

**Healthy Aboriginal Child Development and  
Health Promotion/Chronic Disease Prevention:  
Prospects for Integration and Intersectoral Coordination**

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**The views expressed in this report do not necessarily represent the views of Health Canada.**

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## Executive Summary

Prepared by: Sarah Moselle

Long-standing inequities persist between Aboriginal and non-Aboriginal children in access to quality of life factors that are widely acknowledged as determinants of health outcomes. Associated disparities on virtually every health indicator are evident in epidemiological surveys, particularly for First Nations children living on reserves and for children in remote, isolated, and northern communities (Adelson, 2005; Ball, 2008). An impetus for strategic, integrated and intersectoral FNIHB programming is to extend the reach of FNIBH programs to improve timely, affordable access to health promotion, chronic disease prevention, primary health care, and clinical ancillary services for Aboriginal young children and their parents (e.g., prenatal care, mental health and addictions services).

There is widespread acceptance in the population and public health sectors in Canada and internationally that health is more than the absence of disease, and that health outcomes are influenced by many factors or determinants. Among critical determinants, healthy child development is widely recognized as one key determinant of future health. Aboriginal-specific conceptualizations of health and wellness, such as that held by the First Nations Information Governance Centre that has conducted the Regional Health Survey (RHS) of First Nations wellness, emphasize a holistic concept of wellness that includes the spiritual, mental, physical and emotional wellness of all family members, and embed these within a broad ecological system. This view strongly supports a strategic focus on early childhood development programming that explicitly encompasses a child's family members and to address both the needs of young children and their primary caregivers in their home and community environments (Ball, 2005). Research has clearly shown that early childhood development programming can promote healthy development in both children and families, and can counteract various stressors and deprivations that can erode opportunities for optimal health and development (Shonkoff & Phillips, 2000; World Health Organization, 2007).

Although integration and inter-sectoral coordination involving Aboriginal early childhood development programs are not yet prevalent, some Aboriginal communities in Canada have demonstrated how early childhood development programs, such as Aboriginal Head Start, can serve as focal points for coordinating the broader system of health and community programs in their communities (Ball, 2004; Ball, 2012). 'Inter-sectoral' and 'integrated' programming such as this can maximize health promoting impacts on Aboriginal children and families. These approaches can also optimize requirements for cultural safety and have various capacity development and motivational impacts on communities (Ball, 2005).

This scoping paper explores ways in which such HCD programming can be supported by and included within a model of health promotion/disease prevention with First Nations and Inuit communities. Specifically, the paper:

- Underscores a view of health as multiply- and often over-determined by proximal and distal factors;
- Illustrates how cluster analysis of research findings about the ecological embeddedness of focal health problems facing Aboriginal children can help to identify a select number of determinants that must be targeted in order to promote health and prevent chronic disease;

- Examines the determinants of health addressed by existing FNIHB HCD programs and the functions or roles played by practitioners within these programs;
- Identifies key components of a ‘complete’ set of programs that would address the clusters of determinants that over-determine the emergence of a constellation of health issues in Aboriginal populations
- Sets out parameters for integrated and intersectoral strategies for health promotion and chronic disease prevention within First Nations and Inuit contexts
- Discusses promising practices and models, highlighting key components for successful implementation.

The analysis in this paper is influenced heavily by a consensus in the literature that many of the health problems that are having an increasingly adverse impact on individuals, families, and communities represent the convergence of a broad array of proximal and distal factors, ranging from advertising and media campaigns by large multi-nation fast food vendors, down to the choices of individuals, and the impacts of those choices on the person, their offspring, their families and the community at large. There are reciprocally reinforcing linkages distributed throughout that layered array of determinants (e.g., the reverberating and cyclical connection between use of substances, teen pregnancy, limited school achievement, and poverty). In order to address prominent health concerns that are embedded within systems of cause-effect relationships that remain perniciously stable by virtue of those internal connections and feedback loops, interventions must be staged that are informed by a fairly penetrating, fine-grained understanding of the determining factors *and* their interactions. Health care workers and community development workers touch these factors directly – at least the more proximal factors. Responsibility rests with organizations such as FNIHB and other partners in government to influence policy and funding to create the intersectoral partnerships necessary to impact on the more distal, though potent determinants.

This scoping paper presents an applied framework, drawing heavily on a review of findings of the RHS. The paper uses an analytic approach that organizes determinants, interventions/services and outcomes into clusters, in order to identify critical sets of proximal and distal determinants of specific health outcomes, focusing on three health problems that are highly significant for Aboriginal young children’s health trajectories: obesity, oral health, and mental health and substance use in youth. These health problems were selected for intensive analysis and modeling on the basis of several factors:

- Epidemiology, both within and outside Aboriginal communities – these are high-prevalence conditions that have marked short/long-term consequence for the individual, the family, the community and society at large
- These areas map cleanly onto the services and priorities of FNIHB;
- The conditions or health antecedents can be placed meaningfully on health trajectories that trace back to the period of early childhood (including the post-natal period of development, e.g., baby bottle tooth decay). In other words, efforts to intervene before the problems have become entrenched or clinically irreversible would, of necessity, need to reach back into the period of early childhood development (including the prenatal period)
- The conditions are linked to a broad array of proximal and distal determinants.

This fourth selection criterion is critical and is included to ensure that the models that set the required scope for programs are constructed in a way that points to a set of *necessary and sufficient conditions for effective, integrated response to clusters of health conditions*. In other words, by focusing on a set of conditions that are linked to an appropriately scoped set of determinants, this set

can be used to bootstrap a model of a ‘complete’ program that holds out promise – in areas where more incomplete packages of interventions have not produced intended outcomes.

The analyses within these three areas of health concern all serve to identify the determinants that integrated and inter-sectoral programming efforts must impact in order to achieve improved health outcomes. However, in this document, obesity is positioned as a focal point within the analysis, for strategic reasons that relate both to the long-term health consequences of obesity and to the ‘sensitivity’ of obesity to a range of proximal and distal determinants: A funding/policy/programmatic focus on obesity is highly strategic in that a set of interventions (with supporting funding and critical cross-sectoral alignments) that was capable of responding to a minimum set of proximal and distal determinants would impact on a broad array of adverse outcomes, of which obesity and related health concerns constitute one element. As well, tackling the challenge of a fully scoped obesity prevention and intervention program would provide an opportunity to refine a set of modelling, analytic, and evaluation tools that would be capable of comprehending other quite complex public health concerns.

Other possible foci, such as baby bottle tooth decay, are important from the standpoint of prevalence and consequence. However, this type of problem is linked to an overly narrow set of determinants, while mental health and substance abuse have too many amorphous and distal determinants that are difficult for FNIHB programs to target and very difficult to track outcomes and evaluate program effectiveness. In other words, it would be difficult to ‘bootstrap’ a complete methodology for comprehensive public health response to complex health concerns if the efforts were keyed to oral health in young children or to mental health in youth.

Many of the proximal factors affecting all three focal health areas can be addressed in key FNIHB HCD programs. The results of an analysis of the objectives, essential components and service recipients of all FNIHB HCD programs are presented in this paper to assist program decision-makers in identifying areas of overlap in program targets and practitioners’ roles and functions where integration might be achieved. FNIHB needs to ensure streamlined and timely access to a range of services that will respond to the complex array of issues that outreach workers are likely to encounter when they are functioning in an outreach capacity. For example, when a public health nurse conducts a well-baby visit and identifies serious health and lifestyle issues of other family members, the nurse’s capacity to move a range of services into place needs to be assured through good inter-professional communication and program integration.

While elements of a ‘complete’ program already exist within the array of services already delivered by FNIHB, there is a pervasive gap in that these programs do not address distal determinants of focal health concerns. A ‘complete’ program would need to be informed by an understanding of the range of proximal and distal factors that are related to targeted health outcomes. Proximal determinants are more immediately tied to specific health concerns (e.g., diet and exercise are tied closely to obesity), and targeted interventions are comparatively straightforward to address these concerns at the level of the individual child or family members. However, more distal determinants of health concerns, most notably non-medical/social determinants, are not so closely tied to any particular health condition, and services that address those more distal risk factors would need to be accessed through a range of more focal programs; that is, because distal risk factors are harder to impact directly, indirect approaches are needed to reduce their risk potency or counter-act them by enhancing proximal and distal protective factors.

Even when many of the components of a ‘complete’ program might be available in some form, they are not likely to function as a ‘complete’ service unless key challenges of service integration are addressed. These challenges include:

- Relationship among diverse providers – although this may be regarded as a ‘soft’ factor, and perhaps difficult to measure, systems such as the Southcentral Foundation in Alaska highlight the critical role of this factor;
- Streamlined and reliable mechanisms for accessing an array of services, including those that target distal determinants (e.g., housing, job training, educational opportunities, etc.) – this is particularly important for itinerant workers who may have a very narrow window of opportunity to respond to complex, often high-risk situations;
- Infrastructure and information management supports –while caution should be exercised around the use of technology as a substitute for effective working relationships, the health challenges and associated service challenges in Aboriginal communities are complex, and judicious use of appropriate technologies should be considered.

A factor that warrants further consideration within programming is the role of cultural ‘vitality’ or wellness, its role in the development of healthy identity in Aboriginal youth, and the potential for a robust, culturally-grounded identity to function as a global moderating factor to limit the impact of difficult-to-control distal factors. The critical role of culture as an enabling factor mediating conditions for health and health outcomes is highlighted in the research of Canadian investigators Hallett, Chandler and Lalonde and in the wellness model and data reported by the First Nations Regional Health Survey. It is also echoed in the Health Canada (2010) evaluation of children and youth programs: *“Areas that could be strengthened include: access to services for children with special needs and their families, support and information about child nutrition, and the incorporation and promotion of FN languages and cultures in CY programming”*(p. 14).

At the present time in Canada, there is no known, empirically-tested program model that is sufficiently complete in its ability to address proximal determinants in a comprehensive and timely manner and also able to influence distal determinants through inter-sectoral coordination. Notwithstanding the lack of evidence of improved outcomes, several promising practices exist that enjoy positive community support and could be said to have a certain ‘face validity.’ These innovations tend to be preschool or school-based with a community focus, such as Best Start, Toronto First Due, and Better Beginnings Better Futures, the Laichwiltach Family Life Society, Kahnwake Schools Diabetes Prevention Project, and Sandy Lake Health and Diabetes Project. These programs demonstrate the viability of early childhood and elementary school as staging grounds for health promotion and chronic disease prevention. Noticeably, school-based programs appear to reach more community members because school is universally available, whereas early childhood programs reach fewer community members because many families do not have access to preschool spaces. Conceptual models in other sectors, such as the Extended Chronic Care Model in BC, have mapped out and extended the macro components of a chronic care model for adults, taking a chronic disease management model and adding the components that are necessary to transform it into a prevention model. Efforts such as these, which are very familiar within the field of public health, push programs further upstream in order to influence causal factors related to health outcomes. This is worthwhile because many factors related to new incident cases of a chronic problem are the same factors that determine the degree of morbidity and mortality associated with it once it emerges.

Significant advances in the ability of FNIHB HCD programs to impact critical distal determinants require inter-sectoral coordination. For example, early childhood development programs such as the

Aboriginal Head Start On Reserve program could be aligned or coordinated with the housing sector, the formal education sector, child welfare, social development, sanitation, and other actors and organizations that have a role in shaping the ecology and quality of life of Aboriginal children and their families. As well, AHSOR and other ECD programs in communities could be focal points for integrated health promotion/disease prevention services including health education, nutrition, dental hygiene, physical activity, emotional self-regulation/mental and spiritual wellness, coping skills, early identification, referral, after-care and community development efforts to improve Aboriginal children's overall quality of life.

There is an outstanding need for information about First Nations and Inuit children's health contexts and health trajectories upon which to base programming decisions. This paper recommends implementation of a system for collection of such contextualized health data as well as more focused, follow-up research measuring the impacts of FNIHB HCD programs on health outcomes of focal concern for Aboriginal children. Finally, the paper recommends professional development for community based educators in early childhood programs so that these practitioners can serve enhanced health promotion, organizational, and navigator functions in efforts to maximize the impacts of HCD programs on Aboriginal children's health and wellness.

# Scoping Paper on Healthy Aboriginal Child Development and Health Promotion/Chronic Disease Prevention

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## Introduction

Healthy child development (HCD) is widely recognized as a key determinant of future health. Parental behaviours are also understood to be a critical set of determinant of HCD. Early childhood development programming can promote healthy development in both children and their primary caregivers, and can counteract various stressors and deprivations that can erode opportunities for optimal health and development (Shonkoff & Phillips, 2000; World Health Organization, 2007).

Some Aboriginal communities in Canada have demonstrated how early childhood development programs can serve as focal points for coordinating the broader system of health and community programs in their communities (Ball, 2004; Ball, 2012). ‘Inter-sectoral’ and ‘integrated’ programming such as this can maximize health promoting impacts on Aboriginal children and families. These approaches can also optimize requirements for cultural safety and have various capacity development and motivational impacts on communities (Ball, 2005).

It may be taken as axiomatic that health and wellness are outcomes of many intersecting determinants that operate within complex and diverse environments. There is widespread acceptance in the population and public health sectors in Canada and internationally that health is more than the absence of disease, and that health outcomes are influenced by many factors or determinants (see *Appendix I. Determinants of Health Models*). This scoping paper is centrally concerned with the potential for maximizing the potential for HCD programming within the First Nations and Inuit Health Branch (FNIHB) of Health Canada through enhanced integration and cross-sectoral alignment, with an emphasis on the potential to achieve primary prevention outcomes by building on a platform of Early Childhood Development (ECD) programs.

This paper works from a variety of different sources, including several very cogent ‘conceptual’ pieces. However, it aims to move beyond what can sometimes devolve into overly abstracted conceptual discourse or ideological rhetoric, or heavy over-dependence on references to secondary sources pertaining to non-Aboriginal health. To build the model for a ‘complete’ program and map this in a meaningful way to the services delivered by FNIHB, the paper draws heavily on Aboriginal models of wellness and original findings from the Regional Health Survey (RHS) conducted in 2002/2003 and again in 2008-2010 by the First Nations Information Governance Centre. While surveys conducted by Statistics Canada were also reviewed in some detail and inform the work in this paper, the RHS is more centrally positioned because this work is quite distinctive in its detailed analysis of the relationships between determinants and outcomes, and its analysis of the interactions among determinants.

This scoping paper explores ways in which such analysis can be supported by and included within health promotion/disease prevention efforts in First Nations and Inuit communities.

- The paper provides an applied - rather than a purely conceptual – framework, based on available findings about Aboriginal health.
- It synthesizes large volumes of survey data to identify clusters of co-emerging health outcomes that are linked to clusters of reciprocally-reinforcing determinants of focal health problems that can be traced back to Aboriginal children’s health trajectories.
- Three complexly over-determined areas of health concern - obesity, oral health, and mental health/ substance use – are analyzed in detail in order to bootstrap an evidence-based model of a minimally ‘complete’ set of services that would hold out promise for impacting on health concerns within the Aboriginal (and non-Aboriginal communities) that are associated with significant morbidity/mortality, and with large direct or indirect costs to the person, the family, the community, and society at large.
- The paper presents a content analysis of current FNIHB HCD programs and professional roles with reference to the proximal and distal determinants of health outcomes these programs are intended to impact. This analysis provides a basis for evaluating the alignment or coverage of the FNIHB HCD programs with the service requirements for a ‘complete’ program.
- The paper considers the potential for achieving more optimal integration among FNIHB HCD program components – and more optimal cross-sectoral alignment with other required services – by building on ECD programs as an integration platform.
- The paper concludes with recommendations for program integration through the use of early childhood development programs as multi-service hubs, with an emphasis on the potential for these programs to support service integration, and also with an emphasis on the potential for these programs to support survey and evaluation research. This latter function is essential to the ongoing development of programs that target complexly over-determined and entrenched health problems through multifaceted interventions whose effectiveness requires a sustained and integrated focus over a fairly broad health ecological landscape.

This paper is organized into seven sections.

**Section 1** provides an overview of health disparities of Aboriginal Peoples with a focus on children, highlighting health disparities and their contexts that call for a broad-based approach that builds upon cross-sectoral program coordination and/or integration.

**Section 2** reviews a select group of programs, intervention studies, and Cochrane-type reviews, addresses the question of whether there is good reason to target primary prevention efforts in the period of early childhood, and whether there is good reason to consider engaging with Early Childhood Development (ECD) programs as a foundation or platform for integrated services. We note that there is very extensive research in the field of public health on primary prevention and the critical role of the period of early childhood (along with various prenatal factors) – there is no intention in this document to synthesize that literature. One of the key objectives in this section is to highlight the importance of scoping programs sufficiently broadly to provide a minimally complete response to multiply-determined health concerns.

**Section 3** reviews concepts about multiple and over-determination of health outcomes, considers proximal and distal factors as these may relate to the ability of Health Canada programming to influence these inputs. The section lays out the foundation for an approach to modeling that seeks to identify clusters of health concerns that are related to one another by virtue of their relationship to clusters of determinants. This clustering approach is standard within the field of public health (e.g., Health Canada, 2010; World Health Organization, 2009), and it provides the foundation for an analysis that is concerned with the question of what would a ‘complete’ intervention look like for a cluster of health concerns that are endemic to a population.

**Section 4** provides a summary view of an analysis of what are the proximal and distal determinants of health outcomes in Aboriginal people. The question of how these determinants interact – how they are clustered – is taken up in Section 5.

**Section 5** applies a cluster analytic approach to findings reported by the RHS, focusing on three health problems identified in numerous epidemiological sources as focal concerns for First Nations and Inuit children (and for Indigenous children in Australia): obesity, oral health, and mental health/addictions. This section also provides a brief explanation as to why these areas were selected.

**Section 6** presents an analysis of FNIHB HCD programs with a view to the relationship between these programs and the service requirements that are keyed to the proximal and distal determinants of focal health concerns for Aboriginal children. This section also presents the results of a review of FNIHB programs in terms of the roles/professions that are involved in delivering services in FNIHB, providing a snapshot of roles and functions that are distinctive and roles and functions that are common or overlapping. The findings in this section are intended to provide information for program decision makers to identify sites for integration, coordination or streamlining, supported by relevant training/professional development for practitioners.

**Section 7** considers programming models that seem promising as well as the need to negotiate across sectors in order to impact all the critical determinants of salient health outcomes. This section underscores the need to invest in the collection of contextualized health data about Aboriginal children’s health and wellness and in professional development for community based educators in early childhood programs that could be enhanced to function as sites for health promotion, disease prevention, early identification, referral, after-care and community development to improve children’s overall quality of life.

## **Section 1. FNIHB HCD programs and Aboriginal health needs**

**Section 1** briefly summarizes the HCD component of FNIHB and the landscape of health disparities of Aboriginal Peoples as well as potential protective factors with which HCD programs interact. Persistent health disparities occurring within diverse and complex environments in which Aboriginal children and their families live call for broad-based

approaches to targeted health objectives that build upon cross-sectoral program coordination and/or integration.

## 1.1 The First Nations and Inuit Health Branch Healthy Child Development Component

The First Nations and Inuit Health Branch (FNIHB) of Health Canada includes a Healthy Child Development (HCD) component that funds and supports community-based and culturally-relevant programming, services, initiatives and strategies that aim to improve health outcomes associated with First Nations and Inuit maternal, infant, child, and family health. The areas of focus include prenatal health, nutrition, early literacy and learning, physical, emotional and mental health, and children's oral health. Programming aims to improve health outcomes for First Nations and Inuit infants, children, youth, families (including pregnant women) and communities. More specifically, programming provides increased access to a continuum of supports for women and families with young children from preconception through pregnancy, birth, and parenting. Healthy child development activities are provided through community-based programs such as Fetal Alcohol Spectrum Disorder (FASD), Canada Pre-Natal Nutrition Program (CPNP), Aboriginal Head Start On Reserve (AHSOR), Children's Oral Health Initiative (COHI), and Maternal Child Health (MCH) program.

## 1.2 First Nations and Inuit health outcomes

Many studies have shown that the physical and mental health status of First Nations, Inuit, and Métis Peoples is much worse than that of Canadians as a whole (Hackett, 2005; Kendall, 2009; Kirmayer, Simpson & Cargo, 2003; Health Canada, 2006; Tait, 2006). **Appendix II - Key Health Indicators** provides a synthesis of findings on key health indicators for First Nations living off reserve, Métis, Inuit and the non-Aboriginal population, assessed in the Canadian Community Health Survey, combined 2007 and 2010 cycles.

Following are a few examples.

- The infant mortality rate for First Nations communities (6.4 deaths per 1000 live births), though declining, continues to be higher than the rate for Canada as a whole (5.2 deaths per 1000 live births) (Health Canada, 2005).
- Rates of type 2 diabetes are three to five times higher among Aboriginal peoples than in the general Canadian population (Health Canada, 2005).
- Rates of suicide and substance misuse are much higher among Aboriginal peoples (Royal Commission on Aboriginal Peoples, 1996).
- Life expectancy at birth for Aboriginal peoples, though increasing, is an average of five to 10 years less for First Nations and Inuit peoples than for Canadians as a whole (Canadian Institute of Health Information, 2004).
- Rates of chronic disease are higher among First Nations compared to the general population, including arthritis/rheumatism, high blood pressure, diabetes, asthma, heart disease, cataracts, and chronic bronchitis (Kendall, 2009);

- Inuit adults in all age groups are less likely to report excellent or very good health than are those in the general population.

A research review by the Canadian Institute for Health Information (2004) found evidence of poorer health outcomes among Aboriginal compared to non-Aboriginal young children on almost every health indicator. Studies on selected variables indicate that Aboriginal children who survive their infancy are more likely to suffer poor health than are non-Aboriginal children, and that their poor health status is likely to affect their development and quality of life. For example, they are more likely to suffer accidental injury, to have a disability, to be born prematurely and to be diagnosed with Fetal Alcohol Syndrome Disorder. In 1999, the RHS obtained First Nations and Inuit parents' reports on the health and development of their children under 18 years of age. This survey found that the rates of severe disabilities, including Fetal Alcohol Spectrum Disorder, hearing loss, attention disorders, and learning disabilities among First Nations children living on reserve and Inuit children were more than twice the rates for non-Aboriginal children. The highest rates were among First Nations children living on reserves compared to off reserves (First Nations and Inuit Regional Health Survey National Steering Committee (1999).

The Aboriginal Peoples Survey (2001) found that parents of Aboriginal children rated their children's health lower than that of all children in the general population, and the gap in ratings were largest for children less than five years of age. This survey showed that, compared to all Canadian children, First Nations children living off reserves, Métis, and Inuit children are more likely to have been born with a birth weight under 2500 gm (found among 8% of Aboriginal infants compared to 6% of all Canadian infants), more likely to be accidentally injured (13% compared to 11% for all children); and less likely to eat breakfast. The Nutrition Canada survey has consistently reported evidence of insufficient intake of nutritious foods among Aboriginal children, such as high sucrose intakes, frequent consumption of fast food and 'junk foods' and low vegetable intakes (Kuhnlein, Soueida, & Receveur, 1995; Moffatt, 1995). These dietary trends are thought to play a major role in the development of type 2 diabetes (Gittelsohn et al., 1998) and its major risk factor, obesity (Hanley et al., 2000), both of which are disproportionately high among Aboriginal children in Canada. Aboriginal children are four times more likely to be hungry compared to non-Aboriginal children in Canada.

Health inequities such as these have been attributed to a host of inter-related quality of life conditions, including poverty, low quality and over-crowded housing, low education, and high unemployment (White, Maxim & Beavon, 2003). Adding a chronological perspective to ecological determinants of health, six out of ten First Nation and Métis respondents identified the legacies of residential schools as a significant contributor to poorer health status. Analyses reported by the RHS team (2002/3) indicated that First Nations respondents' health improved as a function of the number of years since family members were involved in residential schools (First Nations Centre, 2005). Insufficient access to healing programs and other treatment options, particularly for First Nations living on reserves, is another contributor.

The 2007 Provincial Health Officer's Report in B.C. (Kendall, 2007) offers a particularly concise report of the health status of Status Indian residents of B.C. (compared to the RHS, which offers a very dense presentation of findings) including the following findings:

- **Life expectancy** for First Nations people was estimated at 73 years for males and 77 years for females, reflecting differences of 5.4 years and 6.1 years respectively compared to non-Aboriginal people which are 78.4 for males and 83.1 for females.
- **Preventable deaths** due to medically treatable diseases are 2-5 times higher compared to other residents of B.C.
- **Chronic diseases**, including heart disease, diabetes, and arthritis are much higher compared to other residents.
- **Mortality due to HIV disease** for the Status Indian population has more than doubled since 1993 (0.8 per 10,000 in 1993 to 1.9 per 10,000 in 2006), while the rate for other residents has decreased significantly in the same time period (0.8 per 10,000 in 1993 to 0.2 per 10,000 in 2006).
- **The Age-Standardized Mortality Ratio** for medically treatable diseases has been 2 to 5 times higher, over the past 20 years, for the Status Indian population compared to other residents. In 2006, the rate for the Status Indian population was 1.5 per 10,000, compared to 0.3 per 10,000 for other residents. There was no trend for either population. The higher death rates from these diseases for the Status Indian population more than likely reflect gaps in access to primary care services in this population.
- **Suicide** among Aboriginal youth is 2 times higher than the provincial average.
- **Infant Mortality:** Although these rates have dropped, they are still 2 or more times higher than the rest of the population. Although the rate for Status Indians has changed from 11.8 per 1,000 live births in 1993 to 5.3 per 1,000 live births in 2006, these remain two or more times higher than the rest of the population. For the period 1998–2004, Status Indian mothers who lived off-reserve had a higher infant mortality rate than those who lived on-reserve (10.4 per 1,000 live births versus 6.5 per 1,000 live births respectively).

These findings are generally consistent with those reported by the RHS for First Nations children living on reserve. Oral health consistently emerges in health data and clinical practice as an area of focal concern, including a worsening health trajectory over time for individuals and a worsening over time for the population. For example,

- The Canadian Health Measures Survey (Statistics Canada, 2008) found that 77.7% of First Nations youth aged 12 to 17 years perceived a need for dental treatment, compared to 24.9% of the general Canadian population aged 12 to 19 years, whose dental needs were clinically assessed in the 2007–09.
- The Canadian Health Measures Survey found that First Nations youth require more restorative and orthodontic treatment than youth in the general Canadian population (57.1% vs. 13.0%, and 13.9% vs. 6.4%, respectively).
- The prevalence of baby bottle related tooth decay (BBTD) has increased among First Nations children:
  - the RHS found that in 2002/2003 18.7% of infants had teeth affected by BBTD compared to 11.9% in RHS 2002/03;
  - 30.9% of children aged 3 to 5 years had been affected by BBTD compared to 29.4% in RHS 2002/03.

Similar findings have been reported on the chronic conditions in Aboriginal Peoples in other countries (Australia National Public Health Partnership, 2001; Counties Manukau District Health

Board, 2001), where the term “epidemic” has been used to characterize the high prevalence and increasing incidence of these problems.

