

SPECIAL
ISSUE

Healthcare Quarterly

The first of four special issues prepared
with The Hospital for Sick Children,
Toronto, Mary Jo Haddad, Editor-in-chief



Linking Social Inequity and
Child Health Outcomes Pg. 21

Why Are Aboriginal Children
Disadvantaged? Pg. 42

Are We Doing Enough for
Immigrant Children? Pg. 52

The Challenge of Child
and Youth Mental Health Pg. 76

ISSUE 1: **SOCIAL DETERMINANTS**

Child Health in Canada

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Child Health in Canada

SEARCH



Enabling child health is the main focus of my career. While I am often inspired by the great strides that have been made in terms of fostering child health, my many encounters with children and their families, healthcare providers and health system policy and decision-makers also make me acutely aware of the significant health-related obstacles young people still confront. Very few – if any – of us are satisfied with the current state of children's health. We know we can do better, and we believe we ought to do more. In order to bring about positive changes for children, we must move swiftly, decisively and in a carefully planned and coordinated manner.

This journal series – Child Health in Canada – was born out of a spirit of collaboration and a fierce determination to improve children's physical and mental well-being. It is also a call to action to address the specific issues that impede children's health. The goals of the series are not tame; its aims are to inform public policy and to improve systems of care across the country and, in so doing, to enhance child health outcomes.

My vision for this series is also anchored in pride and optimism. These feelings arise from working with brilliant, talented and passionate child health experts, individuals who are motivated to improve the lives of children in our communities, schools, homes and hospitals.

Child Health in Canada will be composed of four issues, each one focused on a theme that is critical to the overall subject:

- Social determinants of health
- Mental health
- Health systems performance
- Innovation

The remarkable team of authors assembled for this series represents diverse educational and professional backgrounds. It includes influential policy makers, leading scholars, experienced decision-makers and dedicated care providers. Uniting all these authors is a passion for achieving optimal health for all children, a commitment to knowledge sharing, the courage to ask difficult questions and a profound sense of the rightness of championing genuine – if sometimes uncomfortable – dialogue.

I am deeply grateful to Longwoods Publishing for taking up my challenge to explore at length the unique world of child health in *Healthcare Quarterly*. My editorial board also deserves sincere thanks and credit; its members generously committed their time and expertise to ensuring the quality and relevance of the material you will encounter in this series.

Social Determinants and Child Health

This first issue of our Child Health in Canada series investigates social determinants and their relation to child health. Fundamental to a consideration of health for people at any age, the social determinants of health have been defined by the World Health Organization (n.d.) as “the conditions in

which people are born, grow, live, work and age, including the health system.” These conditions, the same definition notes, are the primary factors determining health inequities within and between countries. And that is a serious concern, for, as Avram Denburg and Denis Daneman state in their contribution to this issue, “Where inequality thrives, health does not.”

Throughout both the industrialized and developing worlds, there is a widespread desire to lay a foundation for and then build young people’s optimal physical and mental well-being. Here in Canada and most other countries, however, the playing field is not at all even. The evidence overwhelmingly shows that social determinants such as socio-economic status, education level, language, culture/ethnicity and access to medical services and technologies affect not only children’s health but also, as several contributors remind us, their social, economic and medical futures as adults. In Clyde Hertzman’s words, “What happens to children in their earliest years is critical for their development throughout the life course.”

Theories and Consequences

The first three essays in this issue explore the topic of social determinants and child health from approximately the 10,000-foot level. Neal Halfon, Kandyce Larson and Shirley Russ begin the discussion by reviewing evidence on the nature of social determinants and their mode of operation within “the social ecology of childhood.” Central to the authors’ analysis is the theory that “non-biological influences” function in “dynamic nested systems of mutually reinforcing interactions at individual, family and community levels.” As a result, “incremental change strategies” involving the addition here and there of new programs are insufficient for addressing the “wide range of disturbances” that can undermine children’s developmental health. The authors’ seven strategies for transforming children’s health and social systems are, instead, “comprehensive and integrated,” operate through multiple channels and include both overarching national policies as well as more local “place-based initiatives.”

Zeroing in on the connections between social inequality and health outcomes, Avram Denburg and Denis Daneman address experience-based brain development (neural epigenetics), societal gradients and the social policy implications that arise from those considerations. “Inequalities in child health outcomes trace an impressively linear socio-economic gradient,” the authors contend. While poverty and ill health are strongly associated, so too, Denburg and Daneman argue, are “the effects of relative social or socio-economic inequality.” The authors therefore caution that emphasizing policies aimed exclusively at stimulating economic growth will not succeed in improving overall health. Rather, they call for a “synergistic” approach, one that addresses socio-economic conditions and “the importance of mitigating disparities in social circumstance.” The solutions Denburg and Daneman present in their conclusion are striking

in their simplicity and good sense. Whether Canada is ready to move forward with their implementation is another matter.

Social geography is a field of inquiry I find hugely informative. In his article, Clyde Hertzman follows that discipline’s theoretical contours in order to explore children’s developmental health as it is shaped by their interactions with other people in their “intimate environments.” Not unlike Denburg and Daneman, Hertzman focuses on both economic *and* social resources. He presents a layered environmental framework that maps various intersecting influences on “the quality of children’s early experiences.” Use of the Early Development Instrument (EDI) at the neighbourhood level, for instance, has been shown to have greater analytic and explanatory power than random sampling for illuminating the factors that support or undermine child development. The statistical rigour associated with the kind of EDI health mapping Hertzman has conducted (and that Ted McNeill also endorses in his article) will prove indispensable not only for cross-jurisdictional and temporal comparisons, but also for forging solutions that can reduce children’s developmental vulnerability.

Social Determinants in Context

The second section of this issue offers two contextualized accounts of the effects of social determinants in specific contexts: Aboriginal and immigrant children. Brian Postl and Michael Moffatt’s article reviews the disturbing health disparities afflicting First Nations, Inuit and Metis children in Canada. Taking strong account of the impact of European colonization/colonialism, Postl and Moffatt emphasize the ongoing effect of legislation, policies and social determinants on Aboriginal social organization and health status. On the topic of harnessing social determinants in the interest of improved health, the authors argue not only for better education and housing but also for de-colonization “countermeasures” that include “processes that support self-determination, restore cultural pride and heritage and establish clear methods for acknowledging and dealing with racism.” Postl and Moffatt conclude with three case histories that dramatically – and depressingly – illustrate the susceptibility of Aboriginal children to the “heavy burden of illness” wrought by social determinants.

Tony Barozzino is the chief of the Department of Pediatrics in the Inner City Health Program at Toronto’s St. Michael’s Hospital. In this role, he often encounters the uniquely challenging difficulties associated with providing healthcare for Canada’s growing immigrant population. At the level of social determinants, Barozzino cites extensive evidence showing that immigrants are more susceptible than Canadian-born people to public policy-influenced risk factors (e.g., food security, gender and housing). Additional obstacles include immigrants’ perceptions of authority figures, their levels of education, their linguistic facility and care providers’ own assumptions and beliefs. Barozzino gives credit to the hard work individuals and

community-based organizations are doing to care for immigrant children. Yet, he is also adamant that healthcare providers and policy makers must be active and honest in evaluating how well they are serving immigrant children's needs and, where there are shortcomings, rapidly developing solutions.

Policy Innovations

The third section of this issue addressing the social determinants of child health presents two considerations of the role of public and institutional policies. My colleague Ted McNeill, director of social work and child life at The Hospital for Sick Children, contributes to this discussion with a call to hospitals and governments to create and implement policies and practices that directly address the "social injustice of health inequalities." In no uncertain terms, McNeill underscores the service gaps, structural barriers and policy shortcomings that lead to increasing acuity among Canadian children. Targeting poverty's "toxic effect" on health and the widening gap between the rich and poor in Canada, McNeill argues that supporting families' ability to care for their children is essential for both health and economic reasons. In this regard, he pays special attention to the "social context" in which families thrive or wither and, drawing on examples from several Nordic countries, shows that generous government-supported social programs and successful economies can coexist. We must rely on "evidence, not ideology," McNeill urges, when looking for the international best practices on which to model Canada's family-focused health equity initiatives.

Following on from McNeill's piece is an article that lays out policy approaches – conceptual models used by decision-makers – for enhancing child health by tackling the social determinants of health. Adalsteinn Brown, Wendy Katherine, Katy Allen, Uyen Quach, Elizabeth Chiu and Lauren Bialystok bring considerable government knowledge and experience to their argument that improving child health requires a "comprehensive, joined-up approach" across ministries, agencies and providers. The authors reframe their topic through the inter-generational concept of *population health inheritance* (PHI), which "focuses on policies improving the societal asset of health passed from adults to children." They argue convincingly that public policies must align with a life course approach (see Australia, the United Kingdom, New Zealand and Nova Scotia), pay closer attention to transitions that occur at "developmental interfaces" and support multidisciplinary care. In order to help PHI to take root in Canadian soil, the authors recommend policy makers consider the Health in All Policies (HiAP) model, a high-level policy-alignment approach to population health employed in several European countries.

Looking Ahead

As I noted at the outset of this editorial, the next issue in our Child Health in Canada series will be devoted to the subject of

mental health. As a way of looking ahead to that exciting issue, we decided to conclude the present one with the record of a conversation I recently had with Michael Kirby, the chair of the Mental Health Commission of Canada. Kirby is forthright in his assessment of the state of public perceptions, policies and services for young people combating poor mental health. Social stigma, government underfunding, human resources shortages, system and service fragmentation: these are some of the principal challenges that must be resolved if we are to deal effectively with children's mental health. As Kirby makes clear, failing to help children and youth achieve good mental health will result in dire consequences for individuals, families, society and the economy. Like me, I believe you will be struck by Kirby's call for "pragmatic" steps to improving Canada's mental health system, as well as by his concluding "optimistic" vision of a healthier tomorrow for our country's children brought about by swift and decisive actions today.

