that monitoring basic child, family and community strengths across time and contexts gives a fuller picture of the relative strengths of the protective resources that support child health and give the following five reasons for monitoring these strengths:

- Strengths-based approaches can and do make a real difference in promoting healthy development when they marshal resources across multiple levels of contexts and systems of care, such as education and health, for example.
- Children, youth, families and communities facing adversity are far more capable of meeting challenges than has been previously recognized, if they have the necessary basic resources, such as housing, health care, social support and safety. Without these essential resources children, youth and families do not do well.
- There are unique patterns of strengths that children, youth, families and communities have that contribute to positive outcomes under adverse circumstances. Essential considerations are the diversity and heterogeneity of the population in question and an acknowledgement of its members within the context of their own particular community, history and culture.
- To be effective, approaches must be both developmentally and contextually appropriate. Building strengths in childhood may be the most productive approach for reducing the likelihood of a wide range of future problems. For example, enhancing parenting skills may involve similar or unique approaches depending on the age of the

³⁵ Sandler et al/ (2004) p. 31

³⁶ Sandler et al. (2004) p 46.

child. Warm parenting is an asset at any age, but parent supervision to prevent injuries differs depending on the age of the child. Injury prevention strategies may also differ for children in urban versus rural settings (on farms) or within Indigenous communities.

- There are general, integrated approaches for building strengths that apply across groups and circumstances. Health policies and intervention, traditionally, sought to affect one or a few outcomes—obesity, diabetes and physical activity, for example. But circumstances, both good and bad, are linked to many health outcomes. (The myriad and far-reaching effects of chronic poverty are well-known.) Hence an integrated approach that builds or builds on strengths at multiple levels and in multiple domains may have the greatest chance for producing positive outcomes.³⁷

Clearly, a strengths based perspective (that does not ignore illness, deficits, disparities and social inequities) adds an essential and often overlooked dimension to the monitoring of children's health and well-being. It provides a positive approach for developing child health indicators that are based on the integration of current child development theories and what is known of protective factors and their importance for child health and resilience. Tapping the strengths of individual, family, and community circumstances can expose the conditions that sustain children's health as well as the adversities that challenge it.

4. Social and structural determinants of child health

Despite the emphasis on contexts in theories of child development, research on the context-level influences that predict health comes mainly from public health, economics, and sociology. Most of this work has focused on the conditions that create disparities in adult health and well-being. It has shown that differences in access to economic and social resources, in psychosocial factors such as social support and social capital, and in lifestyle choices such as smoking, drinking, diet and exercise, are among the more persistent causes of social inequality in health.

Monitoring child health and well-being is a value in itself as well as a means of forecasting the future health of the nation.

Many data sources typically seek adult or household viewpoints. A survey is more apt to inquire about adult smoking habits than the extent of children's exposure to domestic tobacco smoke; it is often more preoccupied with the home's level of amenities and crowdedness than with the specifics of the children living in these conditions.³⁸ Although it is reasonable to develop

indicators of child well-being that include a focus on children as "future adults"

³⁷ Maton, K.I., Shellenbach, C. J., Leadbeater, B. J., & Solarz, A. (2004). *Investing in Children Youth, Families, and Communities: Strengths-based research and policy*, American Psychological Association. Washington, DC

³⁸ Ibid, p. 39

or members of the next generation, Ben-Arieh et. al. stress that, “Children’s present life and development and future life chances must be reconciled in conceptualizations of well-being by looking both into the conditions under which children are doing well and child outcomes in a range of domains.”³⁹ Further reinforcement comes from Rigby et. al. who assert that the “... health determinants, disease patterns, preventive and therapeutic health services and data sources are all different for children compared to adults.”⁴⁰ The discourse on child health and well-being is one of both *well-being and well-becoming*.⁴¹

From an economic perspective, child well-being can be viewed in terms of children’s future, focusing on their eventual employability and contribution to the workforce. Researchers who developed European child health indicators in 2003 concluded that robust and relevant child-based indicators have the potential for greater influence and impact on children’s health and well-being than do adult health indicators.⁴²

Recent research has begun to focus on child health and specifically on its implications for health across the lifespan.⁴³ As noted in the opening editorial of a recent issue of the Health Sociology Review,⁴⁴ there is a need to connect research on the social determinants of health to current understanding of infant, childhood and adolescent development. Indeed, “...the need to focus on infancy and childhood is paramount, given that increasing evidence from developmental health research suggests that the early years of development play a vital role in creating and maintaining socioeconomic health inequalities through to adulthood.”⁴⁵

Social and political scientists have also investigated the effects of families, communities, culture, technology and social policies on children’s healthy development⁴⁶ and have embraced a systems theory perspective over an individual’s life span. In particular, growing work relies on Bronfenbrenner’s systems theory as a conceptual approach to integrate links between proximal—micro—and distal—macro—determinants of child health and well-being.⁴⁷

³⁹Ben-Arieh, A., Kaufman, H. N., Andrews, B. A., Goerge, R., Lee, B. J., & Aber, J. L. (2001). Measuring and monitoring children's well-being. The Netherlands: Kluwer.

⁴⁰Rigby, M., Kohler, L., Blair, M & Metchler, L. (2003). Child Health Indicators for Europe. European Journal of Public Health. 13 (3 Supplement)38-46.

⁴¹Frones, I. (2007). Theorizing indicators. Social Indicators Research, 83(1), 5–23.

⁴²Ibid, p. 39

⁴³Hertzman, C. & Williams, R. (2009). Making early childhood count. CMAJ, 68-71.

⁴⁴Li, J., Mattes, E, McMurray, A. Hertzman, C. , Stanley, F. (2009) Social determinants of child health and well-being. Health Sociology Review, 18 (1) p. 3.

⁴⁵Li J. et al. p. 3

⁴⁶Brooks-Gunn, J. Duncan, G. & Aber, JL. Eds (1997). Neighborhood poverty: Volume 1 Consequences for children. New York, Russell Sage Foundation.

Keating D. & Hertzman, C. (1999). Developmental health and the Wealth of Nations. Guilford Press, New York.

⁴⁷Li, J. McMurray, A. & Stanley, F. (2008). Modernity's paradox and the structural determinants of child health and well-being. Health Sociology Review, 17 (1)

In one example, Australian researchers, Li, McMurray, & Stanley⁴⁸ extended Bronfenbrenner's human developmental framework by linking proximal determinants of child health and well-being (family resources) to macro-level forces (the opportunity, structure, and social stratification system of a given society and given social economy). They addressed the “modernity paradox” raised by Keating and Hertzman,⁴⁹ in 1999, which asks why substantial threats to child and adolescent health and well-being continue to grow in societies where there is unprecedented capacity for wealth generation. It follows that correlations between social gradients (captured by the gross national products or family income) and child health do not provide an adequate starting point for the formulation of policies to improve child health. Li and colleagues argue that the diversity of macro system levels (beyond family, school and community) that influence indicators of family resources (e.g. income, time with family, and human, psychological and social capital) need to be taken into account in any initiative striving to improve parents' capacities to promote child health and well-being.

Changes in political viewpoints, family environments, culture, and technologies can all create challenges to child health and well-being. For example, economies that emphasize free markets and individual wealth as opposed to social regulation can increase differences between have and have-not individuals, thereby “stigmatizing welfare dependence and devolving responsibilities for health and social care to families and communities.”⁵⁰ High income families' may also find their capacity to parent reduced if economic priorities compromise time with family, create instability or fluctuations in income, or promote family-unfriendly work—contract-based, part time or shift work, work-related stress, and social isolation. Tension in the marriage and changing family structure, to single-parent households or grandparents as parents, can also challenge family resources.

Cultural values, distribution of family resources, and child health can all be affected by cultural and technological changes that advance consumerism and individual self-interest. Advertising and programming typically promote the need for increased individual incomes. Consumerism and the accumulation of personal fame and wealth are valued, while social processes and information that support children and families rarely form marketable topics for the media. Ready and unregulated access to the internet also leaves children vulnerable to an endless array of violence, pornography, unhealthy food advertisements, and chaotic environments. Without industry regulations, the burden of filtering and supervising family internet use is shifted to the parents.

Social determinants can provide an additional group of key factors for monitoring and influencing child health, and are therefore essential in an integrated approach to healthy child development.

⁴⁸ Li et al, 2008

⁴⁹ Keating D. & Hertzman, C. (1999). Developmental health and the Wealth of Nations. Guilford Press, New York.

⁵⁰ Li et al. p 68

In summary, each of the four perspectives reviewed above offers a comprehensive yet practical window on the many—and often overlapping—aspects and intricacies of healthy child development. Collectively they provide a detailed blueprint for developing the framework to be used in selecting and establishing a comprehensive set of effective child health and well-being indicators for the children of British Columbia.

III. A Framework For Predicting Child Well-Being

The purpose of this section is to propose an integrated conceptual framework that is distilled from the research presented in Section II. A framework in the form of a matrix can illustrate the inter-connectedness and points of interaction among the individual, family, peer, school, community, health, and society as posited by Bronfenbrenner's ecological systems model. The framework being proposed in this paper:

- Identifies key attributes that form the protective foundations for child health, namely child safety, positive family and peer relationships, effective education, material well-being, and physical well-being,
- Illustrates the inter-connectedness among the individual, family, community, and societal determinants of health and well-being,
- Captures the complexity and multi-dimensionality of the factors and conditions that influence childwell-being,
- Has the ability to clarify the dynamic relationship that occurs among these factors and conditions,
- Considers change across developmental ages and historical time (including any economic and cultural changes).

These attributes are consistent with those found in previous reviews of conceptual frameworks of child and adolescent development even though those particular models were tailored for varying purposes—research, trends monitoring, and program development, for example—and for various organizations. Moore and Theokas,⁵¹ for example, list the key dimensions of a framework for healthy child development as: material well-being, safe and stable housing, caring relationships with family and peers, a healthy start, support for efficacy and mattering, and opportunities for engagement in effective education, positive social norms, and participation in community affairs. They also recommend that four key domains of individual functioning—physical, cognitive/educational, psychological and social—and four key proximal contexts—families, peers, schools, and communities—be included in a developmentally sensitive framework for monitoring middle childhood. A similar kind of matrix extending from infancy to adolescence can be used to organize crucial aspects of healthy child development for the purpose of delineating important and modifiable aspects of child well being for British Columbia.

An evidenced-based framework for *organizing child health and well-being indicators* is proposed in Table 2. Many versions of this framework are possible and the choice of dimensions and sub dimensions necessarily depends on the goals for selecting and monitoring indicators. The choice process is value-driven

⁵¹ Moore, K. A. & Theokas, C. (2008). Conceptualizing a monitoring system for Indicators in Middle Childhood. *Child Indicators Research*. 1:109-128.

and must be guided by the goals of monitoring specific domains or subdomains and specified selection criteria. In Table 2, broad dimensions of child well-being that appear consistently in the literature on child well being indicators are listed in the left column of the matrix. The ecological systems that could address these dimensions appear across the top row. The arrow at the bottom of the chart indicates the need for consideration of the changing developmental level of the child and of the historical period of the contexts in which childhood is contrasted.

The matrix has been populated with sample well-being indicators only for the dimension of child safety. Subdomains include individual habits and responsibilities, family monitoring and protections, school policies, etc. There is more than one way to proceed in selecting sub domains of interest.

An illustration is provided by the work of BC researchers are leading a national effort to develop and evaluate indicators of success in the prevention of childhood injuries. This work is ongoing at the BC Injury Research and Prevention Unit, under the direction of Dr. Ian Pike. The group has chosen to work on five domains of child safety that were identified by an expert panel of researchers, practitioners and policy makers, and non government organizations; namely, 1) Overall Safety 2) Health Services Implications 3) Motor Vehicle Injury 4) Sport, Recreation and Leisure 5) Other Policy-related 6) Violence and 7) Trauma Care Quality and Outcome. A report entitled: *Measuring Injury Matters* will be released this fall. This is a practical resource for injury prevention professionals and practitioners that encourages the consistent use of the 34 indicators chosen to represent the above domains. Further work has also been undertaken to develop indicators relevant to the specific sub domain 5) policy related injury prevention legislation (i.e. child restraint legislation, graduated licensing legislation; bicycle helmet legislation, compliance with CSA playground standard, and the presence of coordinated paediatric trauma services). The group has also begun work to tailor these injury indicators to serve the culturally valued monitoring concerns of Aboriginal communities.