Long-standing inequities persist between Aboriginal and non-Aboriginal children in **access** to health services, particularly for First Nations children living on-reserve and for children in remote, isolated, and northern communities (Adelson, 2005; deLeeuw, Fiske, & Greenwood, 2002). An impetus for strategic, integrated and intersectoral FNIHB programming is to extend the reach of FNIHB programs to improve timely, affordable access to health promotion, chronic disease prevention, primary health care, and clinical ancillary services for Aboriginal young children and their parents (e.g., prenatal care, mental health and addictions services).

In 2004, the Assembly of First Nations (2004) advanced a First Nations Health Action Plan, calling for First Nations controlled and sustainable health promotion and health care systems that embody holistic and culturally appropriate approaches. Aboriginal driven health-related initiatives in the early part of this century (e.g., National Aboriginal Health Organization Aboriginal Healing Foundation; First Nations Longitudinal Regional Health Survey) highlight Aboriginal-specific conceptualizations of health and wellness. These consistently emphasize a holistic concept of wellness that includes spiritual, mental, physical and emotional health, often place family health and wellness in the centre, and embed these within a broad ecological system, as the RHS model illustrated in *Figure 1* (following page).

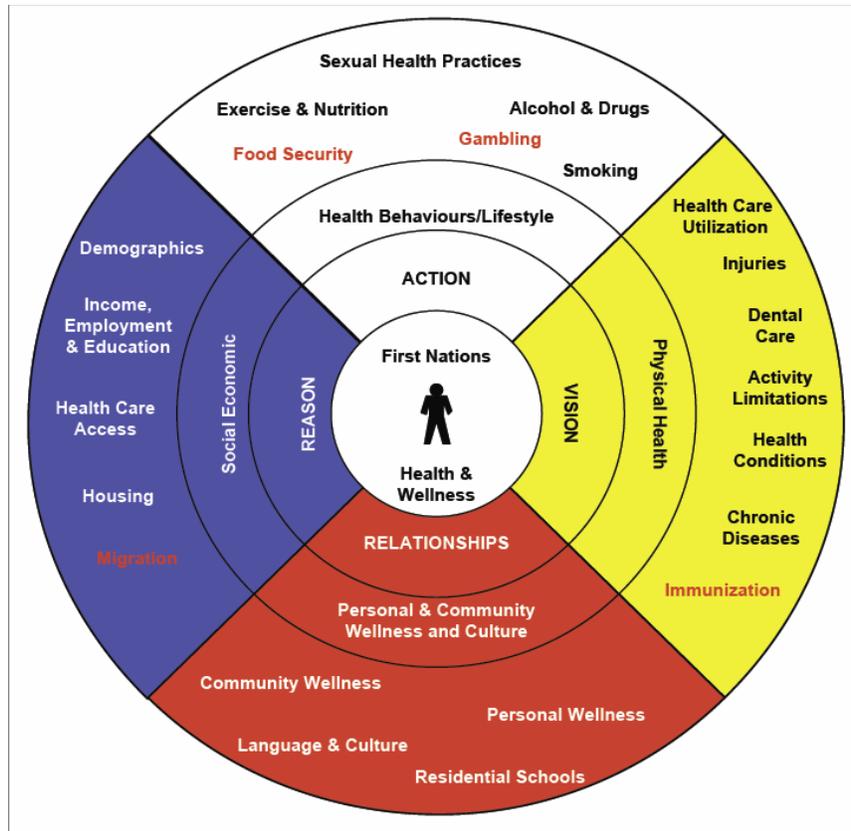
### **1.3 Investments in Early Childhood Programs and Developmental Services**

Aboriginal leaders and agencies across Canada became especially vocal in the closing decade of the last century about their perceptions of an overall lack of services and culturally inappropriate models of services, seen as significant contributors to poor health and negative health trajectories for Aboriginal children (Canadian Centre for Justice 2001; First Nations Child and Family Caring Society, 2005; Native Council of Canada, 1995; Royal Commission on Aboriginal Peoples, 1996). Studies have pointed to alarming inequities in overall quality of life (Ball, 2008; Salee with Newhouse & Levesque, 2006) and timely access to a healthy food environment (Elliott, Jayatilaka, Brown, Varley & Corbett, 2012), clinical ancillary services (de Leeuw et al., 2002), supports for young parents, and supports for children with special needs (Centre of Excellence for Children with Special Needs). In the decade since Aboriginal leaders began to call for greater alignment between health, education, social development and housing sectors in order to improve health outcomes, there has been growing awareness both nationally (Leitch, 2008) and internationally (Bennett, 2003) of persisting health gaps, fragmentation and duplication of services, lack of cultural appropriateness and safety of services, and overall unmet health needs of Aboriginal children and families.

Improved approaches to delivery of health promotion and disease prevention programs and services have become a priority for federal, provincial and territorial governments. There have been some investments over the past decade at every level of government that have engendered an Aboriginal early childhood care and development movement that is strengthening Aboriginal human resource capacity and promising program innovations (Ball, 2012). A review of non-formal, program literature, websites, newsletters, and agency reports yields a plethora of examples of community-based and community-involving Aboriginal ECCD programs that have been initiated in the past decade across the country, including an array of programs and services

operated by FNIHB. As shown in Section 6, Tables 1 and 2, which describe a range of FNIHB programs and associated services/functions and roles, many of these programs for children and youth reach out especially to families needing extra support to provide adequate supervision, nutrition, and nurturance for their children in their homes may help to reduce the cycle of recurrent removals of children by welfare agencies. Some programs reach out to children with health or developmental challenges.

**Figure 1. First Nations Conceptualization of Determinants of Health and Wellness**



**Source: Regional Health Survey, First Nations Centre, 2005**

Extensive research has shown that targeted investments in a range of community-fitting programs during the early years can make a difference in short- and long-term health, development, educational achievement, economic success and subsequent parenting of the next generation of offspring (Cleveland & Krashinsky, 2003; Heckman, 2006; McCain, Mustard, & Shankar, 2007). What is distinctive about most Aboriginal ECD programs is that in addition to the objectives of supporting children’s social, emotional, cognitive and motor development, these programs aim to promote learning of cultural knowledge and heritage language, reinforce positive cultural identity of Aboriginal youngsters and their families, and reach out to parents with health education, social support, and assistance with accessing other kinds of programs and services. A fundamental principle of First Nations/Inuit Child Care Initiative and FNIHB

programs is for First Nations and Inuit to direct, design and deliver services in their communities, reflecting recognition by the federal government of the inherent right of First Nations and Inuit peoples to make decisions for themselves respecting their children. The Aboriginal Head Start Program, discussed in the final section of this report, is a particularly noteworthy example of community-based, family centred programming that integrates multiple dimensions of health and wellness.

With this understanding of some of the health problems of focal concern for Aboriginal young children, this scoping paper examines how to maximize the impacts of the range of HCD programs and services delivered under the auspices of FNIHB in order to close health gaps for Aboriginal young children.

## **Section 2. Why intervene in the period of early childhood – and is there potential benefit in building integrated programs on a foundation of Early Childhood Development Programs.**

This section starts with a review of diabetes prevention programs within Aboriginal communities in Canada. It then expands the focus to a program concerned with more psychosocial outcomes in economically disadvantaged communities in Canada. Together with the results of some key Cochrane-type reviews, this analysis provides a foundation for the claim that prevention efforts must be informed by a reasonably complete ecologically-valid understanding of the matrix of determinants linked to the clusters of health concerns.

The focus then shifts to a review of select integrated early childhood development programs, to address the question of the viability of building off of ECD programs as integration platforms for services that target health concerns.

### **2.1 Diabetes Prevention Programs**

Diabetes prevention programs that target obesity in younger children illustrate some of the issues around implementing programs that target an incomplete set of key determinants for a given health condition.

#### **2.1.1 Sandy Lake Health and Diabetes Project (SLHDP) – grades 3,4,5**

The SLHDP is a community-focused diabetes primary prevention program that was originally launched in the Sandy Lake First Nation in 1991. Sandy Lake First Nation is a remote Oji-Cree community in northern Ontario. The program has developed a set of activities that include:

- School-based component (the Sandy Lake School-Based Diabetes Prevention Program, or SBDPP).
- Community events (e.g, Walk to Work days, sports tournaments)
- Morning snack program
- Healthy Food Choice Programme, implemented in a partnership with a local food store
- Radio shows, including a youth radio show

- Walking trails.

The SBDPP is a culturally-sensitive school curriculum that was first piloted in 1998-1999 with children in grades 3,4, and 5. The program included information and a variety of activities focused on diabetes, healthy eating and physical activity. One component engaged family members, and there was a program component that also trained peers to act as health role models. An environmental component included a health school lunch program which complemented a school policy banning high-fat and high-sugar snack food (see Willows et al. 2012 for details).

A pre- and post-impact evaluation of the program found decreases in total fat intake, and changes in dietary practices that were related to exposure to the SBDPP program interventions. However, there was no reduction in obesity (measured in terms of BMI) and body fat percentage increased. The authors of the evaluation note that one year may not have been sufficient time to produce measureable changes in BMI. A second wave of evaluation has produced data which, according to Willows, are in the process of being analyzed.

### 2.1.2 Kahnawake Schools Diabetes Prevention Project (KSDPP)

The KSDPP was first implemented in 1994 in the Kanien'kehá:ka (Mohawk) community of Kahnawake, which is located 15 km from downtown Montreal, Quebec. The KSDPP is school based, but attempts to work within an ecological model by incorporating multiple components that extend well beyond the boundaries of the school environment. The program works within Green's (2013) "Precede-Proceed" public health planning framework, and incorporates:

- Health education program
- Range of activities with a focus on diet and activity
- Recreational activities
- Revisions to the school's nutrition policy
- Program components incorporating Mohawk traditions and culture
- Activities to promote community collaboration and community capacity development (see Pardis et al., 2005)
- Range of community activities, e.g., walking clubs, awareness campaigns, cooking courses, community gardens).

Positive results were obtained early in the history of the program but they were not maintained over 8 years (Paradis et al.). *With regard to this finding, Willows et al. state: An explanation is that the community became more obesogenic for children over time with the introduction of satellite television, increased disposable income combined with increasing availabilities of fast-food restaurants in the areas surrounding Kahnawake, and an increased proportion of families in which both parents worked (Paradis et al. 2005).*"

Citing Ebbeling, Pawlak & Ludwig (2002) Willows continues: *Indeed, this finding supports the ecological argument that an explanation for the difficulty in obtaining long-term weight loss is that adverse environmental factors overwhelm behavioural and educational techniques designed to reduce energy intake and augment physical activity.*

### 2.1.3 Psychosocial Outcomes – Better Beginnings, Better Futures

The Better Beginnings, Better Futures program is an ecologically-based set of services that seeks to strengthen disadvantaged communities in order to respond to the needs of children and their families. For details, see Peters and Nelson (2011). The program was developed in response to evidence of a high prevalence of emotional or behavioural problems in children living in families that received social assistance or lived in subsidized housing in several communities in Ontario.

Program objectives included:

- Prevent serious social and emotional problems in young children
- Promote healthy child and family development
- Enhance the ability of disadvantaged neighbourhoods to provide for their children and families

One program component targeted children from birth to age 4 and their families (younger children sites). The program included:

- Home visiting
- Child care enhancements
- Playgroups
- Parent and child drop-in
- Parent take-a-break
- Parent and infant groups

A second program component targeted children aged 4 - 8. This component included:

- In-class and in-school
- Child care enhancements
- Before and after school activities
- School breakfast-club
- Kindergarten readiness
- Toy lending library

Other components of the program included:

- Adult education
- ESL program
- Family camp and trips
- Toy lending library

Evaluation of the program has not shown positive outcomes associated with the delivery of the program in the younger child sites, but it has shown clear benefits for the older child sites. Peters and Nelson ascribe the difference to the fact that the younger child program had limited reach because of limited funds for ECD programming. The older child program had more of a measureable positive impact on the target communities because it was platformed in schools that benefitted from per child funding – the program had a stable base that had good reach into the population of children and families at risk.

## 2.2 ECD as a Service Integration Platform

The Hook and Hub model (Ball, 2004, 2005) is one of the most completely analyzed and documented instances of the use of ECD as an integrating platform for services. This model is discussed more completely in Section 7 of this document. However, there are other programs that illustrate the viability of using ECD as a foundational element and integration point for

multifaceted programs that seek to alter health trajectories that trace their roots to the prenatal/early childhood period of development.

### 2.2.1 Laichwiltach Family Society

This program was created originally as a safe place for urban and on-reserve families in Northern Vancouver Island – see Ball (2012) for details. Building on a platform of Aboriginal Head Start, the program has evolved to include:

Programs for young children:

- Aboriginal Head Start (AHS)
- Aboriginal Infant Development
- Language stimulation and Indigenous language
- Early literacy
- Parent Child Mother Goose
- Programs such as Supported Child Development specifically for children needing extra supports.

Programs for youth:

- Life skills
- Blade Runner
- At-Risk Youth Outreach
- Youth counseling and
- After-school and summer programs for children from grades 1 through 6.

Programs for parents:

- Parent support and parent education
- Health literacy
- Life skills
- Mental health and addictions recovery and referrals
- Various special events

The centre is also a hub for specialists to work with children, including

- Speech language pathologists
- Occupational therapists
- Therapists
- Learning remediation specialists
- Dental hygienists
- First nations patient liaison workers
- Child welfare and family support navigators
- Community nurse

As well, the centre offers an Elders program called Rekindling the Spirit, and involves Elders in many programs for children, youth, and young parents. The centre holds monthly cultural events for children, youth, families and Elders from several surrounding First Nations.

### 2.2.2 Toronto First Duty (TDF)

This project was originally intended to demonstrate the feasibility and effects of a model for integrating child care, kindergarten, family support and other services in school-based community hubs. Public health was also connected to the array of services. The program targeted

children from birth through primary school, but also facilitated parent's work or study and provided support for them in their parenting roles. This program is noteworthy with regard to its impact on what was, at the time of program inception, a large, fragmented array of services. As reported by Corer, Jonmohamed & Pelletier (2012) the program was successful in employing a school-based hub as an integration point for a diverse array of staff/teams, programming activities, access points, local governance, and parent involvement.

See also the discussion which follows regarding the Hook & Hub program for more detailed analysis of the potential for ECD programs to function as a platform for a diverse array of services and as an integration point for those services.

### **2.3 ECD/school-based interventions targeting health concerns – critical role of appropriately ecologically contextualized strategies**

Flynn, McNeil, Maloff, Mutasingwa, Wu, Ford and Tough (2006) conducted a large scale review of programs targeting obesity and related chronic disease risks in children and youth. Working from 158 articles representing 147 programs, they conclude that schools were critical settings for programming, where various health risk factors such as body composition and fitness can be positively impacted. However, they note that despite the fact that the pre-school years may be a critical period for obesity prevention (based on the relationship between adiposity rebound and obesity in later years), there is little programming and research for children in the age range 0-6 years old.

Waters, de Silva-Sanigorski, Hall, Brown, Campbell, Gao, Armstrong, Prosser and Summerhill (2011) in a Cochrane collaborative reviewing 55 studies, conclude that there is in fact strong evidence to support beneficial effects of child obesity prevention programmes on BMI, particularly for programs that target children between the ages of six to 12 years. However, the authors also caution that there is “unexplained heterogeneity” in the range of findings, which suggests that there is a broad array of factors determining the outcomes, and that different programs differ as to which ones they are successful in targeting.

Taken as a whole, these findings suggest that there is, in fact, a strong case for school-based primary prevention programs. As well, the findings suggest that schools may function effectively as platforms for more ecologically-based, integrated services that entail components that extend well beyond the delivery of curriculum.

However, there is also a clear message contained within this set of findings, a message which can be expressed in classic public health terms: a program that attempts to intervene in what is in fact a complexly over-determined health problem must target some minimum set of proximal and distal determinants if it is going to be successful. Or stated in slightly different terms: the components of a promising program must be scoped out to address the target health concerns within a social-ecological frame of reference that fully grasps both the medical and the non-medical determinants of the problem – and the organizing framework must understand the often-times mutually-reinforcing interactions among the factors. We note that this basic principle is fully in keeping with the tenets of BC's Expanded Chronic Care Model (Barr et al., 2002), described in the following section.

## **Section 3. Linking health outcomes to determining factors**

### **3.1 Multiple Determinants of Health**

A goal of the authors of this scoping paper was to produce an applied and repeatable methodology and organizing framework, specifically to:

- generate an original and structured analysis of findings about focal health concerns for Aboriginal young children (outcomes and associated determinants) and
- derive from this analysis a set of recommended directions for integrating and coordinating health promotion and disease prevention programs in order to develop evidence-based, coordinated strategies that deliver clusters of services that the data and associated models suggest would be necessary and sufficient for impacting health outcomes.

Designing programs and services that have the potential to impact Aboriginal children's health requires epidemiological findings of morbidity and mortality for purposes of surveillance and to set priorities. However, the design of interventions requires an analysis of data that link health outcomes to proximal and distal health determinants. This section examines how an analysis of the clustering of health outcomes that share a common relationship to clusters of social/non-medical determinants of health disparities can be used to develop evidence-based models for integrated services.

### **3.2 Interactions among determinants of health**

If determinants of health did not interact with one another, they could be 'picked off' by public health initiatives to produce meaningful change over time. However, determinants exist as part of systems – they are clustered together – and overly-focused interventions may be negated by the continued presence of other factors, or their impacts may wash out over time as other factors continue to have an impact.

Many health determinants are inter-related or mutually causal and interact to produce health outcomes. For example, unemployment and low household income tend to be associated with substandard housing with poor ventilation which can produce acute and chronic respiratory disorders in children. Another example, familiar in the North, is the situation of residing in a cold, moist climate in substandard housing with adults who smoke tobacco, which can increase a child's risk of exposure to mold and second-hand-smoke, which can increase risk of otitis media, which may go undetected and/or inadequately treated because of a family's lack of transportation for clinic visits or lack of cultural safety resulting in low compliance with prescribed antibiotics or follow-up appointments, which increases risk of mild to moderate hearing loss, which increases risk of speech-language delays, which contributes to early school failure, low self-efficacy, early school leaving, lack of employable skills, unemployment, poverty, substance use, and so on.

It is this multiple-determination or in some cases (as we elaborate subsequently) *over-determination* that drives the need for integrated/inter-sectoral, multi-factor strategies in FNIBH HCD programming. Note as well, that different factors can enter into the mix at different points in the course of development. Smoking would be a classic example – second-hand smoke will produce adverse health impacts in younger children, but even if they grow up in a smoke-free home environment, they may then associate with peers who have become smokers or they may start smoking themselves. A longitudinal view is ultimately required to alter health trajectories early in the course of development and then prevent a host of other factors from undoing those changes later in the course of development.

### 3.3 Expanded Chronic Care Model (ECCM)

An example of a chronic disease prevention framework informed by an understanding of population health as multiply determined is the Expanded Chronic Care Model (ECCM) in B.C., illustrated in **Figure 2** (following page). This model advocates for upstream prevention interventions that address the non-medical/social determinants of health, as well as the medical determinants of the long-term trajectories of persons who have developed chronic conditions.

This BC model holds promise for enlightening efforts around chronic disease management – because many of the downstream factors that affect the clinical course of a chronic condition such as diabetes are the same upstream factors that are key to primary prevention efforts. As such, the BC model in effect argues for expanding the scope of efforts on the part of the system of secondary services to deliver a more integrated set of interventions that also address primary prevention efforts. The BC model also effectively includes “community” as an entity, as a determinant, and as a partner – which is quite well supported by the work reported in the First Nations RHS.

The BC model also advances thinking by providing clarification, at a schematic level, around some of the infrastructural supports that are necessary to stage and implement complex public health initiatives (e.g., information management/evaluation requirements associated with such programs). It is worthwhile noting that the BC model is not fundamentally different from other models that place chronic health conditions within frameworks encompassing multiple determinants. See **Appendix I. Determinants of Health Models** – for other examples. The convergence of these various models is an illustration of a field that is coming to a common understanding (and a common way of modeling) the complex array of factors that are related to major public health problems.

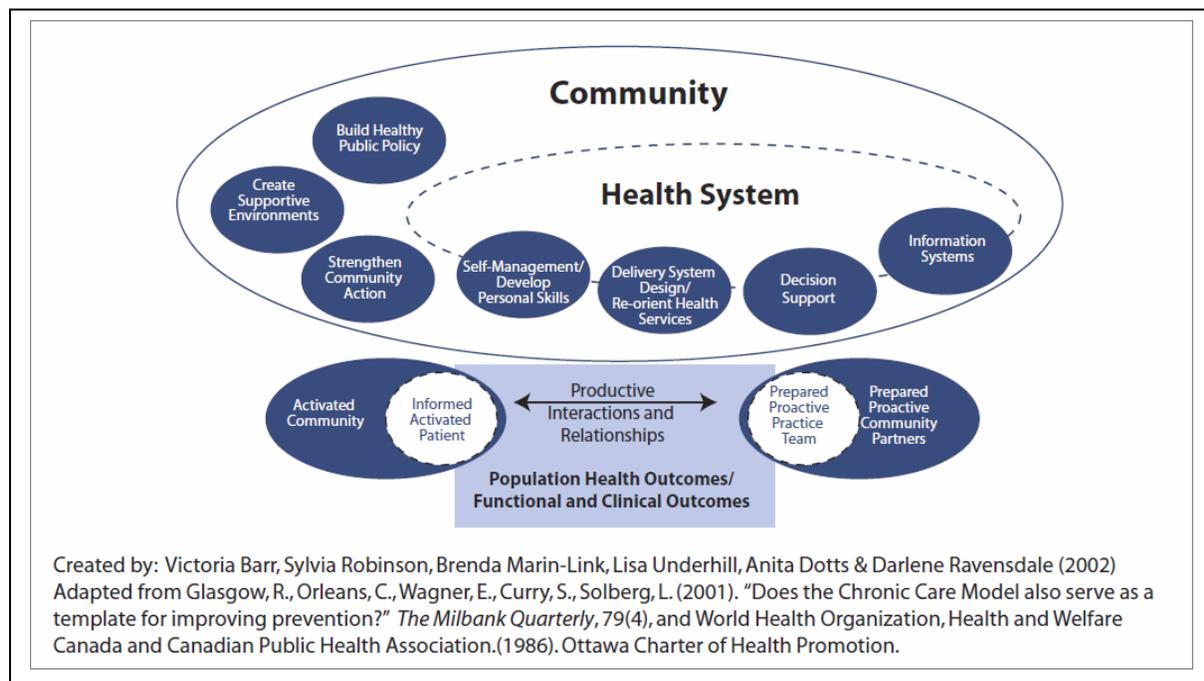
### 3.4 Toward an applied framework for program decision-making: Proximal and distal determinants.

A challenge with health promotion and chronic disease prevention strategies that target determinants of health outcomes is to find a way to navigate somewhere between a single-issue approach, which is appropriate for those few health problems that are linked to a very focused set of determinants, and approaches that are architected in relationship to models or frameworks that are so abstract that they provide little in the way of focus or direction (i.e., models that are posed

at a very high level, so that they are true of every situation, but provide little concrete guidance for any particular problem). There is a need to define ‘middle-ground’ strategies informed by a moderately granular level of analysis of health status determinants and the constellations of health issues linked to those determinants. In order to organize this more granular-level material, this scoping paper classifies determinants into three categories, consistent with predominant approaches in the field of public health.

- Non-modifiable factors – these are determinants that produce health-related outcomes independent of any external factors or determinants, whether proximal or distal. These include age, gender, ethnicity, family history of illness (i.e., genetic links). The course that these health issues run over the lifetime of the individual will often be impacted quite significantly (positively or negatively) by proximal or distal determinants, and some risk factors (e.g., ethnicity) may have modifiable as well as non-modifiable impacts.
- Proximal determinants – these are factors that have a direct impact on incidence of health-related issues or problems. They act on the individual directly. These would include medical and non-medical/social determinants.
- Distal determinants – these are factors that increase the likelihood that the proximal determinants will be present at a level that is sufficient to cause the production of a health problem, or they increase the likelihood that proximal determinants will co-occur in ways that cause the production of health problems (i.e., they impact on the patterning of proximal risk factors). Distal determinants impact the health status of populations.

**Figure 2. Expanded Chronic Care Model: Integrating Population Health Promotion**



The distinction between proximal and distal determinants relates to the immediacy of the connection between a risk factor and an outcome, and not necessarily the ‘potency’ of a risk factor. For example, household income is a distal determinant: it does not produce a health-related outcome directly. However, household income has a potent impact on numerous proximal factors (e.g., access to food, housing, education, transportation, healthcare, etc.) which in turn have a powerful impact on health. Changes in the health profiles of populations over time are an indicator of the strength of distal factors. The distinction between “proximal” and “distal” factors is often not clear-cut, since a factor may have impacts at several levels. For example, household crowding has an immediate impact on a child, can interact with other proximal determinants both salutogenic (e.g., parental supervision, family involvement) and risky (e.g., exposure to domestic violence, indoor air quality) and impact on health status. Availability of employment for adult caregivers is a more distal determinant.

### 3.5 Interactions among determinants

Health determinants may interact with one another in a variety of ways. These need to be understood in order to generate models that explain the causes of health problems in individuals, the health trajectories of populations, and disparities of health in general:

- Unique contributors or determinants – these are factors that are necessary and sufficient to produce a problem. This would be the case, for example, with high-potency infectious agents that are likely to produce a health condition in a person, regardless of the pre-morbid status of that person.
- Multiply-determined problems – an example would be problems that arise as a combination of genetic and environmental factors, e.g., some psychiatric conditions where a genetic predisposition may be unlikely or less likely to produce a condition unless specific environmental stressors are present.
- Over-determined problems – this describes a situation where multiple factors are independently capable of producing a problem, and they are likely to co-occur within a population. Cardiovascular disease would be a classic example – it is overdetermined by physical activity and by diet. However, there are a host of other distal determinants that also relate to such a problem, poverty and education being two factors that often figure as over-determining distal factors related to various health concerns.
- Positive factors, negative factors – some determinants may have a negative impact or a positive impact or both. For example, as Willows et al. (2012) note, poverty typically has a negative impact on weight – it is associated with obesity. However, it does not have a positive impact, i.e. eliminating poverty as a factor does not take the place of efforts to address issues such as diet. Indeed, in the case of the Kahnawake diabetes prevention program mentioned above, increases in income may conceivably have been associated with increased consumption of fast foods.

### 3.6 Over-determination – consequences for health planners

Once decision-makers have identified those select determinants that appear to be the most significant contributors to health outcomes, programs must address these determinants in an

integrated and/or inter-sectoral way. The challenge for deciding which sectors, programs, and professionals to combine, co-locate, or articulate is to sift through the very long list of proximal and distal determinants to identify a subset of factors that constitute the *necessary and sufficient* mix for achieving improvement.

This is not only because many health problems are *multiply determined*, but they may be *over-determined*; that is, change must occur to some degree in all or at least a specific sub-set of the multiple determinants in order to realize change in the targeted health outcomes.