– **Mary Jo Haddad**, RN, BScN, MHSc, LLD, CM
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Reference

World Health Organization. n.d. *Social Determinants of Health*. Geneva, Switzerland: Author. Retrieved August 30, 2010. <http://www.who.int/social_determinants/en/>.

Illustration credit: The *My Dream* collection of artwork and poems was produced for – *Achieving Health Equity for Kids, Whatever It Takes*, a conference hosted by The Hospital for Sick Children to address the social determinants of health and advance work to ensure the success of children by supporting healthy and positive outcomes for children, families and society.

Through a partnership with Westview Alumni Advocates for Youth (WAAY) working with York University's Faculty of Fine Arts, students aged 7 to 18 in grades 2 through 12 illustrated their dreams through art and poetry.

The student contributors attend the Westview Family of Schools of the Toronto District School Board: Brookview Middle School, Yorkwoods Public School, Gosford Public School, CW Jeffreys Collegiate Institute and Emery Collegiate Institute.

The collection is dedicated to Unknown Dreamers.

My dreams are something you can't possess.

They are things that I could not express

One thing for sure, is that you have your own

And to me, they are considered Unknown

– Michael, Grade 6-7, Brookview Middle School

The whole collection is now on display on the SickKids Create profile of www.collectionx.museum, the Virtual Museum of Canada's online gallery, with support from the Art Gallery of Ontario (AGO).

ISSUE 1: SOCIAL DETERMINANTS

Child Health in Canada



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1 The Editor's Letter

Mary Jo Haddad

Very few – if any – of us are satisfied with the current state of children's health. We know we can do better, and we believe we ought to do more. In order to bring about positive changes for children, we must move swiftly, decisively and in a carefully planned and coordinated manner.

THEORIES AND CONSEQUENCES

8 Why Social Determinants?

Neal Halfon, Kandyce Larson and Shirley Russ

There is overwhelming evidence that social factors have profound influences on health. Children are particularly sensitive to social determinants, especially in the early years. Life course models view health as a developmental process, the product of multiple gene and environmental interactions. Adverse early social exposures become programmed into biological systems, setting off chains of risk that can result in chronic illness in mid-life and beyond. Positive health-promoting influences can set in motion a more virtuous and health-affirming cycle, leading to more optimal health trajectories.

21 The Link between Social Inequality and Child Health Outcomes

Avram Denburg and Denis Daneman

Despite the scientific and technological advances of recent decades and their potential impact on healthcare delivery, major disparities in child health exist both between and within countries. Across the globe, over 25,000 children under five years of age die every day, the majority, but by no means all, in developing countries. Infant mortality is 10 times higher in the world's least-developed countries than in the industrialized world, and under-five mortality is 25 times higher. Vast discrepancies in child health also exist within high- and low-income countries. In Canada, for example, major differences exist in two key indicators of child health, namely, rates of infant mortality and low birth weight. This article seeks to map the social determinants of child health by exploring reciprocal currents between the science of experience-based brain development, the theory and epidemiology of societal gradients in health and the attendant implications for social policy.

32 Social Geography of Developmental Health in the Early Years

Clyde Hertzman

What happens to children in their earliest years is critical for their development throughout the life course. The years from zero to school age are foundational for brain and biological development. Attachment and face recognition; impulse

control and regulation of physical aggression; executive function in the prefrontal cortex and focused attention; fine and gross motor functions and coordination; receptive and expressive language; and understandings of quantitative concepts are all established during this time and become embedded in the architecture and function of the brain. Brain and biological development are in turn expressed through three broad domains of development of the whole child: physical, social-emotional and language-cognitive, which together are the basis of "developmental health." The qualities of stimulation, support, nurturance and participation young children experience in the intimate environments where they grow up, live and learn matter. In other words, development is driven by the interactions that children have with those in their intimate environments.

SOCIAL DETERMINANTS IN CONTEXT

42 Aboriginal Child Health and the Social Determinants: Why Are These Children So Disadvantaged?

Brian Postl, Catherine Cook and Michael Moffatt

Numerous articles have reviewed the health status of Canada's Aboriginal children – First Nation, Inuit and Metis – and shown a comparatively high prevalence of most of the common diseases affecting children. This article highlights some of the more specific disparities and provides some historical context and a few composite case studies to illustrate how social determinants, colonialism, jurisdictional issues, geography and healthcare interact to amplify the disadvantages these children have.

52 Immigrant Health and the Children and Youth of Canada: Are We Doing Enough?

Tony Barozzino

Sitting across from me in the crowded examining room of an inner-city Toronto pediatric clinic are a mother, a child and their family friend. The mother and her three-year-old have been in Canada for almost a year, having emigrated from Vietnam (insert virtually any country of origin here) and are currently living in a multi-family dwelling in a well-known area of lower socioeconomic status. The mother speaks very little English, and the family friend is attempting to act as interpreter and support person. No official interpreter services are available today, and after completing my consultation (to the best of my abilities) regarding the presenting problem of "language delay," I am faced with having to try to discuss the possibility of this child having a much broader communication disorder, autism. This article discusses barriers to care such as cultural differences, trust issues or fear of perceived authority figures, and language and educational concerns, and it suggests strategies for improving access for immigrant children.

POLICY INNOVATIONS

60 Family as a Social Determinant of Health: Implications for Governments and Institutions to Promote the Health and Well-Being of Families

Ted McNeill

Bold new ideas and leadership are needed to plan a future that encompasses social justice as a key value and operating assumption. Driven by a growing appreciation of the powerful impact of the social determinants of health, particularly the toxic effect of poverty on health, a re-evaluation of the roles of governments and institutions such as hospitals is needed. The well-being of families is the cornerstone on which society rests; yet evidence is growing that families are facing significant challenges beyond their control that adversely impact their ability to perform their essential roles. With evidence of a growing divide in society – an expanding gap between the rich and the poor, contributing to a polarization of health and social outcomes along this continuum – there is an urgent need for re-visioning priorities for health and social policies.

68 Turning the Social Determinants of Health to Our Advantage: Policy Fundamentals for a Better Approach to Children's Health

Adalsteinn D. Brown, Wendy Katherine, Katy Allen, Uyen Quach, Elizabeth Chiu and Lauren Bialystok

The articles in this volume provide a compelling case for improving child health and for the critical role to be played by social determinants. The goal of this article is more prosaic: to lay out the policy approaches that can support the case for bettering child health by improving the social determinants of health.

LOOKING AHEAD

76 The Challenge of Child and Youth Mental Health

Mary Jo Haddad in conversation with Michael Kirby

The issue of children's mental health is emerging as one of the most significant challenges in the healthcare system. According to Michael Kirby, chair of the Mental Health Commission of Canada, there are several primary areas of concern. The first is the views of many parents – there are surveys that show that 38% of Canadian parents would be too embarrassed to tell anyone if their child had a mental illness. The second concern is the scarcity of resources in mental health. However, Kirby is optimistic that the growing support for changing and improving mental health services, the combination of really good knowledge of the right things that need to be done and the Mental Health Commission's development of a powerful social movement in support of system change will bring about huge transformation.



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Why Social Determinants?

Neal Halfon, Kandyce Larson and Shirley Russ

Abstract

There is overwhelming evidence that social factors have profound influences on health. Children are particularly sensitive to social determinants, especially in the early years. Life course models view health as a developmental process, the product of multiple gene and environment interactions. Adverse early social exposures become programmed into biological systems, setting off chains of risk that can result in chronic illness in mid-life and beyond. Positive health-promoting influences can set in motion a more virtuous and health-affirming cycle, leading to more optimal health trajectories.

Mounting an effective response to social determinants will involve both direct social policy initiatives designed to eliminate poverty and inequality, and indirect approaches focused on disrupting pathways between social risks and poor health outcomes. To be effective, these indirect strategies will require nothing short of a transformation of existing child health systems. Parents and professionals must work together from the ground up, raising public awareness about social determinants of health and implementing cross-sector place-based initiatives designed to promote positive health in childhood.

◀ One of the many photos from the archive of Toronto's Board of Education. Circa 1911.

The social determinants of health are composed of the conditions in which people are born, grow up, live, work and age, together with the systems that are put in place to deal with illness (World Health Organization [WHO] 2008). The distribution of money, power and resources within society, influenced at least in part by policy choices, economics and politics, shape these conditions at local, regional and national levels. Social determinants operate at individual as well as population levels, influencing the extent to which each person possesses the physical, social and personal resources to identify and achieve personal goals, satisfy needs of daily living and cope with the environment (Raphael 2008).

Our current state of science suggests that there is no simple biological reason why the risk of pregnancy-related death in Sweden is one in 17,400 while it is one in eight in Afghanistan; why the life expectancy at birth of men in the Calton region of Glasgow is 54 years, 28 years lower than that of men in Lenzie, just a few kilometres away; and why the infant mortality rate among babies born to women in Bolivia with no education is more than 100 per 1,000 compared with less than 40 per 1,000 for babies born to mothers with at least secondary education (WHO 2008). These disparities reflect avoidable and unnecessary suffering, and the evidence suggests that they could be reduced by improving the social environments in which people live and work (Marmot et al. 2008). Yet, despite a global interest in equity and social justice, existing knowledge of the social determinants of health has not resulted in the types of policy change that would logically be expected. In fact, debate about the nature and role of social determinants has been conspicuously absent from the recent heated discussions surrounding healthcare reform in the United States.