While not specifically focused on child well-being this work on injury indicators demonstrates the complexity and need for difficult choices in selecting the domains, sub domains and ultimately indicators of child well being that meet the overarching goals of this project to:

- Identify major modifiable factors and conditions that are known to enhance well-being in young people, and
- Recommend specific criteria for establishing indicators to address the modifiable health and well-being factors and conditions among children in British Columbia.

The majority of cells in the matrix in Table 2 are left blank at this point to encourage reflection and contributions from workshop participants in identifying the domains and sub-dimensions that meet the *criteria for inclusion* in an assessment of child well-being that we discuss next. It is clear, however from the matrix that difficult decisions are needed about the *BEST* ways to

monitor child well-being within or across developmental and ecological levels (individual, family, school, community, etc.). Identifying and selecting theoretically sound, relevant, and important domains, sub domains and areas of interest that are being, or should be, effectively monitored to improve how they are addressed by policy approaches in British Columbia must be the first step to creating an ongoing report on children's well-being that meets our objectives.

Table 2: An integrated framework for predicting child well-being across contexts and over time

(Note: Sample indicators appear in the body of this figure)

ECOLOGIES

DIMENSIONS	Individual	Family and Peer environments	Schools	Community	Culture and technology	Health systems
Child Safety	Personal safety habits - consistent seatbelt use	Supervision and monitoring Safe play spaces and activities	Safe playgrounds No bullying	Safe neighbourhoods, cross walks and bike lanes Norms for booster seat, seatbelts, and bike helmet use Non violent neighbourhoods	Enforced bike safety helmet legislation Improved safety helmets and accessible dissemination to all youth Indicators tailored to local needs of Aboriginal and rural communities	Intersecting systems approaches for health, education and Access to medical information and emergency services
Positive Relationships						
Effective education						
Material well-being						
Mental and Physical well-being						
	Infancy	Preschool	Childhood	Adolescence⁵²		

What is accomplished in this framework?

⁵² Arrow indicates the need for consideration of the changing developmental level of the child and of the historical period of the contexts in which childhood is contrasted.

- The framework shows the main dimensions that contribute to child well being consistently identified in the literature.
- The framework shows the influence of several ecologies on these key dimensions of child well-being.
- The framework suggests points of intersection that can be targeted to improve child well-being.
- The framework shows the continuities across ecological systems that synergistically support healthy child development; for example, skills in reading can be seen as the joint product of a child's readiness to learn, family literacy, school resources and climate, cultural supports, child-focused TV and multimedia, and access to interventions for child learning problems.
- The framework recognizes the contribution of previously collected data from multiple sources to understanding child well-being, as well as the gaps where no data currently exist to inform the status of key dimensions. Many administrative data platforms already exist that could contribute to a picture of attributes of child health and well-being in some ecological domains.
- Multiple targets for action that have implications from infancy to adolescence are made evident.
- The relative importance of sample indicators populating this matrix can be weighed according to specific selection criteria. For example, is the indicator modifiable? Is it important at more than one ecological level? Is it understandable by the general population or media?

IV. Child Health and Well-Being Indicators

The aim of this section is to discuss the purpose of child health and well-being indicators and outline the evolution of their development and applicability over the last few decades. Following that, a list of proposed child health and wellness indicator criteria is presented. The section concludes with a review of the variables that interact with indicators and their application as well as the variables that could be viewed as facilitating their application.

Recent years have brought new and growing attention to the importance of measuring and monitoring children's health and well-being. While many reasons exist for this phenomenon, it is at least partially due to a shift towards accountability-based public policy, which requires reliable information on and accurate measures of the conditions children face and the outcomes that various programs and services achieve.⁵³ Coinciding with the increased demand for accountability is the recognition that family life and the ways in which families function are changing; this has prompted an increased demand for a clearer picture of children's well-being from child development professionals, social scientists, and the public.^{54 55 56} Hanafin et al.,⁵⁷ concludes that, as a result, the field needs to redefine the concept of children's health and well-being, and revise the measurement of these concepts.

Indicators measure a state, quality or outcome that specific known actions can improve.

a. What are indicators and what purpose do they serve?

Indicators are statistical markers that can be used to track patterns and trends over time.⁵⁸ Indicator data can be used to describe the population, monitor trends, or establish goals for social change.⁵⁹ (See Annex A-1 for definitions of indicators, metadata and data.) Indicators are used in many areas of life, most

⁵³ Ben-Arieh, A. (2006) Is the study of the 'State of Our Children' changing? Revisiting after five years, *Children and Youth Service Review*, 28/7, pp. 799– 811.

⁵⁴ Casas, F., Figuer, C., Gonza'lez, M., Malo, S., Alsinet, C. & Subarroca, S. (2007) The well-being of 12- to 16-year-old adolescents and their parents: Results from 1999 to 2003 Spanish samples, *Social Indicators Research* 83/1 (pp. 87–115).

⁵⁵ Fattore, T., Mason, J. & Watson, E. (2007) Children's conceptualisation(s) of their well-being, *Social Indicators Research*, 80/1, pp. 5–29.

⁵⁶ Frones, I. (2007) Theorizing indicators, *Social Indicators Research*, 83/1, pp. 5– 23.

⁵⁷ Hanafin, S., Brooks, A. M., Carroll, E., Fitzgerald, E., Gabhainn, S. N. & Sixsmith, J. (2007) Achieving consensus in developing a national set of child well-being indicators, *Social Indicators Research*, 80/1, pp. 79–104.

⁵⁸ Moore, K., Theokas, C., Lippman L., Bloch, M, Vandivere, s., & O.Hare, W. (2008) A Microdata Child Well-Being Index:Conceptualization, Creation, and Findings, *Child Ind Res* (2008) 1:17–50

⁵⁹ Brown, B., & Corbett, T. (2003). Social indicators and public policy in the age of devolution. In R. Weissberg, L. Weiss, O. Reyes, & H. Walberg (Eds.), Trends in the well-being of children and Youth. Washington, DC: Child Welfare League of America Press.

notably and publicly in the economic realm, to monitor financial or economic trends.⁶⁰ Economic indicators such as the unemployment rate and the rate of inflation receive regular press coverage and public attention because they are seen as being relatively objective measures of the health of the economy.

Indicators are statistical markers that can be used to track patterns and trends over time.

Releases of key indicators often affect private business decisions as well as public policies and elections.

Recently, more statistical indicators regarding children, their families and communities have become available to help provide answers to questions about children's safety, security, and developmental progress, and monitor whether their circumstances are growing better or worse over time.⁶¹ Brown and Moore^{62 63} observed

that this steady expansion in the use of child well-being indicator data is particularly useful in supporting policy and program development at all levels of government as it relates to:

- **Description**, to understand the characteristics of the population;
- **Monitoring and needs assessment**, to identify areas of emerging need;
- **Goals tracking**, to monitor progress towards measurable social goals (e.g., "we will achieve a 25 percent reduction in the number of babies born to teens over the next decade");
- **Enabling comparison**, to compare and contrast data within a specific jurisdiction and among jurisdictions;
- **Accountability**, to hold agencies, governments, and entire communities accountable for improving the lives of children in specific ways; and

"...it is essential to keep the role of indicators in perspective. Using indicators for outcomes-based accountability should be approached cautiously; and the use of indicators for evaluation should only be done with extreme caution. Because tracking indicators is less costly than conducting an experimental study, it is often tempting to substitute the use of indicators for rigorous experimental approaches."

Moore, K. (1999). Child Trends

⁶⁰ Moore, K., Theokas, C., Lippman L., Bloch, M,m Vandivere, s., & O.Hare, W. (2008) A Microdata Child Well-Being Index:Conceptualization, Creation, and Findings, Child Ind Res (2008) 1:17–50

⁶¹ Lippman, L. (2007). Indicators and indices of child well-being: A brief American history. Social Indicators Research, 83, 39–53.

⁶² Brett Brown, B. & Moore, K. (2007). An Overview of State-Level Data on Child Well-Being Available through the Federal Statistical System. Child Trends.

http://www.childtrends.org/Files/Child_Trends-2006_10_01_FR_StateDataPaper.pdf

⁶³ Brown, B., and Corbett, T. (2003). Social indicators as tools of public policy. in Roger Weissberg, H. Walberg, M.U. O'Brien, & C.B. Kuster (Eds.), Long-term Trends in the Well-being of Children and Families, Washington DC: CWLA Press, pp. 27–49.

- **Reflective practice**, so that governments and communities can use these data to continuously improve their program design and policies.

The use of social indicators at the state level in the United States and at the provincial level in Canada has increased over the last decade, as more local jurisdictions have taken on greater responsibility for the design and execution of programs and policies affecting children and their families⁶⁴. This new role requires that indicators be devised and used in ways that will extend their impact beyond simply amassing knowledge for the sake of knowledge.⁶⁵ It necessitates having timely information at the local level with which to assess the impact of programs, policies and services, and to direct resources to areas where there are gaps. The Canadian Institute for Health Information, for example, which defines indicators as "...standardized measures by which to compare health status and health system performance and characteristics among different jurisdictions..."⁶⁶ aims to support Regional Health Authorities across Canada in monitoring the health of their population and the functioning of their local health system through quality comparative information on:

- the overall health of the population served
- the major non-medical determinants of health in the region
- the health services received by the region's residents
- characteristics of the community or the health system that provide useful contextual information

Two National Consensus Conferences on Population Health Indicators have been convened in order to achieve an agreement on the measures used by CIHI and Statistics Canada reflecting the health of Canadians and the health system, and since 2003 seven indicator publications have been posted on their website.⁶⁷

The evolution of child health indicators has not been static; on the contrary, Ben-Arieh observed that these indicators have evolved through five somewhat concurrent phases,⁶⁸ summarized as follows: Early indicators tended to focus

A useful analogy

Imagine a car dashboard: an indicator is a warning light flashing on the dashboard. It is fed by one of many streams of data...maybe oil level, temperature etc. It flashes when all is not well, suggesting we stop the car. The indicator alerts us to something worthy of further investigation.

The Good Indicators Guide, (2008). National Health Services.

⁶⁴ Ibid

⁶⁵ Hood, L., (2007). Reporting on children's well-being: The state of London's children reports, Social Indicators Research. 80/1. pp.249-264.

⁶⁶ CIHI website at: http://secure.cihi.ca/cihicweb/dispPage.jsp?cw_page=indicators_e

⁶⁷ Ibid

⁶⁸ Ben-Arieh, A. (2008) Child Indicators Movement: Past, Present and Future. Child Ind Research. 1, 3-

on child survival while recent indicators are more inclusive of child well-being. Indicators have shifted away from their traditional focus on negative outcomes and towards a growing focus on positive outcomes. The traditional emphasis on “well-becoming”—that is, indicators that predict subsequent achievement or well-being—has been complemented by indicators of current “well-being.” Early efforts focused on an adult perspective, whereas new efforts also consider the child’s perspective. Finally, recent years have also given rise to growing efforts to develop various composite indices of children’s well-being.⁶⁹ ⁷⁰ Ben-Arieh concludes that this evolution of child well-being indicators has occurred virtually everywhere, although to varying degrees and at different paces.

The results of current work in the development and application of child indicators done both nationally and internationally can be generally characterized as follows⁷¹:

- Indicators have broadened beyond a focus on children’s immediate survival to a concern for their wellbeing (without necessarily neglecting the survival indicators).
- Indicators focus on negative and positive aspects of children’s lives.
- The well-becoming perspective—a focus on the future success of the generation—while still dominant, is no longer the only perspective. Wellbeing—children’s current status—is now considered relevant as well.
- New domains of child well-being have emerged. Thus, a focus on children’s life or civic skills, for example, has become much more common. Fewer actions are profession or service oriented, and many more are child-centered.
- The child as the unit of observation is now common. Efforts to measure and monitor children’s well-being today start from the child and move outward.
- Efforts to include subjective perceptions, including the child’s, are growing. Recent work acknowledges the usefulness of both quantitative and qualitative studies, as well as these methods combined (mixed methods).
- The number of local and regional reports is increasing.
- Numerous efforts to develop composite indices are underway at all geographic levels (local, national, and international).

16.

⁶⁹Bradshaw, J., Hoscher, P., & Richardson, D. (2007). An index of child well-being in the European Union. *Social Indicators Research*, 80(1), 133–177.

⁷⁰Lippman, L. (2007). Indicators and indices of child well-being: A brief American history. *Social Indicators Research*, 83(1), 39–53.