The phenomenon of over-determination tells us that for some health outcomes, program planners do not have an either/or option; all of a cluster of determinants or none is the only option. Thus, to promote specific health outcomes and prevent specific chronic diseases, in many cases, program decision-makers cannot effect change by simply selecting those (typically proximal) determinants that are low hanging fruit in hopes that these will make enough difference to change the course of a child's wellness trajectory (e.g., tooth brushing with fluoride toothpaste in an infant-toddler program when the main problem is parents' practice of putting honey on baby bottles filled with high sucrose juice or soda pop; healthy snacks at Aboriginal Head Start when the child's home-based diet is composed mostly of low-cost/readily-available/poor value food substitutes that have been linked to the obesity epidemic). What this means for planners or decision makers is that single-issue, targeted initiatives with 'stove-piped' strategies, which may be exemplary from the standpoint of a sharp focus on particular health outcomes, must complement their work with an analysis of proximal (direct) determinants (e.g., diet, physical activities) and distal (indirect) determinants (e.g., factors that produce quality of life such as household income, family functioning, housing, food security) and the interaction among these factors and outcomes.

Available data suggest that health and illness trajectories of Aboriginal peoples are especially complex in terms of: the contexts in which they appear; their persistence over time; and their tendency to produce secondary and tertiary health and wellness challenges. This severe and often viciously exacerbating downward health spiral tends to make any one component problem more resistant to change despite interventions, resulting in even greater morbidity and mortality. How can programs in communities that are inherently limited in reach and tend to be limited in resources address the complex universe of contributors to any particular health problem?

### 3.7 Cluster analysis

Program decision-makers must find a 'middle ground', selectively targeting particular clusters of health determinants on the basis of information that enables decision-makers to predict with some degree of confidence that altering that particular cluster can effectively promote health and prevent chronic disease. Some basis must be found - in epidemiological or other research data or a deep understanding gleaned from experiences of professionals or community members on the ground - to identify clusters of determinants which are just broad enough to have an impact on the area of concern; that is, the strategy must be informed by an understanding of the *necessary and sufficient* conditions for producing a change in health outcomes. **Appendix III. Clustering Methodology – Analytical Tools** provides more on this approach, and the models in Appendix I are architected around this strategy.

The concept of clusters is found in Health Canada documents and is foundational to the approaches to organizing health services at the macro, meso and micro level within the World Health Organization. Clusters are also central to the National Public Health Partnership in Australia (2001), which has a fairly well articulated strategy for addressing persisting health inequities among Aboriginal Australians. This organization argues that a cluster analysis approach can:

- *Provide a basis for integrated service planning, partnerships and organisation of the prevention effort;*
- *Define parameters for surveillance, and development of “leading health indicators”;*
- *Make explicit the connection between the burden of disease and the common risk factors;*
- *Highlight the links between physical and mental health;*
- *Reflect the connections between many of the health problems and concerns of Aboriginal People [and Torres Straits Islanders]; and*
- *Underscore a theme of “healthy people in healthy communities” by acknowledging the social determinants of health, and not focusing solely on individual factors. (Australian National Public Health Partnership, 2001, p. 3).*

## **Section 4. Determinants of Aboriginal Children’s health identified through content analyses of source documents**

### **4.1 Determinants of Health – the ‘Standard’ Components**

It is widely accepted and borne out in research that only a very small number of health outcomes can be linked to a single cause and impacted through single-issue programming. Most health inequities are determined by constellations of factors, which may interact with one another in mutually reinforcing ways (causing associated problems to become quite entrenched or producing deteriorating population health trajectories). Many health organizations around the globe base program decision-making on determinants of health models similar to that of the Public Health Agency of Canada (2001), which identifies 12 categories of health determinants:

- Income and social status
- Social support networks
- Education and literacy
- Employment/working conditions
- Social environments
- Physical environments
- Personal health practices and coping skills
- Healthy child development
- Biology and genetics endowment
- Health services
- Gender
- Culture

First Nations and Inuit leaders and scholars have expressed similar views of health as more than the absence of disease, with a preference for focusing efforts on the more holistic concept of ‘wellness’. For example, Inuit Tapiriit Kanatami (2004), states that: “Inuit take a holistic view of health. Inuit have long known that, to be healthy, we need healthy environments, education and employment opportunities, adequate, safe housing and social supports as well as

access to health care systems.” Research on determinants of Inuit health (Inuit Tapiriit Kanatami, 2007) has identified the following categories of determinants:

- Acculturation (changes experienced by a culture as a result of contact with another);
- Productivity (which includes harvesting traditional foods, sewing, paid and voluntary work, etc.)
- Income distribution
- Housing
- Education
- Food security and nutrition
- Health care services
- Quality of early life;
- Addictions
- Social safety nets
- The environment

This list of determinants overlaps with the determinants identified by the Public Health Agency of Canada, but identifies acculturation, addictions, and food security as critical determinants, as well as the concept of productivity which is broader than employment. This view is similar to the holistic views of health and determinants expressed by First Nations investigators (e.g., Loppie Reading & Wien, 2009).

## 4.2 Determinants of Health – Review of Key Source Documents

A content analysis of key documents supplied by FNIHB for this scoping paper was conducted in order to identify determinants of health that various organizations and investigators in Canada and elsewhere have linked to various health disparities in Aboriginal (First Nations on/off reserve; Métis; Inuit) populations in Canada and in Aboriginal/Indigenous populations in Australia, and Aotearoa/New Zealand, compared to non-Aboriginal populations in these countries. **Appendix IV. Proximal and Distal Determinants of Health –Survey of Key Documents** presents a more detailed report of this content analysis of key references documents.

To summarize the material appearing in **Appendix IV**, our content analysis, as well as our review of findings reported in the RHS, yielded the following lists of determinants that have been implicated in understandings of health disparities of Aboriginal children.

### Non-Modifiable Factors

- Genetically-determined/impacted conditions – including genetically-linked risks for physical health problems, genetically-linked risks associated with mother’s use of alcohol prenatally
- Risks linked to gender, or race/ethnicity – in some cases the impact is direct (genetic). In some cases, the risk may relate to the positioning of a racial or ethnic group in a larger social context.
- Risks linked to age

### Proximal Determinants

- Risks or health problems that are linked to prenatal environment for the child, e.g., maternal nutrition and its association with low birth weight
- Healthy early post-natal development, overall – e.g., bottle feeding practices.

- Self-harm behaviour, intentional or unintentional – for example, accidents, or self-harm/suicidal behaviour, which will have a direct and potentially irreversible impact on the person’s physical health status (e.g., chronic pain or disabilities secondary to motor vehicle accidents)
- Food – including diet, food insecurity, access to traditional foods and food practices
- Physical environment – e.g., housing (crowding; housing conditions); geographic isolation
- Social environments – e.g., social role models for health; exposure to/freedom from abuse, neglect;
- Recreational opportunities – opportunities for health-promoting physical activities
- Education, literacy – e.g., health literacy (distinguished from level of education, which has a more distal, though typically powerful impact on numerous proximal risk factors and on a range of associated health outcomes)
- Personal health practices – numerous, including use of substances/abstinence, high-risk sexual practices, oral health practices; physical activity;
- Accidents
- Coping skills, psychological factors – e.g., mood; sense of control, influence; educational aspiration
- Working conditions – proximal impacts, e.g., safe/unsafe working conditions
- Health services – e.g., access to health care; navigation, coordination and linkage supports; providers with knowledge of Aboriginal culture/language/history

### **Distal Determinants**

- Birth rates within families
- Income
- Safety nets and supports around transitions or crises – e.g., income assistance, food assistance, childcare
- Social status – including impacts of racism and social exclusion; impacts of social status attached to income or employment (over and above the effects of income per se).
- Social environment, social interaction – distal factors – e.g., parents’ educational attainment; access to affordable education; engagement with elders; family wellness; impacts of residential schools or other forced family separations
- Education, literacy – including available resources such as Aboriginal Head Start; ability to speak or understand a First Nations language; school attendance
- Employment – e.g., opportunities for employment skills training
- Gender – linked to gender-based discrimination; vulnerability to violence or exploitation
- Culture – e.g., engagement in culturally-relevant practices; internalization of culturally-based spiritual outlook/values
- Policy/legal – e.g., control over child welfare; community self-control
- Health infrastructure – e.g., consistent financing; human resource development; information systems infrastructure to support surveillance, outcome analysis, and associated strategic planning activities

Given this varied and lengthy list of contributors to Aboriginal children’s health outcomes, it is clear that several sectors and a range of practice disciplines must join forces to maximize

opportunities to promote health and reduce morbidity and mortality associated with chronic diseases. This point has also been underscored in the Australia Chronic Disease Framework (2010, p. 1).

## Section 5. Obesity, Oral Health, and Mental Health/Substance Use: Cluster Analysis and Program Implications

Three health problems of focal concern for Aboriginal young children were identified as top priorities for analysis in this scoping project and for FNIHB HCD's health promotion and chronic disease prevention efforts: obesity, oral health, and mental health and substance abuse.

- **Obesity** is a widely recognized, growing problem in the Aboriginal population. Within the RHS, consistent with the chronic disease literature in general, obesity is the final common pathway to a host of health concerns, and it is heavily over-determined at the level of both proximal and distal factors.
- **Oral health** is widely recognized as a good indicator of general health, and is an increasingly significant health problem for Aboriginal children, linked to a wide range of proximal and distal factors.
- **Mental health and problematic substance use** are increasingly understood as frequently having their origins in early childhood chronic stress, maltreatment, and lack of support for emotional development and self-regulation. As well, the mental health and substance use behaviours of primary caregivers have a significant impact on children's mental health and substance use trajectories.

Selection of these three areas for intensive analysis is a reflection of priorities within FNIHB. However, there are several other considerations that relate to a focus on these areas:

1. The conditions are high incidence and have a significant impact on the welfare of individuals, families and communities over the course of an extended period of time; as such, an emphasis is placed on antecedents of chronic conditions (e.g., obesity) or outcomes that are linked to chronic conditions (e.g., suicide, which is linked with high-prevalence mood disorders and chronic relapsing conditions such as substance abuse/dependence);
2. The conditions or health antecedents can be placed meaningfully on health trajectories that trace back to the period of early childhood (including the post-natal period of development, e.g., baby bottle tooth decay). In other words, efforts to intervene before the problems have become entrenched or clinically irreversible would, of necessity, need to reach back into the period of early childhood development (including the prenatal period)
3. The conditions are linked to a broad array of proximal and distal determinants.

This third selection criterion is critical and is included to ensure that the models are constructed in a way that points to a set of *necessary and sufficient conditions for effective, integrated response to clusters of health conditions*. In other words, by focusing on a set of conditions that are linked to an appropriately scoped set of determinants, this set can be used to

bootstrap a model of a ‘complete’ program that holds out promise – in areas where more incomplete packages of interventions have not produced intended outcomes.

As key sources informing this analysis underscore (see *Appendix IV*) rather than a single-issue approach to programming, all three focal health concerns must be seen as elements within clusters of determinants and outcomes that need to be addressed in various forms of service integration. Thus, we must be concerned not with obesity, oral disease, or mental disorder/substance abuse, but rather with each of these as a core element within a cluster of risk factors associated with a host of chronic health conditions and high levels of morbidity and mortality associated with those conditions. This view is expressed in the following quote:

*Obesity, and its co-conspirator, diabetes, increasingly dominate health problems for immigrants, low-income populations, and communities of color. North American physicians who provide primary health care to low-income communities and immigrant populations from the developing world confront such vulnerable patients every day. From Asia, South Asia, the Middle East, Africa, Latin America, and the Caribbean and from indigenous populations, patients seek consultation for a variety of symptoms. Often the initial investigation of the patient, who may be seriously overweight, reveals previously undiagnosed hypertension, diabetes, metabolic syndrome, or dyslipidemia. These conditions appear to relate to personal behaviors based on lifestyle decisions. When these vulnerable patients—be they black, Hispanic, Native American, poor, or immigrant—fail to change their diet or lose weight or exercise, and take their medications erratically owing to cost or misunderstanding or sheer disbelief in the need for daily medication, physicians may attribute the problem to failure of personal responsibility. Epidemiologic studies often focus on individual characteristics and behaviors to explain these problems rather than examine the multiple forces at work. Nevertheless, the epidemic increase in obesity and diabetes around the world suggests that factors far beyond individual behaviors must be at work to explain this recent global process. (Candib, 2007, p. 547))*

Note that Health Canada identifies Aboriginal children with special needs as a specific focus in its 2010 document “Children and Youth Programs – Cluster Evaluation”. This group was not selected as a specific focus in the present work largely because it is not identified as a distinct cohort in any of the major surveys that provide the evidence basis for the models developed in this report. While many sources identify services for special needs children as critical (e.g., the First Nations Regional Health Survey), these works do not delve into the question of what those required services are. This population is important and warrants further consideration.

## **5.1 Evidence base for decision making.**

A serious challenge for Health Canada, other agencies, and First nations and Inuit communities is the lack of epidemiological data about Aboriginal children’s health outcomes and their contexts upon which to base informed decisions about which particular sub-set of health determinants to target for any given health problem. To date, the RHS is the only data collection exercise in Canada that has systematically gathered Aboriginal child health outcomes alongside

contextual variables such as children’s family structure, household income, housing quality, indoor air quality, access to a healthy water or food supply, exposure to interpersonal stress and trauma, and so on.

The material in this section is organized around a set of granular-level diagrams that depict and summarize graphically a set of empirical findings reported in the RHS. In light of the broad scope of issues covered in that work, and the detail of analysis of relationships among various measured factors, the findings from that survey are used to provide the backbone, as well as most of the content, for these more granular models. However, to a lesser extent the models also incorporate some content related to determinants of health among the references summarized in the table in *Appendix IV*.

Note that the scope of the RHS extends well beyond the focus of this document. As well, the RHS covers the adult period, as well as early childhood, youth and adolescence. As such, the approach used in this document to synthesize and present those results for planning purposes could potentially be used to address other health concerns.

It is important to note that because the RHS was a self-report survey, information about determinants comes from the same sources as information about outcomes. For this reason, the modeling presented in this section cannot be taken as definitive demonstrations of linkages among factors. For a similar reason, the results should not be interpreted as demonstrations of causal relations among factors, though in many cases the direction of apparent causality is quite clear (e.g., use of sugar in baby bottles produces baby bottle tooth decay, not vice versa). Nevertheless, our analyses of the RHS data resonate with observations and speculations repeatedly found in many reports concerned with social determinants of health and chronic conditions, and therefore offers plausible key linkages that should be subject to empirical investigation in future. Note that many, though not all, risk factors are not unique to Aboriginal children and families. As well, some determinants are protective factors that may be unique to Aboriginal populations.

## 5.2 Focal Health Target 1: Obesity and Related Chronic Disease

### 5.2.1 Issue

Obesity is a concern in and of itself, and it is also a concern due to its direct relationship to various health risk factors and chronic health conditions, including:

- Short to medium term:
  - Metabolic syndrome and health conditions associated with metabolic syndrome
  - Risk factors for cardiovascular disease
  - Type II diabetes or prediabetes
  - Orthopedic problems
  - Social stigma and associated impacts on self-esteem.
  - Neurodevelopment impacts
- Long-term
  - Adult obesity (e.g., the CDC in the US cites one study showing children who became obese as early as age 2 were more likely to be obese as adults; <http://www.cdc.gov/healthyouth/obesity/facts.htm>)

- Heart disease
- Stroke
- Cancer
- Osteoarthritis

### 5.2.2 Determinants

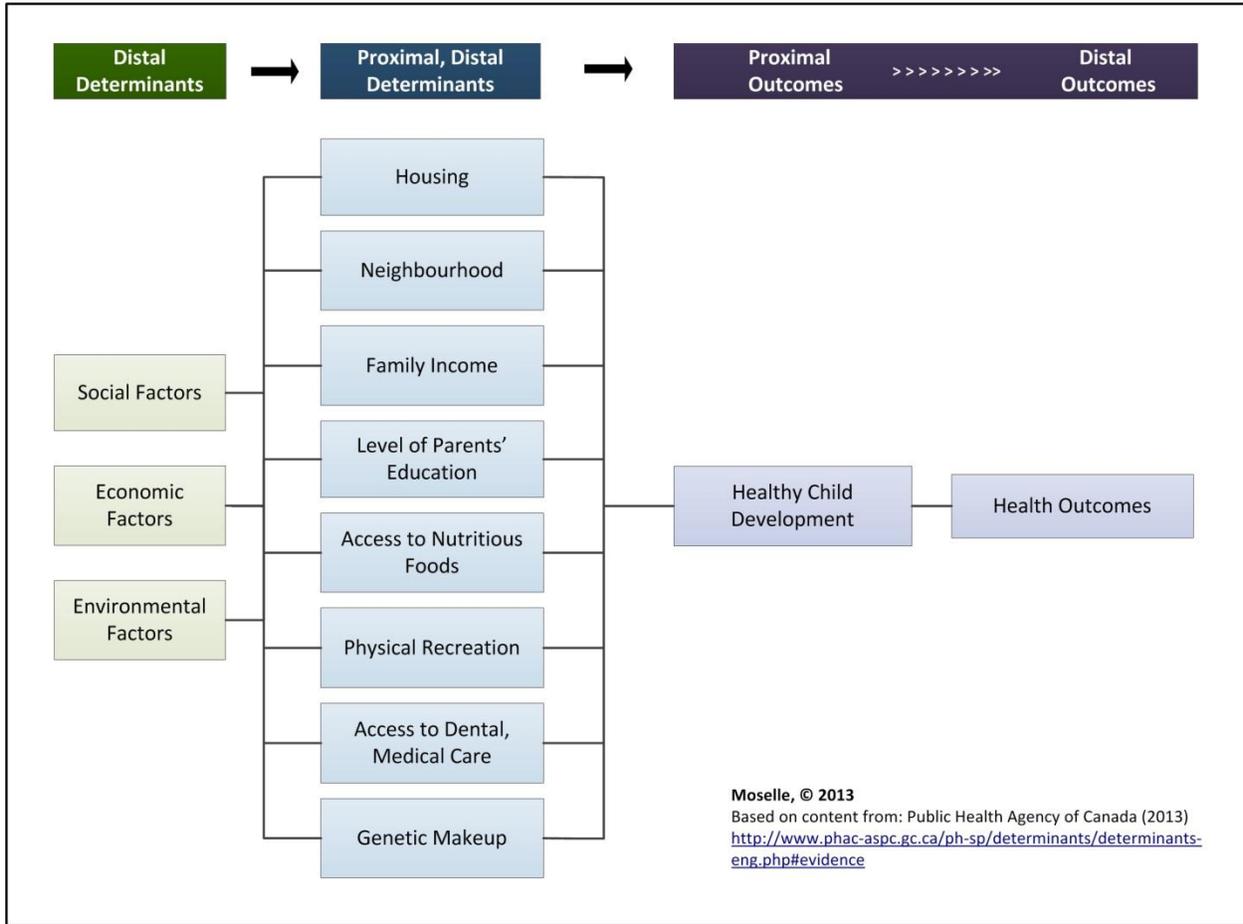
The following four diagrams depict the interaction of a set of proximal and distal determinants to produce high rates of obesity and a host of other adverse impacts at the level of individual and family functioning. Note that these figures are largely concerned with the period of early childhood and youth. Many of the same factors that increase the likelihood of obesity in childhood and youth will also bias the odds in favour of a poor clinical course for a host of obesity-linked health conditions, including multiple co-morbidities and reduced life expectancy (see “Long Term”, directly above).

**Figure 3. Mediating role of healthy child development in the relationship between determinants of health and health outcomes,** below illustrates at a high level the relationship between various proximal and distal determinants and health outcomes, via the intermediary of healthy child development. This model reflects directly an analysis published by the Public Health Agency of Canada (*What Makes Canadians Healthy or Unhealthy – Population Health Approach, 2013*). It is important to note the critical mediating role of healthy child development in this model.

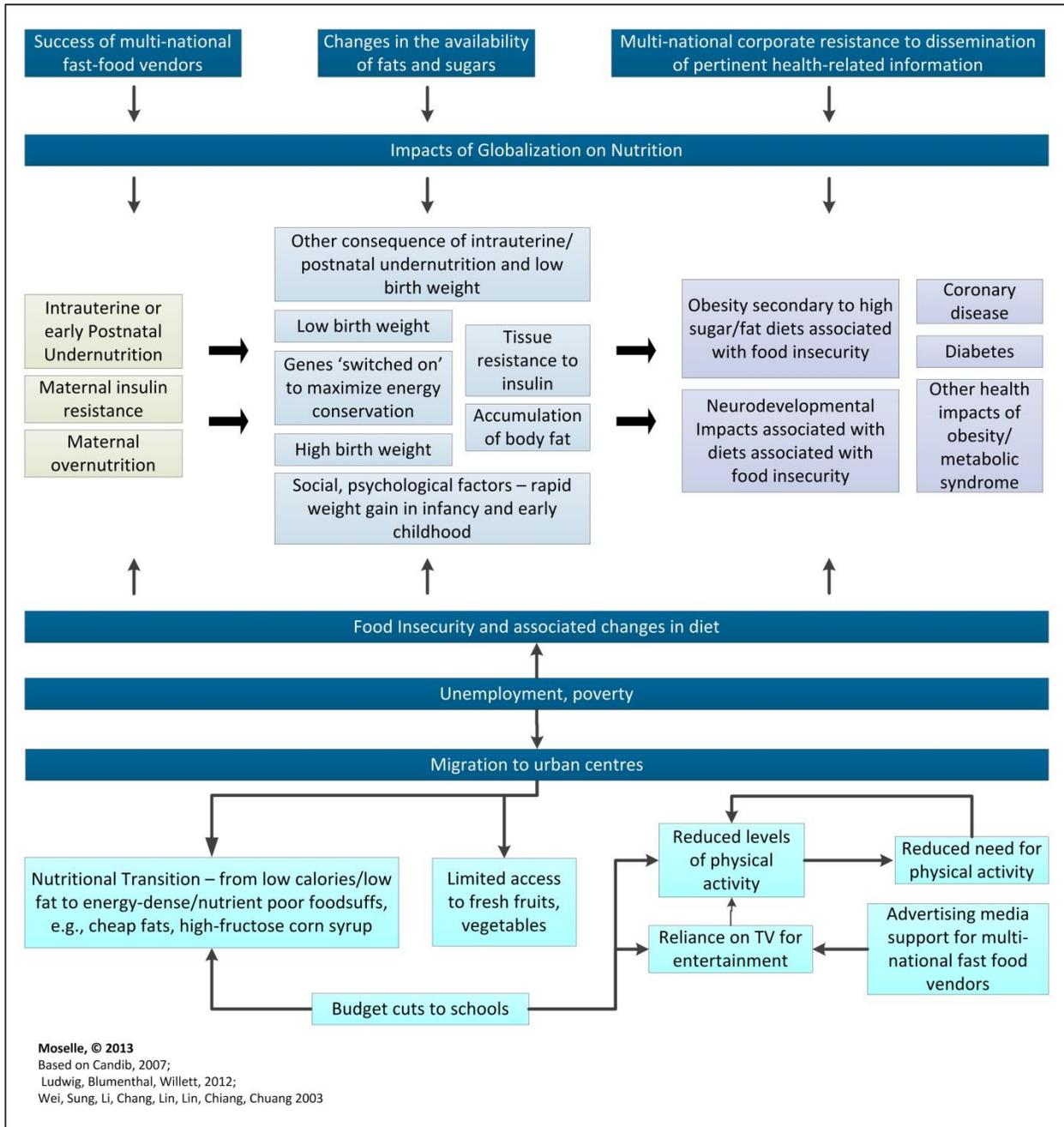
**Figure 4. Over-determination of obesity/metabolic syndrome: ecological, social, psychological/behavioural, biological factors** are concerned more specifically with obesity. The model provides a high-level ecological view of proximal and distal determinants of metabolic syndrome, within which obesity is most often featured as a cardinal symptom and a key intervening etiologic factor in the production of various long-term consequences. This figure is based principally on the work of Dr. L.M. Candib (Department of Family Medicine and Community Health, University of Massachusetts).

**Figure 5. Proximal and Distal Determinants of Obesity,** and **Figure 6. Diet-Physical Activity Cluster – in Context,** provide a more granular view of the array of determinants that are related to obesity in First Nations children. Health determinants that are targeted by services delivered by Health Canada/FNIHB are marked in these granular views. This flagging of services covered by FNIHB is based on program descriptions appearing in the Health Canada (2011) document *First Nations and Inuit Health: Program Compendium*.