There are indications, however, that this situation is starting to change. The days when social factors were dismissed as “confounders” in studies of the biological basis of disease have passed, giving way to a clearer understanding of the profound influence of social context on health in its own right (Woolf 2009). Applying Rogers’ classic Diffusion of Innovation theory, the importance of social determinants of health has been recognized by innovators such as Black, Acheson, Marmot, Adler, Schroeder, McGuinness and other early adopters and is now becoming accepted by the “early majority” (Rogers 2003). Even “laggards,” generally skeptical of new ideas, largely accept that the recent dramatic and well-chronicled increase in the prevalence of obesity across developed countries is being driven not primarily by genetic or biological changes but by changes in the way we live. In epidemiological terms, we might be reaching a tipping point (Gladwell 2000) at which the fundamental importance of social determinants for health is starting to be recognized both by providers of healthcare and policy makers. The arrival at this tipping point is aided by several converging trends, including the pace of global social change, which is dramatically

demonstrating how rapidly changing social contexts can result in major epidemiological shifts (e.g., the obesity epidemic); research documenting how socially induced stresses are transformed into changes in neurodevelopment and immune and metabolic function; and new tools to measure population health and to assess the impact of policies on health, as well as place-based approaches that are improving health outcomes by addressing the social causes of poor health. With better cross-national data on the relationship of health outcomes to social investments, more countries are recognizing that improvement in population health requires attention to the social conditions that characterize their citizens’ lives (Marmot et al. 2008).

In this article, we review what we know about the nature of social determinants and the strength of the evidence for their impact on health. We consider why they are particularly important for children, and the mechanisms that translate early social inputs into short- and long-run health consequences. Finally, we consider how society should respond, including implications both for broad social policy and for healthcare policy. In doing so, we set forth a vision for transforming children’s health and healthcare through greater attention to social determinants, and the policy developments that are needed for this to happen.

What Are Social Determinants?

Early studies were largely confined to family income and social class, yet more recent treatments have broadened the boundaries of what constitutes social determinants. Social class codes for a number of different social influences on health, and it extends beyond simple measures of income or occupation to include family wealth and assets, education and health literacy, employment, the degree of autonomy in one’s job and use of time, and the quality and nature of housing (apartment versus house, rented versus owned). Race/ethnicity is also classed as a social determinant, although some researchers regard the discrimination that results from membership of a social group – whether defined by race, gender, family structure or culture – as the true driver of health status (Baker et al. 2005). Social relationships also impact health and are included in social determinants frameworks through constructs such as social cohesion, social support networks and social exclusion. Over the past decade, there has been an explosion of interest in the concept of social capital – valued resources that lie within and are by-products of social relationships. Social capital can operate at individual and community levels, impacting personal and population health (Kawachi et al. 2008; Starfield and Macinko 2001). Because early life events are now understood to exert particularly strong influences on immediate health status and health in later life, most scholars now include a broad range of early life exposures as potential social determinants (e.g., the quality of parenting and caregiving, exposure to domestic violence, maternal depression, home organization and neighbourhood safety).

As the wider boundaries of social determinants become blurred, scholars differ on which factors to include. Some list aspects of the natural environment, such as clean air, water and soil and climate change, while others include the built environment (e.g., land use patterns, zoning and community design) and living conditions such as availability of transportation and healthy foods. This expanded view is supported by an increasing body of evidence demonstrating the impact of human activity on the natural environment and the potential role of socially constructed policy in altering environmental determinants of health. There is debate, too, about whether healthcare services should be classed as a social determinant of health; however, these and other services that deal with illness have been included in the WHO definition.

We might be reaching a tipping point at which the fundamental importance of social determinants for health is starting to be recognized both by providers of healthcare and policy makers.

As yet, there is no generally agreed-upon taxonomy or categorization of social determinants; however, there is general agreement that these non-biological influences are often interconnected, operating in dynamic nested systems of mutually reinforcing interactions at individual, family and community levels. From the standpoint of the medical clinician, any influence on health outside of the patient could be considered social instead of biological in nature. Even factors not traditionally thought of in this way, such as media use and health behaviours, are shaped by societal trends and norms and could be classified as part of the broader social ecology that impacts on individual well-being.

How Strong Is the Evidence for the Importance of Social Determinants?

Much of the evidence for the importance of social determinants of health has come from the study of adults, including several classic studies of British longitudinal cohorts. In the studies of Whitehall civil servants, Marmot and colleagues (1984) demonstrated a steep inverse gradient between employment grade and mortality such that men in the lowest grade had three times the mortality rate from coronary heart disease and other causes compared with men in the highest grade. Although smoking and other coronary risk factors were more common in the lowest grades, these differences only partially accounted for the mortality difference. Subsequent studies of later cohorts showed strong social gradients in morbidity across a range of indicators

such as angina, hypertension, diabetes, chronic bronchitis, lung cancer and self-perceived health status. While social gradients vary in magnitude across different societies, these gradients have great explanatory power for the differences in health status in all the developed countries studied, including Canada, Finland, Australia, France, Sweden and the United States (Marmot 2005). An intriguing aspect of social determinants is that they appear important for almost every disease studied, suggesting that they operate through general mechanisms that contribute to a range of biological processes affecting multiple organs. For example, a range of adverse social circumstances may result in chronic stress that affects the ability of an individual's regulatory systems to achieve stability through change, a process known as allostasis (McEwan 1998). This increased allostatic load may cause "wear and tear" on different parts of the body, increasing the risk of a variety of adverse health outcomes including coronary artery disease and hypertension (Halfon and Hochstein 2002; Repetti et al. 2002). A growing number of studies are now connecting the experience of higher allostatic load in children with poorer health and functional outcomes, the development of a variety of health conditions and differential health trajectories across the lifespan (Gruenewald et al. 2009; Lehman et al. 2009).

Children's health outcomes show similar social gradients across a range of conditions (Currie and Lin 2007; Larson and Halfon 2009). There is good evidence that obesity is increasing at a faster rate among more disadvantaged children, implying that social determinants probably play a role in etiology (Singh et al. 2010; Stamatakis et al. 2005). Children experiencing multiple social risks are particularly vulnerable, exhibiting strong risk gradients across social-emotional, dental and physical health including obesity (Keating and Hertzman 1999; Larson et al. 2008). Social determinants have an impact in the prenatal period, with greater likelihood of reduced birth weight and preterm births among the more socially disadvantaged (Zeka et al. 2008). Lower birth weight has in turn been associated with poorer cognitive function in mid-childhood, but differences in social class explain much more of the variation (Jefferis et al. 2002). Social determinants can have positive as well as negative effects. For example, mothers reading to children and mothers' and fathers' interest in children's academic progress reduced the chances of leaving school with no qualifications among subjects in the 1958 British Birth Cohort study, with the greatest protective effects in children from the two lowest social classes (Power et al. 2006).

An expanding body of life course research is demonstrating that social influences early in life continue to exert effects on health into mid-life and beyond (Conroy et al. 2010; Hertzman and Power 2003). Felitti et al. (1998) found a strong graded relationship between exposure to abuse or household dysfunction during childhood and adult health risk behaviours and diseases. Adults with four or more adverse childhood exposures

had a four- to 12-fold increased risk for alcoholism, drug abuse, depression and suicide attempt, and a two- to fourfold increase in smoking, poor self-rated health and sexually transmitted disease, with similar risk gradients for the presence of ischemic heart disease, cancer, chronic lung disease and liver disease. Some experiences such as placement in foster care or other child welfare intervention are associated with particularly high risks of poor outcomes, including suicide and other avoidable mortalities in adolescence and early adulthood (Hjern et al. 2004). In short, the magnitude of the associations between common adverse social exposures and multiple child health outcomes meets or exceeds that of commonly accepted biological risks. Failure to address these social determinants affects adult health as much as, if not more than, health in childhood.

Why Are Social Determinants Particularly Important for Children?

In the context of health and health services, children are differentiated from adults by the “4Ds” – developmental vulnerability, dependency, differential morbidity and difference in demographics. Evolution has programmed humans to possess a great deal of plasticity early in life in order to respond rapidly to changing environmental conditions. The first three years of life are a critical period during which children are particularly susceptible both to positive and negative exposures. The advantage of this arrangement is that young children can adapt to a wide range of circumstances. The disadvantage is that, when exposed to adversity, some of these changes are maladaptive, setting the stage for even bigger problems later in life (Gluckman et al. 2008). For example, mothers who are depressed are less attentive and engaged with their infants, failing to respond adaptively to their emotional signals (Dawson et al. 1994). These infants develop shorter attention spans, elevated heart rates and cortisol levels and reduced activity in the frontal cortex as detected by electroencephalograms (Dawson et al. 1994). Longitudinal studies suggest that elevated heart rates and cortisol levels persist, reprogramming the child’s internal “set point” to stress and increasing the risk of later hypertension and coronary artery disease (Boyce et al. 1995; Schonkoff et al. 2009; Seeman et al. 1997). In this way, a single, potentially avoidable risk (maternal depression) acts at a vulnerable period of development (infancy) with deleterious effects on lifelong health (Halfon et al. 2005).

Infants are almost completely dependent on adults for their interactions with the environment and remain essentially unable to “buffer” or protect themselves from adverse social circumstances throughout the preschool years and beyond. The physical and mental health of parents and other caregivers exert particularly strong effects on children’s early development. Yet children are not merely passive recipients of care. Interactions are transactional in nature, with child and parent adapting to

one another as developmental change proceeds (Sameroff and Fiese 2000). These transactions may be more or less adaptive depending on the “goodness of fit” of caregiver and child. For example, an “easy” temperament child with a mentally and physically healthy parent who establishes sensitive reciprocal interactions will fare better than an infant with a “difficult” temperament who is paired with an anxious mother with little confidence in her parenting skills. Children experiencing physical or emotional abuse during this critical period of development appear particularly sensitive to long-term effects.

Young children are relatively healthy compared with adults in terms of not yet having as many chronic diseases, but they are vulnerable to a wide range of disturbances in their developmental health, which provides the foundation of well-being for years to come. In childhood, steep gradients emerge not only in specific diseases and disorders but also in measures of socio-emotional functioning, cognitive functioning and general indicators of health (e.g., global health status, obesity) that set the stage for later health and well-being (Keating and Hertzman 1999). There has been increased recognition of the new morbidities of childhood; for example, greater psychosocial disturbances are highly susceptible to social determinants and can carry long-term health implications through disrupted life pathways and a greater likelihood of later adverse exposures. Social determinants may also have “subclinical” effects on aspects of children’s health that are difficult to quantify such as “health reserves” and “future health potential.” This suggests that current explanatory models may in fact underestimate the impact of these determinants on health, and that existing health measures that primarily focus on diagnosing disease and measuring disability have the radar set too high, detecting deviations in health trajectories only once they enter the pathological range.