⁷¹ Ben-Arieh, A. (2008) Child Indicators Movement: Past, Present and Future. *Child Ind Research*. 1, 3-16.

- The shift towards a greater emphasis on a policy-oriented approach is evident. A major criterion for selecting indicators is their usefulness to community workers and policymakers. Policymakers are often consulted in the process of developing the indicators and discussing the usefulness of various choices.

Clearly, the child indicators field has evolved. The volume of activity is rising and new indicators, composite indices, and State of the Child reports are emerging both provincially and nationally as well as internationally. These and the above-noted changes are occurring widely, although at different paces. Annex A-2 provides a review of the major child health indicator activities that are happening throughout Canada and in other parts of the world.

b. Criteria for indicator selection

Researchers have repeatedly stressed the importance of achieving consensus on a core set of criteria prior to generating a list of child health and well-being indicators.⁷² ⁷³ Studies have also shown that the impact of such indicators is enhanced if agreed-upon criteria are used to create them and guide their use.⁷⁴ ⁷⁵ As well, *it is essential to acknowledge the importance of including criteria that include the antecedents that contribute most to child health and well-being and are modifiable to affect positive change.* Following is a proposed list of criteria for developing a set of child health and well-being indicators for British Columbia. The list is recommended by the authors of this paper and is based on common themes prominent in the literature authored by leaders in the field:

- **Significant to the well-being of children:**⁷⁶ ⁷⁷ ⁷⁸ Indicators should be comprehensive in their coverage and relate to significant predictors of child health and well-being.⁷⁹ All domains of child well-being should be adequately represented by the data including key measures of physical

⁷² Ben-Arieh, A. & Goerge, R. (Eds) (2006) *Indicators of Children's Well- Being: Understanding Their Role, Usage, and Policy Influence* (Dordrecht, Springer).

⁷³ Raphael, D., Renwick, R., Brown, I. & Rootman, I. (1996). Quality of life indicators and health: Current status and emerging conceptions, *Social Indicators Research*, 3/1, pp. 65–88.

⁷⁴ Corbett, T. (2006) The role of social indicators in an era of human service reform in the United States, in: A. Ben-Arieh & R.M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage, and Policy Influence* (pp.3–20) (Dordrecht, Springer).

⁷⁵ Little, T.H. (2006) Increasing the impact of indicators among legislative policymakers, in: A. Ben-Arieh & R. M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage, and Policy Influence* (pp. 131–140) (Dordrecht, Netherlands, Springer).

⁷⁶ Moore, K. (1999) *Indicators of Child and Family Well-Being: The Good, the Bad and the Ugly..* <http://www.childtrends.org/PDF/99-08.pdf>.

⁷⁷ Brown, B., & Moore, K. (2007). An Overview of State-Level Data on Child Well-Being Available through the Federal Statistical System. Kids Count. http://www.childtrends.org/Files/Child_Trends-2006_10_01_FR_StateDataPaper.pdf

⁷⁸ Carroll, E. (2002). The well-being of children: four papers exploring conceptual, ethical and measurement issues. Dublin: Irish Youth Foundation

⁷⁹ Ben-Arieh, A. (2008). Indicators and Indices of Children's Well-being: towards a more policy-oriented perspective, European Journal of Education, Vol. 43, No. 1.

and behavioral health, social and emotional development, civic engagement, education and intellectual development. In addition, indicators of the social influences that shape child development and well-being from the family, peer, school, and neighborhood or community, should also be included. While they are not themselves measures of well-being, they strongly influence well-being and are often the primary targets of policies and programs intended to improve the life of children.

- **Relevance to policy:**⁸⁰ Indicators should be amenable to effective action.^{81 82 83} Specifically, they should be oriented towards recognised policy variables and as such, relate to both the sources of the current status of children and the outcomes of existing policies and programs.
- **Rigorous methods:** the data should consist of objective statistical measures gathered through sound research techniques. For example, Rigby et. al.,⁸⁴ when developing the child health indicators for Europe, noted that the following characteristics were critical for adopting sound research protocols:
 - a) *Validity:*
 - Face validity: the indicator measures what it says it measures
 - Content validity: the indicator takes into account the qualities that its definition implies
 - Construct validity: the indicator demonstrates an expected empirical relationship with other related indicators
 - b) *Consistency:* having reliability in measurement, so that variation in value is true variation rather than random error
 - c) *Sensitivity:* the ability to register appropriate change
 - d) *Feasibility:* reliable source data must be available
 - e) *Defined:* the data construct is unambiguous

Ben-Arieh⁸⁵ adds that indicators should be not only empirically sound, they should also be perceived by critics in the research community and

⁸⁰ Ben-Arieh, A. (2008). Indicators and Indices of Children's Well-being: towards a more policy-oriented perspective, European Journal of Education, Vol. 43, No. 1.

⁸¹ New Zealand Child Wellness Indicators. <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/children-young-indicators-wellbeing/index.html>

⁸² Rigby, M, Kohler, L, Blair, M., & Metchler, R. (2003). Child Health Indicators for Europe: A priority for a caring society, European Journal of Public Health, 13 (3 Supplement): 38–46

⁸³ Ben-Arieh, A. (2008). Indicators and Indices of Children's Well-being: towards a more policy-oriented perspective, European Journal of Education, Vol. 43, No. 1.

⁸⁴ Rigby, M, Kohler, L, Blair, M., & Metchler, R. (2003). Child Health Indicators for Europe: A priority for a caring society, European Journal of Public Health, 13 (3 Supplement): 38–46.

⁸⁵ Ben-Arieh, A. (2008). Indicators and Indices of Children's Well-being: towards a more policy-oriented perspective, European Journal of Education, Vol. 43, No. 1.

by decision-makers across the political spectrum as fair, accurate, and unbiased. Otherwise debate is likely to focus on the indicator rather than on the knowledge gained from its use.

- **Positive and negative dimensions of children's lives:**^{86 87} Indicators should highlight the positive aspects of children's lives—such as level of happiness with their circumstances and degree of participation in making school rules—and also the negative dimensions, including referral to a juvenile diversion programme, for example.
- **Takes account of well-being and well-becoming:**⁸⁸ This criterion recognises childhood as an important era in its own right but also as a crucial period of preparation for adulthood. Indicators that reflect this duality take into account the percentage of children who report that there are good places to spend their free time (well-being) and the proportion of children who leave school before the statutory school-leaving age (detriment to well-becoming).
- **Capable of Producing Estimates for Key Subgroups:**^{89 90} It is important that a data system be capable of generating separate, reliable estimates for children from a variety of social backgrounds including groups defined by gender, ethnicity, income level, and disability status.
- **Easily understood by multiple stakeholders:**^{91 92 93} Indicators should avoid complex statistical measures. To gain credibility, they must be clear and easily understood. Indicators should appeal to and be compelling to decision-makers, the media, advocacy groups and the general public.
- **Common interpretation and comparability:**^{94 95} Indicators should have the same meaning in varied population sub-groups and be

⁸⁶ Carroll, E. (2002). The well-being of children: four papers exploring conceptual, ethical and measurement issues. Dublin: Irish Youth Foundation.

⁸⁶ Moore, K. (1999) *Indicators of Child and Family Well-Being: The Good, the Bad and the Ugly..* <http://www.childtrends.org/PDF/99-08.pdf>

⁸⁷ Carroll, E. (2002). The well-being of children: four papers exploring conceptual, ethical and measurement issues. Dublin: Irish Youth Foundation.

⁸⁸ Carroll, E. (2002). The well-being of children: four papers exploring conceptual, ethical and measurement issues. Dublin: Irish Youth Foundation.

⁸⁹ Brown, B., & Moore, K. (2007). An Overview of State-Level Data on Child Well-Being Available through the Federal Statistical System. Kids Count. http://www.childtrends.org/Files/Child_Trends-2006_10_01_FR_StateDataPaper.pdf

⁹⁰ New Zealand Child Wellness Indicators. <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/children-young-indicators-wellbeing/index.html>

⁹¹ Ben-Arieh, A. (2008). Indicators and Indices of Children's Well-being: towards a more policy-oriented perspective, European Journal of Education, Vol. 43, No. 1.

⁹² Moore, K. (1999) *Indicators of Child and Family Well-Being: The Good, the Bad and the Ugly..* <http://www.childtrends.org/PDF/99-08.pdf>

⁹³ Rigby, M, Kohler, L, Blair, M., & Metchler, R. (2003). Child Health Indicators for Europe: A priority for a caring society, European Journal of Public Health, 13 (3 Supplement): 38–46

⁹⁴ Brown, B., & Moore, K. (2007). An Overview of State-Level Data on Child Well-Being Available

comparable across jurisdictions to facilitate valid comparisons. Comparability allows jurisdictions to compare their own experience to those of similar and neighboring areas, and allows provincial and federal agencies to assess need and monitor progress provincially and nationally in a fair and consistent manner. Whenever possible, the results generated by the indicator should be capable of a finer breakdown to show variation by age, sex, ethnicity, family status, region, and socio-economic status.

- **Forward-looking:**⁹⁶ Indicators should anticipate the future and provide baseline data for subsequent trends. What areas should be looked at now to plan for the future so that similar data will be available when they are needed? One example is mental health. With public health improvements and better physical health, it has become clear that mental health is a major issue about which too little is known at the national level and more local levels.

c. Application of child health and well-being indicators

To be useful as policy and planning tools, indicators need to be tracked over time, updated regularly, and released in a timely manner. This allows for the early identification of emerging needs and the timely assessment of whether goals are being met. The optimal interval for measurement can depend on many factors including the importance of the outcome for policy, how quickly the outcome can change, and so on. Stock market averages are updated continuously. Social indicators need not be updated as often. Many are updated annually or biennially, others less frequently.

To be useful as policy and planning tools, indicators need to be tracked over time, updated regularly, and released in a timely manner

Adhering to criteria when developing child health and wellness indicators enhances the validity and usefulness of indicators and the impact of knowledge gained from their use. However, the literature also points out that indicators are constructed and monitored in an ever-changing socio-political context. The following variables interact with indicators and their application and could be viewed as facilitating their application:^{97 98 99 100 101 102}

through the Federal Statistical System. Kids Count. http://www.childtrends.org/Files/Child_Trends-2006_10_01_FR_StateDataPaper.pdf

⁹⁵ Moore, K. (1999) *Indicators of Child and Family Well-Being: The Good, the Bad and the Ugly..* <http://www.childtrends.org/PDF/99-08.pdf>.

⁹⁶ Ibid

⁹⁷ Aber, J. L. (1997) Measuring child poverty for use in comparative policy analysis, in: A. Ben-Arieh & H. Wintersberger (Eds) *Monitoring and Measuring the State of Children: Beyond Survival, Eurosocial Report No. 62* (pp. 193–207) (Vienna, European Centre for Social Welfare Policy and Research).

- **Transferability of data to action:** Data are most relevant and likely to engage public interest and effect change when they are released with recommendations for appropriate policy changes. This enhances the likelihood that policy-makers will include the data in the policy-making process.
- **Vulnerability to criticism:** When an indicator is used to measure and monitor children's well-being, a natural and expected response is criticism of the indicator. Researchers must be able to defend the indicators' validity.
- **Likelihood of consensus:**
Disagreement about appropriate strategies for improvement often hinders effective policy-making, even when there is a consensus about the status of children. Data are more likely to have an impact if there is a consensus on how to proceed in policy-making.
- **Ability to communicate strategically:** Sophisticated strategies are required to influence policy-making. An integrated strategic campaign should be planned in advance to create a conduit from researcher to advocate to policy-maker.
- **Influence of mediators:** Advocacy groups, opinion leaders, and high-ranking bureaucrats tend to act as mediators between the producers of the data and decision-makers, and thus contribute to the impact of those indicators on policy.

Indicators are summary measures and no matter how important or valid they are, they will rarely, by themselves motivate people to change.

The Good Indicators Guide. (2008)

⁹⁸ Bradshaw, J. (2006) The use of indicators of child well-being in the United Kingdom and the European Union, in: A. Ben-Arieh & R.M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage and Policy Influence* (pp. 63–82) (Dordrecht, Springer).

⁹⁹ Frazer, H. (1998) *The Use of Social Indicators to Influence Policy in Ireland*, paper presented at the Monitoring and Measuring Children's Well-being — The Third International Workshop, Kiawah Resort, South Carolina.,

¹⁰⁰ Shuptrine, S. & Ravenell, N. (2006) The power of regional indicators in achieving action: The southern regional initiative on child care, in: A. Ben-Arieh & R. M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage, and Policy Influence* (pp. 45–62) (Dordrecht, Netherlands, Springer).