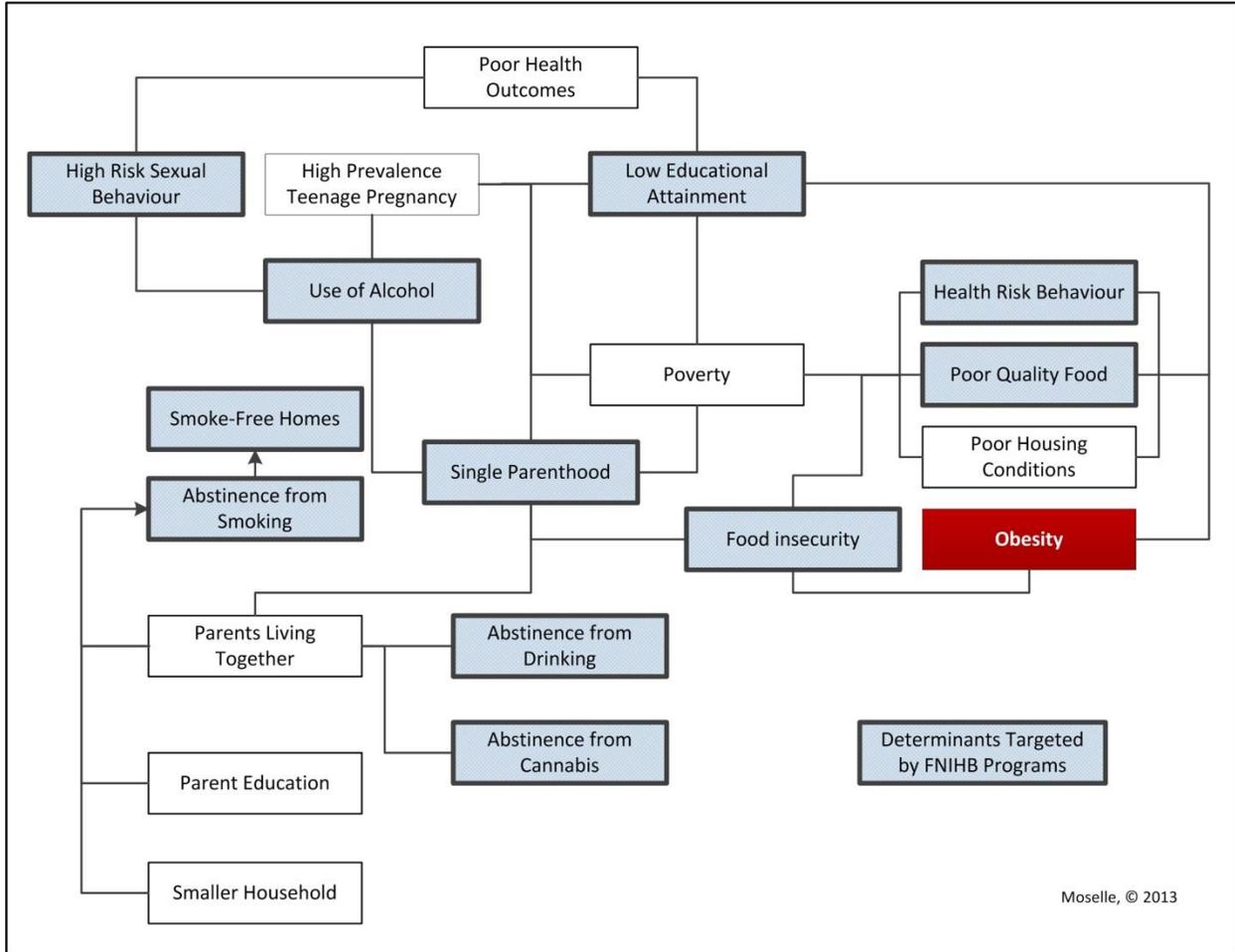
**Figure 3. Mediating role of healthy child development in the relationship between determinants of health and health outcomes.**



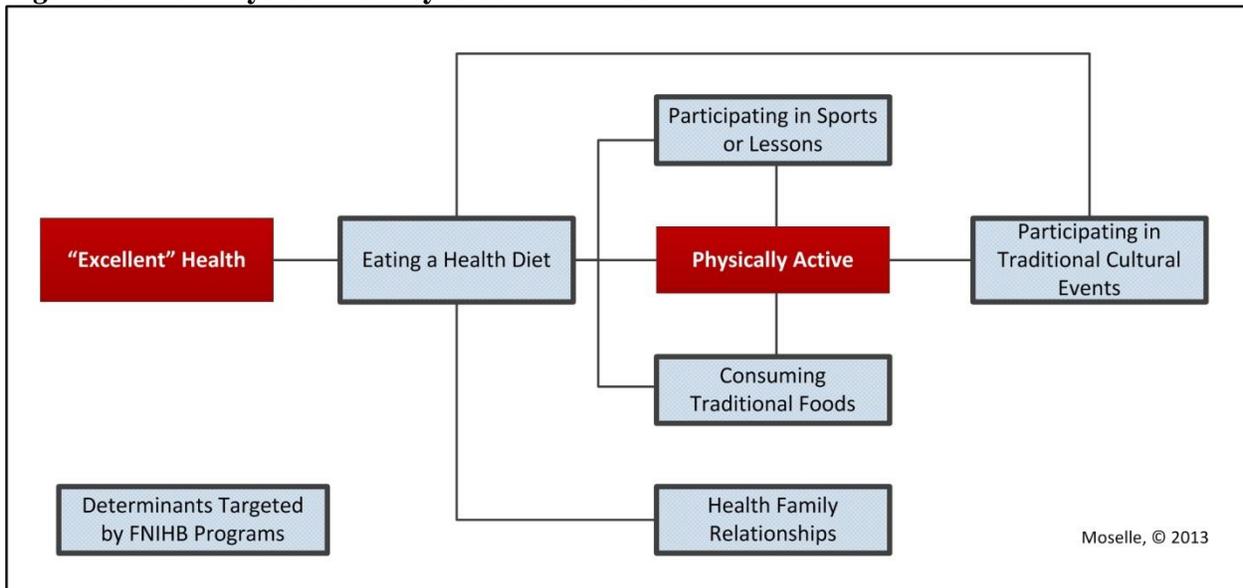
**Figure 4. Over-determination of obesity/metabolic syndrome: ecological, social, psychological/behavioural, biological factors**



**Figure 5. Proximal and Distal Determinants of Obesity**



**Figure 6. Diet-Physical Activity Cluster – in Context**



With regard to obesity, we may summarize the findings in three figures as follow:

- Obesity in First Nations children and youth is contextualized within– and heavily overdetermined by – a constellation of distal factors that work together over time to produce significant deterioration in the health status of First Nations people. These distal factors include:
  - Migration to urban centres, with associated impacts, e.g. limited access to fresh fruits, vegetables; lifestyles that rely heavily on tv for entertainment, etc.
  - Unemployment and poverty, which is linked to other reciprocally reinforcing factors such as high prevalence rates for teenaged pregnancy, which is associated with low educational attainment, which is associated with unemployment and poverty.
  - Poverty is also tightly linked to crowded and often sub-standard housing, which carries both benefits (access to child support, contact with elders), and direct health risks (e.g., mold; lack of working basic amenities).
  - Low educational attainment exists in a reciprocally-reinforcing cycle with poverty and other more proximal issues and problems, e.g., high-prevalence teenage pregnancy
  - This constellation of distal factors in turn over-determine food insecurity and associated changes in diet
  - Multi-national fast-food vendors, *their* ready access to low-quality fats and sugars, and corporate cultures and associated marketing practices that emphasize sales over public welfare, are associated with shifts in nutritional practices.<sup>1</sup>
  - Access to opportunities for physical activity and recreation also constitutes a distal determinant, and is a reflection, at least in part, of the financial health status of a community.
- There are several groups of proximal risk factors that also contribute to the over-determination of obesity. These would include
  - Maternal health and associated dietary practices, pre-pregnancy, prenatally.
  - Low birth weight babies, and associated with that, an increased risk for high caloric/low nutritional value foods (e.g., sugared formulas) in infancy to quickly put weight on the baby
  - Physical activity
  - Dietary practices – forming an almost indissociable complex with food insecurity. Unhealthy dietary practices can become intertwined in a reciprocally reinforcing way with food/dietary culture within the family unit and local community. This is related, in turn, to
    - Sharing traditional foods in household
    - Consuming traditional land-based animals, vegetation

---

<sup>1</sup> See US Centres for Disease Control (<http://www.cdc.gov/healthyouth/obesity/facts.htm>) who note that “*the dietary and physical activity behaviors of children and adolescents are influenced by many sectors of society, including families, communities, schools, child care settings, medical care providers, faith-based institutions, government agencies, the media, and the food and beverage industries and entertainment industries.*” (emphasis added). (Centers for Disease Control. Childhood Obesity Facts. <http://www.cdc.gov/healthyouth/obesity/facts.htm>)

- The family ecology, in turn, is impacted by community ecology, including community organization around culturally-relevant activities, work opportunities/job security within the local community. These factors impact on income of individuals and community income, which are distal determinants that have a broad-based impact.
- These and other proximal factors will have numerous impacts on the young child’s health risk factors profile and on the child’s health profile.
  - Health risk factors would include tissue resistance to insulin and an accumulation of body fat (risk factors for Type II diabetes)
  - Health conditions, which include more tangible conditions such as baby bottle tooth decay, Type II diabetes or coronary conditions later in the lifespan, along with less tangible health outcomes like impacts on identity and self-esteem – which are in turn related to mental health status and risk for substance use, self-harm and suicide.
- There are also protective factors that appear to function collectively to shield the family unit from the impacts of many difficult-to-control determinants, such as the practices of the fast-food industry and broad-based secular changes in food/dietary practices. These family ecology factors, which emerge as a constellation from the RHS survey data, include:
  - Healthy family dietary practices, which are also related to
    - Sharing traditional foods in household
    - Consuming traditional land-based animals, vegetation
  - Family intactness (parents living together)
  - Parental abstinence from smoking, drinking, use of drugs
  - Traditional lifestyle – linked to formation of identity as a First Nations person

These protective factors are related to higher levels of physical activity and to participation in traditional cultural events.

### 5.3 Focal Health Target II: Oral Health

#### 5.3.1 Issue

Direct concerns in the oral health domain include:

- |                         |                             |
|-------------------------|-----------------------------|
| Baby bottle tooth decay | ● Need for restorative care |
| Dental injury           | ● Need for orthodontic care |
| Dental pain             |                             |

Untreated, baby bottle tooth decay is a source of pain and suffering in small children, and it is a precursor for a host of later problems (Florida Department of Health, 2012) , including:

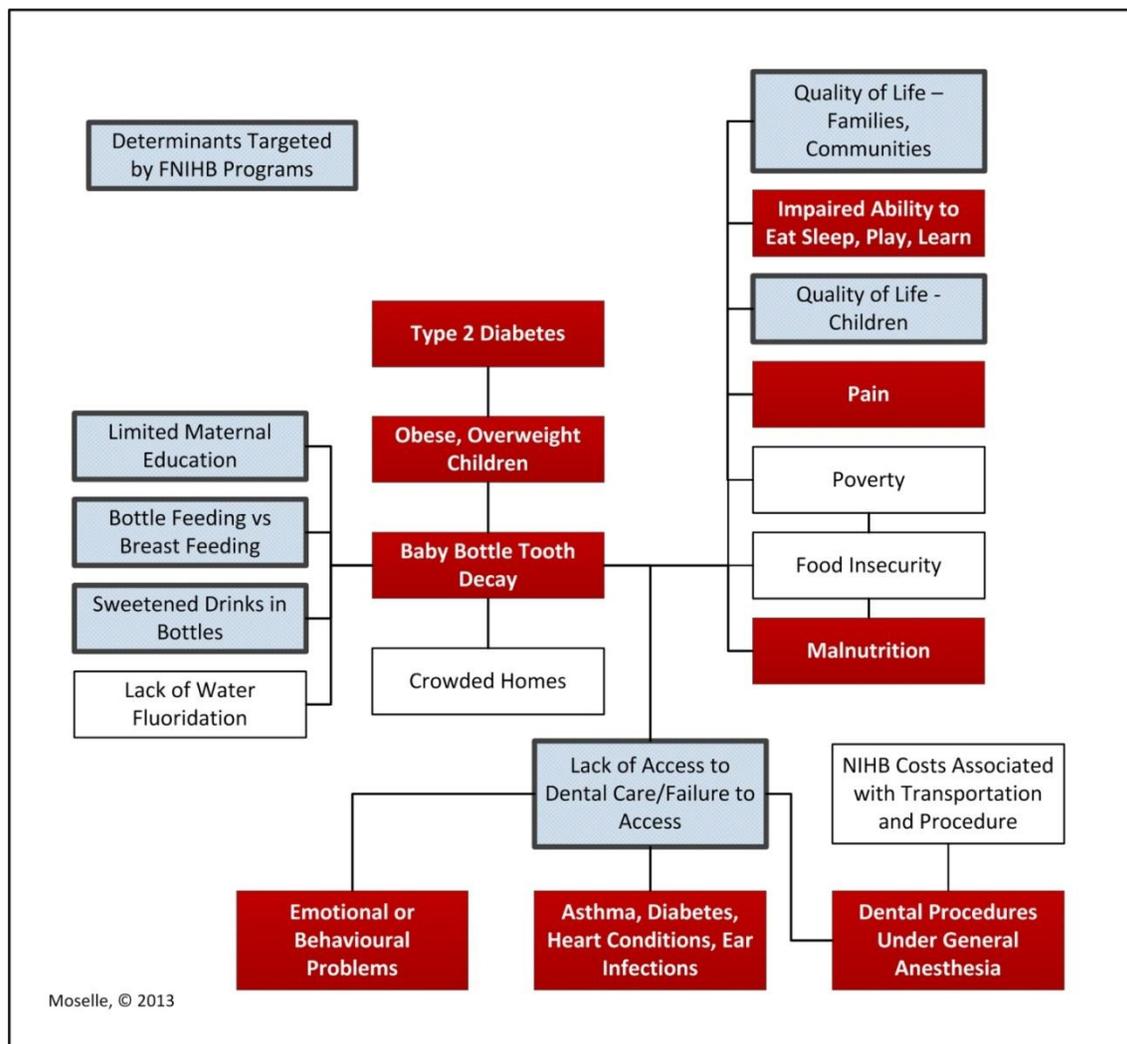
- |   |                              |
|---|------------------------------|
| ● Orthodontal problems (displaced, crooked teeth) | ● Delayed speech development |
| ● Cavities  | ● Ear problems               |
| ● Difficulty eating                               | ● Periodontal disease        |



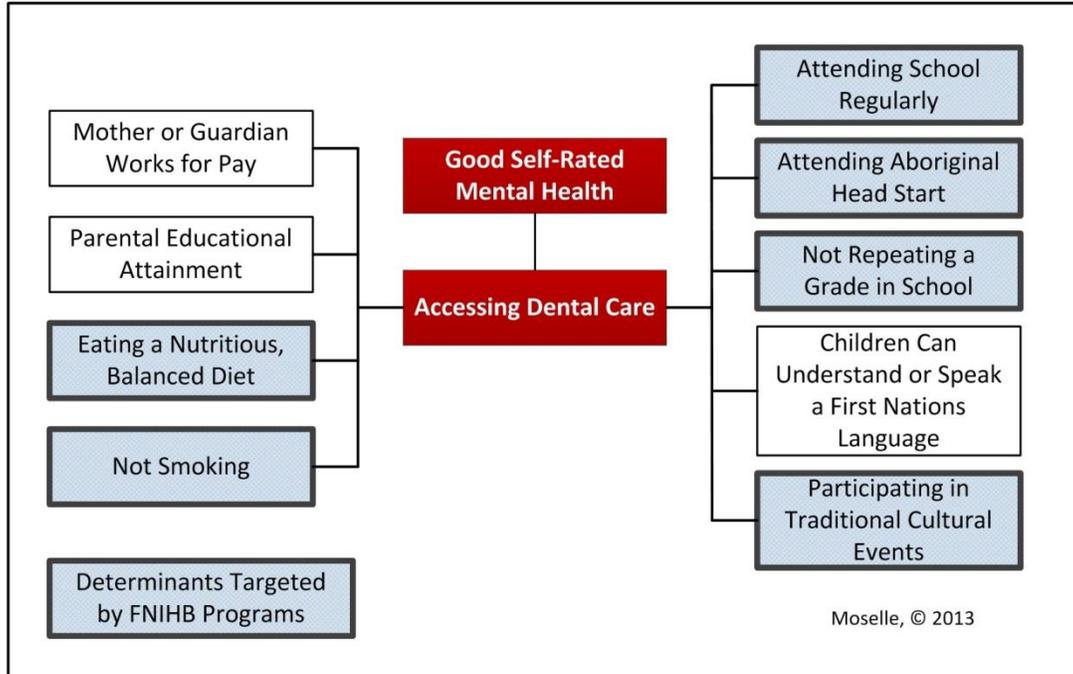
- School factors
  - Attending Aboriginal Head Start
  - Attending school regularly
- Healthy practices, health promoting practices
  - Not smoking
  - Eating a nutritious, balanced diet
  - Good self-rated mental health
- Culture, language
  - Ability to speak/understand a First Nations language
  - Engagement in culturally-relevant activities

The relationship between appropriate needs-based access to dental care and a host of other factors and outcomes suggest that this use of dental services is a marker for a more general, underlying factor that embodies a general orientation toward healthy living, Aboriginal identity and engagement with community in a culturally-relevant or culturally-mediated way.

**Figure 7. Baby Bottle Tooth Decay and Other Related Health Concerns– in Context**



**Figure 8. Accessing Dental Care – Related Factors**



## 5.4 Focal Health Target III: Mental Health and Wellness/Substance Misuse/Addictions

### 5.4.1 Issue

The mental health/substance misuse/addictions cluster is concerned with emotional well-being and behaviour in children and youth. Outcomes may be experienced subjectively by the individual (e.g. identity formation, identification with Aboriginal reference groups; mood/depression; feeling emotionally balanced; expectation of success or aspirations for success). These internal elements are related, often in powerful ways, to various behaviours that can have a profound impact on the person and their network of family and community relations. Outcomes of concern include:

- Developmental trajectory – emotional, social, cognitive, behavioural
- Mood disorders, self-harm behaviour, suicide
- Impacts of suicide on families and communities; suicide clusters
- Substance use, substance misuse (alcohol, solvents, cannabis, other drugs)
- Academic – learning, school engagement, educational aspiration
- High risk sexual behaviours and associated risks, including teen pregnancy, sexually-transmitted infections
- Accidents related to high-risk behaviour (e.g., operating a motor vehicle while under the influence of alcohol or other drugs)
- Other health-risk concerns related to psychological factors or use of substances, e.g., smoking

### 5.4.2 Determinants

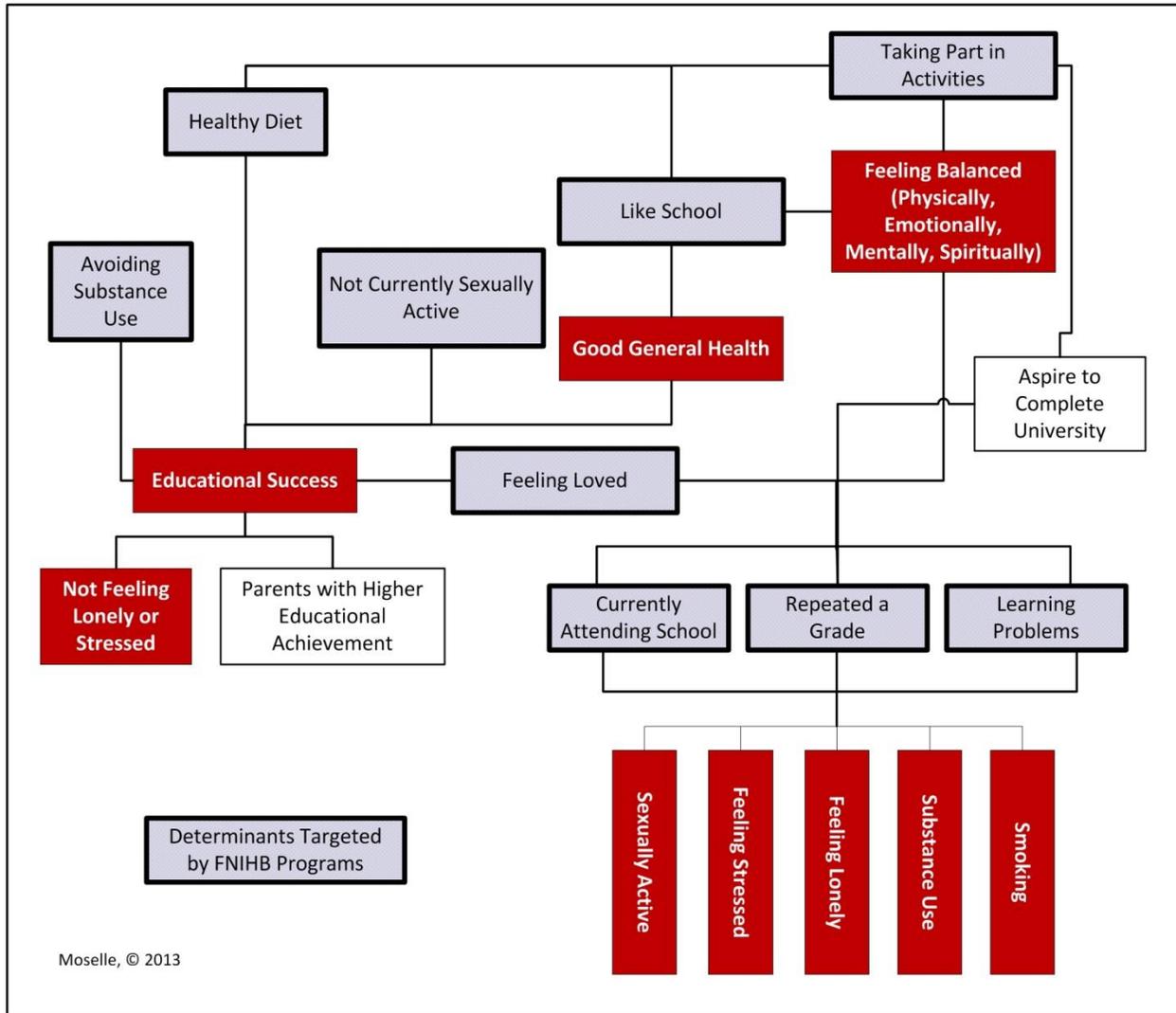
It is noteworthy that the results of the RHS paint a picture of an interlocking and interacting network of proximal psychological and behavioural dimensions or factors, in keeping with the RHS cultural model of health and wellness (see **Figure 9: Mental Health/Wellness – in Context**). As reflected in this model and in the more granular set of diagrams below (**Figure 10. Factors Related to Suicidal Ideation and Actions**, and **Figure 11: High-Risk Sexual Behaviour, Pregnancy in First Nations Youth**) a fairly broad array of factors is positioned as determinants in relationship to a broad array of behaviours and health outcomes in Aboriginal children and youth. These various elements are not necessarily positioned clearly as causes or effects, or in many cases, the factors (substance use being a good example) are both causes and effects). Referring to the holistic RHS model, which organizes various factors in the domains of Action, Vision, Relationship, and Reason - these elements include:

- Action – Health Behaviours/Lifestyle: Avoiding substance use, taking part in activities, safe sexual practices
- Vision – Physical Health: healthy diet, maintaining good physical health
- Relationships – Personal and Community Wellness and Culture – feeling balanced (physically, emotionally, mentally, spiritually); likes school, educational success, aspires to complete university; feeling loved, not feeling lonely or stressed; identification with/lack of identification with Native spiritual traditions
- Reason – Social/Economic: parents with higher educational aspiration

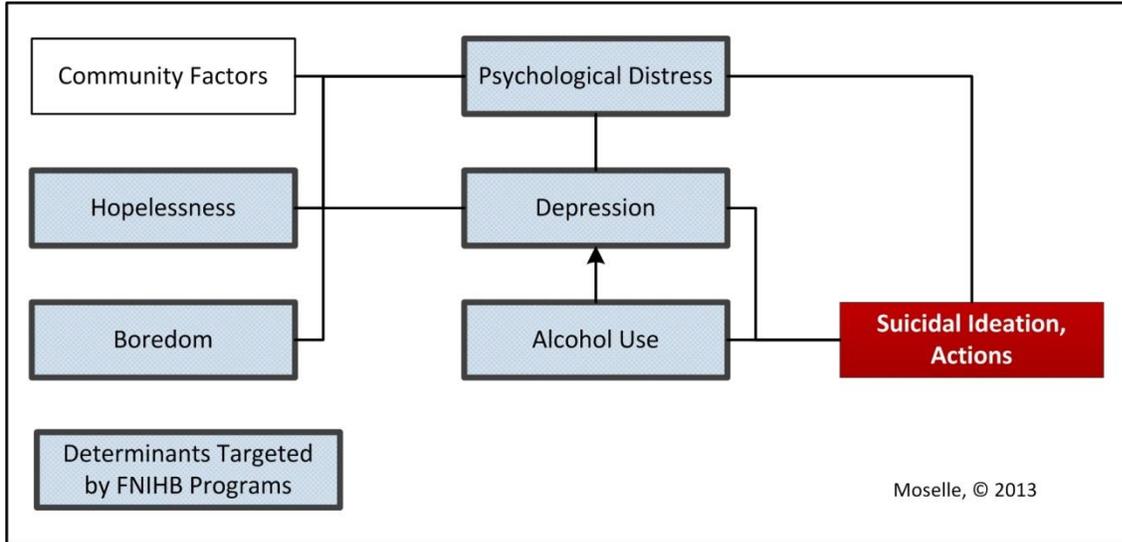
Note that although the RHS looks at various health indicators and determinants at two points in time, it does not employ a longitudinal design, i.e., the 2009 results do not relate youth outcomes to 2003/2004 findings for younger children. Nevertheless:

- The RHS results overall suggest that there are health vs. unhealthy global patterns of wellness (or lack thereof) in Aboriginal youth, and the epidemiology of suicide, sexually transmitted infection, and substance use in Aboriginal youth bears this out. It appears that by adolescence, at least two broad developmental trajectories have been set, which carry broadly different prognoses for future health and development.
- There is a large literature on the relationship between psychological and behavioural functioning in youth, and developmental trajectories set in the early childhood period. These trajectories are a reflection of a confluence of factors, including pre-natal and early childhood nutritional factors, the child's underlying neurocognitive profile, the immediate physical and social environment, parenting and socialization, and a host of other more distal but potent factors.
- With regard to distal determinants of mental health in the individual, community self-determination and loss of culture/preservation of culture are often identified as key factors (e.g. Kendall, 2007). See **Appendix IV** for other reviewed documents that reference these factors.

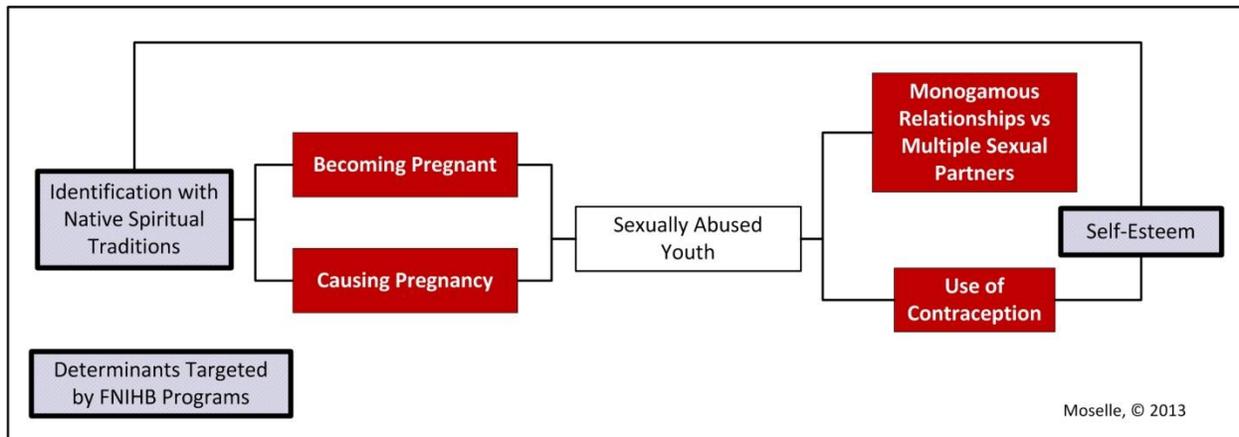
**Figure 9. Mental Health/Wellness – in Context**



**Figure 10. Factors Related to Suicidal Ideation and Actions**



**Figure 11. High-Risk Sexual Behaviour, Pregnancy in First Nations Youth**



### 5.5 Composite View – What Would a ‘Complete’ Program Need to Address, in an Integrated Fashion

The analysis presented above portrays interlocking and entangled clusters of proximal determinants and predisposing distal determinants that give rise to a cluster of health issues and related behaviours that impact on the individual the family, and the community.

On the impacts side, the analysis identifies a clustered array of health/behaviour problems, including:

- Oral health problems, and consequences that emerge over the course of childhood, youth and adolescence (e.g., baby bottle tooth decay, dental injury or pain, need for restorative care/orthodontic care, delayed speech development).

- Obesity and longer-term consequences of obesity, metabolic syndrome which emerge over the lifespan (e.g, diabetes, cardiovascular disease) .
- Alcohol/drug abuse, dependence and a broad range of impacts
- Smoking
- High-risk sexual behaviour with associated immediate and secondary risks (e.g., sexually transmitted disease, causing/becoming pregnant, single parenthood, limited educational achievement
- Mood disorders
- Suicide
- Accidents
- Social disruption, e.g, family disruption, exposure to violence/sexual abuse

With the exception perhaps of baby bottle tooth decay, these problems are heavily over-determined by interlocking, mutually-reinforcing clusters of proximal and distal factors, which constitute a necessary set of targets for effecting change. And, if the sources that provide the basis for the analysis are sufficiently broad in their scope, then there is reason to believe that the analysis identifies a set of targets that would be both necessary *and* sufficient to produce benefit.