An intriguing aspect of social determinants is that they appear important for almost every disease studied.

The social environments of children in the 21st century are changing rapidly. Child poverty rates are increasing, 40% of births are to single mothers, more mothers are working outside the home and more children are spending long hours in daycare. In the United States, births to minority mothers are set to surpass those to non-Hispanic white mothers by 2012 (Johnson and Lichter 2010). At the same time, there has been a “media explosion,” with young children and adolescents engaged with some form of electronic entertainment for hours each day and yet expected to meet high academic expectations. These changes are probably more rapid and wide-reaching than at any previous point in history. Traditionally, cultural mores and support

networks have played a role in protecting children from potentially negative impacts of environmental change, yet the pace of change is so rapid and its nature so unpredictable that protective and health-promoting components of culture cannot “keep up.” Scholars have suggested that the resultant “unfiltered” impact of social change on children may, at least in part, explain changing morbidities including high rates of teen pregnancy, drug and alcohol use, smoking, obesity and mental health problems (Gluckman et al. 2009). Finding solutions to these problems involves tackling the social determinants of health.

How Do Social Determinants Act?

An understanding of how social determinants act requires consideration of the social ecology of childhood and the life course mechanisms that translate early social exposures into long-term health consequences. Developmentalists including Bronfenbrenner and Sameroff have long posited various dynamic ecological models of child development (Bronfenbrenner 1979; Sameroff and Fiese 2000). Although different theories vary in their emphasis of the primary determinants of individual development, most contain a basic structure with parent, family, peer, school and community influences nested within the broader geopolitical environment (Sameroff 2010). Each layer of the system is interdependent, and different environments may play more salient roles at various developmental stages. For example, young children depend heavily on the support of their caregivers in the home, whereas peer relationships and school and neighbourhood environments are more important to older children.

These basic concepts have been incorporated into frameworks for understanding children's health. The US Institute of Medicine report *Children's Health, The Nation's Wealth* (2004) describes the multitude of social environmental and health system factors that act in combination to influence health. The Life Course Health Development model (Halfon and Hochstein 2002) extends these ideas to show how multiple risk and protective factors combine across time to influence developmental health trajectories in childhood and long-term disease outcomes. This model asserts that health is a developmental process, best understood as a product of gene and environmental transactions. As a transactional process, gene expression is influenced by environmental triggers, and the resulting phenotypic expression of behaviours and physical traits can in turn influence how the environment (family, social, physical and healthcare) responds to the developing individual. Like most developmental processes, there are sensitive and critical periods, where outside influences can have even greater effect in programming future functionality. During culturally defined transitions (e.g., the transition from home to preschool) and turning points (e.g., the experience of parental divorce), the individual is more likely to be stressed and vulnerable to other developmental health influences.

Although chronic disease or other physical, mental and cognitive impairments may not show clinical manifestation for decades, cumulative risk and protective exposures exert their influence on the latent health trajectory (subclinical functioning of physiological systems) beginning before birth and extending throughout life. Risk factors tend to cluster together (e.g., a child born into a poor family might also be exposed to family conflict, neighbourhood violence, a lack of preventive health intervention and truncated educational achievement), which can lead to large disparities in health across time.

Life course models posit three main mechanisms whereby the early social environment may influence long-term health outcomes: biological embedding, cumulative mechanisms and pathway models (Hertzman and Power 2003). Biological embedding is the process by which social exposures become programmed into the functioning of biological systems relevant to disease risk. Although this can happen at any developmental stage, childhood is thought to be particularly important due to the existence of several critical and sensitive periods of heightened vulnerability (Hertzman 1999). Biological changes can act alone or in concert with later risk factors. For example, fetal malnutrition can result in alterations in glucose metabolism that predispose to the development of impaired glucose tolerance, obesity and diabetes, particularly when the infant is later exposed to a calorie-dense food environment (Barker 2002; Hales and Barker 1992; Worthman 1999). Biological programming can operate through direct changes to the structure and function of organs and systems or through alterations in the expression of genes shaped by interactions with the social environment (Gluckman et al. 2008). For example, childhood abuse has been shown to influence stress reactivity through methylation of the gene encoding for the expression of the glucocorticoid receptor (McGowan et al. 2009). Social environmental influences are complex, and new evidence even points toward reversal effects. For example, the orchid hypothesis suggests that the genes that underlie some of the most difficult human problems such as violence, depression and anxiety can, when combined with the right social environment, also be responsible for our best talents and behaviours (Dobbs 2009).

Cumulative mechanisms describe the role of multiple and varied exposures across several decades in pushing biological systems toward health or disease. Cardiovascular disease, for example, has a long incubation period and a cumulative and lifelong impact from socially patterned risk factors such as maternal health, development and diet before and during pregnancy; poor growth in childhood; stress in childhood and onward; obesity; smoking; inactivity; and job insecurity and unemployment in adulthood. General risk accumulation models do not prioritize any particular life stage as most influential, but a special variant of these models posits chains of risk mechanisms whereby childhood factors directly cause future health shocks or

protective exposures. For example, poverty in early childhood could trigger a biological chain of risk whereby elevated stress exposures program the hypothalamic-pituitary-adrenal axis to have a greater cortisol response to stress – which contributes to overweight and, in turn, produces insulin resistance – along with a social chain of risk that directs children toward subsequent lower–social class exposures and the attendant risk of worse health behaviours throughout life. Pathway models are similar to chains of risk models, with a greater emphasis on the role that childhood factors play in directing adult social attainment and behaviours that then influence health outcomes. These three different mechanisms are not mutually exclusive and probably act in concert in bringing about persistent and pervasive adult social disparities in health.

The orchid hypothesis suggests that the genes that underlie some of the most difficult human problems such as violence, depression and anxiety can, when combined with the right social environment, also be responsible for our best talents and behaviours.

Policy Implications

If clinical, health system and social interventions are to be successful in addressing the impacts of social determinants, then health and social policies must be designed to respond strategically to what we know about social risks, their mechanisms of action and susceptibility to change. An effective approach must recognize that single social determinants rarely act in isolation but are usually clustered into multiple interacting factors. This suggests that effective interventions are likely to be comprehensive and integrated, crossing traditional service sector boundaries. Because marginal differences in risk exposure early in life compound to produce large health differences over the lifespan, policies that effectively reduce risks and promote health must target the early years and be sustained across developmental transitions if they are to have greatest impact in the long term. Similarly, population-based interventions, focused on shifting the risk curve for an entire population, have the potential to save more lives and improve health to a greater extent than individually focused biomedical interventions.

Unfortunately, existing health, economic and social policies in most developed nations have resulted in a confusing landscape of fragmented programs that are loosely aggregated into uncoordinated service delivery systems that do little to ameliorate the negative health impacts of social determinants. For example, weak employment security, coupled with limited social safety

nets and reduced income support for families create high levels of social disadvantage for many families with young children. The resulting levels of social adversity can have damaging effects on children in the vulnerable early years, with a lifetime of health consequences. At the same time, children are often relatively invisible on the policy horizon. Their programs are comparatively “cheap,” so they can appear less significant than those for adults; and because the impact of interventions is measured over long time frames, it is easy for short-term benefits to be discounted over longer time frames. Because the investments of one sector (e.g., health during the early years) result in benefits to another sector (e.g., lower rates of special education services), it is often difficult to account for and incentivize necessary investments, when little or no financial benefit accrues to the sector making that investment. The discounting of children’s needs and their relative invisibility in the realm of public policy is further exacerbated by existing data systems, which are not equipped to produce a picture of the “whole child” nested in the context of the families and communities in which they reside, or to give valid estimates of the longitudinal costs of shortchanging investments in children and their families (Hertzman and Williams 2009). Consequently, the creation of child and family policies remains a low-status occupation, with service sectors competing with each other for marginal resources. An added challenge in individualist-oriented societies such as the United States and Canada is that child health, development and well-being are regarded as the responsibility of families, resulting in an approach that emphasizes second-chance programs for children that fail, rather than a community-wide strategy focused on investing in all children for success.

Different nations have devised different strategies to address social determinants and their impact on health. Social determinants can be attacked either directly through policies focused on eliminating poverty, inequality and discrimination or indirectly through strategies designed to disrupt the pathways between social risks and poor health outcomes. The direct approach speaks to fundamental values of equity and fairness and appeals to those countries with a strong social democratic tradition. In countries that adopt more direct approaches, social determinants are seen as the root causes of “health inequities,” that is, differences in health status that have a moral or ethical consequence that confront a nation’s basic notions of fairness. However, this approach has gained less traction in the United States and Canada, where, as we have noted, deep ideological schisms separate those who believe that individual solutions and free market mechanisms are the means to achieving all social benefits, as opposed to greater state intervention in the management and optimal allocation of common assets. In nations where efficiency often trumps equity, differences in health outcomes attributable to social determinants are usually classified using the ethically value-free term “health disparities.”

In this context, irrespective of any underlying inequities, the existence and persistence of social disparities in health outcomes are explained in terms of a health system that is not performing effectively and efficiently. Rather than addressing social determinants directly, indirect approaches are framed as performance-enhancing quality improvements that encourage cost-effective, evidence-based interventions to improve the performance of health and social care systems. These service system interventions can target individuals through clinical prevention and health promotion services, or shift trajectories for whole populations through targeted place-based initiatives. In reality, most nations use a combination of direct and indirect approaches, with different degrees of emphasis and framing to fit the policy context du jour.