¹⁰¹ Klein, L. G. (2006) Using indicators of school readiness to improve public policy for young children, in: A. Ben-Arieh & R. M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage, and Policy Influence* (pp. 105–130). Dordrecht, Netherlands: Springer.

¹⁰² Phipps, S. (2006) Using indicators of child well-being at the international level, in: A. Ben-Arieh & R.M. Goerge (Eds) *Indicators of Children's Well-Being: Understanding Their Role, Usage, and Policy Influence* (pp. 83–92) (Dordrecht, Springer).

- **Preparedness for sustained effort:** Developing good and accurate indicators of children's well-being is a long and tedious process. Influencing policies and making a difference in children's lives will require a long-term effort that is likely to be challenging at times.
- **Political alliances:** Even when all the criteria and conditions appear favourable for making a desired change in children's lives, such a change is not ensured because policy is subject to many interests and operators. Building an alliance of concerned political groups at the local and national levels is an important step in the effective use of child well-being indicators.
- **Economic conditions and ideological atmosphere:** Policy is always contingent on existing economic conditions. When resources are scarce, the chances of influencing policies are lower despite persuasive indicators and data. When resources are abundant, the same data can be very useful in changing policies. Similarly, ideological conditions can foster or impede efforts to use good indicators, and data to influence policies.

d. Research questions

Titler and Ben-Arieh¹⁰³ have offered five questions that future research should pose, and appropriate methodologies to address each one. They have indicated the academic disciplines for which each question is most salient, identified methodological priorities, and pointed out the relevance of the indicator for policy-makers. These five research questions are:

- **What are the most salient outcome measures?** "...research has tended towards adding rather than systematically evaluating indicators. Rigorous evaluation of how well indicators reflect children's well-being, how complementary they are, and how interrelated they are with other current indicators as well as longer-term outcomes would help researchers to reduce the outcomes they focus on to a manageable list. Perhaps more importantly, it would help to persuade policy-makers to value indicators as markers of population-level needs and convince them of the effectiveness of policies intended to improve the lives of children."
- **How can indicators be used to maximise their influence on policy?** "...advocates for children often rely on their experience, which may be limited, and on what may be subjective perceptions of the value of the indicators they point to in their appeals to policy-makers. The lack of

¹⁰³ Titler, J., & Ben-Arieh. (2006). So where should the research go? Some possible directions and their research implications, in: A. Ben-Arieh & R. Goerge (Eds) Indicators of Children's Well-being: Understanding Their Role, Usage, and Policy Influence (Dordrecht, Netherlands, Springer).

research on indicator effectiveness may also prevent the standardisation of the information presented to national and local leaders”

- **How should indicators be packaged and marketed?** “...how to translate research findings into language, formats, and media that are appealing to policy-makers has received increasing attention. Yet, as with Question 2, there is more anecdotal and speculative knowledge about how this translation should be conducted than actual empirical evidence, despite the many private communication firms that claim to possess this knowledge.”
- **How can indicators be used to shape public opinion?** “... we know little about historical trends in children’s policy debates in other countries, and we know very little, if anything, about how indicators shape public opinion now. Research in the area would inform us about the types of indicators to which the public is responsive and how information can be delivered to have the most impact.”
- **What are the most meaningful metrics for indicators?** “...the impact of indicators is intricately tied to the development of meaningful and widely accepted metrics that help to define and compare (across neighbourhoods, cities, states, and nations) children’s wellbeing. This is perhaps the most challenging of research goals, as it is laden with political ramifications. High standards for indicators of well-being may create controversy by making some localities look bad. Conversely, low standards may devalue the effort. One possibility is to resist establishing threshold levels (such as that established for poverty) and instead to develop single and composite indicator scales to be used to monitor progress in children’s well-being and to make cross-locality comparisons.”

While beyond the scope of the present paper to delve more comprehensively into the implications of each of these questions, they will re-emerge as issues requiring further discussion as this project evolves.

V. Next Steps: A Plan for Developing Child Health and Well-being Indicators

Populating an evidenced-based framework for child health and well-being with indicators that meet key criteria for their selection requires input from diverse stakeholders. As previously stated, indicators that are reasonable reflections of current and desired efforts to improve child health must be meaningful and must represent the many domains that affect child health. As Ben-Arieh has so concisely summarized, “...the stakes are high. Identifying the most useful

Enough is known for reasonable action, but ongoing evaluation of the usefulness and significance of particular indicators will be important.

indicators and indices and the appropriate guidelines for constructing them will enable us to measure the state of the child effectively... We must identify the ‘right’ set of indicators—those that will maximise the value of the information conveyed in a package that appeals to those who act on them. This is no small task.”¹⁰⁴

Ben-Arieh goes on to describe the complexity and challenge of identifying the most appropriate indicators, including disagreement in the weighting of goals and how the acquired information will be used to influence change. Selecting an agreed-upon set of indicators will be challenging: Health care experts, families, communities and policy makers have differing points of view and bear different costs related to protecting and promoting children’s health. Nevertheless, an integrated picture of the achievements and disparities in the health of British Columbia’s children is needed now to guide health policy across the many ministries that care for children.

a. Workshop preparation and planning

The purpose of the current paper is to produce a discussion document that will lead to a workshop on the development of child health and well-being for British Columbia, planned for the later part of 2009. As a foundation for discussion at this workshop, the paper:

- provides a rationale, and glossary of major terms.
- reviews current theories and models that explain and predict the factors and conditions that create health and well-being among young people.
- suggests an integrated framework for predicting child health by building across contexts and over time.

¹⁰⁴ Ben-Arieh, A. (2008) Indicators and Indices of Children’s Well-being: towards a more policy-oriented perspective, *European Journal of Education*, Vol. 43, No. 1.

- describes the types of child health and wellness indicators that have been developed in other jurisdictions.
- outlines suggested criteria that could be used to identify a set of child health and well-being indicators for British Columbia.

Following are the suggested next steps in achieving the ultimate goal of this initiative, which is to identify a set of child health and wellness indicators for British Columbia that are sufficiently rigorous and have utility. Steps 1 - 3 are activities/outcomes to be completed within Project 1 (the Framework Development) while Steps 4 - 5 are the domain of Project 2 (Indicator Review and Selection).

Step 1. Convene an advisory committee to the Office of the Provincial Health Officer that consists of representatives from relevant ministries and sectors (e.g. Ministry of Education, Ministry for Children and Families, Office of the Child and Youth Representative), the academic community and non-governmental organizations.

Step 2. Form a workshop planning committee consisting of representatives from MHLIS and CIHI to develop an agenda for the upcoming workshop, identify and invite speakers and delegates, and ensure that the logistics for the workshop are in place. Delegates to the workshop, selected provincial, national and international experts in child health and well-being indicator development, will be asked to provide feedback on the content and recommended next steps outlined in the current paper. The workshop, which will convene over a two-day period, will focus on discussion of the proposed integrated child health and well-being framework on the first day and the proposed list of child health and well-being indicator criteria on the second day.

Step 3. Finalize the framework based on the outcomes of the workshop. This would include the authors, the workshop facilitator and a representative from MHLIS.

Step 4. Convene a small group of academic experts and government representatives after the workshop to review the workshop outcomes and accordingly identify a set of suggested child health and well-being indicators.

Step 5. Submit the draft child health and well-being indicators to the Advisory Committee of the Office of the Provincial Health Officer for discussion and endorsement.

VI. Annexes

Annex A-1. Glossary of Major Terms

The following definitions are proposed as a means of providing a mechanism to communicate on “common ground”, to more clearly comprehend the models and frameworks suggested in this paper, and to provide a means by which meaningful discussion can occur to identify a set of child health and well-being indicators for British Columbia.

Benchmark

An externally-agreed upon comparator to compare performance between similar organizations or systems.¹⁰⁵

Child

Any person up to and including the age of 18 years.¹⁰⁶ This paper follows precedent and uses the phrase “child health and well-being” to define persons up to adulthood, thus replacing the alternative of “child and youth health and well-being”. Nonetheless, it recognizes that infants, young children, older children, and adolescents are very distinct sub-groups, with different dependencies and health determinants, requiring different services, and needing different measures of health. Therefore any reference to “child health and well-being” should be read as fully inclusive unless specified otherwise, and with the understanding that equal weight and recognition is given to each of these four sub-groups.

Child Health and Well-Being

Andrews et. al.¹⁰⁷ defined child health and well-being as, “...healthy and successful individual functioning (involving physiological, psychological and behavioural levels of organization), positive social relationships (with family members, peers, adult caregivers, and community and societal institutions, for instance, school and faith and civic organizations), and a social ecology that provides safety (e.g. freedom from interpersonal violence, war and crime), human and civil rights, social justice and participation in civil society”. This definition recognizes the many different dimensions of children’s lives, as well as highlighting the importance of children’s relationships and their formal and informal supports. Such an understanding of children’s lives is consistent with the conceptualisation of the child as described in the work of Bronfenbrenner,¹⁰⁸ and Bronfenbrenner and Morris,¹⁰⁹ and is framed around

¹⁰⁵ Institute for Innovation and Improvement. (2008). *The good indicators guide: Understanding how to use and choose indicators*. National Health Service. Great Britain.

¹⁰⁶ The United Nations Declaration on the Rights of the Child

¹⁰⁷ Andrews, A., Ben-Arieh, A., Carlson, M., Damon, W., Dweck, C., Earls, F., et al. (2002). (Ecology Working Group). *ecology of Child well-being: advancing the science and the Science-Practice Link*. Georgia: Centre for Child Well-Being.

¹⁰⁸ Bronfenbrenner, U. (1979). *The Ecology of human development: experiments by nature and design*. Cambridge, MA: Harvard University Press.

¹⁰⁹ Bronfenbrenner, U., & Morris, P. (2006). The bio-ecological model of human development. In R. M. V. Lerner, W. Damon, & R. M. S. Lerner (Eds.), *Handbook of child psychology vol. 1*, (pp. 793–828). Wiley: Theoretical Models of Human Development Hoboken, NJ.

three broad domains of children's lives. These broad domains are: the active developing child, relationships around children and formal and informal supports.

Dashboard

A visualization of the most relevant indicators in one place.¹¹⁰

Health

In 1986, the Ottawa Charter for Health Promotion re-defined health as "...the extent to which an individual or group is able to develop aspirations and satisfy needs and to change or cope with the environment. Health is a resource for everyday life, not the objective of living. It is a positive concept emphasizing social and personal resources, as well as physical capacities".¹¹¹

In keeping with the concept of health as a fundamental human right, the Ottawa Charter emphasizes certain pre-requisites for health that include peace, adequate economic resources, food and shelter, and a stable eco-system and sustainable resource use. Recognition of these pre-requisites highlights the inextricable links among social and economic conditions, the physical environment, individual lifestyles and health. These links provide the key to a holistic understanding of health and well-being. All people should have access to basic resources for health.

A comprehensive understanding of health and well-being implies that all systems and structures that govern social and economic conditions and the physical environment should consider the implications of their activities with respect to their impact on individual and collective health and well-being.¹¹²

Indicator

Indicators have been described as "...succinct measures that aim to describe as much about a system as possible in as few points as possible."¹¹³ Moore et. al. describe indicators as, "...statistical markers that can be used to track patterns and trends over time."¹¹⁴ The Canadian Institute for Health Information defines indicators as, "...standardized measures by which to compare health status and health system performance and characteristics among different jurisdictions ..."¹¹⁵. In general the purpose of developing indicators is to help understand, compare, predict, improve and innovate.

¹¹⁰ Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. National Health Service. Great Britain.