Based on this analysis, a ‘complete’ program would address the following factors:

#### **Person-level:**

- Post-natal nutrition – e.g., sweetened drinks in bottles, bottle vs. breast feeding, unhealthy approaches to weight gain for low birth weight babies
- Diet
- Physical activity
- Screen time, use of leisure time
- Smoking
- Use of alcohol, other drugs
- High risk sexual behaviour
- Single parenthood
- Access to dental care, medical care
- Health literacy – knowledge of health-related practices and health consequences
- Attend Aboriginal Head Start
- Regular school attendance
- Limited educational attainment, achievement
- Health identity incorporate Aboriginal cultural contents
- Consuming traditional foods
- Speak indigenous language
- Engagement in culturally relevant practices

#### **Family level – including the child/children, parent(s)/caregiver(s):**

- Crowding
- Family intactness
- Mother working for pay
- Employment, safe working conditions, job training opportunities

## Community level

- Ready access to fast food
- Limited access to healthy foods
- Access to affordable, adequate housing
- Safe communities
- Sustained funding for programs
- Community cultural continuity/wellness factors - including self-government, community control over services, preservation of heritage languages, and engagement in culturally relevant activities (see Hallett, Chandler, & Lalonde, 2007)

## Section 6. FNIHB Services and Roles in Relation to Determinants of Focal Health Outcomes and Requirements for a ‘Complete’ Set of Associated Services

Section 6 reviews the FNIHB HCD compendium of program in relation to the service requirements that are keyed to the proximal and distal determinants of focal health concerns for Aboriginal children. This section also presents the results of a review of FNIHB programs in terms of the roles/professions that are involved in delivering services in FNIHB, providing a snapshot of roles and functions that are distinctive and roles and functions that are common or overlapping. The findings in this section are intended to provide information for program decision makers to identify sites for integration, coordination or streamlining, supported by relevant training/professional development for practitioners.

The proximal and distal determinants of each of the three health problems of focal concern examined in the foregoing section can be taken to be the service requirements needed to effect change in the health outcomes. Consistent with the dictum: ‘remove the cause to remove the effect’, the service requirements to impact health outcomes and prevent chronic disease are implied by relevant cluster analysis of each health concern. Proximal causes are always easier to influence. A ‘complete program’, as detailed above, would address all of the determining factors that account for the persistence or worsening of these problems).

Some distal causes can be addressed at least in part through cross-sectoral alignment and coordination. Some causes cannot readily be removed because they are a reflection of powerful cultural and political forces or and secular trends that are much bigger than the health care system (e.g., historical trauma, environmental bombardment promoting no-value food consumption). In these cases, sometimes causes can be neutralized (e.g., through positive identity, self-efficacy, coping skills, healthy decision-making) and sometimes the potency of risk factors can be reduced by building up protective factors (e.g., positive family values, healthy choices, community cohesion).

Adjusting to realities, at minimum, a program would first identify the key over-determining factors, and aim to have some degree of impact on all of the critical over-determining factors. For example, a program could mount an outstanding nutritional education program by a community health representative visiting all of the homes in a community with the goal of helping people understand the relationship between feeding practices and Type 2

Diabetes. This intervention might be a necessary and sufficient intervention for an outcome such as BBTB. But when it comes to Type 2 Diabetes which is determined by numerous factors, this might be a necessary but not a sufficient intervention. In this case, chronic disease prevention requires intervention at many other levels, including for example (and as shown in the foregoing ecological diagram on obesity) the parent's capacity to buy nutritious foods, nutritious food supply in the environment, parental ability to manage children's exposure to intentionally misleading images about food in the media, access to physical activity, to name a few.

The Tables presented in this section or in the appendices are concerned with the relationship between FNIHB programs and the service requirements that are keyed to the proximal and distal determinants of the health issues and concerns targeted by the FNIHB programs. The material in this section is organized into three tables:

- **Appendix V** contains a synthesis/review of FNIHB programs that are related to healthy early childhood development, and to the range of health concerns that are the focus for this analysis and review.
- Table 1 synthesizes across the FNIHB programs and provides a single, integrated view of program functions/determinants addressed across programs.
- Table 2 is structured similarly to Table 1. It synthesizes across the roles/professions that are involved in delivering services in FNIHB programs.

## 6.1 FNIHB Programs

See **Appendix V** for a program-by-program synthesis of material from the *FNIHB program Compendium, 2011/2012*. The Table examines the Health Promotion and Disease Prevention cluster of programs including:

- Healthy Pregnancy and Early Infancy
- Early Childhood Development
- Children's Oral Health Initiative (COHI) and Dental Therapy
- Mental Health and Suicide Prevention, including:
  - Brighter Futures
  - Building Healthy Communities
  - National Aboriginal Youth Suicide Prevention Strategy
- Substance Abuse Prevention and Treatment
- Chronic Disease Prevention and Management

The table in this appendix summarizes the relevance of each of the programs in terms of:

- specific objectives (what health outcomes they are intended to impact);
- the program elements identified in the FNIHB compendium,
- the potential of each program to impact specific determinants of health:
  - At what stage
    - In the development of the child
    - In the development of the family
    - In the process of community development
- Over the course of what period of time
- Framed in what way/integrated with respect to First Nations model of wellness?

In Table 1, the second column from the left is particularly relevant, as it indicates the factors or determinants that are addressed by the FNIHB program. This column is, in effect, the key link between this material and the diagrams appearing in the previous section which identify proximal and distal determinants of various health conditions.

## 6.2 FNIHB Program Functions– a Synthesis

Table 1, below, is intended to identify program functions that are common across programs – these represent opportunities for service integration. This table is based on material contained in the *FNIHB program Compendium, 2011/2012*.

**Table 1. FNIHB Health Childhood Development Programs – Factors/Determinants Addressed, Services Provided**

Factors/Determinants Addressed; Services Provided	FNIHB Program					
	Health Pregnancy & early Infancy	Early Childhood Development	Children's Oral Health Initiative; Dental Therapy	Mental Health and Suicide Prevention	Substance Abuse Prevention and Treatment	Chronic Disease Prevention and Management
Pre-pregnancy and prenatal nutrition	X			X		
Substance use during pregnancy	X			X	X	
Breast feeding support	X					
Mental health status and needs – women (including post-partum depression), family, children	X					
Sexually-transmitted infections	X					
Special needs children	X					
Parenting skills & knowledge	X			X		
Parent-infant attachment	X					
Father's involvement	X					
Healthy infant, child development		X		X		
Readiness to learn – e.g. pre-reading		X				
Identity development (as a First Nations person)		X				
Promote youth leadership				X		
Needs – physical, spiritual, emotional, intellectual, social		X				
Food security	X	X		X		
Safety nets - food						
Community kitchens	X					
Diabetic risk factors (e.g. blood glucose levels)	X					
Physical activity (health promotion focus), including culturally relevant physical activity (e.g., food gathering)	X	X				
Self-care, self-management		X				X

Factors/Determinants Addressed; Services Provided	FNIHB Program					
	Health Pregnancy & early Infancy	Early Childhood Development	Children's Oral Health Initiative; Dental Therapy	Mental Health and Suicide Prevention	Substance Abuse Prevention and Treatment	Chronic Disease Prevention and Management
Culturally-relevant activities	X	X		X	X	
Learn and retain First Nations languages		X				
Screening, assessments – physical, visual, hearing, developmental		X				
Screening, assessments - dental			X			
Screening, assessments – mental health status, substance use	X			X	X	
Screening, assessments – physical health concerns	X					
Direct services – medical					X	
Direct services – public health nurses (immunization),		X				
Direct services – dental		X	X			
Direct services – mental health, addictions (counseling)				X	X	
Direct services – residential programs, detox – substance use					X	
Direct service – crisis intervention, suicide prevention				X		
Develop community capacity – after care for survivors (community impacted by suicide)				X		
Direct services – other, e.g., speech therapists		X				
Engagement of family members, community members	X	X	X	X	X	
Community education – e.g. nutrition, diabetes, health risk factors (general)	X		X	X		X
Community education – health risk factors – pregnancy	X			X		
Community education – alcohol, drug use, solvent abuse				X	X	
Community education – suicide prevention				X		
Community education – mental health				X		
Disseminate knowledge of community resources – what they are, how to access		X				
Knowledge of services across sectors		X				
Case management	X				X	
Facilitate access to drug/alcohol counseling, mental health therapists		X		X	X	
Facilitate access to environmental health officers		X				
Linkage and access to other services, navigation	X	X		X		
Job, employment supports					X	
Workforce development (e.g., train community workers)				X		
Develop laws, regulations				X		
Knowledge development				X	X	X
Surveillance						X

### 6.3 FNIBH Program Roles/Professions- a Synthesis

Table 2, below (based on the *FNIBH program Compendium, 2011/2012*), is structured similarly to Table 1. However, it synthesizes by roles (e.g. case manager) or professions (e.g., physician) that are involved in delivering services in FNIBH programs, rather than synthesizing by functions or determinants addressed by programs. This table addresses the question of what roles/professions are common across programs. For example, the table shows that several different practitioners or roles associated with different programs are doing community education, screening and outreach. It also identifies key roles or professions who are likely to encounter a broad range of complex and pressing issues when they engage with community members.

The information in these tables is keyed to the overarching question: How can FNIBH support a single practitioner who has an opportunity to develop a culturally safe relationship with a parent whose home she is able to visit and observe (e.g., community health representative, early childhood educator) and to observe, report, and respond effectively to several, probably inter-related health problems or needs (e.g., in a home visit, noticing an infant who is lagging in developmental milestones, a fridge that has no healthy food but a supply of alcohol, a parent who is putting something bright purple in the baby’s bottle). This material is intended to serve as a guide or roadmap for efforts to identify areas of overlap and possible integration. That is, the material identifies services that need to be available in an integrated manner, and service providers who are likely to require streamlined access to well-integrated “packages” of service in order to address the clusters of problems that they encounter when engaging with individuals, families and community groups.

**Table 2. FNIBH Healthy Childhood Development Programs – Roles (based on material contained in FNIBH Program Compendium, 2011/2012)**

Roles, Professions	FNIBH Program					
	Health Pregnancy & early Infancy	Early Childhood Development	Children’s Oral Health Initiative; Dental Therapy	Mental Health and Suicide Prevention	Substance Abuse Prevention and Treatment	Chronic Disease Prevention and Management
Early childhood educators	X			X	X	
Youth workers	X					
Community Health Representatives	X	X	X	X	X	
Community health/public health nurses	X	X	X	X	X	
Addictions – outreach workers, solvent abuse workers	X					
Community diabetes prevention workers	X			X		
Physical activity specialists	X					
Community-based workers	X					

Community volunteers		X		X		
Community educators		X				
Physicians		X				
Dentists				X		
Dental therapists, hygienists, assistants		X				
Dieticians/nutritionists	X	X		X		
Lactation consultants						
Crisis counselors	X					
Mental health professionals	X			X	X	
Mental health paraprofessionals	X	X		X	X	
Addictions – counselors		X			X	X
Case managers	X	X		X	X	
Diagnostic teams (multi-disciplinary)		X				
Traditional healers		X		X	X	
Elders			X	X	X	
Local project coordinators, administrators	X			X	X	

#### 6.4 How thoroughly do FNIHB programs cover the requirements for a 'complete' program

Comparison of the requirements for a 'complete' program with a listing of the functions covered by the FNIHB programs reveals a clear set of patterns:

- With regard to oral health - Health Canada/FNIHB programs are well focused on the proximal determinants of oral health, and the FNIHB programs extend very directly to the level of providing or supporting required dental services. However, as the analysis of the RHS data suggests, these services may compensate for the effects of distal factors such as poverty, but they do not negate those distal influences.
- With regard to obesity and related problems – again, FNIHB provides good coverage of proximal factors. However, as the analysis in this and other documents suggests, obesity emerges against a backdrop of multiple distal factors, and the worldwide epidemic of obesity suggests that these factors are pervasive and potent. Unlike oral health, this is not an area that is as amenable to focused programs, and indeed the Health Canada (2010) evaluation of children and youth programs notes that their programs have been successful in raising awareness of maternal prenatal care, breastfeeding, and physical activity, but have had less success in the area of child nutrition.
- With regard to mental health, high-risk behaviours (sexual behaviours, abuse of substances, suicide): the programs have good overlap with the proximal determinants as identified in the analysis of the RHS data. However, limited control over distal factors may place significant limitations on the overall effectiveness of the programs.

Key distal determinants that fall outside the sphere of FNIHB programs, but have a significant impact on areas targeted by FNIHB programs, include:

- Ready access to healthy and affordable food
- Poor water quality
- Shrinking herds, shortened hunting seasons (Inuit)
- Crowding, unsafe/unhealthy housing

- Employment opportunities, employment security
- Environmental degradation, contamination (e.g., persistent organic pollutants, heavy metals)
- Geographic separation from key services
- Racism, social exclusion
- Lack of relevant educational opportunities
- Lack of access to ECD programs

One factor that warrants further consideration is the role of cultural ‘vitality’ or wellness, its role in the development of health identity in Aboriginal youth, and the potential for a robust, culturally conditioned identity to function as a global moderating factor to limit the impact of difficult-to-control distal factors. See **Appendix VI** for a model that illustrates the positioning of identity and culture within a matrix of health determinants. Note that this is entirely consistent with the work of Hallett, Chandler and Lalonde (2007), with the model and the data reported by the First Nations RHS – and it also echoes some of the material in the Health Canada (2010) evaluation of children and youth programs: *Areas that could be strengthened include: access to services for children with special needs and their families, support and information about child nutrition, and the incorporation and promotion of FN languages and cultures in CY programming. (p. 14)*

## 6.5 Integration of FNIHB Services

The case for integration of services rests ultimately on the ways in which health-related problems co-occur within individuals, families and communities – and on the clusters of determinants that must be addressed in a coordinated fashion in order to prevent a succession of different over-determining factors from entering in and counteracting potential benefits associated with more focal interventions. In other words, clustered problems related to clustered determinants creates the need for clustered interventions. The modeling of results from the RHS, plus other key references reviewed in this document highlight the importance of comprehensive and coordinated response based on a sharp understanding of a layered health ecological landscape consisting of reciprocally reinforcing proximal and distal determinants.

However, the business case for integration based on clustering of determinants can be strengthened by considering the multi-faceted challenging situations which some of the key roles in FNIHB programs are likely to encounter – routinely, given the adverse determinants of health profiles of so many Aboriginal families and communities. For example, any roles performing outreach functions (e.g., community educators, public health nurses, and Community Health Representatives) are likely to find themselves in situations where there are multiple issues and determinants present that will be resistant to anything other than a multi-dimensional, integrated ‘wrap-around’ response. For example, a public health nurse doing a well-baby home visit may be confronted by the tangible manifestations of poverty (crowded housing; home in need of major repair); the water supply may be contaminated; the mother may have dropped out of high school and may face life-long challenges around employment; the baby’s father may have been affected by his own socialization experiences and by a lack of role models for good and effective fathering; there may be other members of the household who are seriously

overweight and affected by a complex of chronic, deteriorating health problems. If we work from the diagrams of the results of the RHS, which highlight related or co-occurring problems, we could add to the list. The boundaries that define programs or roles do not correspond to the boundaries around the problems that workers in programs will confront, and the problems do not partition themselves up in ways that correspond to the scope of more focused services.

Even if the range of functions provided by providers does not expand, the ability of individuals or programs to respond to complex, often high-needs/high risk situations will be enhanced by integration at a very operational level. These types of over-determined multi-problem situations will place a premium on the following features of an integrated system of services:

- Face-to-face relationships among the array of different providers from different programs that work within a community. The importance of working relationships is emphasized heavily, for example, in the Southcentral Foundation healthcare system in Alaska: *The relationship-based Nuka System of Care is comprised of organizational strategies and processes; medical, behavioral, dental and traditional practices; and supporting infrastructure that work together - in relationship - to support wellness. By putting relationships at the forefront of what we do and how we do it, the Nuka System will continue to develop and improve for future generations.*<sup>2</sup>
- Streamlined and dependable access to a potentially diverse array of providers and services to which they can provide access – community workers, particularly itinerant workers, have narrow windows of opportunity to engage providers and services other than the ones over which they have immediate control; when the range of providers is constantly in flux, service hubs are essential to extending any provider’s reach beyond what they can do or what their program can deliver;
- Timely access to ‘safety net’ services (e.g., emergency housing), urgent/emergent services (e.g., suicide prevention) – providers are likely to encounter high needs/high risk situations and must have access to whatever is required to ensure safety; cultivation of such resources within communities is essential, as safety-driven interventions are often intrusive, and if delivered from outside the community, may detract from the community’s critical capacity around self-governance and control over services (see the work of Hallett, Chandler and Lalonde for further discussion of this issue);
- Simplified, integrated access mechanisms for a range of services – if every program has its own distinctive way of brokering access, then providers must master all of these mechanisms in order to make full use of services that are in fact available. Technology solutions exist to support effectively integrated single points of access to services – Vancouver Island Health Authority, Mental Health & Addiction Services has implemented a solution (the “Bridges” solution) that replaced 81 different referral forms used by 135+ program entities and a comparable number of residential care options with a single highly streamlined referral mechanism employed by a continuum of hospital, ambulatory, residential and ambulatory services.<sup>3</sup>

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<sup>2</sup> Southcentral Foundation Nuka System of Care, Anchorage, AK Referenced Maryc 25, 2013. <https://www.southcentralfoundation.com/nuka/index.ak>

<sup>3</sup> The Vancouver Island Health Authority Bridges Project in Mental Health & Addictions was funded by Canada Health Infoway under their Innovation and Adoption funding stream, and was awarded Canada’s Health Informatics

- Information management/information documentation standards , with effective infrastructural supports (e.g., electronic health/medical records) to enable providers at least within the same governance structure to share information;
  - Chronic disease management tools could add value to Electronic Health Records or physician Electronic Medical Records (EMR) if deployed within Aboriginal communities.
  - The Mustimuhw EMR has been developed within Aboriginal communities and has been deployed in BC, Saskatchewan and Manitoba.<sup>4</sup> Fairly recently, the Mustimuhw system was linked into the referral network with the Vancouver Island Health Authority via the Bridges solution, referenced above.
- Information sharing agreements, protocols, governance mechanisms to support information sharing and coordinated response across jurisdictional boundaries

## 6.6 Cross-sectoral alignment

Cross-sectoral alignment and effective response to distal determinants of health go hand-in-hand. Many of the non-medical determinants of health fall well outside the boundary of the health care system (e.g., employment opportunities, housing, educational opportunities), and these factors may carry a great deal of weight with regard to outcomes. However, because these distal factors are often negatively weighted, they must be paired with other interventions that capitalize on the enabling effect of their removal.

This dependency works both ways. If FNIHB, with its programs targeting proximal determinants of health, is dependent on other branches of government to provide more adequate housing, employment and educational opportunities to remove the negative effects of inadequate housing, lack of education and poverty, those other branches are also dependent on FNIHB to provide those positive, health-promoting interventions that capitalize on the enabling conditions provided by government programs that target distal determinants.

## Section 7 Implications for FNIHB Programs

Section 7 considers programming models that seem promising as well as the need to negotiate across sectors in order to impact all the critical determinants of salient health outcomes. This section underscores the need to invest in collection of contextualized health data about Aboriginal children's health and wellness and in professional development for community based educators in early childhood programs that could be enhanced to function as sites for health promotion, disease prevention, early identification, referral, after-care and community development to improve children's overall quality of life.

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Association (COACH) award in 2008 for Innovation in the Adoption of Health Informatics. For further information, contact Dr. Kenneth A. Moselle ([Kenneth.moselle@viha.ca](mailto:Kenneth.moselle@viha.ca)).

<sup>4</sup>For additional information see: <http://www.mustimuhw.com/>

## 7.1 Learning from the Expanded Chronic Care Model

The Expanded Chronic Care Model (ECCM) in British Columbia identifies essential elements in a system that strives for enhanced chronic care management (Barr, et al., 2003). This model, includes broadly based prevention efforts, recognition of the social determinants of health, and enhanced community participation which can also be part of the work of health system teams as they deal with chronic disease issues. The model can be employed with a variety of chronic illnesses and in prevention efforts and in a variety of health care settings. Implementation of this model is intended to achieve improved health outcomes for individuals, resulting in a healthier population, more satisfied providers, and more cost-effective expenditure of health care resources. However, both First Nations and Inuit perspectives on wellness emphasize approaches that are targeted at the family or the whole community, and that address healthy environments (e.g., ensuring food security and an environment of healthy foods, rather than primarily targeting parents' feeding practices). Community level actions are also emphasized in the ECCM, which includes the following essential components:

- Strengthen community actions
- Create supportive environments
- Build health promoting public policies
- Support self-management and healthy living
- Re-orient health services and delivery system design
- Decision support
- Information systems

Like the Expanded Chronic Care Model, other models of health promotion and chronic disease prevention, including some of those shown in *Appendix VII* emphasize the following implications for integration and inter-sectoral coordination:

- 1) Emphasize health promotion because this contributes to primary prevention and chronic disease management;
- 2) Target modifiable risk and protective factors;
- 3) Integrate various services and programs that target proximal determinants;
- 4) Align programming across relevant sectors in order to maximize the impact of broader-based policies and strategies that target distal determinants;
- 5) Shift from a 'static' model of adult lifestyle risk (which affects the course of an illness) to a **lifespan perspective** that brings into focus the interactions among factors and the cumulative impact of multiple factors, starting at conception and in early childhood, that predispose a person to chronic disease.

As well, the critical role of culturally-based identity, strengthened by capacity to speak/understand an indigenous language, is featured in the work of many authors, ranging from spokespersons for various Aboriginal communities (e.g., the RHS) to the Province of British Columbia's Public Health Officer (see Kendall, 2009). This particular factor warrants further consideration around how it can be more fully leveraged and more fully strengthened, because it appears to be positioned as a buffering or resiliency factor that can moderate the impact of difficult-to-eliminate distal determinants.

## 7.2 ECD Programs as sites of integration and inter-sectoral coordination

In the quest for better ways to promote Aboriginal children's health and wellness, early childhood programs operated by FNIHB present themselves as potentially optimal sites, especially in rural and remote communities, for integrating services and coordinating resources and referrals involving other sectors. ECD programs are sites where young children and their primary caregivers gather and form relationships of trust that have some continuity over time, creating a foundation for introducing health education, programs, and referrals, as well as a service memory among staff in the ECD centre. There are low infrastructure demands of ECD programs compared to health clinics or health centres. There is high potential for strengthening the capacity of community members to promote health, engage in early detection and monitoring of health conditions within individuals and in the environment. ECD centres may be the only location in a community where itinerant service providers such as physicians, dental hygienists, and speech-language pathologists, may be able to meet with children and their primary caregivers with some reliability and consistency. ECD credentials are achievable for select community members and provide foundational skills upon which to build ongoing professional development in health promotion and chronic disease prevention.

A strong conceptual argument for integrated services focused on preschools has been made in the literature on early childhood health and development on the basis of social-ecological analyses of how complex social systems affect child development and parenting (Lerner et al., 2002). These conceptual models draw on Bronfenbrenner's (1979) ecological model of development with multiple levels of influence on children and parents. Population health models (e.g., Irwin et al., 2007; Keating & Hertzman, 1999) also provide an important conceptual perspective in Canadian government policy. Pelletier and Corter (2006) discuss how calls for service integration in many service sectors and in many countries are driven by forces ranging from a search for efficiencies following government cuts to services, to accountability measures, to a quest for more effective and cohesive community-oriented services for children and families.

Despite conceptual and practical rationales, it remains the case that empirical evidence of the value of integrating multi-services within or closely alongside ECD programs is limited and inconclusive. Perhaps the best Canadian evidence on service integration through ECD is the evaluation of the Better Beginnings Better Futures Project (Peters, Howell-Moneta, & Petrunka, 2012) and the Best Start research by Pelletier (2012). As these studies suggest, there appear to be a number of factors that can influence both the process and outcomes of integration. For the practical reasons cited earlier, this scoping paper recommends that FNIHB explore the potential for maximizing HCD programming by enhancing ECD programs such as AHSOR to become multi-service hubs. However, it is also important to build in research on *implementation* and *process*, as well as *outcomes*, in order to inform federal government policy and program decisions.

## 7.3 The 'Hook and Hub' approach

A promising practice that became known as the ‘Hook and Hub’ approach, illustrated in *Appendix VII*, was demonstrated a decade ago by three groups of First Nations on reserves in B.C. (Ball, 2004, 2005). These communities cherished the goals of cultural revitalization, increased health and wellness for all community members, beginning with the youngest generation and their primary caregivers, improved education outcomes, and economic development. They perceived early childhood as the most opportune period to promote health and prevent chronic disease, and identified high quality ECD programs run by community members as the optimal vehicle to target children’s health and wellness and incrementally introduce a range of programs, services, and community supports to primary caregivers. They began with two years of post-secondary education in early childhood care and development for community members to be prepared *not only* to operate child development programs, conduct home visits and work with children with special needs, but also to reach out to parents with invitations to be involved in a range of health promotion and disease prevention activities (e.g., evening classes in preparing nutritious, affordable meals, dental care practices, speech-language facilitation, guiding children’s behaviour).

Intersectoral service delivery occurs through the integration of health promotion programs on-site in the child development programs, including Aboriginal Head Start. These include, for example, nutritious meals, preventive dental care, primary health care including immunization, vision, hearing and speech screening; and specialist services such as support child care for children with Fetal Alcohol Spectrum Disorder, and speech-language therapy. Each community group has a community health representative and family support workers who are part of the ECD team. Travelling specialists such as speech-language therapists, child development consultants, occupational therapists, and the general physician are conveniently able to screen, treat, and monitor children and parents, using the ECD program as the community service hub.

These communities showed how, when parents or grandparents bring a child for a program, they are exposed to community service providers and the variety of services available through the program or co-located with the program. When a program is located in and run by a family’s own community, there is a high likelihood of cultural safety as well as continuity of involvement because services are geographically and socially accessible. *Appendix VII* includes a Chronic Care for Aboriginal People Model in Australia that highlights the importance of trust as a first step in the ‘wheel’ of service delivery. The research that led to the conceptualization of the Hook and Hub approach found that service delivery based on relationships of familiarity increases participation by community members in programs such as parent support groups, mental health and substance abuse counselling, health education, preventive health services, and cultural and community events. This in turn enables early identification of health challenges as they emerge in children or their family members. It promotes social inclusion of children and families who may otherwise be isolated.

Communities that have demonstrated the Hook and Hub approach have emphasized the following keys to success (Ball, 2005):

- Community members should be involved in program decision-making because they can identify prevalence and priority health issues and proximal and distal factors that may be

over-determining the persistence or worsening of health problems, as well as potential protective factors that could be enhanced.

- Programming should be holistic, incorporating as many elements and associated practitioners into one or a small number of coordinated programs.
- Fully credentialed post-secondary education for community members is foundational for successful, integrated, community-based programming. Community members must be fully qualified for a particular role and also supported to gain skills in a range of health support roles (e.g., developmental screening, speech-language facilitation, nutrition, basic vision and hearing screening, parent support, and referral/patient navigation).
- Consider the family rather than the individual child as the recipient of programs and services.

#### **7.4 Aboriginal Head Start On Reserves (AHSOR): Integration and potential for intersectoral coordination**

AHS is the most extensive, innovative, and culturally based initiative in Aboriginal ECD in Canada. Although solid evidence of its impacts on child health and development outcomes has yet to accumulate, there is qualitative evidence that AHS is already working in complex ways to gather the strength within communities to enhance the quality of family and community environments that can impact Aboriginal children's health and wellness.