Whether direct or indirect approaches, or some combination of both, are favoured it is clear that mounting an effective response to the health threats posed by social determinants will take nothing short of a transformation of our existing child health systems (Halfon et al. 2007). The current system is confronting a growing number of children with chronic medical problems and special healthcare needs (Wise 2004). In addition to 14–16% of children classified as having special healthcare needs in the United States, there are between 20 and 40% of children that experience behavioural, developmental and mental health issues that compromise their long-term function and health trajectories (Bethell et al. 2008). Although the distribution of behavioural, developmental and mental health risks cut across all social classes, they tend to concentrate in communities of lower socio-economic status, where multiple social risks are at work and fewer protective and health-promoting factors are at play. At present, many of these children are flying under the radar of a child health system that is designed to diagnose and treat children with more severe medical problems, and is currently struggling to respond to the shifting epidemiology of children's health needs. The poor performance of the child health system was recently captured in a study documenting that US children receive less than 50% of recommended ambulatory healthcare (Mangione-Smith et al. 2007), and others documenting the inability of the system to provide services such as routine developmental screening (Bethell et al. 2010; Halfon et al. 2004).

Incremental change strategies that rely on the addition of “special programs” to an essentially dysfunctional infrastructure with its misaligned financial incentives, inadequate (or non-existent) communication and coordination tools and administrative inefficiencies will not result in the health gains that we seek, and could even result in

greater fragmentation and management challenges. More fundamental changes are necessary in how the child health system is organized, structured and financed to address increasing rates of obesity, mental health and developmental problems as well as the growing impact of social determinants on inequities in child health outcomes (Perrin and Homer 2007). New and innovative approaches to the organization and delivery of child health and healthcare services will require adopting a transformative approach that can support more significant innovation and fundamental health system improvements (Halfon et al. 2007). Such a framework would attempt to move the child health system beyond the constraints of its current operating logic by (1) adopting a developmental definition of children's health similar to the one proposed in the Institute of *Medicine's Children's Health, The Nation's Wealth* report (2004); (2) utilizing a life course health development approach to focus the system on optimizing child health trajectories by minimizing socially mediated risk factors and enhancing protective and promoting factors; and (3) integrating health services and health producing sectors horizontally and longitudinally so that children benefit from more comprehensive and sustained approaches to optimizing their health outcomes.

Here, we propose seven strategies that could be acted on immediately to start the transformation of children's health and health systems.

FACTS FOR LIFE

The early years, especially the first three years of life, are very important for building the baby's brain. Everything she or he sees, touches, tastes, smells or hears helps to shape the brain for thinking, feeling, moving and learning.

Source: Facts for Life Global
www.factsforlifeglobal.org/03/messages.html



Raise Public Awareness about Social Determinants of Health

In order to reach a tipping point at which knowledge translates to action, we need to spread awareness of the social determinants of health beyond social scientists and health researchers. Policy makers, healthcare providers and families need access to comprehensive information about social risks that are prevalent in their communities and their relationships with health. Stakeholders can use geographic information system (GIS) mapping tools to chart patterns of social risk and disease epidemiology across local populations. The broad use of the Early Development Instrument (EDI) to measure and map school readiness across communities Canada and Australia is an excellent prototype of such an approach (Centre for Community Child Health n.d.; Hertzman and Williams 2009). These data can demonstrate the impact of gradients in social risk, and motivate communities to tackle social issues and prioritize prevention and intervention strategies. Building upon the success and utility of this approach, it will be important to add other comprehensive measures of child health at different ages and stages of development so that the impact of social determinants on long-term health trajectories can be measured and better appreciated.

Government alone cannot transform the healthcare system. It is the actions of individual clinicians and families that will bring about true change.

Promote Children's Developmental Health as the Foundation for Lifelong Well-Being

Child development specialists emphasize the importance of treating the whole child, ensuring cognitive, mental and developmental health in addition to physical well-being. Life course models demonstrate how children's developmental health across each of these domains positions them on trajectories leading to an increasingly disparate range of adult health outcomes. Consequently, adult health policy discussions that omit the consideration of health in childhood and the powerful social determinants that shape child health status are at best incomplete and at worst ineffective. At the population level, measures of children's developmental health can serve as key predictors of future national health. The epidemic of childhood obesity, with its predictably serious adult health consequences, along with the growing rates of mental health problems in children and adolescents that result in a low-performing and increasingly disabled workforce are forcing policy makers to connect the dots between childhood adversity and national well-being.

Promote Place-Based Initiatives That Link Services and Sectors to Shift the Risk Curves for Populations of Children and Families

Most existing child health programs are institution, discipline or service-sector specific and focus on the needs of individual children. Yet many socially disadvantaged children have needs that cross health, education and welfare sectors and share risks with many other children in the neighbourhoods in which they reside. Families with the most challenging social circumstances are least well equipped to navigate fragmented service systems with confusing eligibility requirements, and the places where they live have limited resources to meet their needs. In place-based models, clinicians, social workers, educators, community development advocates and local service program administrators work together to design local interventions that link up services across traditional sector-imposed boundaries in an attempt to provide more integrated approaches to promoting positive health development. England's Sure Start Local Programs are a good example of such an approach (Melhuish et al. 2008). In the United States, place-based child development "zones" are being trialled in several locales, with the Harlem Children's Zone receiving a great deal of attention due to the interest of the Obama administration in this type of an approach (Tough 2008). Ideally, these initiatives increase the availability of local health development assets and provide a readily accessible "one stop shop" that can address children's physical, mental and developmental health needs in ways that are "user friendly" for families. England's Sure Start and America's Head Start Programs illustrate this type of approach, but with a greater emphasis on education than health. Enhancing the role and function of primary healthcare through the use of community health teams or primary health service support organizations is an approach that other nations are exploring as a means to improve health and reduce inequalities (Cumming et al. 2008).

Align Incentives

Healthcare providers who attempt to embrace new community partnerships to tackle social determinants of health frequently encounter unanticipated barriers to success. Clinicians at Children's Hospital, in Boston, Massachusetts, decided to adopt a systematic approach to the management of inner-city children with asthma. In addition to the provision of inhalers covered by insurance, the hospital paid for nurses to make home visits after discharge, ensuring that children knew how to use their medications and had appropriate follow-up. They also provided home inspections for mould and pests, and vacuum cleaners for families that needed them. The program was a success. Hospital readmission rates fell more than 80% and costs plummeted; but as hospital revenue depends on bed occupancy, the loss of income threatened the hospital's fiscal integrity (Gawande 2010). This example teaches us that unless fiscal policy can be

adjusted to support innovations such as the Boston Asthma project by aligning incentives within the health sector for clinicians, hospitals and communities, successful programs cannot be sustained or spread. Aligning incentives across sectors is also a major challenge, especially when investments by one sector result in the greatest benefits to the bottom line of another sector. New financial models and the use of population-focused prevention and wellness trusts that can pool resources and allocate them over longer time frames is one strategy that is being used to overcome this set of challenges (Chernichovsky and Leibowitz 2010; Lambrew 2007).

Create a Common Accountability Framework

Efforts to align incentives are facilitated by the existence of a common accountability framework. Existing accountability is sector specific: educators are responsible for test scores, clinicians for the delivery of proficient healthcare and social services for establishing eligibility for programs and benefits. No sector or discipline is responsible for the developmental health of the whole child, creating a situation where sectors may compete for resources to fulfill their own missions. A systems-level approach to the measurement of outcomes could align disparate programs behind a set of common goals and encourage cross-sector collaboration. The United Kingdom has made significant progress toward common accountability with the development of its Every Child Matters Framework (Chief Secretary to the Treasury 2003). The framework lists five outcomes – be healthy, stay safe, achieve and enjoy, make a contribution and achieve economic well-being – with accompanying sets of quality-of-life indicators (e.g., prevalence of breastfeeding, obesity) and quality-of-care measures (e.g., parents' satisfaction with services for children with disabilities). Similar frameworks have recently been proposed in the United States (Jean-Louis et al. 2010; Nemours Health and Prevention Services 2009). Multi-dimensional health measures such as the EDI can also provide communities with a tool to promote shared accountability across sectors. Shared accountability at the local level can help catalyze cross-sector innovation and improvement efforts that are necessary if service providers are going to combine forces to address more fundamental causes of adversity and provide more systemic kinds of supports.

Promote Positive Social Determinants of Health

One important aspect of our proposed new operating logic for child health systems is that it promotes positive health in childhood as well as preventing and treating illness. Not all social determinants are negative, and a greater understanding of positive determinants could inform the design of effective health promotion interventions. Regular parental reading to young children, interest in academic progress and parental warmth in the context of the parent-child relationship are all

associated with improved developmental health outcomes. The promotion of healthy parenting styles and early childhood routines could be a very inexpensive approach to improving children's health development trajectories, leading to less chronic illness in mid-life and potentially vast cost savings. The realization of this potential will only be possible if trials of community-based pediatric interventions move from their current status as a "research backwater" to a high priority for significant and long-term funding. The recently passed health reform legislation in the United States provides new funding for community-wide prevention initiatives largely focused on addressing local social determinants associated with the rising tide of obesity. Using these obesity-focused prevention initiatives as the entry point, other community-focused health-promoting initiatives can follow.

FACTS FOR LIFE



Babies learn rapidly from the moment of birth. They grow and learn best when responsive and caring parents and other caregivers give them affection, attention and stimulation in addition to good nutrition, proper health care and protection.

Source: Facts for Life Global
www.factsforlifeglobal.org/03/messages.html

Create New Parent-Professional Partnerships

Transformation of the existing healthcare system requires both “top-down” and “bottom-up” support. Families have first-hand experience of the impact of social determinants on their lives and valuable insights on improvements that would most benefit their local communities. This knowledge can be harnessed through community-based participatory research and parent-professional collaboratives to design and implement population-based interventions. New web-based social networking technology and local measurement of child health outcomes and social risk also provide a way of empowering parents to take action on behalf of their children as individuals and within their communities. Government alone cannot transform the healthcare system. It is the actions of individual clinicians and families that will bring about true change (Gawande 2010). Redefining the nature of the provider-patient relationship as a reciprocal partnership with common health goals could contribute to a reformed system of care that is high quality and contains costs. Partnerships between professionals and parents are particularly important in child health, where both parties share the common goal of optimizing children’s health.