¹¹¹ Ottawa Charter for Health Promotion. WHO, Geneva, 1986

¹¹² Health Promotion Glossary. (1998) WHO. http://www.who.int/hpr/NPH/docs/hp_glossary_en.pdf

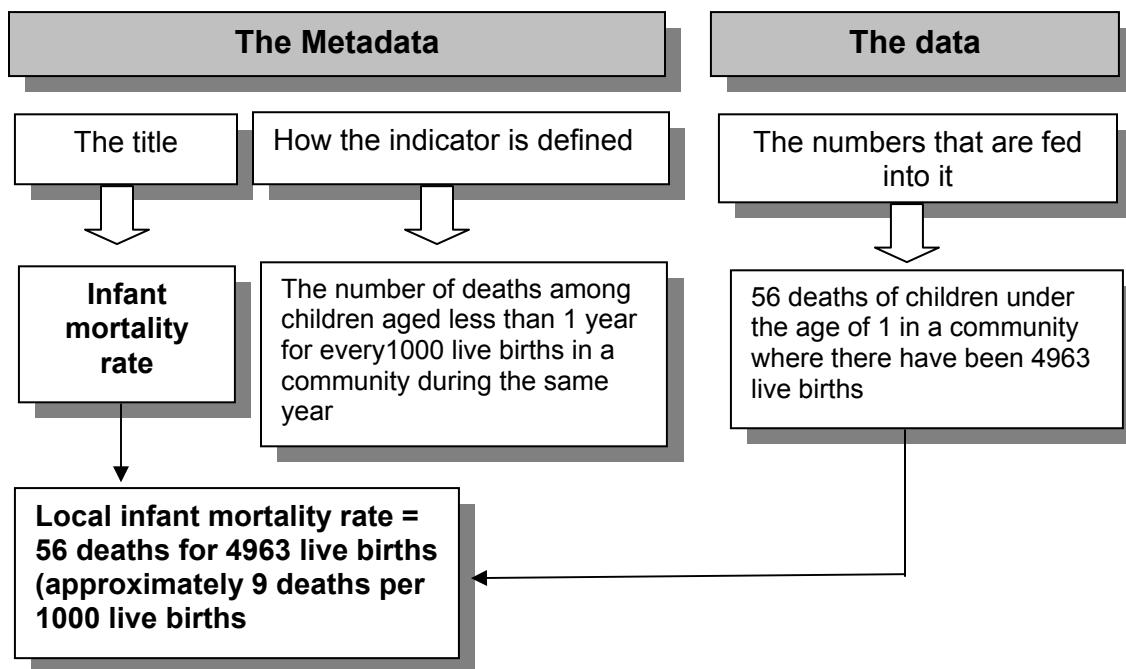
¹¹³ Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. National Health Service. Great Britain.

¹¹⁴ Moore, K., Theokas, C., Lippman L., Bloch, M., Vandivere, S., & O'Hare, W. (2008) A Microdata Child Well-Being Index:Conceptualization, Creation, and Findings, Child Ind Res (2008) 1:17–50

¹¹⁵ CIHI website at http://secure.cihi.ca/cihicweb/dispPage.jsp?cw_page=indicators_e

In operational terms the indicator is known as a metadata, referring to the title, the rationale, and the information about how it is actually constructed.¹¹⁶ This is different from the information that is fed into the indicator - which is called the data. For example, "Infant Mortality Rate" is often used as a basic indicator of the health of a community.

Figure 2. Operational definition for Indicators



Ten key questions should be asked when identifying metadata elements (indicators):¹¹⁷

- What is being measured?
- Why is it being measured?
- How is it defined?
- Who does it measure?
- When does it measure it?
- Will it measure absolute numbers or proportions?
- Where does the data come from?
- How accurate and complete are the data?
- Are there any caveats/warnings/problems?
- Are particular tests needed to assess the meaning of the data and the variation they show (e.g. standardization, significance tests, statistical process control)?

¹¹⁶ The Good Indicators Guide: Understanding how to use and choose indicators (2008) National Health Services, Britain. <http://www.apho.org.uk/resource/item.aspx?RID=44584>

¹¹⁷ Ibid. <http://www.apho.org.uk/resource/item.aspx?RID=44584>

Monitoring

The process of regular follow-up for specific indicators, with a view to action when a particular threshold is crossed.¹¹⁸

Reliability

Reliability is the consistency of the measurement, or the degree to which an instrument measures the same way each time it is used under the same condition with the same subjects. In short, it is the repeatability of the measurement. A measure is considered reliable if a person's score on the same test given twice is similar.¹¹⁹

Surveillance

Regular and systematic collection, collation and analysis of data. It can be used to spot emerging problems (such as important changes in disease rates) or monitor important outcomes of, for example, a health care system.¹²⁰

Validity

Accuracy - the degree to which a measurement truly measures the issue of interest.¹²¹

¹¹⁸ Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. National Health Service. Great Britain.

¹¹⁹ Social Science Methods (2009). <http://www.socialresearchmethods.net/tutorial/Colosi/lcolosi2.htm>

¹²⁰ Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. National Health Service. Great Britain.

¹²¹ Institute for Innovation and Improvement. (2008). The good indicators guide: Understanding how to use and choose indicators. National Health Service. Great Britain.

Annex A-2.

A Compendium of Child Health and Well-being Indicators

There is a plethora of child health and well-being indicator activity that is occurring both nationally and internationally. Following are examples of some of these key initiatives beginning with child status indicator activity in British Columbia and other Canadian jurisdictions. This is then followed by initiatives that have occurred in the United States, selected European countries, New Zealand, Australia and globally.

Measuring Success: A Report on Child and Family Outcomes, 2002 (BC Ministry of Children and Family Development)¹²²

Measuring Success: Report on Child and Family Outcomes in BC is a reporting tool used by the Ministry of Children and Family Development (MCFD) in British Columbia to monitor and report the status of physical health as well as other socioeconomic well-being of children, youth and families in BC. This is the 3rd update of the information of an earlier report published by the former Ministry for Children and Families entitled Measuring Our Success. The monitoring of the outcomes and indicators allows the Ministry to assess the extent to which the collectivity of promotion, prevention and intervention services and strategic approaches undertaken in the province make a difference at the population level.

To Optimize the Health of Babies at Birth

- Infant mortality rate per 1,000 live births
- Rate of LBW babies per 1,000 live births
- % of women who a) smoke or b) drink during pregnancy
- Rate (per 1,000 live births) of new-borns born with: a) FAS b) drug withdrawal syndrome or noxious influences transmitted to placenta
- Rate of infants testing positive for HIV per 100,000 < 18 months children population
- Rate of neural tube defects per 1,000 live and still births
- Rate of SIDS per 1,000 live births

To Optimize the Health and Well-Being of Children

- Mortality rate for children ages 5-14 years per 1,000 age cohort population
- % of children who are sad or depressed sometimes
- % of children exhibiting emotional distress
- % of children who get along with their; a) mothers b) fathers
- % of children whose parents report harmonious parent/child relations
- % of children who get along with their peers; a)quite well b) very well
- % of children whose parents report their children get along with peers
- % of children doing well in numeracy a) grade 4, b) grade 7

¹²² http://www.llbc.leg.bc.ca/public/PubDocs/bcdocs/353873/bc_cfd_measure_success_2002.pdf

- % of children doing well in reading a) grade 4, b) grade 7
- % of children doing well in writing a) grade 4, b) grade 7
- % percentage of... taking part in physical activity a) girls, b) boys
- % of children who look forward to going to school
- % of young children caries immune

To Optimize the Health and Well-Being of Infants and Young Children

- Mortality rate for children ages 1-4 years per 1,000 age cohort population
- % of mothers who: a) breast-feed b) breast-feed more than 3 months
- % of children with good verbal skills
- % of children with good motor and social skills

To Optimize the Health and Well-Being of Families with Children

- % of children living in healthy functioning families
- % of parents with; a) nurturing supports, b) emergency personal supports
- % of children whose parents have positive interactions with them
- % of children whose parents practice consistent parenting
- % of children whose parents indicate alcohol consumption is a domestic problem
- % of children whose parents maintain a non-violent home
- Spousal assault rates per 1,000 population

To Reduce Teen Pregnancy

- Teen pregnancy rate per 1,000 (15-19) population
- Teen birth rate per 1,000 (15-18) female population
- % sexually active female youth using contraception

To Reduce Substance Abuse by Children and Youth

- % of children and youth who smoke: a) males, b) females
- % of students who drink alcohol regularly: a) male, b) female
- % of youth reporting ever used marijuana
- Rate of alcohol-related death among children and youth: a) direct, b)
- indirect per 100,000 15-18 year olds
- Rate of drug-induced death among children and youth per 100,000 15-18 year olds

To Optimize the Health and Well-Being of Youth

- Mortality rate for youth (15-18) per 1,000 age cohort population
- STD rates for youth (15-19): a) gonorrhea, b) Chlamydia, c) syphilis, d) PID per 100,000 cohort population
- Rate of HIV infection amount youth per 100,000 15-19 year olds
- Rate of AIDS contraction among youth per 100,000 15-19 year olds
- % of students in good health
- % of children and youth with low self-esteem
- % of students who are “connected” to family
- % of students who are “connected” to school
- % of youth doing well in numeracy
- % of youth doing well in reading
- % of youth doing well in writing
- % of students completing high school
- % of a) girls, b) boys taking part in physical activity
- % of a) girls, b) boys who wish to lose weight

To Reduce Substance Abuse by Adults

- Rate of alcohol-related death among adults: a) direct, b) indirect per 100,000
- Rate of drug-induced death among adults per 100,000
- % of adults who are regular heavy drinkers

To Reduce Suicide by Children and Youth

- Suicide rate per 100,000 for a) children (10-14), b) youth (15-18)
- % of students attempting suicide
- % of students considering suicide a) male, b) female

Indicators of Early Childhood Health & Well-Being in British Columbia.¹²³

The fourth report on the Indicators of Early Childhood Health & Well-Being in British Columbia was released in Winter 2008. Data for this report were collected in 2004/2005 and drawn from several sources, including Statistics Canada, Vital Statistics Birth Database, the British Columbia Vital Statistics Agency and the National Longitudinal Survey of Children and Youth (NLSCY). The various data sources compiled within this report track British Columbia's progress over time, and compare performance on the common indicators with the national average. This method of analysis provides insight into how British Columbia's children are faring over time compared to their national peers in five key areas: physical health; safety and security; early childhood development; family; and community.

Indicators of Early Childhood Health & Well-Being in British Columbia

Physical Health

- Birth weight
- Pre-term birth
- Vaccine-preventable disease(s)
- Prevalence of breastfeeding
- Duration of breastfeeding
- Infant Mortality

Safety and Security

- Injury mortality
- Injury hospitalization

Early Childhood Development

- Physical health and motor development
- Emotional health and social development
- Language skills
- Number knowledge levels

Family-Related Indicators

- Parental education
- Level of income
- Parental health: Parental depression
- Parental health: Tobacco use during pregnancy
- Family functioning
- Positive parenting
- Reading by an adult

Community-Related Indicators

- Neighbourhood cohesion and safety

¹²³ http://www.mcf.gov.bc.ca/early_childhood/pdf/early_indicators_fourth_report.pdf

Greater Opportunities for New Brunswick's Children 2002-03¹²⁴

Building on its current early childhood development investments, New Brunswick has identified the following four key areas of investment: to promote healthy pregnancy, birth and infancy; to improve parenting and family supports; to strengthen early childhood development, learning and care; and, to strengthen community supports.

The Government of New Brunswick plans to provide progress reports on improved early childhood development programs and services. The New Brunswick government will ensure that these investments will help make New Brunswick a better place to live, work and raise a family

Physical Health and Motor Development

- LBW rate
- HBW rate
- Invasive meningococcal disease incidence rate
- Measles incidence rate
- Haemophilus influenzae-b (invasive) disease rate
- Infant mortality rate
- Motor and social development (MSD) score

Emotional Health

- Physical aggression / conduct problem score
- Hyperactivity / inattention score
- Emotional problem / anxiety score

Social Knowledge and Competence

- Personal-social behaviour score

Cognitive Development and Communication

- Standard score for Peabody Picture and Vocabulary Test Revised (PPVT-R)

¹²⁴ <http://www.gnb.ca/0017/children/ECDAgenda.pdf>

For Our Children: A Strategy for Healthy Child Development, PEI¹²⁵

Safety and Security

- Basic needs for food, shelter, and clothing are being met
- Availability of affordable housing
- Rate of violence, abuse, neglect, discrimination, and danger for children

Good Health

- Healthy maternity
- Healthy birth rate for infants
- Breast-feeding rate
- Developmental milestones
- # children free from exposure to environmental hazards
- Proper nutrition
- Dental hygiene
- Good mental health

Successful at Learning

- Development of language
- Social, motor and general knowledge and cognitive skills
- Self-esteem
- Coping skills

Social Belonging and Responsibility

- Positive child-parent relationship
- Sense of trust in caregivers
- Empathy for others
- Adequate income
- Effective parenting
- Supportive community environments

¹²⁵ <http://www.gov.pe.ca/hss/hcd/index.php3?number=1005129>

Indicators of Child Well-Being in Saskatchewan¹²⁶

Physical Health

- Healthy birth rate – high or low
- Immunization (meningococcal disease, measles, Haemophilus influenzae-b)
- Infant mortality rate

Early Development, including social and emotional development

- Physical health and motor development
- Emotional problem / anxiety
- Hyperactivity / inattention
- Physical aggression / conduct problem
- Pro-social behaviour
- Language skills

Safety & Security

- Injury mortality rate
- Injury hospitalization rate

Family

- Parental education
- Level of income
- Parental depression
- Tobacco use during pregnancy
- Family functioning
- Positive parenting
- Reading by adult

Community

- Neighbourhood satisfaction, safety, cohesion

¹²⁶ http://www.pcch.on.ca/Agenda_Package/Child_Health_System_Indicator_Summary.pdf

Ontario

In one of the few efforts to systematize child health system indicators, the Provincial Council for Children and Youth (Ontario) used a theoretical but practical matrix to delineate child health indicators. The resulting matrix was used to compare inputs and outputs that recognized the ecological layers of child health systems across several jurisdictions that were attempting to create a child health framework.