A key feature of the AHSOR, funded since 1998 by Health Canada, is that the community group that receives funding for program delivery works with parents and other stakeholders to decide upon program specifics, and they are managed in consultation with parent advisory committees. The emphasis of AHSOR on culturally-fitting, community-specific elaborations of the six program components resonates with Aboriginal goals for self-determination. The components themselves embrace integration: (1) culture and language; (2) education and school readiness; (3) health promotion; (4) nutrition; (5) social support; and (6) parent/family involvement. The local control of AHSOR programs enables a community to integrate or co-locate other programs and services, such as speech-language pathology, dental hygiene, or community nursing, as needs and resources allow.

Although more work is needed to establish research-based evidence of the ways in which AHS impacts Aboriginal children's quality of life and developmental outcomes, the RHS findings and informal reports are encouraging. The program has a number of positive and promising features that are highly congruent with principles of holism, cultural grounding, and community determination advocated by many Aboriginal organizations.

- AHS programs are providing safe, supervised, stimulating environments for young children. This is especially important for children whose home environments may be crowded, chaotic, or contaminated. Some programs provide nutrition supplementation, cognitive stimulation, socialization with Aboriginal peers, adult role models and Elders, and exposure to Indigenous language and spirituality. These opportunities are valued by Aboriginal parents and promote children's health and wellness.

- AHS programs are helping to fill gaps in services to support families during the early stages of family formation, when parents – many of them very young and with few resources – need social support and practical assistance (Health Canada, 2002).
- AHS has been a timely and effective vehicle to enable communities to deliver ECCD programs in culturally fitting ways to children who need them most. AHS programs have the flexibility to develop in ways that are family-centred, family-preserving and delivered within a community development framework. The programs are informed by the communities' internally identified needs and vision for improving the quality of life of young children and their families.
- The programs are increasing the numbers of Aboriginal people who are skilled in delivering programs for Aboriginal children and families.

AHSOR programs provide a place within communities that may otherwise lack the hard and soft infrastructure where there is tremendous potential for health promotion and chronic disease prevention and for early identification, referral, and coordination across health, social and child welfare programs to ensure accessible services for children. AHSOR can function in the manner of 'Hook and Hub' described earlier, where additional programs are integrated into the AHSOR program or co-located to streamline access by children and their primary caregivers to specialists, including speech-language pathologists, physiotherapists, occupational therapists, dental hygienists, and to other services, such as diabetes prevention, chronic disease case management, mental health crisis intervention, and substance abuse treatment. Anecdotal reports in the 'gray literature' and at AHS training conferences often describe how the programs help the families of participating children to access food, warm clothing, income assistance, needed health, mental health, and social services. This is a uniquely promising aspect of AHS since one of the challenges for ensuring Aboriginal children's access to needed supports and services is that they often do not make it as far as the entry point in mainstream service delivery systems set up to meet needs of children in middle class families in urban centres (e.g., families with ready access to transportation, knowledge of how service systems work and how to advocate to get their child's needs met).

In non-formal reports and at gatherings of Aboriginal organizations involved with children and families, AHSOR is very often identified as the most positive program in Canada for Aboriginal families with young children: receiving funding to develop an AHS program is identified as a top priority in many communities. Approximately 10% of Aboriginal children are able to access an AHSOR or AHSUNC program. A report by the Child and Youth Health Advisor to the former Minister of Health Tony Clement calls for an expansion of AHS to enable 25% coverage of Aboriginal children (Leitch, 2008).

## **7.5 Integration and inter-sectoral coordination: What are we waiting for?**

In 2002, the Romanow Report was the first national report to devote specific attention to Aboriginal health. The report concluded that the inexcusably poor state of Aboriginal Peoples' health, well-being and quality of life called for a multi-jurisdictional, integrated and inter-sectoral approach for improving health, especially for those residing in rural and remote settings and on reserves. If integration and inter-sectoral coordination makes so much sense, why are we

not doing more of it? There have been chronic disappointments in moving forward on the inter-sectoral agenda, both in Canada and abroad, despite the philosophical and practical rationales for coordinating training and service efforts across practice disciplines and sectors. A number of political, conceptual, and practical barriers must be addressed, ranging from professional turf wars, fragmented bureaucracies, competition for funding, reluctance to share authority over health care expenditures and accountability for health outcomes, to the dominance of western medical models of health that focus on individuals rather than families or communities as the unit of analysis and that target proximal determinants such as individual health choices rather than on the more difficult but often more potent distal determinants of health.

## 7.6 Epidemiological and impact evaluation data requirements

Questions about how to overcome barriers to cross-sectoral coordination in order to address the necessary and sufficient set of determinants of any particular health outcome are beyond the scope of this paper. However, one very significant challenge that this paper has addressed is the need for program decision-makers at FNIHB as well as community leaders to gain insight into those inputs to a health goal or concern that are critical and must be changed in order to promote health and prevent disease. This insight depends on data. These data are not currently being collected in Canada to any significant degree or in such a way as to either: (a) link health outcomes to proximal and distal determinants; or (b) monitor changes over time that could inform decision-making about whether to implement, modify, or terminate a program or service or how to enhance training or redesign functions for service practitioners.

Without this kind of basic information, it is unclear what programs, service components or staff functions to integrate or change, and what alignments to seek with other sectors in order to coordinate actions that can directly or indirectly impact determinants of targeted health outcomes. The kinds of data that are required also need to be amenable to analysis at the community level. The geographical, cultural, social and economic diversity of First Nations and Inuit communities across Canada means that different communities will have different health profiles, priorities, protective and risk factors that call for program flexibility based on analysis of relevant data. These data are lacking for many health indicators. As well, there has been no national evaluation of AHSOR despite its popularity and anecdotal successes. A longitudinal study of how the integration service components of exemplary ASHOR programs could also yield insights into critical determinants that, if addressed in an integrated way, can improve Aboriginal children's health outcomes.

The discussion of multiple determination and over-determination of health and wellness and the application of cluster analysis to findings from the only source of relevant data about First Nations children on reserves in Canada – the RHS – illustrates the kinds of insights about critical proximal and distal health determinants that can be gleaned when relevant data are available. Development and deployment of a fully elaborated, applied framework for health promotion and chronic disease prevention depends on these kinds of empirical findings. This scoping paper concludes with a strong recommendation for supporting continuation of the RHS as well as for other kinds of information gathering that enables linkages between determinants and outcomes. In addition, the paper recommends strategically focused, follow-up research measuring the impacts of FNIHB HCD programs on the health outcomes of focal concern for

Aboriginal children identified through the review of RHS findings. In the meantime, the cluster analysis reported in Section 5 indicates that childhood obesity should be seen as a focal point within a nexus of proximal and distal determinants of health and chronic disease. A focus of funding, policy and programming on obesity is highly strategic in that an appropriately scoped and funded set of interventions would impact on a broad array of adverse outcomes, of which obesity and related health concerns only constitute one element. Finally, the paper recommends professional development for community based educators in early childhood programs so that these practitioners can serve enhanced functions in efforts to maximize the impacts of HCD programs on Aboriginal children's health and wellness.

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**Appendix I**  
**Determinants of Health Models**

**Figure 1.1 A Model of the Determinants of Health**

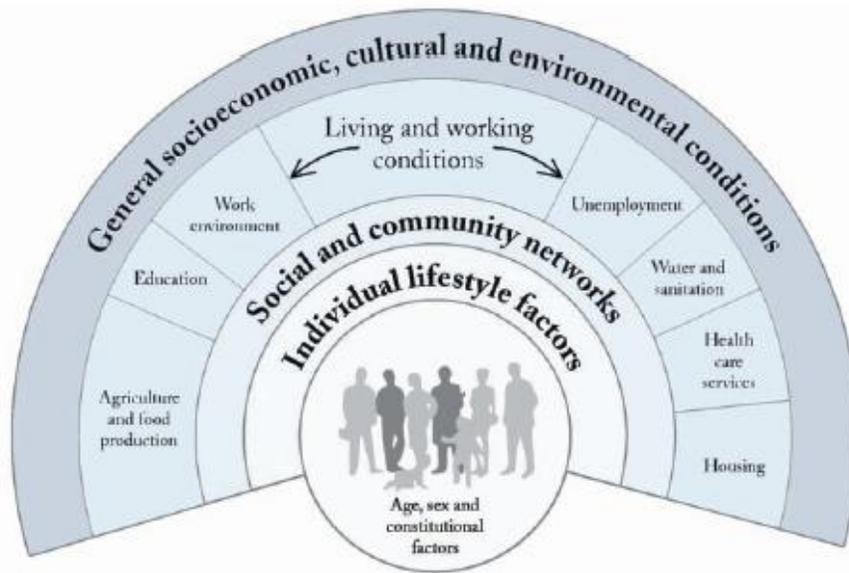


Figure shows one influential model of the determinants of health that illustrates how various health-influencing factors are embedded within broader aspects of society.

Source: Dahlgren, G. and Whitehead, M. (1991). *Policies and Strategies to Promote Social Equity in Health*. Stockholm: Institute for Futures Studies.

Cited in Mikkonen, J., & Raphael, D. (2010). *Social determinants of health: The Canadian facts*. Toronto: York University School of Health Policy and Management. [www.thecanadianfacts.org/](http://www.thecanadianfacts.org/)

**Figure 2.1 Social Determinants of Health and the Pathways to Health and Illness**

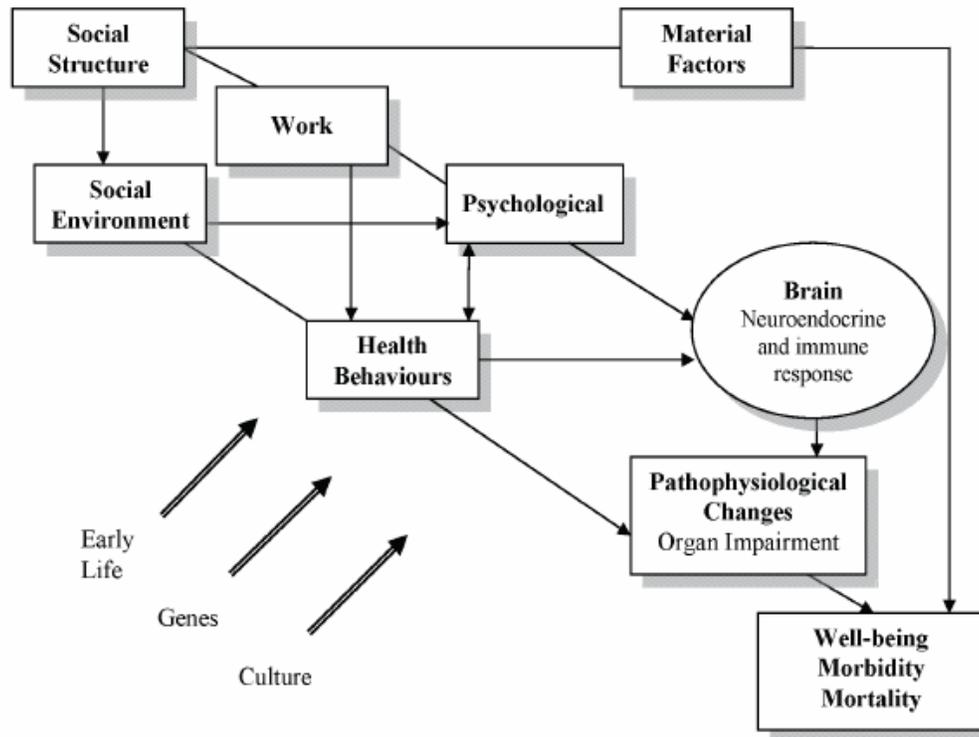
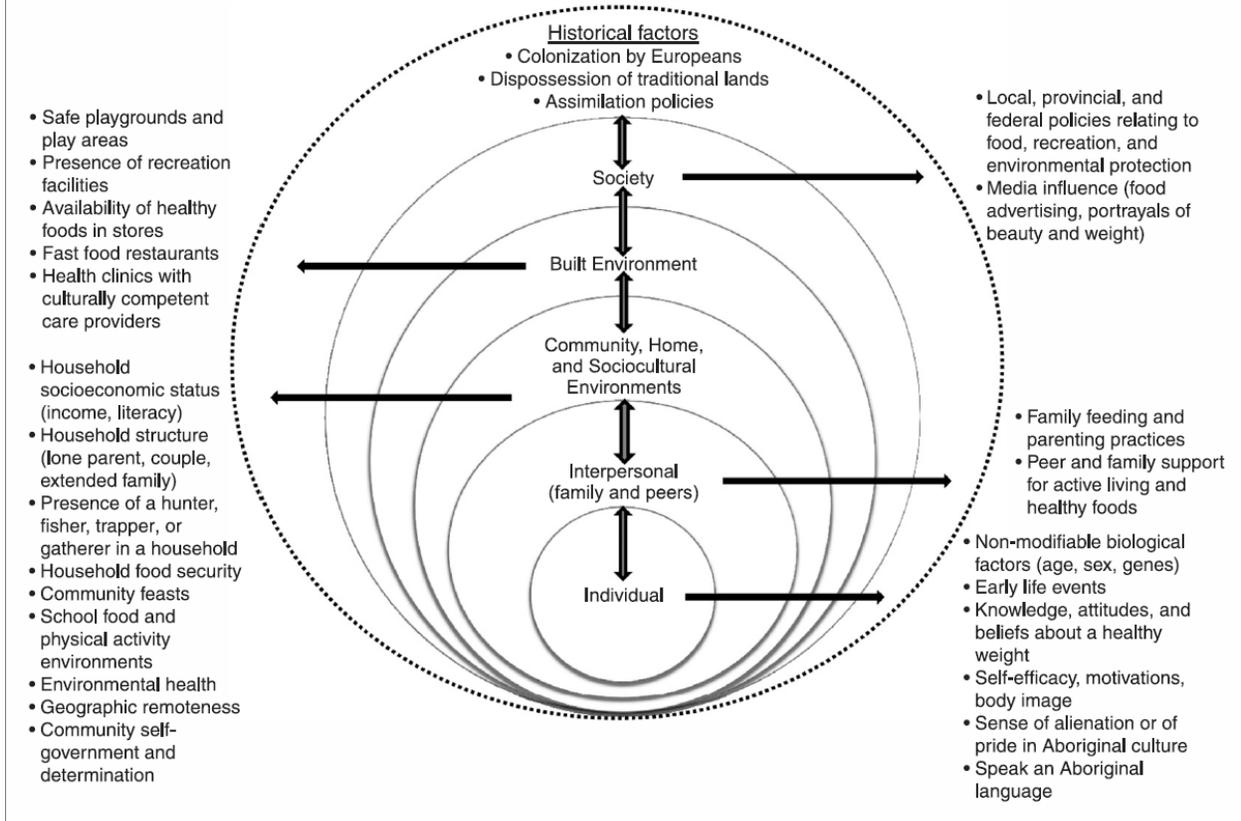


Figure shows how the organization of society influences the living and working conditions we experience that then go on to shape health. These processes operate through material, psychosocial, and behavioural pathways. At all stages of life, genetics, early life, and cultural factors are also strong influences upon health.

**Source:** Brunner, E., & Marmot, M. G. (2006). 'Social Organization, Stress, and Health.' In M. G. Marmot & R. G. Wilkinson (Eds.), *Social Determinants of Health*. Oxford: Oxford University Press, Figure 2.2, p. 9.

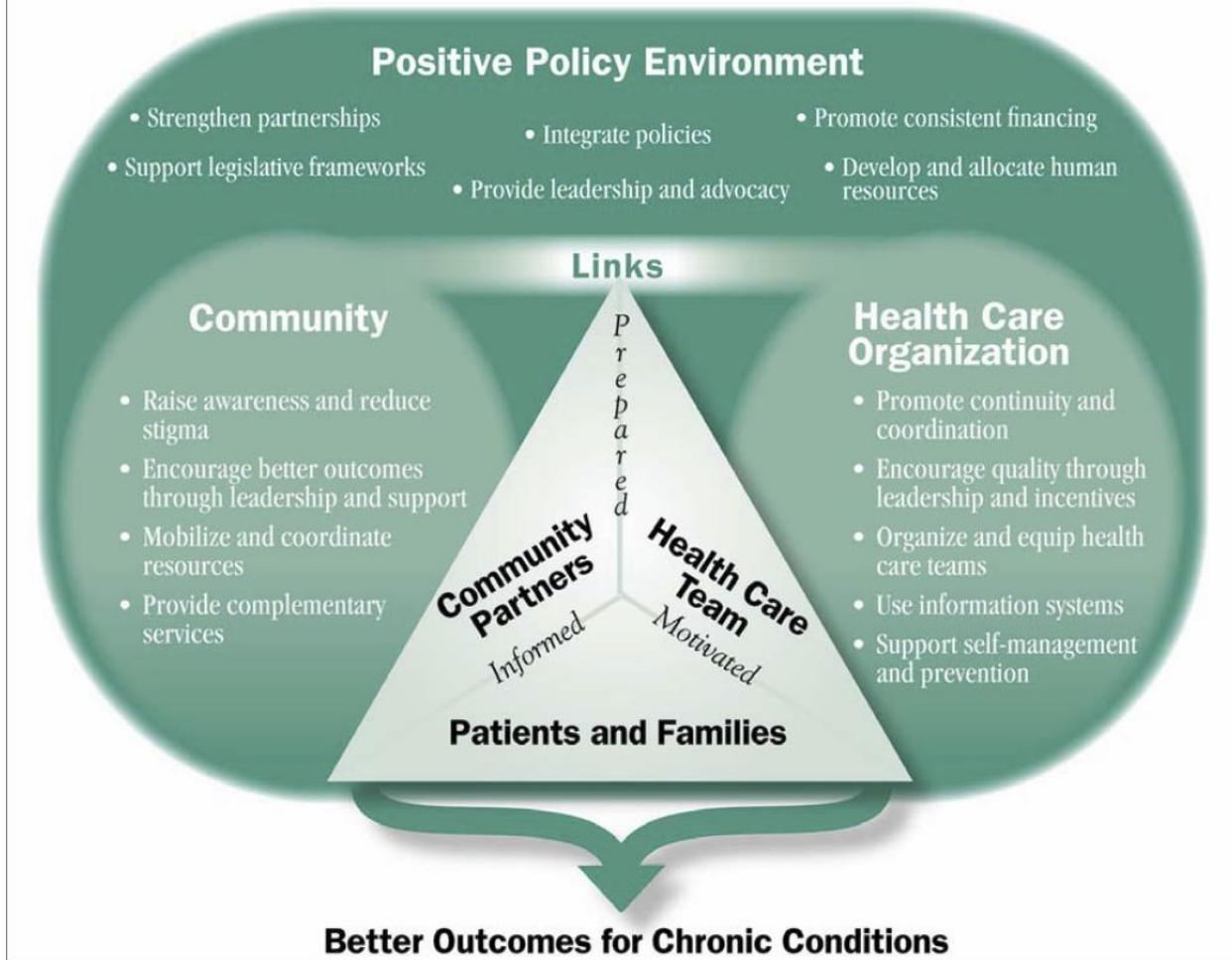
Cited in Mikkonen, J., & Raphael, D. (2010). *Social determinants of health: The Canadian facts*. Toronto: York University School of Health Policy and Management. [www.thecanadianfacts.org/](http://www.thecanadianfacts.org/)

Fig. 1. Ecological model for understanding obesity in children, which illustrates the reciprocity among levels that influence active living, the consumption of healthy foods, and weight status, and which recognizes that historical factors encompass and influence all ecological levels.

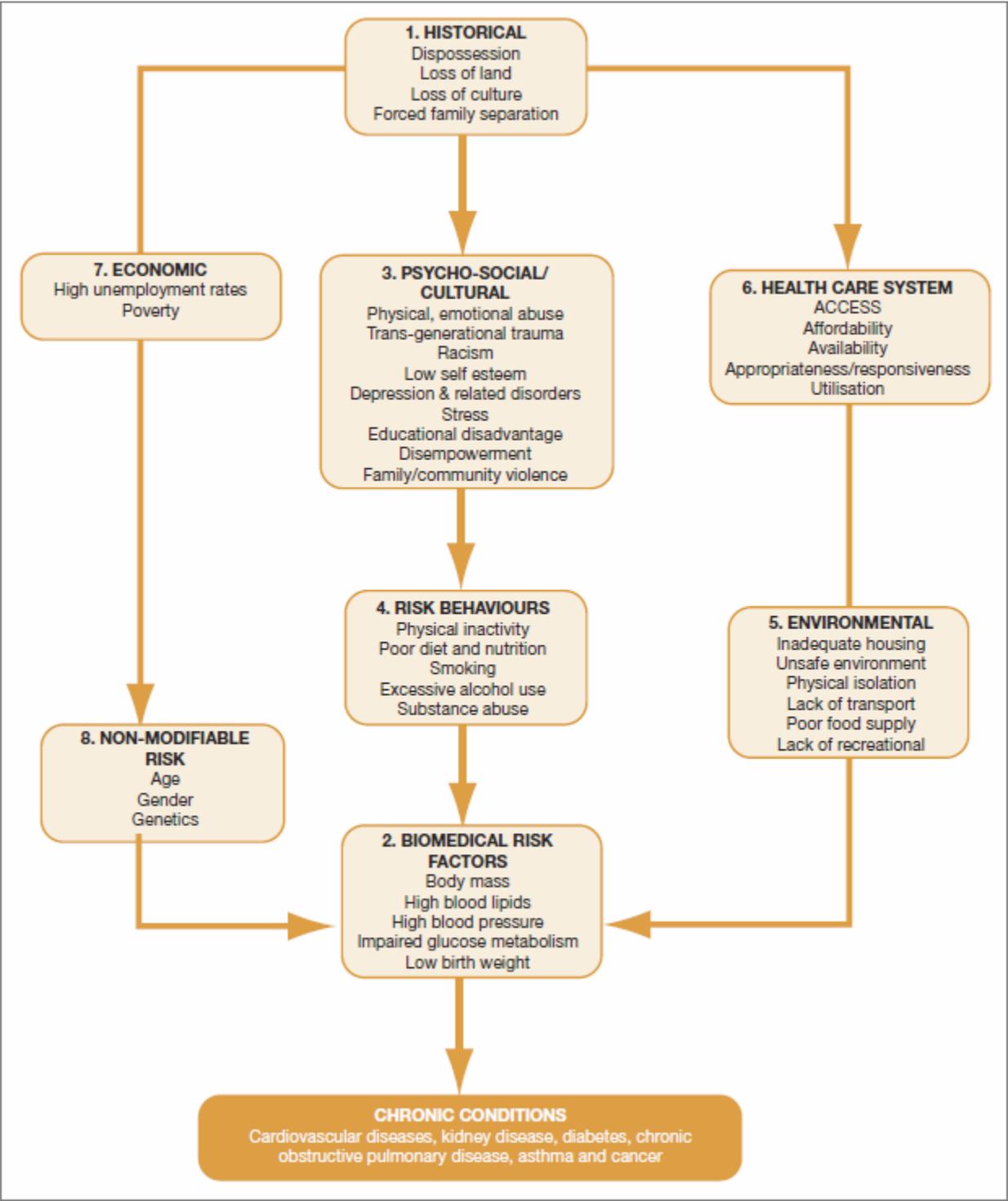


Source: Willows, N.D., Hanley, A.J., & Delormier, T. (2012). A socioecological framework to understand weight-related issues in Aboriginal children in Canada. *Applied Physiology, Nutrition, and Metabolism*, 37, 1-13.

## Innovative Care for Chronic Conditions Framework



Source: World Health Organization (2009). *A practical guide for country-level implementation of the health cluster*. Geneva: Author.