Conclusions

Just as the social determinants of health operate in a complex and dynamic manner at various nested levels of influence, so also must our strategies to address them occur through a wide variety of channels. Many countries are now developing national policy initiatives to address the social determinants of health. Promoting a national childhood policy agenda that supports families through both direct and indirect approaches (e.g., the provision of adequate family income, labour market policies that support time for parenting, and early intervention and prevention services) is vital for promoting child health and addressing the upstream determinants of health inequalities. However, for countries such as the United States and Canada where prevailing ideologies and beliefs can slow broad social policy change, we also need to work from the ground up with state and local health officials who are interested in utilizing placed-based initiatives and other service system performance-enhancing strategies as the means to addressing inequities in exposures and outcomes. The recent passage of health system reform legislation in the United States will provide new opportunities to test innovative approaches to improving child health services and transforming the capacity of the child health system to address the growing impact of social determinants on inequities in child health outcomes. **HQ**

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The Link between Social Inequality and Child Health Outcomes

Avram Denburg and Denis Daneman

Despite the scientific and technological advances of recent decades and their potential impact on healthcare delivery, major disparities in child health exist both between and within countries. Across the globe, over 25,000 children under five years of age die every day, the majority, but by no means all, in developing countries. Infant mortality is 10 times higher in the world's

least-developed countries than in the industrialized world, and under-five mortality is 25 times higher (United Nations Children's Fund 2008). Vast discrepancies in child health also exist within high- and low-income countries.

In Canada, for example, major differences exist in two key indicators of child health, namely, rates of infant mortality and low birth weight. Overall, infant mortality in Canada has been

reported as 5.4 per 1,000 live births, ranging from as low as zero and 2.2 in the Yukon and Prince Edward Island, respectively, to as high as 8.3 in Saskatchewan and 10 in Nunavut. Similarly, while the overall Canadian rate of low birth weight is six in 100, it ranges from a low of 4.4 in the Northwest Territories to 6.9 and 7.3 in Alberta and Nunavut, respectively. Internationally, Canada ranks 24th among industrialized nations in rates of infant mortality and ninth in rates of low birth weight. The United States is buried even deeper, with a national infant mortality rate of 6.8 per 1,000 live births and a low-birth-weight rate of 8.1 per 100 newborns (Raphael 2010a).

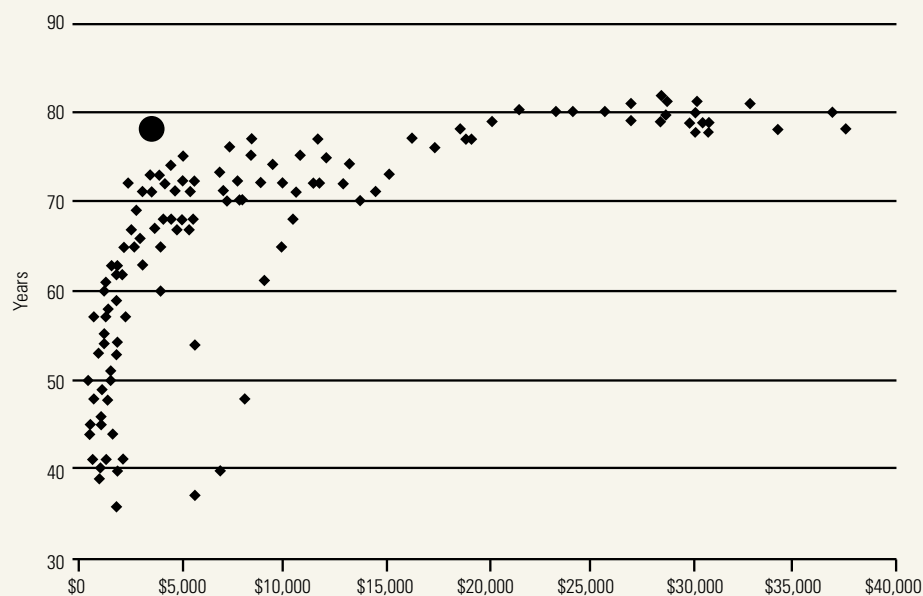
Inequalities in child health outcomes trace an impressively linear socio-economic gradient. Overall, child mortality levels correlate closely with income quintile, with those in the lowest income brackets most severely affected (Marmot 2005). Among wealthy nations, Canada and the United States rank 20th and 27th, respectively, in the percentage of children living in relative poverty (15% and 21%, respectively). These rates are four to seven times higher than those in the countries with the lowest rates of child poverty: the Scandinavian countries, for instance, contend with child poverty rates of only 3–5%. The incidence of low birth weight, an important determinant of health over the lifespan, is on the rise in high-income countries, its burden falling heavily on families in lower socio-economic strata where identified demographic and psychosocial risk factors concentrate (Ohlsson and Shah 2008). There is, likewise, mounting evidence of socio-economic gradients in education and behaviour, and concomitant proof of their dynamic interaction with health outcomes (Fiscella and Kitzman 2009; Keating and Hertzman 1999). There is also gathering evidence that socio-economic inequities contribute to wider variations in health and other outcomes. In their book *The Spirit Level*, Richard Wilkinson and Kate Pickett (2009) synthesize compelling evidence demonstrating that almost every modern social and environmental problem – be it illness, drugs, violence, increasing prison populations, obesity,

mental illness or long working hours – is more prevalent in less equal societies. Equality in this context is gauged by the degree of discrepancy between high- and low-income earners in a particular society. Once again, Scandinavian countries boast the lowest income inequality, Canada falls in the middle of the pack and the United States plots at the very extreme.

Accruing data point to a causal relationship between early life experiences and subsequent health, education and behavioural outcomes, one mediated through impacts on brain architecture and function during critical periods of neural development. There is increasingly robust biological evidence to account for the manifest links between socio-economic inequalities and gradients in health, behaviour and cognitive development across the lifespan (Mustard 2007). These relationships take root in, and are conditioned by, patterns of experience during early childhood, and depend upon associated determinants of child health, including maternal health, fetal and neonatal nutrition and nurturing. There is, therefore, a case to be made for policies that attend to disparities in opportunity by mitigating differential risk in early childhood environments (Denburg and Daneman 2010).

This article seeks to map the social determinants of child health by exploring reciprocal currents between the science of experience-based brain development, the theory and epidemiology of societal gradients in health and the attendant impli-

Figure 1. Life expectancy at birth plotted against gross domestic product per capita, 139 countries



Source: Reproduced with permission from World Health Organization (2006).

cations for social policy. To this end, we first provide a brief overview of the wide-ranging literature on the social determinants of health inequalities. The following section navigates the biology and ecology of early childhood development (ECD), testing consonance between models of neural development and evidence for social impacts thereon. We close with policy prescriptions intended to mitigate disparities in ECD and thereby attenuate social inequalities in child health.

Almost every modern social and environmental problem – be it illness, drugs, violence, increasing prison populations, obesity, mental illness or long working hours – is more prevalent in less equal societies.

What Are the Social Determinants of Health? The Gradient

Many studies have explored the relationship between social circumstance and health outcomes over the past half-century, seeking causal pathways between the two. The association between poverty and ill health is among the most robust and pervasive. A curvilinear relationship between income levels and life expectancy exists across countries, with the steepest portion of the curve at the lowest levels of income (Figure 1). The absolute income hypothesis interprets this relationship as the summative product of increasing deprivation on health: the greater the material want, the worse the health outcome. Those on society's lowest rungs are predictably sicker and die younger than those substantially and continuously above the poverty line. Many of the potential impacts of poverty upon health are intuitive, particularly where material deprivation is severe. Constrained access to potable drinking water, adequate nutrition, proper shelter and essential medicines conditions health outcomes for much of the world's population. This is rudimentary social arithmetic in many low-income countries, where resource scarcity is front and centre.

Less obvious are the effects of relative social or socio-economic inequality on individual and population health, and the causal mechanisms that relate them. In wealthy countries, the plight of the have-nots is more easily hidden or brushed aside.

Above a threshold, increasing income seems to have diminishing marginal effects on life expectancy. For example, life expectancy in Costa Rica correlates well with that of the United States, despite the significant gulf in gross domestic product (GDP) per capita between the two (United Nations Development Programme 2003). And yet within each country, differences in life expectancy dovetail closely with socio-economic status. The “relative income hypothesis” contends that, above the threshold, it is the existence of inequality itself that engenders health disparities within societies (Wilkinson 1996). Convincing evidence attests to the close association between relative gradations in social standing and disparities in health. Income is a strong component of social position, but by no means the only one (Marmot 2005).

Evidence of a gradient in health across all social strata is well documented, even at income levels well above the national poverty line for a given country. Despite falling overall mortality rates following the introduction of the National Health Service in 1948, the mortality gradient across social classes in the United Kingdom grew steeper over the intervening decades. An inquiry into causes of this trend culminated in the landmark “Black Report,” released in 1980, which concluded that, while medical care and public health interventions contributed to reductions in overall mortality, socio-economic inequality was a critical determinant of the gulf in life expectancy across social classes in Britain (Black 1980). More recently, the 1998 “Acheson Report” confirmed and updated many of its predecessor's findings and recommended the institution of fiscal, social and environmental policies to attenuate UK health inequalities (Acheson et al. 1998). Experience has shown that, while relatively easy to recommend, such policies are often difficult to implement and their goals even harder to achieve.