Inputs included:

- *Family Life* (family structures / parental employment / family functioning);
- *Economic Security* (family income / child poverty rate / family expenditures);
- *Physical Safety* (air pollution / pesticide use / water quality / injury rates / crime rates);
- *Community Resources* (participation in recreation / access to child care / school enrollment / housing / homelessness / accessing health care);
- *Civic Vitality* (participation in elections and voluntary activities / charitable donations).

The outputs included:

- *Health Status* (self-rated health status / phys activity & well-being / obesity / asthma & allergies / Ritalin use / smoking / infant mortality rates / death rates).
- *Social Engagement* (relationships with parents and friends / abuse & neglect / family violence / bullying / Internet dangers / youth crime rates);
- *Learning* (school readiness / feelings about school / educational attainment);
- *Labour Force Profile of Youth* (youth participation rates, employment rates and unemployment rates).¹²⁷

¹²⁷ Provincial Council for Children's Health, Child Health System Indicator Summary. At http://www.pcch.on.ca/Agenda_Package/Child_Health_System_Indicator_Summary.pdf

Toronto's Report Card on Children¹²⁸

The Toronto Report Card on Children is intended to fulfill several functions:

- to track changes in the condition of children (the first report was issued in 1997, the last in 2003)
- to measure progress in improving the situation of children
- to identify gaps in service
- to help build public awareness and understanding of the needs of children
- to serve as a planning tool for service providers, City officials and elected representatives so they can make decisions about allocating resources
- to act as a stimulus for political and community action to improve the situation of children.

Economic Security

- Proportion of children living in poverty
- Children in families receiving social assistance
- Cost of nutritious food basket
- Supply of licensed child care spaces
- Access to child care subsidies
- Affordable housing
- Homelessness

Health

- Healthy birth weight
- Healthy eating and nutrition
- Dental and oral health
- Children's mental health
- Immunization
- Physical activity

Safety

- Child protection caseloads
- Air quality and respiratory health
- # Smog advisory days
- # Respiratory hospitalizations
- # Hospitalizations due to injuries

Access to Developmental Opportunities

- Child Care Salaries
- Readiness to learn (using the Early Development Instrument)
- Student Achievement
- Access to services for children with special needs
- Access to speech and language services
- Infant hearing program
- Diversity of children
- Use of recreation programs
- Library registrations for children

¹²⁸ <http://www.toronto.ca/children/report/repcard5/introduction.htm>

Positive Parenting
Family support programs

The Foundation for Child Development (FCD) Child and Youth Well-Being Index (CWI) (United States)¹²⁹

The Child and Youth Well-Being Index (CWI) is an evidence-based composite measure of trends over time in the quality of life of US children from birth to age 17. It comprises 28 indicators organised into seven domains (see Annex A-1). These seven quality-of-life domains have been found in numerous social science studies to be related to an overall sense of subjective well-being or satisfaction with life. The CWI tracks the well-being of children annually using data from 1975 to the present. The seven domains are:

- Family Economic Well-Being;
- Health;
- Safety/Behavioural Concerns;
- Educational Attainment;
- Community Connectedness;
- Social Relationships; and
- Emotional/Spiritual Well-Being.

The composite index, an equally weighted average of the seven domains, gives a sense of the overall direction of change in well-being, as compared to a base year of the indicators, 1975. The CWI is designed to address questions such as:

- On average, how did child and youth well-being in the U.S. change in the last quarter of the 20th century and beyond?
- Did it improve or deteriorate?
- By approximately how much?
- In which domains of social life?
- For specific age groups?
- For particular race/ethnic groups?
- Did race/ethnic group and gender disparities increase or decrease?

Inevitably, the indicators used to capture the domain constructs are constrained by available data. According to Moore et. al.¹³⁰ this has both conceptual and methodological consequences that influence the meaning of the index. For example, there are unequal numbers of indicators within domains. Safety and behavioral concerns include six items, while the social relationships domain has only two items. As a result, each of the two items in the social relationships domain have a larger effect on the overall domain score, and thus the overall index value, than each of the six items in the Safety and Behavioral domain.

¹²⁹ <http://www.soc.duke.edu/~cwi/>

¹³⁰ Moore, K., Lippman, L., & Vandivere, S. (2008). A Microdata Child Well-Being Index: Conceptualization, Creation, and Findings. *Child Indicators Research*, 1, 17-50.

In addition, the indicators are intended to capture the social condition of children of all ages, but more items are available for adolescence (17) and fewer are available for infancy/preschool (6) and childhood (6), thus implicitly weighting the overall index towards the social conditions of adolescents. Also, the ability of the individual indicators to adequately reflect the domains and to directly measure associated behaviors varies. Often, the indicators are indirect assessments of underlying concepts (e.g., the suicide rate is used to assess emotional well-being) or proxy measures (e.g., the percent of children in single-parent families is used to assess social relationships).¹³¹

The 28 key measures used in the FCD-Land Index

Domain	Key measures
Family economic well-being domain	Poverty rate (all families with children) Secure parental employment rate Median annual income (all families with children) Rate of children with health insurance
Health domain	Infant mortality rate Low birth weight rate Mortality rate (ages 1-19) Rate of children with very good or excellent health (as reported by parents) Rate of children with activity limitations (as reported by parents) Rate of overweight children and adolescents (ages 6-19)
Safety/behavioral domain	Teenage birth rate (ages 10-17) Rate of violent crime victimization (ages 12-19) Rate of violent crime offenders (ages 12-17) Rate of cigarette smoking (grade 12) Rate of alcohol drinking (grade 12) Rate of illicit drug use (grade 12)
Educational attainment domain	Reading test scores (Ages 9, 13, and 17) Mathematics test scores (ages 9, 13, and 17) Rate of persons who have received a high school diploma (ages 18-24)
Community connectedness	Rate of youths not working and not in school (ages 16-19) Rate of pre-kindergarten enrolment (ages 3-4) Rate of persons who have received a bachelor's degree (ages 25-29) Rate of voting in presidential elections (ages 18-20)

¹³¹ Moore, K., Lippman, L., & Vandivere, S. (2008). A Microdata Child Well-Being Index: Conceptualization, Creation, and Findings. *Child Indicators Research*, 1, 17-50.

Social relationships domain	Rate of children in families headed by a single parent Rate of children who have moved within the last year (ages 1–18)
Emotional/spiritual well-being domain	Suicide rate (ages 10–19) Rate of weekly religious attendance (grade 12) Percent who report religion as being very important (grade 12)

Unless otherwise noted, indicators refer to children ages 0–17. Source: Land (2006, p. 24).

Kids Count (United States)¹³²

Every year since 1990, The Annie E. Casey Foundation in the United States has issued a Kids Count report which ranks states on overall child well-being based on an aggregate index of ten key indicators (O'Hare 2006). The ten indicators represent a combination of negative outcomes and risk factors for children and families. The variables are not sorted into domains but cover varied important areas of children's functioning including educational attainment, family relationships, health, behavioral functioning and material well-being as well as development stages from birth through early adulthood.

Measures used in the report have changed a little over time; but the ten measures used in the 2006 report include:

- Low-birth weight babies,
- Infant mortality,
- Child deaths,
- Teen deaths,
- Teen births,
- High school dropouts,
- Idle youth,
- Secure parental employment,
- Child poverty, and
- Single-parent families.

Similar to the FCD-Land Index, individual indicators capture information relative to different developmental periods with four of the indicators referring to events among teens. In order to compare states, the measures used in the index have to be available and consistently measured across states and over time. These criteria have greatly restricted the measures available. A large number of indicators from national surveys are not available consistently for states. Nevertheless, these ten indicators are thought to represent the best available data that are measured annually at the state level and are intended to capture the multi-dimensional character of child and family well-being.

This index describes the average social conditions of children, but it does not and can not describe how multiple problems are distributed among children. For example, the 2006 Kids Count Data Book shows that 18% of children are living in poverty, 8% are high school dropouts, and 31% are living in single parent families, but it is unclear whether it is largely the same children experiencing all of these negative outcomes, or if the negative outcomes are spread across a wider population. Thus, it describes the poverty rate, the dropout rate, and rate of single parenthood in the population, but they do not indicate the proportion of children who live in poverty as well as in single-parent families, and who have also dropped out of school. That shortcoming was initially addressed by a micro-data index constructed from the National Survey of America's Families (NSAF) described below.

¹³² <http://www.aecf.org/KnowledgeCenter/PublicationsSeries/KCDatabookProds.aspx>

National Survey of America's Families (NSAF) (United States)¹³³

The micro-data index builds on previous work using data from the National Survey of America's Families (Moore and 22 K.A. Moore, et al. Lippman 2005). The NSAF is a cross-sectional survey that was administered in 1997, 1999, and 2002 to study welfare reform and family well-being. In each wave, data were collected on approximately 30,000 children of all ages from the adult in the household most knowledgeable about the child. Unlike the FCD-Land Index and Kids Count Index, which are based on aggregate data and therefore represent overall incidence rates in the population, the NSAF provides child-level micro data. Thus, the index created using NSAF data represents the circumstances and well-being that individual children actually experience rather than averages for groups of children.

The NSAF data are organized into five distinct domains. Three of the domains directly capture child functioning:

- health and safety,
- education, and
- social and emotional development.

These domains consist of three, five, and nine indicators, respectively. Health status, school engagement, and feeling worthless or inferior are examples of indicators in the three domains. Together, data in these three domains comprise the Child Well-Being Index. The two remaining domains represent family processes (seven indicators) and sociodemographic risk (five indicators). These domains represent the contextual circumstances and conditions that children experience. Examples include parent volunteering and family size. Because developmentally appropriate measures for younger children were limited in the NSAF, the index was only created for children 6–11 and 12–17. Also, given the wording of items, the indicators are scored to represent problems or risks, as opposed to well-being, similar to the two prior indices. A significant contribution of the NSAF work is the distinction made between individual child well-being and the contextual circumstances that influence children. Because of the finding that results differed depending on whether one is examining children's contexts or child wellbeing, and because these two areas are substantively distinct, we recommended separating well-being and context in future work.

America's Children: Key National Indicators of Well-Being, 2007

Family and Social Environment

- Family structure and children's living arrangements
- Births to unmarried women
- Child care
- Children of at least one foreign-born parent
- Language spoken at home and difficulty speaking English
- Adolescent births

¹³³ <http://www.icpsr.umich.edu/cocoon/ICPSR/SERIES/00216.xml>

- Child maltreatment

Economic Circumstances

- Child poverty and family income
- Secure parental employment
- Food security and diet quality

Health Care

- Health insurance coverage
- Usual source of health care
- Childhood immunization
- Oral health

Physical Environment and Safety

- Outdoor and indoor air quality
- Drinking water quality
- Lead in the blood of children
- Housing problems
- Youth victims of serious violent crimes
- Child injury and mortality
- Adolescent injury and mortality

Behavior

- Regular cigarette smoking
- Alcohol use
- Illicit drug use
- Sexual activity
- Youth perpetrators of serious violent crimes

Education

- Family reading to young children
- Mathematics and reading achievement
- High school academic course-taking
- High school completion
- Youth neither in school nor working
- College enrollment

Health

- Low birth weight
- Infant mortality
- Emotional and behavioral difficulties
- Activity limitation
- Overweight
- Asthma

Ireland's State of the Nation's Children¹³⁴

Ireland's first State of the Nation's Children report was compiled in 2006 by the Office of the Minister for Children and Youth Affairs in association with the Central Statistics Office, the Statistics Division of the Department of Health and Children, and the Health Promotion Research Unit, National University of Ireland, Galway. The Report was collated in fulfilment of a commitment given in the Ireland's National Children's Strategy that a regularly updated statement of key indicators of children's well-being would be made available. The Report is based on the National Set of Child Well-Being Indicators developed in 2005 using a consensus approach involving multiple stakeholders, including children. The twenty-two indicators included in the set relate to information about socio-demographics; children's relationships; children's health, educational, and social, emotional and behavioural outcomes; and formal and informal supports for children. The Report will be updated every two years.