Source: Australia New South Wales Department of Health (2005). New South Wales Aboriginal Chronic Conditions Area Health Service Standard: Cardiovascular diseases, kidney disease, diabetes, chronic obstructive pulmonary disease, asthma and cancer. (p. 4)

**Table 2: Interrelationships between National Health Priority Areas and common risk factors**

Risk and Protective Factors	National Health Priority Areas					
	Chronic Diseases				Other	
	Heart Disease & Stroke	Diabetes	Cancers	Asthma	Mental Health	Injury
Tobacco use*	•	•	•	•	+	
Alcohol misuse*	•		•		•+	•
Hypertension	•	+			+	
Dyslipidemia	•	+				
Diet*	•	•	•	?	+	
Physical Activity*	•	•	•		•	•
Obesity*	•	•	•		+	?
Chronic Stress	?	?	?	?	•	
Social Support	•	?			•	
Depression*	?+	?+	+	+		•
Early life factors (eg low birth weight, infections, abuse and neglect)	•	•	?	?	•	?
Low socio-economic status	•	•	•	?	•	•

• established risk/protective factor      ? possible risk/protective factor      + association/comorbidity

\* current national population health strategy or in development

(Source: adapted from Brownson et.al, *Chronic Disease Epidemiology and Control*, APHA, 1998; Wilkinson and Marmot (eds), *Social Determinants of Health: The Solid Facts*, WHO, 1998; *Australia's Health 2000*, AIHW, 2000; *Global NCD Risk Factor Surveillance*, WHO 2000)

**Appendix II**  
**Key Health Indicators**

Health Indicator	First Nations Off reserve	Métis	Inuit	Non- Aboriginal
	Percent			
<b>General</b>				
Perceived health, very good or excellent	50 <sub>—</sub> *	54 <sub>—</sub> *	55 <sub>—</sub> *	63
Perceived health, fair or poor	16 <sub>—</sub> *	13 <sub>—</sub> *	8	9
Perceived mental health, very good or excellent	66 <sub>—</sub> *	67 <sub>—</sub> *	65 <sub>—</sub> *	75
Perceived mental health, fair or poor	8 <sub>—</sub> *	8 <sub>—</sub> *	5 <sup>E</sup> <sub>—</sub>	5
Life satisfaction, satisfied or very satisfied	89 <sub>—</sub> *	90 <sub>—</sub> *	92	93
Perceived life stress, quite a lot (15 years and over)	24	25	19	23
Participation and activity limitation, sometimes or often	33 <sub>—</sub> *	33 <sub>—</sub> *	30	26
<b>Chronic Conditions</b>				
One or more chronic conditions	56 <sub>—</sub> *	55 <sub>—</sub> *	43	48
Arthritis	14 <sub>—</sub> *	14 <sub>—</sub> *	10 <sup>E</sup> <sub>—</sub>	12
Asthma	14 <sub>—</sub> *	13 <sub>—</sub> *	14 <sup>E</sup> <sub>—</sub>	9
Diabetes	6 <sub>—</sub> *	4	2 <sup>E</sup> <sub>—</sub> *	4
High blood pressure	9 <sub>—</sub> *	9 <sub>—</sub> *	7 <sub>—</sub> *	12
Mood disorder	12 <sub>—</sub> *	10 <sub>—</sub> *	5 <sup>E</sup> <sub>—</sub>	6
Respiratory problems	15 <sub>—</sub> *	15 <sub>—</sub> *	15 <sup>E</sup> <sub>—</sub>	10
High blood pressure, heart disease, or suffering from effects of stroke	11 <sub>—</sub> *	10 <sub>—</sub> *	9 <sup>E</sup> <sub>—</sub>	14
Pain or discomfort, moderate or severe	14 <sub>—</sub> *	14 <sub>—</sub> *	9 <sup>E</sup> <sub>—</sub>	10
Pain or discomfort that prevents activities				
<b>Health Behaviours</b>				
Influenza immunization (less than one year ago)	27	22 <sub>—</sub> *	31	27
Breastfeeding initiation	82 <sub>—</sub> *	78 <sub>—</sub> *	77 <sub>—</sub> *	88
Exclusive breastfeeding (at least 6 months)	19	14 <sub>—</sub> *	26 <sup>E</sup> <sub>—</sub>	25
Current smoker, daily or occasional	40 <sub>—</sub> *	36 <sub>—</sub> *	48 <sub>—</sub> *	21
Current smoker, daily	32 <sub>—</sub> *	30 <sub>—</sub> *	39 <sub>—</sub> *	15
Five or more drinks on one occasion (at least once a month in the past year)	26 <sub>—</sub> *	27 <sub>—</sub> *	26 <sub>—</sub> *	19
Never had any alcoholic drinks in the past 12 months	29 <sub>—</sub> *	23	34 <sub>—</sub> *	24
Fruit and vegetable	36 <sub>—</sub> *	39 <sub>—</sub> *	27 <sub>—</sub> *	45

consumption (5 times or more per day)				
Physically active during leisure time, moderately active or active	56 <sub>__*</sub>	61 <sub>__*</sub>	51	54
Physically inactive during leisure time	44 <sub>__*</sub>	39 <sub>__*</sub>	49	46
Contact with a medical doctor (in the past 12 months)	74 <sub>__*</sub>	76	62 <sub>__*</sub>	78
Has a regular medical doctor	78 <sub>__*</sub>	80 <sub>__*</sub>	44 <sub>__*</sub>	83
Obese (18 years and over)	26 <sub>__*</sub>	22 <sub>__*</sub>	26 <sub>__*</sub>	16
Overweight (18 years and over)	31	32	32	32
Overweight or obese (18 years and over)	57 <sub>__*</sub>	54 <sub>__*</sub>	58 <sub>__*</sub>	48
Overweight or obese (12 to 17 years)	26 <sub>__*</sub>	28 <sub>__*</sub>	25 <sup>E</sup> <sub>__</sub>	19
Influenza immunization (less than one year ago)	27	22 <sub>__*</sub>	31	27
<b>Exposure to Second-Hand Smoke</b>				
In vehicles and/or public places (in the past month)	25 <sub>__*</sub>	31 <sub>__*</sub>	24 <sup>E</sup> <sub>__</sub>	17
At home	15 <sub>__*</sub>	16 <sub>__*</sub>	17 <sup>E</sup> <sub>__*</sub>	7
In public places (in the past month)	15 <sub>__*</sub>	18 <sub>__*</sub>	13 <sup>E</sup> <sub>__</sub>	12
In vehicles (in the past month)	16 <sub>__*</sub>	20 <sub>__*</sub>	18 <sup>E</sup> <sub>__*</sub>	9
<b>Other</b>				
Sense of belonging to local community, somewhat strong or very strong	63	63	81 <sub>__*</sub>	65
Food insecurity – moderate or severe	22 <sub>__*</sub>	15 <sub>__*</sub>	27 <sub>__*</sub>	7
<sup>E</sup> use with caution * significantly different from reference category (p < 0.05). For this table, the reference category is "Non-Aboriginal". <b>Notes:</b> 1. The Aboriginal population is younger than the non-Aboriginal population. To account for this, the data were age standardized to the Aboriginal identity population 2007-2010. 2. The survey does not capture all diagnosed chronic conditions. Certain diagnosed chronic conditions are not shown because their prevalences were too low or the data were not collected in the survey. 3. Inuit data do not include Nunavik and some remote communities. <b>Source:</b> Canadian Community Health Survey, combined 2007 to 2010 cycles. Please refer to CANSIM tables <a href="#">105-0512</a> and <a href="#">105-0513</a> (age standardized).				

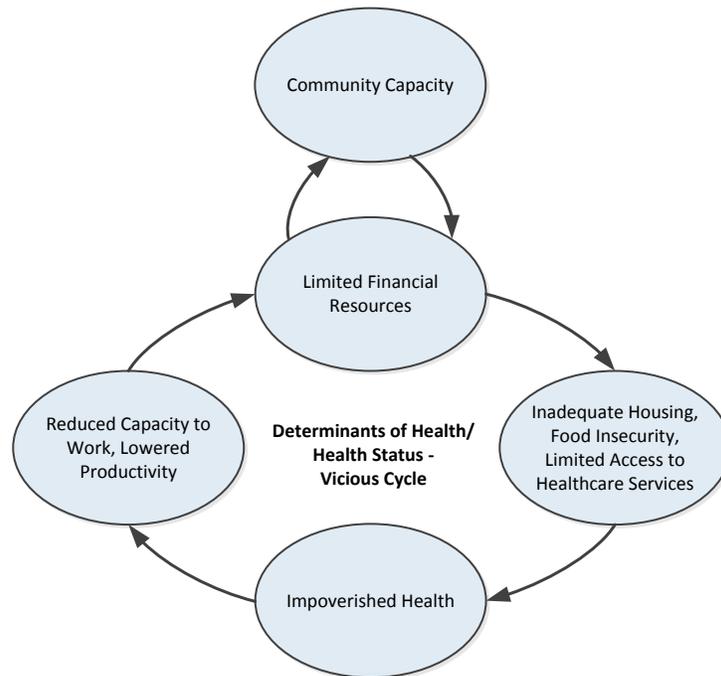
### *Appendix III.* **Clustering Methodology – Analytical Tools**

A set of analytical tools or concepts are required in order to integrate large bodies of information related to multiple determinants of a range of health concerns. These tools are all concerned with the ways in which various determinants interact to produce health related problems:

1. How ‘close’ are the determinants to the problems?
  - a. Direct causes or determinants can produce a health-related impact, independent of other factors. For example, though co-occurrence of direct causes may potentiate the effect of any direct determinant. For example, protracted abuse of alcohol will have a direct effect on neurocognitive status, but the effect is magnified by nutritional deficiencies associated with drinking.
  - b. Proximal causes – these are factors (working alone, or in concert with other determinants) that have a direct impact on the emergence of an issue in the life of an individual
  - c. Distal causes – these are factors that increase the probability that a set of proximal determinants will be present for populations.
2. What type of impact does a determinant have? A determinant may enhance risk (negative effect) and/or it may perform a protective function (positive effect)
  - a. Some factors only “work in one direction” – for example, smoking cessation reduces the risk for lung cancer, but not smoking does not enhance cardiovascular fitness.
  - b. Some factors work in a positive and/or negative direction – for example, physical activity will promote health, while inactivity will impact adversely on health status.
3. How do determinants interact with one another?
  - a. Multiply-determined problems
  - b. Over-determined problems (Candib, 2007) – ecological, social, biological and behavioural factors over-determine rates of obesity in the population – see Figure 5 in main part of document. When a problem is over-determined, eliminating a determinant or set of determinants that would be capable of producing a problem will not necessarily eliminate the problem – so long as the other determinants remain in place. The notion of “over-determined” problems is inextricably tied to a strategy that seeks the necessary **and** sufficient set of interventions to address a problem.
  - c. Reciprocally-reinforcing problems (vicious cycles) – a classic example would be the relationship between poverty, inadequate housing, food insecurity, impoverished health, reduced capacity to work – and back to more entrenched poverty. Note as well that this cycle interacts with developments at a community level to produce another vicious cycle that links community capacity with the capacity of individuals.

Note that many of the determinants that cause a chronic problem to develop in the first place are the same factor that impact heavily on the course of the condition (morbidity, mortality). For

this reason, models that are concerned with primary prevention in the area of chronic disease often emphasize many of the same determinants and mechanisms as models concerned with effective chronic disease management –so the distinction between prevention and treatment becomes blurred.



Determinants of Health – Vicious Cycle

**Appendix IV**  
**Proximal, Distal Determinants of Health Outcomes in Aboriginal Communities**

	FNIHB Compendium [1]	FN Regional Health Survey [2]	PHAC – What Makes Canadians Healthy? [3]	Mikkonen - Social Determinants of Health [4]	Preventing Chronic Disease (Australia) [5]	New Zealand (Manukau) – Chronic Care Management [6]	New South Wales – Chronic Care for Aboriginal People [7]	WHO - Innovative Care for Chronic Conditions [8]	Expanded Chronic Care Model (British Columbia) [9]	Framework for Indigenous School Health [10]	Willows - Weight Issues in Aboriginal Children [11]	Ferris – Aboriginal Children & Obesity [12]	Candib – Obesity - Proximal & Distal Causes [13]	Ball – Lifeline - Community Service Hub [14]	Ball - Hook & Hub [15]	Best Start (Ontario) - Founded in Culture [16]
<b>DIRECT CAUSES/PROXIMAL DETERMINANTS</b>																
<b>Biology and genetic endowment; external causes</b>																
Biological factors – generic reference			X	X											X	
Mother use of alcohol, drugs prenatally	X	X	X		X					X						
Maternal health behaviours, pre-pregnancy	X	X	X	X	X			X			X	X	X		X	
Maternal dietary practices prenatally	X	X	X					X			X	X			X	X
Gestational diabetes	X				X											
Maternal smoking during pregnancy	X	X	X									X	X			
Low birth weight baby, foetal malnutrition	X	X	X		X		X		X				X			
High birth weight baby	X									X	X		X			
Genetic – risk for physical health problems		X	X		X		X			X			X			
Genetic – cognitive capacity	X	X		X						X						
Genetic – capacity for behavioural, emotional self-regulation (e.g. ADD/ADHD)	X	X														
Insulin resistance – child													X			
Insulin resistance - mother		X											X			
Gender-linked health risks		X			X		X						X			
Neurological maturation & development	X	X	X													
Speech-language capacity	X	X												X	X	
Disabilities, special needs	X	X		X									X	X	X	X
Childhood infections (e.g. ear)	X	X			X											

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<b>Self-harm behaviour, intentional or unintentional</b>																
Self-harm behaviour	X	X														
Suicide	X	X		X						X				X		
Accidents	X	X		X												
<b>Healthy child development, overall</b>																
Healthy child development			X			X					X			X	X	X
Maternal-child health behaviours, post-natal	X	X											X	X	X	
Parenting knowledge, skills	X	X												X	X	X
Secure attachment	X														X	
Exposure to/freedom from neglect, abuse, violence		X	X	X			X			X				X	X	
<b>Food</b>																
Diet practices, infancy (breast feeding; bottle feeding practices)	X	X									X	X			X	X
Shift to high sugar/low value fats; access to healthy food; proximity of health/unhealthy foods	X	X	X	X	X	X	X	X			X	X	X	X	X	X
Food insecurity	X	X	X	X				X		X	X	X	X	X	X	
Family food-related practices	X	X									X	X			X	X
Access to traditional food, traditional food practices		X									X	X	X	X	X	X
<b>Physical environments</b>																
Physical environment – generic reference			X	X					X							
Loss of land							X									
Housing – availability		X		X			X			X						
Housing – crowding		X		X			X			X	X					

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Housing – physical safety (mold, ventilation, vermin, etc.)		X	X	X			X			X	X					
Homelessness, unstable housing				X			X					X				
Contamination, e.g., persistent organic pollutants, heavy metals, water quality, air quality	X	X	X	X	X		X	X								
Sanitation	X			X												
Exposure to disease agents	X							X								
Water fluoridation (RHS)		X														
Geographic isolation (RHS)		X					X				X	X				
Adverse weather											X					
Wildlife stocks																
<b>Social environments</b>				X												
Social environment, generic reference			X	X					X							
Social role models for health/poor health												X	X			
Social networks – social contacts, supports		X	X	X	X						X			X	X	X
Social risks, threats (exposure to illicit substances; bullying; gangs)		X					X							X		
<b>Education, literacy</b>																
Health literacy re: physical health risk factors & practices	X	X	X		X		X	X	X	X	X			X	X	
How to access, utilize services	X	X					X							X	X	
How to solve problems			X	X												
<b>Recreational opportunities</b>																
Physical recreation – opportunities		X	X	X			X			X	X			X		
<b>Personal health practices</b>																
Smoking, exposure to second-hand smoke	X	X	X	X	X	X	X	X	X	X				X	X	
Alcohol	X	X	X	X	X		X			X				X	X	

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Other substances	X	X	X	X			X	X		X				X	X	
Abstinence from use of alcohol or other substances	X	X														
High-risk sexual practices	X	X	X		X									X		
High risk behaviours (e.g., drinking and driving)	X		X													
Oral health practices	X	X													X	
Physical activity – generic/culturally neutral, e.g., bicycling	X	X		X	X	X	X	X		X	X	X	X	X		X
Physical activity- culturally-relevant, e.g., hunting	X	X									X	X			X	X
Screen time		X									X	X	X			
<b>Coping skills, psychological dimensions</b>																
Self-esteem, emotional self-control	X	X	X				X							X		X
Depression	X	X		X	X		X	X								
Sense of balance (mind, body, emotions, spirit) vs stress, distress, post-traumatic stress	X	X	X	X	X	X	X					X			X	X
Identity - sense of purpose, sense of effectiveness	X		X	X							X			X		X
Body image	X										X					
Sense of control, influence	X	X	X	X	X		X		X							X
Social skills	X	X													X	X
Educational aspiration, e.g., to complete university		X														
Adaptive response to challenges, healthy choices	X	X	X						X			X			X	
Opportunities for personal growth		X	X													

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<b>Working conditions</b>																
Safe/unsafe working conditions; stressful working conditions		X	X	X	X			X		X						
Employment security		X	X	X												
<b>Health services</b>																
Access to health care	X	X	X	X			X	X	X		X			X	X	
Integrated service delivery models	X						X	X						X	X	X
Support for self-management practices	X							X								
Navigation, coordination & linkage	X					X	X							X	X	
Health providers with knowledge of Aboriginal culture/languages/history	X	X				X	X				X	X		X	X	
Access to pediatrician, other specialists	X	X					X							X	X	
Various specialist services, e.g., PT, SLP	X	X												X	X	
Public health nurse	X														X	
Disease prevention, immunization	X	X	X		X		X	X						X	X	
Access to diagnostic equipment, procedures	X						X	X								X
Access to emergency response, urgent care		X					X								X	
Chronic disease treatment, management	X	X				X	X	X								
Access to home care	X	X	X	X			X									
Uninsured benefits , supplemental benefits (including pharmaceuticals; home care)		X	X	X			X									
Dental care	X	X	X	X										X	X	
<b>DISTAL DETERMINANTS</b>																
<b>Birth rates</b>																
Birth rates, family size		X	X								X					
<b>Income</b>																
Income – generic reference		X	X	X					X		X	X				
Access to housing		X	X	X						X						

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Access to education		X		X								X				X
Access to food		X	X	X				X				X	X	X		
Transportation		X					X							X	X	
Income, income distribution, community level		X	X	X												
<b>Safety Nets, Supports</b>																
Income assistance				X												
Unemployment assistance				X												
Food										X	X			X	X	
Housing																
Suicide prevention	X									X						
Childcare, respite		X		X					X	X				X	X	
Substance use; harm-reduction (substance-related)	X														X	
<b>Social status</b>																
Racism, social exclusion		X	X	X			X							X		
Economic status, employment status		X	X		X					X	X					
Gender inequities, e.g., over-representation of women in unstable work situations		X		X												
<b>Social environment, social interaction</b>																
Parents’ educational attainment		X	X	X							X				X	
Educational opportunities; affordable educational		X		X						X					X	
Law and justice, e.g., diversion programs		X					X									
Engagement with elders	X	X												X	X	X
Monogamous relationships		X														
Social engagement, social participation		X	X											X	X	
Family wellness /intactness (e.g., parents living together)	X	X	X		X						X			X	X	X

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Community wellness, strength of social networks	X	X	X		X			X	X	X				X	X	X
Community feasts; other community gatherings	X	X								X	X			X	X	X
Residential Schools,	X	X								X		X			X	X
Other forced family separations	X						X									
Colonization		X								X	X					
<b>Education, literacy</b>																
Access to early childhood development, Head Start	X	X	X	X	X							X		X	X	X
Early literacy activities; parents read to child;	X	X													X	X
Access to educational opportunities	X	X		X			X		X			X			X	X
First Nations Language – understand or speak	X	X			X						X			X	X	X
Cultural knowledge	X	X					X			X		X		X	X	X
Level of educational attainment		X	X				X								X	X
School attendance	X	X														
<b>Employment</b>																
Employment opportunities		X	X	X				X		X					X	
Employment skills training		X								X				X		
Unemployment, underemployment, job insecurity/labour force attachment		X	X	X			X				X				X	
<b>Gender</b>																
Gender-based discrimination (e.g., access to employments)		X	X	X												
Exposure to violence, exploitation – gender-related		X	X	X										X		
<b>Culture</b>																
Practices – cultural	X	X	X							X				X	X	X

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Initiation, rituals, support around developmental transitions (e.g., into sexual adolescence)	X	X								X				X	X	X
Philosophical/spiritual outlook, values	X		X							X	X			X	X	X
<b>Policy, Legal</b>																
Engagement in political process		X		X												
Policy, legislation (content)				X				X	X		X		X			
Policy alignment							X	X								
Control over child welfare				X										X	X	
Treaties																
Community self-control, leadership		X						X		X	X			X	X	X
International agreement																
<b>Health Infrastructure</b>																
Integrated services (service system interoperability)	X	X					X	X						X	X	
Consistent financing	X							X						X	X	
Human resource development	X						X	X				X			X	
eHealth – interoperable EHR; electronic Clinical Decision Support					X	X	X	X								
eHealth – telehealth																
eHealth - governance, oversight						X										
Surveillance; data to support demand estimation/capacity planning, funding efforts	X	X			X	X	X	X	X			X				
Performance monitoring, KPI's	X				X	X	X									
Evidence-based decision support/care						X	X	X	X							
Socio-economic research, monitoring, indicators	X							X	X					X		

The material above is drawn from the following documents. For complete references, see Bibliography.

<b>1</b>	<i>First Nations and Inuit Health: Program Compendium</i> . Health Canada: 2011/12
<b>2</b>	First Nations Information Governance Centre (2012) <i>First Nations Regional Health Survey (RHS)</i> .
<b>3</b>	Public Health Agency of Canada (2013). <i>What makes Canadians healthy or unhealthy?</i>
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<b>5</b>	National Public Health Partnership (2001) <i>Preventing Chronic Disease: A Strategic Framework</i>
<b>6</b>	Counties Manukau District Health Board (2001). <i>Plan for Chronic Care Management in Counties Manukau</i>
<b>7</b>	New South Wales Department of Health (2010) <i>Chronic Care for Aboriginal People: Model of Care</i> .
<b>8</b>	World Health Organization (2002). <i>Innovative Care for Chronic Conditions: Building Blocks for Action</i> .
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<b>10</b>	Tagalik, S. (2010) <i>A framework for indigenous school health: foundations in cultural principles</i>
<b>11</b>	Willows, Hanley & Delormier (2012). <i>A sociological framework for understanding weight-related issues in Aboriginal children in Canada</i> .
<b>12</b>	Ferris (2010). <i>Voices from the field: Aboriginal children and obesity</i> .
<b>13</b>	Candib (2013). <i>Obesity and diabetes in vulnerable populations</i> .
<b>14</b>	Ball, J. (2012). <i>Lifeline: Creating a community service hub for Aboriginal children and families</i> . Victoria: Author.
<b>15</b>	Ball, J. (2012). <i>Early Childhood Care and Development Programs as Hook and Hub</i>
<b>16</b>	Best Start Resource Centre (2010). <i>Founded in culture: Strategies to promote early learning in First Nations children in Ontario</i> .

*Appendix V*  
**FNIHB Health Childhood Development Programs – Individual Program Reviews**

1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention	1.1.1 Healthy Child Development	
1.1.1.1 Healthy Pregnancy and Early Infancy			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Healthy pregnancies</li> <li>• Health –infants and young children</li> <li>• Prenatal nutrition</li> <li>• Breastfeeding promotion</li> <li>• Maternal and child health               <ul style="list-style-type: none"> <li>○ Assess family needs</li> <li>○ Reproductive, preconception health</li> </ul> </li> <li>• Home nurse visits/home visit               <ul style="list-style-type: none"> <li>○ Pregnant women, families with young children – parenting skills, knowledge</li> <li>○ Positive lifestyle change</li> </ul> </li> <li>• FASD               <ul style="list-style-type: none"> <li>○ Prevention, early intervention                   <ul style="list-style-type: none"> <li>▪ Mentoring projects</li> <li>▪ Home visitation model</li> </ul> </li> <li>○ Train community workers and professional staff</li> <li>○ Facilitate access to diagnosis and supports</li> </ul> </li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Home visiting</li> <li>• Case management</li> <li>• Screening, education, counselling</li> <li>• Integrating culture into care</li> <li>• Health promotion</li> <li>• Food security</li> <li>• Community kitchens</li> <li>• Health literacy (e.g. nutrition)</li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Prepregnancy and prenatal nutrition</li> <li>• Breast feeding support</li> <li>• Food security</li> <li>• Substance use during pregnancy</li> <li>• Sexually-transmitted infections</li> <li>• Diabetic risk factors (e.g. blood glucose levels)</li> <li>• Physical activity (health promotion focus)</li> <li>• Mental health status and needs – women (including post-partum depression), family, children</li> <li>• Special needs children</li> <li>• Parenting skills &amp; knowledge</li> <li>• Parent-infant attachment</li> <li>• Father’s involvement</li> <li>• Linkage and access to other services via case management</li> <li>• Culturally-relevant approaches into all program components</li> <li>• Safety nets - food</li> </ul> <p><b>Location:</b> Office Home</p> <p><b>Timespan:</b></p>	<ul style="list-style-type: none"> <li>• First Nations or Inuit – on-reserve</li> <li>• Primary target: pregnant, their infants and young children age 0-6 years)</li> <li>• Fathers</li> <li>• Children with special needs</li> <li>• Other children in home environment</li> </ul>	<ul style="list-style-type: none"> <li>• Public health nurses</li> <li>• Community-based workers</li> <li>• Community Health Representatives</li> <li>• Local project coordinators</li> <li>• Case managers</li> <li>• Multi-disciplinary diagnostic teams</li> <li>• Dietitians/nutritionists</li> <li>• Lactation consultants</li> <li>• Physicians</li> <li>• Early childhood educators</li> <li>• Community volunteers</li> <li>• Elders</li> </ul> <p>Certification for certain professionals (e.g. nurses) Job-specific training for others</p>

	From pre-pregnancy through early infancy Also responsive to needs of other children in home environment		
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1.0 Primary Health Care		1.1 Health Promotion & Disease Prevention		1.1.1 Healthy Child Development	
1.1.1.2 Early Childhood Development					
Objectives –What are the intended outcomes?	Service Components: What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications		
<ul style="list-style-type: none"> <li>• Support growth of child – spiritual, emotional, intellectual, physical</li> <li>• Promote positive attitude toward life-long learning</li> <li>• Promote First Nations community engagement in planning, developing, implementing and evaluating Aboriginal Head Start on-Reserve (AHSOR)</li> <li>• Coordinate with other community programs; encourage best use of community resources</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Culture and language</li> <li>• Education</li> <li>• Health promotion</li> <li>• Nutrition</li> <li>• Social support</li> <li>• Parental and family involvement</li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Identity as First Nations person; identification with First nations groups</li> <li>• Learn and retain First Nations languages</li> <li>• Culturally-relevant activities to support children’s learning</li> <li>• Readiness to learn skills – printing; auditory recognition pre-reading skills; gross and fine motor skills</li> <li>• Needs – physical, spiritual, emotional, intellectual, social development</li> <li>• Physical activity – generic and culturally-relevant</li> <li>• Self-care</li> <li>• Assessments – physical, visual, hearing, developmental</li> <li>• Services – nurses (immunization), dental hygienists, speech therapists, physicians</li> <li>• Access to drug/alcohol counseling, mental health therapists</li> <li>• Access to environmental health officers.</li> <li>• Food security</li> <li>• Health literacy re: nutrition</li> <li>• Knowledge of community resources – what they are, how to access</li> <li>• Cross-sectoral – knowledge of what is available, how to access</li> <li>• Participation in tradition food-gathering activities</li> <li>• Engagement of family members, community members in a range of activities</li> <li>• Home visits</li> </ul> <p><b>Location:</b> Centre-based approach with outreach services/home visiting.</p>	<ul style="list-style-type: none"> <li>• First Nations or Inuit – on-reserve</li> <li>• Children age 0-6</li> <li>• Families</li> </ul>	<ul style="list-style-type: none"> <li>• Early childhood educators</li> <li>• Community-based workers</li> <li>• Community Health Nurses</li> <li>• Community Health Representatives</li> <li>• Administrators</li> <li>• Parents and community volunteers</li> </ul> <p>AHSOR staff encouraged to participate in accredited training; additional training through workshops or conferences</p>		

	<b>Timespan:</b> Early childhood (for the children) New mothers, new families		
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1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention	1.1.1 Healthy Child Development	
1.1.1.3 Children's Oral Health Initiative (COHI); 1.1.3.3 Dental Therapy			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Improve and maintain oral health.</li> <li>• Reduce and prevent oral disease through prevention, education and oral health promotion</li> <li>• Increase access to oral health care</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Service delivery               <ul style="list-style-type: none"> <li>○ Screening</li> <li>○ Topical fluoride</li> <li>○ Placement of dental sealants</li> <li>○ Alternative restorative treatment</li> <li>○ Oral health information</li> <li>○ Referrals</li> </ul> </li> <li>• Disease prevention and health promotion</li> <li>• Awareness campaigns at a community level via awareness campaigns and presentations to target sites and groups</li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Oral health services</li> <li>• Health literacy re: oral health</li> <li>• Engagement in preventive activities</li> </ul> <p><b>Location:</b></p> <ul style="list-style-type: none"> <li>• Offices</li> <li>• Community presentations</li> <li>• Aboriginal Head Start locations</li> <li>• Daycares, preschools, nurseries</li> <li>• Immunization clinics</li> <li>• Other community groups</li> </ul> <p><b>Timespan:</b></p> <ul style="list-style-type: none"> <li>• Children age 0-7</li> <li>• Parents, pregnant mothers</li> </ul>	<p>Under auspices of COHI:</p> <ul style="list-style-type: none"> <li>• First Nations or Inuit children aged 0-7, parents, caregivers, pregnant women – on-reserve</li> <li>• Inuit living in Inuit communities</li> </ul> <p>Dental Therapy services available to all community members</p>	<ul style="list-style-type: none"> <li>• Federally employed or contracted or contribution-agreement-supplied oral health professionals:               <ul style="list-style-type: none"> <li>○ Dentists</li> <li>○ Dental therapists</li> <li>○ Dental hygienists</li> <li>○ Dental assistants</li> </ul> </li> <li>• Trained community members</li> <li>• Community health nurses</li> <li>• Community-based support staff, e.g., Community Health Representatives or educators</li> </ul> <p>Oral health professionals must be licensed.</p> <p>Community members providing more limited services must go through structured training before being designated as “aides”.</p>