Social class has proven a fairly linear correlate of mortality in a number of studies, irrespective of absolute levels of income. The Whitehall Studies (Marmot 2004; Marmot et al. 1978), prospective cohort studies of UK civil servants, remain pivotal

Income has its benefits measured by ...



nutrition



education



housing



political position

in this regard. The investigators examined a swath of allied occupations that nevertheless admitted of distinct internal social hierarchy. Long-term follow-up with this cohort has demonstrated a clear social gradient in all-cause mortality along class lines (Marmot 2004; Marmot et al. 1978). The class-dependent spread in life expectancy among a segment of the populace well above the national poverty line is taken as ecological proof of the link between relative social standing and life expectancy. Mackenbach et al. (2008) broadened the scope of this finding in a comparative study of 22 European nations. They found that socio-economic status served as a strong independent predictor of mortality rate, both within and across the highly varied groups studied. Their findings were independent of epidemiology, disease risk factors and health system characteristics. In other words, the existence of inequality per se seems to predict, and potentially fashion, disparities in health within and across societies. Debate continues over which theoretical model – the absolute or relative income hypothesis – best accounts for the observed socio-economic gradients in health. The normative implications of each, however, seem largely consonant: where inequality thrives, health does not.

Experience has shown that, while relatively easy to recommend, policies to attenuate health inequalities are often difficult to implement and their goals even harder to achieve.

Which Way Does the River Flow?

How then do we account for this link between socio-economics and health? A pitched debate has raged over the nature and direction of causation. Is it the social environment that determines our health? Or does our pre-existing state of health dictate our chances in society? Does poverty beget disease, or disease, poverty? Or is it something other than income that conditions the relationship between social standing and health? This debate is more than academic since commitment to one or other causal argument may dictate radically different policies.

There are those who read the evidence to suggest that income and its benefits – principally, enhanced nutrition but also better education, housing and political position – account for the bulk of the social gradient in health. McKeown theorized that rising prosperity and nutrition accounted for much of the decline in mortality from tuberculosis in 19th century England (McKeown 1976; McKeown and Brown 1955). Though criticized for giving short shrift to the effects of improved public health interventions during the same period (Szreter 2002), McKeown's work tells an important story about the role of wealth in shaping the health of populations. It proved an instrumental catalyst for further research

into the effects of nutrition on aggregate health outcomes.

A number of historical studies have since demonstrated close and predictable associations between income, nutrition, height and life expectancy within and across defined population groups (Eckstein et al. 1985; Fogel 1994; Galloway 1986; Wrigley and Schofield 1981). Evidence suggests that peak adult height is inversely proportional to the risks of chronic disease and mortality, and that mean population height is determined largely by environmental factors, nutritional status chief among them (Marmot et al. 1984; Waaler 1984; Wohl 1983). Adult height reliably predicts life expectancy in many historical analyses of population mortality data: where mean population height has increased, so too has life expectancy, and vice versa. These trends seem to dovetail with measures of economic growth and income inequality across the countries studied (Fogel 1991; Frank and Mustard 1994). Moreover, height discrepancies along class lines are evident: greater income inequality corresponds to larger discrepancies in aggregate height across classes within a given society. Conversely, countries with high levels of income equality have largely erased class-based differentials in height (Bruntland et al. 1980). Income, as manifest in nutritional proxy, clearly plays a role in the observed health gradient across socio-economic strata. However, it is only part of the story. A singular focus on the association between income and health tends to foster policies focused on economic growth as the primary engine for aggregate improvements in health. Our interpretation is that this alone is inevitably insufficient to improve overall health in the society in question.

Others theorize “reverse causation.” The “health selection” model presumes that good health leads to prosperity. This approach contends that we can mitigate poverty and social inequality by preventing or treating disease. This gives more weight to the effects of public health provisions and health systems strengthening on collective social welfare. Given the evidence on social causation of health outcomes, a pure health selection argument is not readily defensible. However, credible pathways from ill health to poverty and underdevelopment can be mapped. Evidence suggests an inverse correlation between infant mortality rates and economic growth, and a concomitant relationship between rising life expectancy and economic development. There is also evidence that demonstrates economic stagnation in the context of rising disease prevalence. For instance, high malaria burden has been shown to reduce growth by 1% per year or more in select sub-Saharan African countries (Sachs and Malaney 2002).

The channels of influence from health status to economic development are evident at multiple levels of social organization. Direct economic losses occur at the level of the individual, family or household, community and society. Individuals suffering from disease are subject to economic instability due to the cost of care associated with illness, loss of labour market

income, loss to adult earning potential from childhood illness or loss of future earnings as a result of premature mortality. Moreover, there are reductions in mental health that are not reflected in most measures of economic well-being. The value of an extra year of healthy life is dependent on the summative effects of potential losses in market income, longevity and psychological well-being. Living with a chronic disorder has significant impacts on a number of measures, including productivity and quality of life. This reality is reflected in the concept of a quality-adjusted life year (QALY), a measure that assigns value to life based on health states, with healthy years ranked highest. The QALY is itself a controversial concept, not least because of its clumsy handling of mental disability. Even so, it implies that pure reductions in gross national product do not capture the full economic losses caused by ill health, and that more nuanced measures of human worth are needed to capture the value of life lost to disease (Commission on Macroeconomics and Health [CMH] 2001; Philipson and Soares 2001).

Economic losses to the family or household due to illness are often severe, most particularly where social protections are flimsy. Costs of treatment can throw households into economic chaos as many lack the type of insurance that is required to protect against catastrophic illness. This limits economic development in other areas as resources are exhausted on disease treatment (Gertler and Gruber 2002). A vicious cycle between childhood mortality and decreased parental investment in children also suggests the play of health selection within families in many developing countries. Strong evidence has linked increases in infant and under-five mortality to increased fertility rates (CMH 2001). Becker and Tomes (1976) have argued that higher fertility rates force “quantity-quality” trade-offs in resource-constrained settings as there are fewer resources to invest in education and nutrition for each child. As alluded to above, Fogel (1994) has demonstrated links between body size, food supply and labour productivity, illuminating the importance of proper nutrition and health for economic productivity.

The link between health and education in such contexts is crucial. Childhood health is central to an effective and sustained capacity to learn. Biologically, cognitive and physical infirmities may limit educational attainment, which, in turn, constrains adult economic productivity. Where childhood disease is rampant, problems of absenteeism abound; early dropout from school limits one’s ultimate earning potential in predictable ways (Bhargava and Yu 1997). Poor health may also affect a child’s ability to concentrate when at school. Studies have linked nutritional deficiencies and enteric parasitism among children in the developing world with worse educational and developmental outcomes (Bhargava et al. 2001; Miguel and Kremer 2004; Pollitt 1997). Such problems are easily and cheaply remedied through public health intervention, and their correction produces impressive economic returns (CMH 2002). Poverty

– a lack of school fees, uniforms and proper nutrition – no doubt conditions the interplay between disease and education, but endemic disease often creates the conditions for sustained poverty from childhood onwards (Grantham-McGregor et al. 2007). As a result, the ability of children with chronic diseases to attend school and perform optimally is often dependent on a close collaboration between the health and education systems. Employing nurses to help children with type 1 diabetes perform blood glucose monitoring and insulin dose administration during school hours is just one example. Lastly, there is also economic fallout from the inter-generational spillover of disease. Parental infirmity results in a reduced ability to care and provide for children, as well as a reduced transfer of knowledge across generations (Bloom et al. 2001).

High disease burden induces not only individual and family losses but industry, community and societal losses as well. Population health instability risks decreased returns to business and infrastructure investment. Lower life expectancy results in decreased economic productivity and increased labour turnover – yet, ironically, a decreased labour pool. The need to train multiple people for the same job embeds technical inefficiencies in industry and discourages foreign investment (CMH 2001). Epidemic disease places strain on national budgets, inflating costs of care beyond the state’s capacity to provide it. The need to allocate increasing funds to the health sector diminishes the capacity to invest in other sectors (CMH 2002). Ironically, the need for enhanced public funds often occurs in the context of drained governmental coffers: falling tax revenues from decreased capital accumulation at the individual level secondary to high disease burden. The human immunodeficiency virus/acquired immunodeficiency syndrome pandemic in Africa is a quintessential example: it has abetted a massive economic slowdown of several percentage points per year due largely to the loss of a productive workforce (McDonald and Roberts 2006). Similar impacts may be seen in wealthy countries associated with massive increases in obesity and type 2 diabetes.

There are also data to suggest that basic public health interventions can improve population health without antecedent economic development. A 1985 Rockefeller Foundation report titled *Good Health at Low Cost* (Halstead et al. 1985) identified five regions with health indicators markedly above those expected given their per capita income levels: China, Costa Rica, Sri Lanka, Cuba and the Indian state of Kerala. In each case, reductions in infant and early childhood mortality rates accounted for a significant proportion of the gains in life expectancy. Comparative analyses of Kerala, Sri Lanka and Costa Rica show notable social parallels. Dominant themes include a high degree of female autonomy, open political culture, mutable class structure and a history of egalitarianism, political contest and populism.

The Keralan experience is instructive. Despite low per capita income and a fragile economic base, Kerala has lower infant,

child and maternal mortality rates, lower rates of under-nutrition, lower birth rates, higher life expectancies and higher literacy rates than the rest of India and most low-income countries. Moreover, there is a largely equitable distribution of these outcomes between male and female citizens, urban and rural communities and various castes (Government of Kerala 2006). The reasons for these successes in the face of poor economic performance are diverse. As with the other “good health at low cost” countries, however, the prioritization of limited public funds for primary healthcare and education was integral. On the healthcare front, Kerala established a wide and far-reaching network of primary and community health centres; to date, it has one of the highest levels of per capita expenditure on healthcare in India (Government of Kerala 2006; Kutty 2000). Nutrition policies included free noon meals for schoolchildren; supplementary nutrition programs for preschool children and pregnant women; and subsidized essential foodstuffs at “fair price shops.” An emphasis was also placed on water and sanitation. As of 2001, 64% of the population received piped water, 84% of households had latrines (the highest level in India) and the vast majority of both urban and rural households had toilets (Government of Kerala 2006). The Kerala government also instituted free education for all children and built a wide network of libraries and reading rooms as adjuncts to formal education. This educational policy has been identified as a driver of social mobility, enhanced knowledge about health determinants and healthy behaviour and delayed child-bearing among young women (Jeffrey 1992). Other crucial elements of social policy included labour policy reform, improved social welfare provisions and political representation and advocacy at the grassroots level.