Indicator	Indicator
Socio- Demographics <ul style="list-style-type: none"> • Child population • Child mortality • Non Irish national children • Family structure • Separated children seeking asylum 	Children's Social, Emotional and Behavioural Outcomes <ul style="list-style-type: none"> • Participation in making the school rules • Reading as a leisure activity • Tobacco use • Alcohol use • Drug use • Sexual health and behaviour • Values and Respect • Mental Health • Physical Activity • Nutritional Health • Nutritional Outcomes • Youth Homelessness
Children's Relationships <ul style="list-style-type: none"> • Relationship with parent • Relationship with peers • Pets and animals 	Children's Formal and Informal Supports <ul style="list-style-type: none"> • Public expenditure on education • Economic security • Availability of housing for families with children • Community characteristics - safety • Environment and places • Crimes committed by young people • Ante-natal care • Childhood immunization • Screening for growth and development • Accessibility of basic health services

¹³⁴ Hanafin, S., & Brooks, A. (2009) From Rhetoric to Reality: Challenges in Using Data to Report a National Set of Child Well-being Indicators. *Child Indicators Research*. 2, 33-55.

<p>Children's Educational Outcomes</p> <ul style="list-style-type: none"> • Enrolment in early childhood care and education • Attendance at school • Enrolment in education/completion of school • Educational attainment 	<ul style="list-style-type: none"> • Children and young people in care <p>Children's Health Outcomes</p> <ul style="list-style-type: none"> • Low birth weight • Breastfeeding practice • Chronic health conditions and hospitalization • Disability • Abuse and Maltreatment
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A Picture of Australia's Children - Indicators for Children's Health, Development and Well-Being, 2006¹³⁵

This is the third national statistical report on the health and wellbeing of Australia's children aged 0–14 years. This report differs somewhat from the previous two as the focus has been widened to include factors influencing children's overall wellbeing. Previous reports have identified that children's wellbeing is broader than the status of good health; however, the scarcity of data prevented reporting on such issues as children's learning, safety and security, and social interactions. Although the data in these areas are still scanty, this report attempts to provide a snapshot of early learning and education, safety and security, crime, victimization and social capital, as new additions to the information presented in previous reports. Childhood, particularly early childhood, has become a key priority for governments and non-government organizations across Australia. This is in response to emerging issues of concern for Australia's children in the context of rapid social change, as well as compelling evidence about the importance of the early years for laying the foundations for children's later competence and physical wellbeing, and about the types of early interventions proving beneficial for positively influencing child outcomes. The biological, social, community, family and economic influences on children are important predictors of health, educational, psycho-social, behavioural and criminal outcomes.

How healthy are Australia's children?

- Mortality
- Morbidity
- Disability
- Mental health

How well are we promoting healthy child development?

- Childhood immunisation
- Breastfeeding
- Dental health

What factors can affect children adversely?

- Low birth weight
- Smoking during pregnancy
- Environmental tobacco smoke in the home
- Overweight and obesity
- Tobacco use
- Alcohol misuse

How safe and secure are Australia's children?

- Injuries
- Child abuse and neglect
- Children as victims of violence

¹³⁵ <http://www.aihw.gov.au/publications/index.cfm/title/10127>

- Homelessness

How well are Australia's children learning and developing?

- Preschool education
- Literacy and numeracy
- Children and crime

What kind of families and communities do Australia's children live in?

- Family structure
- Family functioning
- Economic security
- Children in out-of-home care
- Parents with disability or chronic illnesses
- Neighbourhood safety
- Social capital

Indicators of Wellbeing in New Zealand¹³⁶

The *Children and Young People: Indicators of Wellbeing in New Zealand 2008* is the second in a series of Ministry of Social Development (MSD) reports that bring together a set of indicators on the wellbeing of children and young people in New Zealand. The report has four main aims:

- to provide measures of child and youth wellbeing and monitor them over time
- to compare New Zealand with other countries on measures of child and youth wellbeing
- to present objective statistical information on the wellbeing of New Zealand children and young people that can inform public debate
- to help identify key issues and areas where we need to take action, which can in turn assist planning and decision making.

In the Children and Young People indicator report, ten discrete components of wellbeing are identified and referred to as “desired social outcomes”. These are listed in Annex A-3. This framework of 10 social wellbeing outcome domains and a total of 42 indicators were developed in consultation with a wide range of government and child-focused non-government agencies (NGOs).

Children and Young People, 2008, outcome domains and indicators

DOMAIN	DESIRED OUTCOMES	INDICATORS
HEALTH	All children and young people enjoy good physical and mental health with access to good-quality health care.	<ul style="list-style-type: none">• Low birth weight births• Infant mortality• Immunisation• Hearing test failure at school entry• Oral health• Obesity• Physical activity• Cigarette smoking at 14–15 years• Youth suicide

¹³⁶ <http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/children-young-indicators-wellbeing/index.html>

DOMAIN	DESIRED OUTCOMES	INDICATORS
CARE AND SUPPORT	All children and young people enjoy secure attachment to parents and caregivers in a nurturing relationship where they are valued, respected and supported.	<ul style="list-style-type: none"> • Positive relationships with parents • Witnessing violence in the home • Early childbearing
EDUCATION	All children and young people obtain the knowledge and skills to enable them to be full participants in society.	<ul style="list-style-type: none"> • Children of parents without educational qualifications • Participation in early childhood education • School truancy • Reading literacy at age 15 • Mathematical literacy at age 15 • Scientific literacy at age 15 • Retention of students in senior secondary schools • School leavers with higher qualifications • Participation in tertiary education • Tertiary qualification completion
ECONOMIC SECURITY	All children and young people enjoy a secure standard of living that means they can fully participate in society. All young people achieve the transition to economic independence.	<ul style="list-style-type: none"> • Children without a parent in paid work • Children and young people in low-income households • Unemployment • Employment • Median hourly earnings
SAFETY	All children and young people enjoy personal safety, and are free from abuse, victimisation, violence, and avoidable injury and death.	<ul style="list-style-type: none"> • Unintentional injury mortality • Assault mortality • Bullying at school • Criminal victimisation • Fear of crime • Road casualties
CIVIL AND POLITICAL RIGHTS	All children and young people enjoy fundamental human, civil and political rights, free from discrimination and exploitation. Children and young people are given the opportunity to participate in decisions that affect them.	<ul style="list-style-type: none"> • Voter turnout
JUSTICE	All children and young people take growing responsibility for their actions, and have access to fair and equitable treatment within the justice system.	<ul style="list-style-type: none"> • Police apprehensions of 14–16 year olds • Cases proved in the Youth Court

DOMAIN	DESIRED OUTCOMES	INDICATORS
CULTURAL IDENTITY	All children and young people are able to participate in the culture and values important to them and their families and to feel secure with their identity.	<ul style="list-style-type: none"> • Te reo Māori speakers • Language retention
SOCIAL CONNECTEDNESS	All children and young people enjoy friendships and social, cultural and recreational activities that build confidence and security, promote healthy relationships, and encourage civic and social responsibility.	<ul style="list-style-type: none"> • Telephone/mobile access in the home • Internet access in the home
ENVIRONMENT	All children and young people live in, and have access to, healthy natural and built environments.	<ul style="list-style-type: none"> • Children living with a parent who smokes • Household crowding

Every Child Matters Outcomes Framework, United Kingdom¹³⁷

Be Healthy

- Infant mortality rate
- % obese under 11
- Death rate from suicide and undetermined injury
- Improvement in access to CAMHS
- Under 18 conception rate
- Diagnostic rate of new episodes of STIs among under 16 & 16-19yo
- Average alcohol consumption
- % children who are regular smokers
- % children consuming 5 portions of fruit & veg a day
- Harm caused by illegal drugs - Has 3 components including reduce use of Class A drugs by under 25s

Stay Safe

- Re-registrations on Child Protection Register
- # of 1-15yo who state they have been bullied in last 12 months
- Fear of crime and anti-social behaviour
- % under 16 looked after for >2½ yrs living in same placement for >2 yrs or placed for adoption
- % care cases completed in the courts within 40 wks

Enjoy & Achieve

- Level of development reached at the end of the foundation stage, including narrowing the gap in the 20% most disadvantaged areas
- Half days missed through absence
- % 7yo achieving L2+ KS1
- % 11yo achieving L4+ in Eng & Maths, including floor target
- Educational achievement of 11yo LAC compared with peers
- Take-up of sporting opportunities by 5-16yo
- Take-up of cultural & sporting opportunities among >16yo
- % 14yo achieving L5+ in Eng, Maths, Sci & ICT, including floor targets
- % 16yo achieving the equivalent of 5 A – C GCSE, including floor targets
- Educational achievement of 16yo LAC compared with peers

Make a Positive Contribution

- % children in secondary schools participating in (a) election of school /college council members, (b) mock general elections
- Voluntary community engagement
- Reduce level of offending
- Crimes brought to justice
- Permanent & fixed period exclusions
- % 10-19yo admitting to (a) bullying another pupil in last 12 months, (b) attacking, threatening or being rude due to skin colour, race or religion
- % 18-24yo who are self-employed, manage own business or have thought seriously about starting their own business

Achieve Economic Well-Being

- % 16-18yo no in education, employment and training

¹³⁷ <http://www.dcsf.gov.uk/childrensplan/downloads/ECM%20outcomes%20framework.pdf>

- % 19yo achieving L2+ in NVQ 2 or equivalent
- % 18-30yo participating in higher education
- % social housing & vulnerable households in the private sector in a decent condition
- Cleaner, safer & greener public spaces, and quality of the built environment in deprived areas
- Level of material deprivation & low income
- % children living in relative low-income households
- Including % children living in workless households
- Stock and take-up of childcare for all families

The Child Health Indicators of Life and Development (CHILD) Project - Europe¹³⁸

The Child Health Indicators of Life and Development (CHILD) project was a third-wave project within the European Community Health Monitoring Programme (HMP). The European Community Health Monitoring Programme at the time of the CHILD Project was restricted to member states of the European Community and the European Economic Area (EEA). The project actually comprised representatives from 17 countries – all 15 Member States together with Iceland and Norway from the EEA. Each participating nation was represented by a locally nominated expert; in turn many of these involved other local experts or national groups as a source of further evidence. The remit was to identify and recommend indicators of the health of children between the ages of one week and 15 years. For most of the indicators the project recommended using three quinquennial age bands, plus a fourth age group of 15–17 years, or if this latter is not feasible then a fifth five-year group of 15–19 years inclusive.

The CHILD project fitted its recommendations into a slightly modified European Community Health Indicators (ECHI) framework, using the following four categories (the CHILD-specific variations being *highlighted*):

- Demographic and socio-economic (*Upstream Health Determinants*),
- Health status and *Well-being*,
- Determinants of health, *Risk and protective factors*,
- Health systems and *Policy*.

The project began by mapping out a broad picture of all the issues in the health of children, clustered these into broad themes, and established leaders who would review the evidence within these themes in order to identify a first informal long list of issues which had the potential to be measured. The list of topics identified was:

- Demography,
- Socio-economic status and inequity,
- Social cohesion/capital,
- Migrants,
- Marginalized children,
- Family cohesion,
- Mental health,
- Quality of life,
- Well-being,
- Lifestyles,
- Health promoting policies,
- Nutrition and physical growth,
- Development (including intellectual and social),
- Mortality, morbidity, injuries,

¹³⁸ <http://www.public-health.tu-dresden.de/dotnetnuke3/Portals/5/Projects/CHILD/summary%20child.pdf>

- Environment,
- Access and utilization of services.

This was followed by an identification of the essential intrinsic characteristics of indicators as objective statistical measures. Following this the committee engaged in a systematic prioritization and selection of a final list of key indicators. These appear in Annex A-2.