1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention	1.1.2 Mental Wellness	
1.1.2.1 Mental Health and Suicide Prevention			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Mental health</li> <li>• Child development</li> <li>• Crisis intervention</li> <li>• Solvent abuse</li> <li>• Youth suicide</li> <li>• Accidents – death; acute and long-term disability</li> <li>• Community mental wellness</li> <li>• Community capacity to manage crises related to mental health, suicide, substance abuse</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Brighter Futures:               <ul style="list-style-type: none"> <li>○ Mental Health                   <ul style="list-style-type: none"> <li>▪ Training</li> <li>▪ Planning</li> <li>▪ Consultation and information exchange</li> <li>▪ Counseling services</li> <li>▪ Linkages</li> <li>▪ Community projects</li> </ul> </li> <li>○ Child Development                   <ul style="list-style-type: none"> <li>▪ Strengthen existing child development network – social, health, medical, educational and cultural services</li> <li>▪ Resource centres</li> <li>▪ Infant stimulation programs</li> <li>▪ School breakfast programs</li> <li>▪ Behavioural and developmental counseling for parents and children</li> <li>▪ Cultural heritage activities</li> </ul> </li> <li>○ Injury Prevention                   <ul style="list-style-type: none"> <li>▪ Public education</li> <li>▪ Train community workers</li> <li>▪ Knowledge development</li> <li>▪ Develop laws/regulations</li> </ul> </li> <li>○ Healthy Babies                   <ul style="list-style-type: none"> <li>▪ Nutritional education</li> <li>▪ Medical engagement during pregnancy</li> <li>▪ Education re: alcohol, drug use in pregnancy</li> <li>▪ Train community-based workers</li> </ul> </li> <li>○ Parenting Skills – training programs; culturally-sensitive parenting skills</li> </ul> </li> <li>• Building Healthy Communities:               <ul style="list-style-type: none"> <li>○ Mental health prevention (suicide)</li> <li>○ Community education re: mental wellness and suicide prevention</li> <li>○ Mental health crisis intervention                   <ul style="list-style-type: none"> <li>▪ Training</li> <li>▪ Planning</li> </ul> </li> <li>○ Solvent abuse</li> </ul> </li> </ul>	<p>First Nations or Inuit – infants, children, youth and parents</p>	<ul style="list-style-type: none"> <li>• Youth workers</li> <li>• Crisis counsellors</li> <li>• Elders and traditional healers</li> <li>• Mental health para-professionals</li> <li>• Community health nurses</li> <li>• Community Health Representatives</li> <li>• Recognized mental health service providers</li> </ul> <p>Professional providers must be registered and in good standing with college and/or professional association.</p> <p>Qualifications of para-professionals or community-based workers determined by communities in consultation with Health Canada.</p>

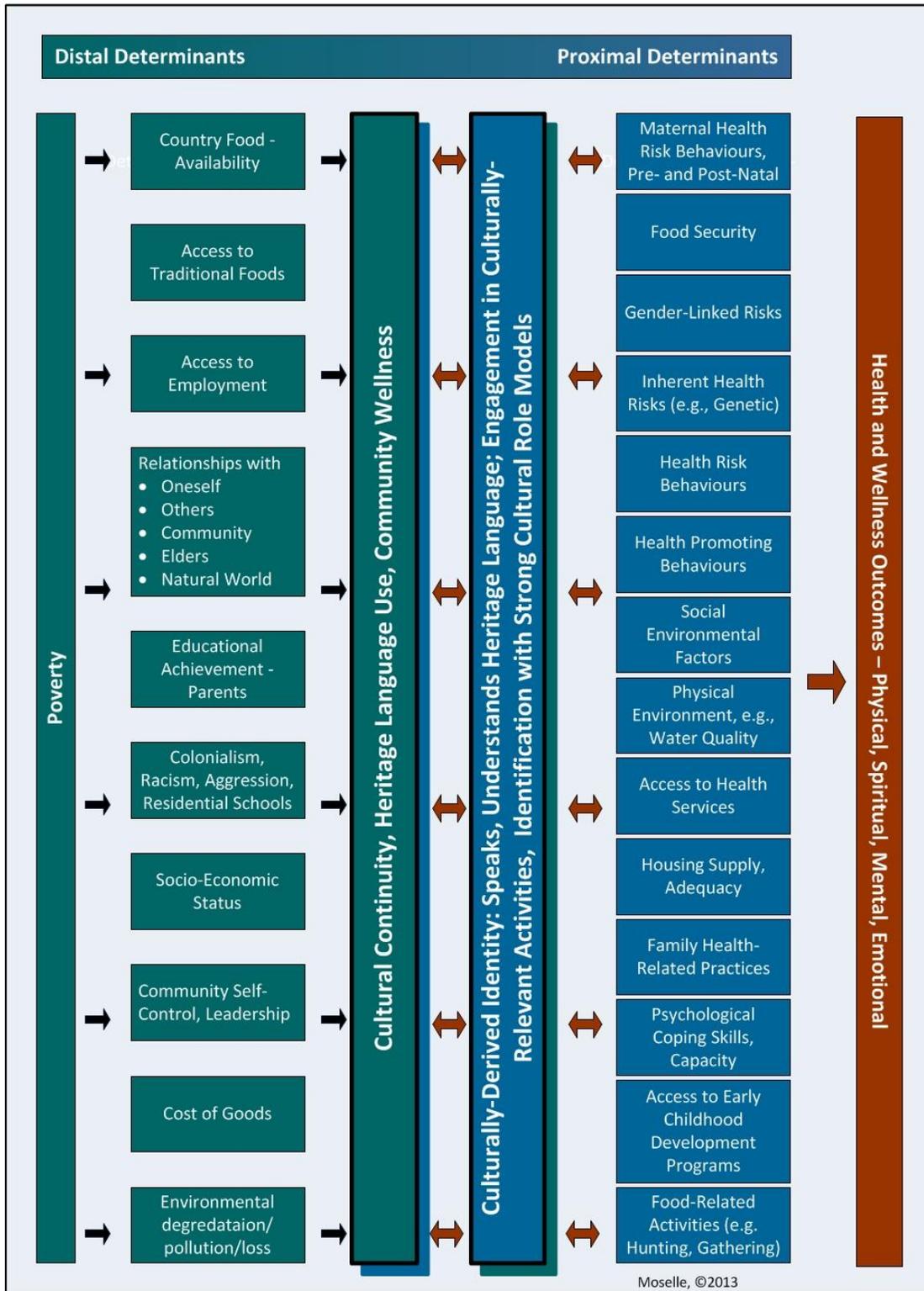
	<ul style="list-style-type: none"> <li>▪ Prevention</li> <li>▪ Intervention</li> <li>• National Aboriginal Youth Suicide Prevention Strategy (NAYSPS) <ul style="list-style-type: none"> <li>○ Primary prevention <ul style="list-style-type: none"> <li>▪ Increase protective factors, e.g., youth leadership</li> <li>▪ Decrease risk factors (e.g., loss of traditional culture)</li> </ul> </li> <li>○ Secondary, tertiary components - community capacity to address issue of youth suicide <ul style="list-style-type: none"> <li>▪ Prevention</li> <li>▪ Intervention</li> <li>▪ Support community solutions and activities that contribute to mental health and wellness among Aboriginal youth, families and communities</li> <li>▪ Community capacity re: after care for survivors</li> </ul> </li> <li>○ Knowledge development</li> </ul> </li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Workforce development, training</li> <li>• Education, information, resource dissemination</li> <li>• Parenting skills</li> <li>• Crisis management capacity</li> <li>• Trauma and suicide prevention</li> <li>• Mental health assessment, counseling, referral</li> <li>• Services for people/communities in crisis and post-crisis</li> <li>• Community wellness</li> <li>• Loss of traditional culture</li> <li>• Youth in leadership roles</li> <li>• Targeted services for solvent abuse</li> <li>• Primary, secondary, tertiary prevention re: youth suicide</li> </ul> <p><b>Location:</b> various community locations</p> <p><b>Timespan:</b> lifespan</p>		
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1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention	1.1.2 Substance Abuse Prevention and Treatment	
1.1.2.2 Substance Abuse Prevention and Treatment			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Reduce and prevent alcohol, drug and solvent abuse among on-reserve populations</li> <li>• Support overall community wellness</li> <li>• Knowledge development – effective approaches</li> <li>• Optimal use of resources</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Prevention               <ul style="list-style-type: none"> <li>○ Prevent use/abuse</li> <li>○ Delay age of first substance use</li> <li>○ Avoid high-risk substance use</li> <li>○ Strength protective factors, minimize risk factors – individuals, families, communities</li> </ul> </li> <li>• Early Identification and Intervention               <ul style="list-style-type: none"> <li>○ Identifying, screening people at risk for developing, or already have a substance use or mental health issue</li> <li>○ Brief, timely tailored interventions</li> <li>○ Linkage with appropriate mental health and/or addiction-related resources</li> </ul> </li> <li>• Screening, Assessment and Referral</li> <li>• Treatment               <ul style="list-style-type: none"> <li>○ Community-based outpatient extensions of residential programs</li> <li>○ Residential programs</li> <li>○ Medication where appropriate</li> <li>○ Various therapies – behavioural therapy, cognitive behavioural therapy, culturally-based activities</li> </ul> </li> <li>• Discharge Planning and Aftercare</li> <li>• Performance Measurement, Research and Knowledge Exchange               <ul style="list-style-type: none"> <li>○ Enhance program approaches</li> <li>○ Optimize use of resources</li> </ul> </li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Target social determinants of substance use/abuse</li> <li>• Target cultural determinants of substance use/abuse</li> <li>• Target environmental determinants of substance use/abuse</li> <li>• Early identification</li> <li>• Culture as a protective factor</li> <li>• Targeted interventions</li> <li>• Access to a range of treatment options – outpatient</li> <li>• Access to residential care treatment options, detox</li> <li>• Job support</li> </ul> <p><b>Location:</b> community, residential</p> <p><b>Timespan:</b> lifespan</p>	<p>First Nations or Inuit – on-reserve or Inuit living in Inuit communities</p>	<ul style="list-style-type: none"> <li>• Support intervention and outreach workers</li> <li>• Child and youth workers</li> <li>• Alcohol, drug and crisis counselors</li> <li>• Solvent abuse workers</li> <li>• Elders, cultural practitioners</li> <li>• Community Health Nurses</li> <li>• Community Health Representatives</li> <li>• Mental Health professionals (social workers, psychologists)</li> </ul> <p>Professional providers must be registered members in good standing with college and/or professional association.</p>

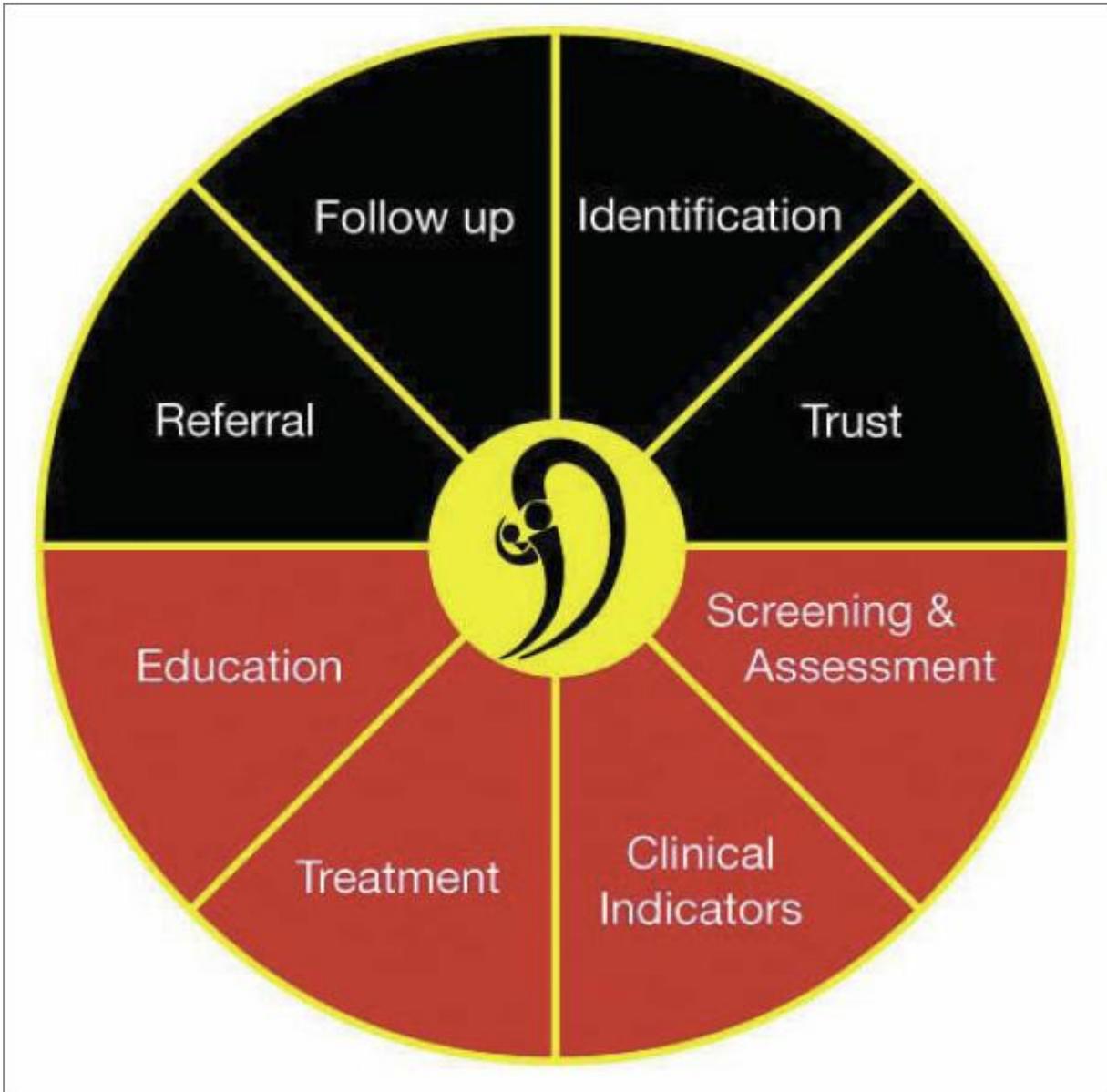
1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention		1.1.3 Healthy Living
1.1.3.1 Chronic Disease Prevention and Management			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Reduce Type 2 diabetes</li> <li>• Promote healthy behaviours and supportive environments               <ul style="list-style-type: none"> <li>○ Healthy eating</li> <li>○ Food security</li> <li>○ Physical activity</li> </ul> </li> <li>• Chronic disease prevention, screening, management and injury prevention</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Health promotion and primary prevention</li> <li>• Screening and treatment</li> <li>• Capacity building and training</li> <li>• Research, surveillance, evaluation and monitoring</li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Health literacy re: diabetes</li> <li>• Healthy eating</li> <li>• Physical activity</li> <li>• Complications screening and preventive care</li> <li>• Diabetes self-management</li> <li>• Health workforce development</li> </ul> <p><b>Location:</b> Various</p> <p><b>Timespan:</b> lifespan</p>	First Nations or Inuit – on-reserve or Inuit living in Inuit communities	<ul style="list-style-type: none"> <li>• Community diabetes prevention workers</li> <li>• Physical activity specialists</li> <li>• Nutritionists/dieticians</li> <li>• Community Health Nurses</li> <li>• Community Health Representatives</li> <li>• Doctors</li> </ul> <p>Professional providers must be registered members in good standing with college and/or professional association.</p>

1.0 Primary Health Care	1.1 Health Promotion & Disease Prevention		1.1.2 Healthy Living
1.1.3.2 Injury Prevention			
Objectives –What are the intended outcomes?	Service Components What determinants are targeted or likely to be impacted?	Clients	Types of Service Providers/Qualifications
<ul style="list-style-type: none"> <li>• Gather existing data and statistics</li> <li>• Monitor injury trends</li> <li>• Promote best practices</li> <li>• Identify priorities for knowledge development, dissemination and exchange</li> <li>• Contribute to the development of tools to assist First Nations and Inuit communities to create supportive environments and prevent injuries</li> </ul>	<p><b>Program Elements:</b></p> <ul style="list-style-type: none"> <li>• Work with national and regional partners, including National Aboriginal Organizations, non-government organizations, provinces and territories, researchers, communities to achieve objectives.</li> <li>• Injury education provided through community-based programs such as Aboriginal Head Start and Brighter Futures.</li> </ul> <p><b>Factors/Determinants Addressed:</b></p> <ul style="list-style-type: none"> <li>• Surveillance, epidemiology</li> <li>• Knowledge dissemination re: best practices</li> </ul> <p><b>Location:</b> Various</p> <p><b>Timespan:</b> lifespan</p>	First Nations or Inuit – on-reserve or Inuit living in Inuit communities	

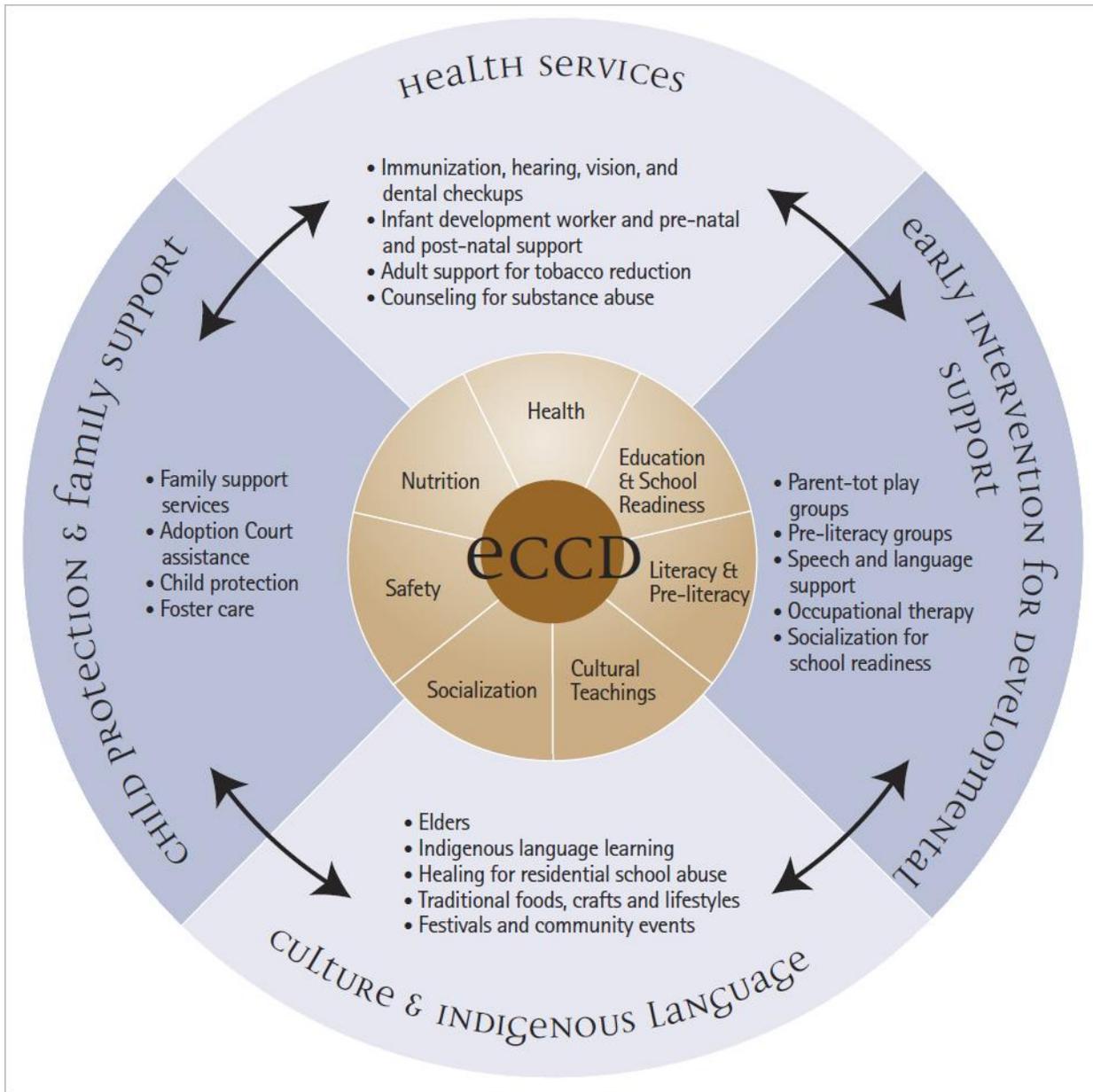
**APPENDIX VI**  
**Culturally-Derived Identity –**  
**Moderating Relationships Between Proximal & Distal Determinants**



**APPENDIX VII**  
**Health Determinants – Integration Models**

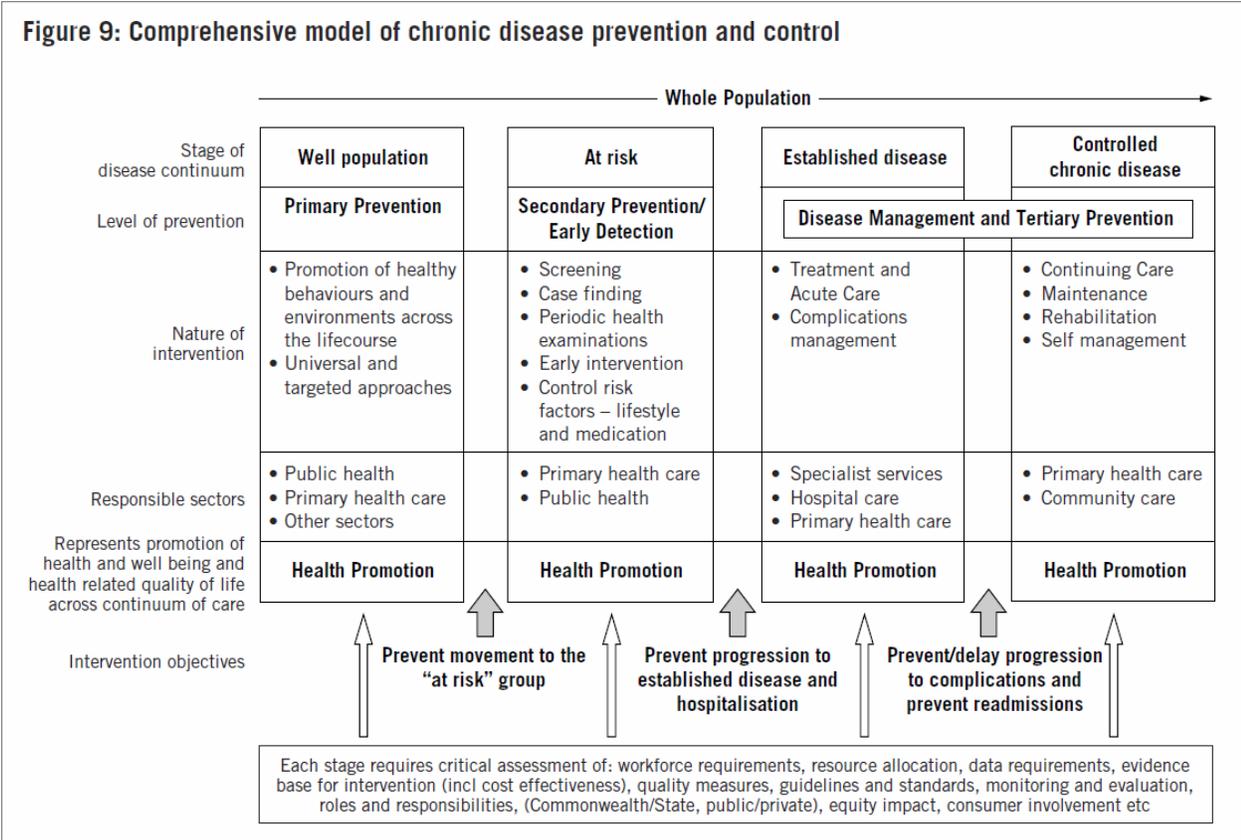


Source: Chronic Care for Aboriginal People



Source: Ball, J. (2004). *Hook and hub: Early childhood care and development programs as hook and hub: Promising practices in First Nations communities*. Victoria, BC: Author. [www.ecdip.org/reports/](http://www.ecdip.org/reports/)

**Figure 9: Comprehensive model of chronic disease prevention and control**



Source: Australian National Public Health Partnership (2001). *Preventing chronic disease: A strategic framework*. Melbourne, Australia: Author.

**Table 2** Comparison of the Chronic Care Model with the Expanded Chronic Care Model

COMPONENTS OF THE CHRONIC CARE MODEL		COMPONENTS OF THE EXPANDED CHRONIC CARE MODEL		EXAMPLES
Health System - Organization of Healthcare	Program planning that includes measurable goals for better care of chronic illness			
Self-Management Support	Emphasis on the importance of the central role that patients have in managing their own care	Self-Management / Develop Personal Skills	Enhancing skills and capacities for personal health and wellness	<ul style="list-style-type: none"> <li>• Smoking prevention and cessation programs</li> <li>• Seniors' walking programs</li> </ul>
Decision Support	Integration of evidence-based guidelines into daily clinical practice	Decision Support	Integration of strategies for facilitating the community's abilities to stay healthy	<ul style="list-style-type: none"> <li>• Development of health promotion and prevention "best practice" guidelines</li> </ul>
Delivery System Design	Focus on teamwork and an expanded scope of practice to support chronic care	Delivery System Design / Re-orient Health Services	Expansion of mandate to support individuals and communities in a more holistic way	<ul style="list-style-type: none"> <li>• Advocacy on behalf of (and with) vulnerable populations</li> <li>• Emphasis in quality improvement on health and quality of life outcomes, not just clinical outcomes</li> </ul>
Clinical Information Systems	Developing information systems based on patient populations to provide relevant client data	Information Systems	Creation of broadly based information systems to include community data beyond the healthcare system	<ul style="list-style-type: none"> <li>• Use of broad community needs assessments that take into account: <ul style="list-style-type: none"> <li>• poverty rates</li> <li>• availability of public transportation</li> <li>• violent crime rate</li> </ul> </li> </ul>
Community Resources and Policies	Developing partnerships with community organizations that support and meet patients' needs	Build Healthy Public Policy	Development and implementation of policies designed to improve population health	<ul style="list-style-type: none"> <li>• Advocating for / developing: <ul style="list-style-type: none"> <li>• smoking bylaws</li> <li>• walking trails</li> <li>• reductions in the price of whole wheat flour</li> </ul> </li> </ul>
		Create Supportive Environments	Generating living and employment conditions that are safe, stimulating, satisfying and enjoyable	<ul style="list-style-type: none"> <li>• Maintaining older people in their homes for as long as possible</li> <li>• Work towards the development of well-lit streets and bicycle paths</li> </ul>
		Strengthen Community Action	Working with community groups to set priorities and achieve goals that enhance the health of the community	<ul style="list-style-type: none"> <li>• Supporting the community in addressing the need for safe, affordable housing</li> </ul>

Cited in: Barr, V., Robinson, S., Marin-Link, B., Underhill, L., Dotts, A., Ravensdale, D., & Salivaras, S. (2003). The expanded chronic care model: An integration of concepts and strategies from population health promotion and the chronic care model. *Hospital Quarterly*, 7(1), 73- 82