The Child Health Indicators of Life and Development (CHILD)

Dimension	Category and Indicator
A. Demographic & Socio-Economic	Socio-economic Circumstances Children in Poverty Parental Educational Attainment Child in Single Parent Households Asylum Seekers
B. Child Health Status, Well-being	Child Mortality Child Mortality Rates Selected Cause-specific Mortality Child Morbidity Cancer Diabetes Asthma Infectious Diseases Dental Morbidity Injuries to Children Injuries to Children Burns Necessitating Admission Poisoning Necessitating Admission Fracture of Long-bones Mental Health of Children Attempted Suicide
C. Health Determinants, Risk, and Protective Factors	Parental Determinants Breastfeeding Household Environmental Tobacco Parental Support Child Lifestyle Determinants Physical Activity Tobacco Smoking Alcohol Abuse Substance Misuse Other Factors Overweight and Obesity Children in Care Early School Leavers Educational Enrolment Air Pollution Exposure
D. Child Health Systems & Policy	Health Systems Policy Marginalised Children's Health Care Parental Inpatient Accompaniment Health System Quality Immunisation Coverage

	<p>Leukaemia 5-year Survival</p> <p>Social Policy Indicators</p> <p>Physical Punishment</p> <p>Anti-bullying policies in schools</p> <p>Physical Protection Policy</p> <p>Child Transportation Safety</p> <p>Exposure to Lead</p> <p>Exposure to Hazardous Noise</p> <p>Environmental Tobacco Smoke</p>
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The UNICEF Index of Children's Well-Being¹³⁹

Since 1979 UNICEF has published The State of the World's Children, a publication that is specifically focused on a review of basic indicators of children's survival and development across a number of countries. The recently released UNICEF IRC Report Card #7, provides a comprehensive assessment of the lives and well-being of children and young people in 21 industrialised nations, including Canada. Its purpose is to encourage monitoring, to permit comparison, and to stimulate the discussion and development of policies to improve children's lives. Specifically, it attempts to measure and compare child well-being under six different headings or dimensions:

- material well-being;
- health and safety;
- education;
- peer and family relationships;
- behaviours and risks; and
- young people's subjective sense of well-being.

The index draws on 40 separate indicators that are relevant to children's lives and rights. Although heavily dependent on the available data, this assessment is also guided by a concept of child well-being that is in turn guided by the United Nations Convention on the Rights of the Child. The implied definition of child well-being that permeates the report also corresponds to the views and the experience of a wide variety of people.¹⁴⁰

The index's goals are based on the assumption that to improve something you first need to measure it. The mere decision to measure helps set directions and priorities by demanding a degree of consensus on what constitutes progress or what should be measured. Over the long term, this index is intended to guide policy by helping to keep efforts on track towards goals, encouraging sustained attention, giving early warning of failure or success, fuelling advocacy, sharpening accountability, and helping to allocate resources more effectively.

Dimension	Component	Indicator
Material well-being	<ul style="list-style-type: none">• relative income poverty• households without jobs	percentage of children living in homes with equivalent incomes below 50% of the national median percentage of children in families without an employed adult percentage of children reporting low family affluence percentage of children reporting few educational resources

¹³⁹ http://www.unicef-irc.org/publications/pdf/rc7_eng.pdf

¹⁴⁰ for more details, see http://www.unicef-irc.org/publications/pdf/rc7_eng.pdf

	<ul style="list-style-type: none"> • reported deprivation 	percentage of children reporting fewer than 10 books in the home
Health and safety	<ul style="list-style-type: none"> • health at age 0-1 • preventative health services • safety 	number of infants dying before age 1 per 1,000 births percentage of infants born with low birth weight (<2500g.) percentage of children age 12 to 23 months immunized against measles, DPT, and polio deaths from accidents and injuries per 100,000 aged 0 – 19
Education	<ul style="list-style-type: none"> • school achievement at age 15 • beyond basics • the transition to employment 	average achievement in reading literacy average achievement in mathematical literacy average achievement in science literacy percentage aged 15-19 remaining in education percentage aged 15-19 not in education, training or employment percentage of 15 year-olds expecting to find low-skilled work
Peer and family relationships	<ul style="list-style-type: none"> • family structure • family relationships • peer relationships 	percentage of children living in single-parent families percentage of children living in stepfamilies percentage of children who report eating the main meal of the day with parents more than once a week percentage of children who report that parents spend time 'just talking' to them percentage of 11, 13 and 15 year-olds who report finding their peers 'kind and helpful'
Behaviours and risks	<ul style="list-style-type: none"> • health behaviours • risk behaviours • experience of violence 	percentage of children who eat breakfast percentage who eat fruit daily percentage physically active percentage overweight percentage of 15 year-olds who smoke percentage who have been drunk more than twice percentage who use cannabis percentage having sex by age 15 percentage who use condoms teenage fertility rate percentage of 11, 13 and 15 year-olds involved in fighting in last 12 months percentage reporting being bullied

		in last 2 months
Young people's subjective sense of well-being.	<ul style="list-style-type: none"> • health • school life • personal wellbeing 	<p>percentage of young people rating their own health no more than 'fair' or 'poor'</p> <p>percentage of young people 'liking school a lot'</p> <p>percentage of children rating themselves above the mid-point of a '<i>Life Satisfaction Scale</i>' percentage of children reporting negatively about personal wellbeing</p>

Annex A-3.

Child Health Data Sources in British Columbia

The Government of British Columbia, as stewards of the health system, plays a leadership role in learning from, supporting, and building upon existing data sources in the area of child health and well-being. This section of the document reports and expands on the data sources that contribute to the Government's ability to monitor, assess, and evaluate information gaps, and articulates the need for additional information and resources. The data sources outlined in this section will be valuable in informing and populating the set of child health and well-being indicators ultimately decided upon.

National and Provincial Data Sources

- **B.C. Statistics** - provides information on many facets of life in British Columbia, including the demographic, social and economic conditions of the province and its population. B.C. stats draws from various sources, including Statistics Canada, surveys conducted by provincial government ministries and agencies, as well as from administrative files.
- **B.C. Vital Statistics** - is a provincial registry that records information pertaining to birth, death, marriage, and name change for the Province.
- **B.C. Perinatal Data Base** - is mandated by the BC Reproductive Care Program to collect perinatal outcomes, care process and resources.
- **Canadian Community Health Survey (CCHS) 12+** - provides information on health determinants, health status, and health system utilization for 133 health regions across Canada. The CCHS was first conducted in 2000, and is administered biennially (note, as of 2008 the survey results are reported annually. The target population of the CCHS includes household residents in all provinces and territories¹⁴¹; Only those 12 years of age and over are eligible for selection, although in future cycles child-specific content may be included.
- **National Population Health Survey (NPHS)¹⁴² 12+** - was initiated to improve the information available to support the development and evaluation of health policies and programs in Canada. The NPHS first twelve month cycle of data collection was initiated in 1994. Data is collected biennially. The survey targets three groups 1) household residents in all provinces; 2) long-term residents expected to stay

¹⁴¹ With the exclusion of populations on Indian Reserves, Canadian Forces Bases, and some remote areas.

¹⁴² Retrieved from http://www.statcan.ca/english/freepub/82F0068XIE/about_e.pdf

longer than six months in health care institutions with four beds or more in all provinces¹⁴³ 3) the Northern population including household residents in the Yukon and the Northwest Territories¹⁴⁴. Household and territorial surveys collect most of the information from a single household member. Each time the respondent is re-surveyed, demographic, socio-economic and basic health-related information is also collected from all members of the household.

- **National Longitudinal Survey of Children and Youth (NLSCY)^{145,146}**
- is a long-term study of Canadian children that follows their development and well-being from birth to early adulthood. The NLSCY began in 1994 and is jointly conducted by Statistics Canada and Human Resources and Social Development Canada (HRSDC). The study is designed to collect information on factors influencing a child's social, emotional and behavioural development and to monitor the impact of these factors on the child's development over time. The survey covers a comprehensive range of topics including the health of children, information on their physical development, learning and behaviour as well as data on their social environment (family, friends, schools and communities). The target population comprises the non-institutionalized civilian population (aged 0 to 11 at the time of their selection) in Canada's 10 provinces¹⁴⁷. The initial sample for the most recent cycle was comprised of 37,655 children and youths aged from 0 to 9 and 12 to 23 years old.

While numerous data sources exist at both national and provincial levels, no one survey provides a complete "picture" of the health status of children and youth, plus gaps still exist in the data that is available. For example, while both the CCHS and the NPHS include data on those under 19 years of age, small sample sizes prevent the ability to assess results at Health Authority or Health Service Delivery Area levels. While the Canadian Census data profiles specific regions of the Province, it does not provide detailed information on the health and well-being of children within these regions.

¹⁴³ The Yukon and the Northwest Territories are excluded.

¹⁴⁴ The survey does not include populations on Indian Reserves, Canadian Forces Bases and some of the most remote areas of the Territories

¹⁴⁵ Retrieved from: <http://www.statcan.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=4450&lang=en&db=imdb&dbg=f&adm=8&dis=2#1>

¹⁴⁶ Willms, D. (Ed.). (2002). *Vulnerable children: Findings from Canada's National longitudinal survey of children and youth*: The University of Alberta.

¹⁴⁷ The survey excludes children living on Indian reserves or Crown lands, residents of institutions, full-time members of the Canadian Armed Forces, and residents of some remote regions.

BC School System Sources¹⁴⁸

- **Foundational Skills Assessment (FSA)**¹⁴⁹ - is an annual province-wide assessment of British Columbia students' academic skills, and provides a snapshot of how well BC students are learning foundation skills in reading comprehension, writing, and numeracy. The test is administered in grades 4 and 7. The main purpose of the assessment is to help the province, school districts, schools and school planning councils evaluate how well students are achieving basic skills, and make plans to improve student achievement. The skills tested are linked to the provincial curriculum and provincial performance standards.
- **Provincial Exams:** Provincial exams are administered to students in grades, 10, 11, and 12. These exams are published on the Ministry of Education website and, provide information on the scholastic abilities of the Province's students.
- **School Satisfaction Survey** – is administered annually and gathers opinions from students, parents and school staff on achievement, human and social development, school climate, healthy living and safety. In 2007, the survey was administered to the parents of children and youth in grades, 3, 4, 7, 10, 12.
- **Citizen and Social Responsibility Survey**¹⁵⁰ - was developed by the BC Ministry of Education, in conjunction with partner organizations, for students in Grades 8 through 12. Participation is optional in that each school district decides whether to participate in the survey. The survey questions link to the BC Performance Standards for Social Responsibility and address the question: *To what extent do BC secondary students report that they are committed to the values of active citizenship and social responsibility?*
- **Adolescent Health Survey (AHS)**¹⁵¹ - gathers health-related information every five years from students aged 12 and older. The fourth provincial survey was conducted in early 2008 and contains questions on physical and emotional health, and on factors that can influence health during adolescence or in later life. The AHS is conducted by the McCreary Centre Society in collaboration with the provincial government and public health system, and with the cooperation of BC's school districts.
- **Early Child Development Instrument (EDI)** - in 2000 the University of British Columbia Human Early Learning Partnership (HELP) administered the EDI to all of the Provinces kindergarten teachers to

¹⁴⁸ Each of these survey's are administered within the school system. Schools are not obligated to administer these surveys, consequently data source per region vary.

¹⁴⁹ Retrieved from: <http://www.bced.gov.bc.ca/assessment/fsa/>

¹⁵⁰ Retrieved from: http://www.bced.gov.bc.ca/citizen_survey/

¹⁵¹ Retrieved from: http://www.mcs.bc.ca/rs_ahs.htm

assess students physical health and well-being, social competence, emotional maturity, language and cognitive development, and communication and general knowledge. The results are analyzed and mapped in relation to the BC portion of the Canadian census data¹⁵².

Other Provincial Data Sources

- **The Ministry of Health:** provides data or has access to data on the prevalence of specific diseases, immunization strategies and frequency, and the health services available throughout the province.
- **The Ministry of Children and Family Development:** provides a central body where issues of child protection are recorded, including cases of abuse and neglect, number of children in care, and services available to children and youth at risk.

Each of the data sources listed above provides information on a range of child and youth health indicators. Data sources that relate primarily to a specific indicator, such as the B.C. Cancer Agency, were also accessed and are included in the compendium of indicators generated for this paper. However based on the specific nature of these data sources they are not listed here

¹⁵² Kershaw, P., Irwin, L., Trafford, K., & Hertzman, C. (2005). *The British Columbia Atlas of Child Development*. Victoria: Department of Geography, University of Victoria.

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