In recognition of this and similar evidence supporting reverse causation, the Commission for Macroeconomics and Health has stated: “a concerted attack against [underweight, communicable diseases and maternal mortality] ... inherently constitutes a poverty-reduction effort in which benefits will accrue disproportionately to the poor. Investments in health therefore merit a special pride of place in strategies for poverty reduction” (2001: 22-23).

As is evident, the dichotomy between socio-economic and health selection paradigms is overly simplistic. In truth, the river flows both ways. Neither hypothesis is sufficient to explain health outcomes in either high- or low-income countries; the relationship between poverty and health outcomes is multi-faceted. Income is an integral, but partial, determinant of population health outcomes. Policies aimed at raising aggregate levels of income – for instance, through investment in the private sector, market liberalization, stable conditions for trade and business and effective government stewardship – are essential but, pursued alone, inadequate. They neglect the a priori necessity of basic levels of health for economic development.

Moreover, they focus on long-term outcomes, through gradual market changes, at the expense of more immediate gains in health status possible through basic public health provisions. This permits significant inequalities in individual and community health outcomes – ones that key public health interventions could mitigate. In short, exclusive focus on either income or public health systems is simplistic and short-sighted.

A synergistic approach is required, one that recognizes the fundamental role of socio-economic conditions in determining health outcomes but also the need to achieve minimum levels of health for economic development to take root. As Wagstaff et al. (2004) have shown, the *proximate* determinants of child health – those that affect child health directly, such as perinatal care for mothers, preventive activities and care during illnesses – show broad improvement with improvements in *underlying* determinants of health – those that affect child health indirectly through their effect on proximate determinants. However, other distal determinants (political, social and economic contexts) have been shown to be essential as well, including maternal education, household income, the price of healthcare services, the features of healthcare provision and sanitation practices.

Sen’s notion of poverty as “capability deprivation” encapsulates the nuance of these causal pathways (Sen 1999). His focus is on the ends that people need for development, rather than the means of achieving it, with a view to illuminating the freedoms necessary to achieve these ends. Sen contends that a person’s capabilities – namely, “the substantive freedoms he or she enjoys to lead the kind of life he or she has reason to value” – are integral to human development (1999: 87). Poverty, in this model, means more than a simple lack of financial resources. The “capability approach” to poverty recognizes the importance of income deprivation, but as instrumental rather than intrinsic to human development. It enables a broader, more multi-faceted appraisal of the causes of poverty by focusing on the generation and deprivation of capabilities for development. Importantly, this conceptual model also recognizes the variable relationship between income deprivation and capability deprivation across individuals, families and societies. Income deprivation may matter more or less in different circumstances, depending upon the status of other determinants of capability. For instance, environmental and demographic factors – including age, gender, social roles and epidemiologic and environmental contexts – may radically condition the impact of income deprivation on one’s health and capacity for development. This recognizes the potential for “coupling” of disadvantages: namely, the intertwined effects of income and other capabilities, such as handicap and productivity or childhood disease and adult earning potential, that purely income-based explanations of the health gradient lack. It also allows for a contextual appraisal of income deprivation, noting that developmental capabilities might be more limited for someone who suffers significant relative income

deprivation, but has an absolute income level above that in many poorer countries, as her relative social functioning will be more severely constrained. Drawing on Sen's work, Ruger has cast health as a kind of higher-order capability, without which one could realize no other freedoms (Ruger 2006).

World Health Organization (WHO) analyses of global health risks support a synergistic appraisal of the relationship between poverty and health. The WHO 2002 report enumerates the "top 10 risks to health" globally, and argues that we may mitigate most through a mix of economic policies and public health solutions (WHO 2002). Many of these risks – such as underweight, unsafe water, poor sanitation and hygiene, iron deficiency and indoor smoke from solid fuels – could be alleviated through economic development. However, many are also amenable to improvement through basic public health interventions, be they health promotion practices related to hygiene, cooking and safe sex; improved public infrastructure for water and sanitation; micronutrient supplementation; or school food programs. While these interventions are not a panacea or a substitute for economic development, they are integral first steps to enabling development.

If sensitive-period experience shapes developmental opportunities throughout the lifespan, it has the capacity to engender durable and heritable patterns of social deprivation and illness.

The concept of social determinants of health, understood holistically, encompasses both views of causation and more. Material deprivation certainly breeds disease: childhood mortality, for instance, has proven particularly sensitive to the ravages of poverty (Marmot 2005). With this in mind, one of the pivotal Millennium Development Goals is to attenuate childhood mortality by alleviating material deprivation in low-income countries (United Nations Development Programme 2000). The inverse is likewise true, as evinced by the Keralan experience. Robust and sustained attempts to achieve a core set of public health targets – including water and sanitation efforts, universal immunization coverage, nutritional campaigns, female literacy and empowerment around birth control – can make significant inroads into population disease burden in particular contexts. This may serve to both diminish the slope of the health gradient and provide a stable foothold for continued social gains by those on society's lowest rungs.

But this focus on one river, even when looking in both directions, is arguably myopic. A number of prominent thinkers, Marmot and Wilkinson among them, postulate that though

income is an essential determinant of health, it is only one among many interrelated social determinants. The others include social position, employment, stress, early life experiences, social exclusion and social support systems (Wilkinson and Marmot 2003). Moreover, they see something crucial in the way in which societies, and communities within them, organize themselves. The idea of social capital has come to figure prominently in attempts to explain the dance between social standing and health (Wilkinson 1996). Other putative psychosocial pathways include effort-reward imbalance (Siegrist 1996; Siegrist et al. 2004) and stress secondary to a lack of control over the work environment (Marmot et al. 1997). Bartley's (2004) typology of causal pathways between socio-economic standing and health provides insight into the complex nature of this relationship. It assigns causal import to, variously, materialist, cultural/behavioural, psychosocial, life course and political economy domains, interpreting the social determination of health as a shifting sum of these parts. Raphael (2010b) applies this matrix to child health and development, yielding a powerful explanatory model for the entwined realities of childhood poverty, disease and underdevelopment. The materialist locus identifies parental income and employment status as primary determinants of children's access to all other determinants, including nutrition, housing and education. The cultural/behavioral sphere suggests that parental beliefs, values and norms play an essential role in determining children's exposures to noxious or salutary influences. Children's perceived status in society, levels of psychosocial stress, sense of control and family and social environments are seen as psychosocial determinants of health. Events starting before birth, perhaps even before conception, and continuing into early childhood are captured in the life course domain. Finally, the political economy sphere reinforces the evidence that political processes and societal distribution of power affect everything distally, including the spread of economic and other resources (Raphael 2010b). Despite the raft of evidence linking social circumstance to health outcomes, scientific explication of these links has lagged. The biological mechanisms through which environmental factors condition and reinforce lasting changes in health states throughout the life course have proved largely elusive. However, recent discoveries in neurodevelopment are beginning to shed light on the causal pathways that underlie the life course theory of outcome determination. Predictably, the emerging story is as rich and complex as nature itself, and reinforces the need for a nuanced appraisal of the flow of traffic between our health and our social environment.

Early Childhood Development Experience-Based Brain Development

The field of epigenetics – the study of heritable changes in gene function that occur without alterations to the deoxyribonucleic acid (DNA) sequence – has exposed the dynamic interplay

between biology and society, challenging dichotic conceptions of nature versus nurture. Recent elegant and thought-provoking evidence suggests that the social environment has a profound impact upon the function of one's genes, providing the context and stimulus for the variable expression of an inherited code. Brain development is the quintessential case in point. Early experience appears to exert a critical and lasting influence on neuronal development, suggesting the potential for marked neural plasticity. Data from various animal studies demonstrate that perceptual inputs spur the elaboration of new axonal projections, orchestrate synaptic pruning and foster synapse consolidation (DeBello et al. 2001; Wallhauser-Franke et al. 1995). Certain periods of neurodevelopment have proven particularly sensitive to adaptation; a few of these temporal windows permit permanent changes to the developing brain (Knudsen 2004). The role of early experience in conditioning these changes is considerable.

The political system – with its very short election–re-election cycle and fragmented accountability processes – often seems incapable of making the “big” decisions.

Fish et al. (2004) provide support for this concept, and its epigenetic basis, in studies of nurturing among rats. Maternal neglect induces higher levels of DNA methylation in the infant hippocampus, impairing negative feedback to the pups' hypothalamic-pituitary-adrenal (HPA) axis. This “sensitive-period” change drives sustained increases in stress reactivity, which in turn heightens the risk of cardiovascular, endocrine and neuropsychiatric pathology. Caspi et al. (2003) have uncovered similar epigenetic processes at work in mental health. Their work demonstrates that the interaction between genes and the social environment in childhood determines subsequent resiliency to mental illness. The affective damage wrought by childhood abuse among children in the Dunedin birth cohort was heavily determined by allelic variance within their serotonin transporter gene. Those homozygous for the long gene structure, the protective genotype, were resilient in the face of abuse and had low rates of depression as adults. Those homozygous for the short gene structure, by contrast, proved highly susceptible to depression secondary to abuse during childhood. Heterozygotes displayed an intermediate phenotype. However, a genotype predictive of increased susceptibility to depression in adulthood was found to depend on social circumstance for its expression. Even children with the short gene structure were spared higher rates of depression provided they were raised in a supportive environment (Caspi et al. 2003).

Social Determinants of ECD

The crucial impact of sensitive-period experience is evident in studies of ECD at the population level. In a landmark study, Hart and Risley (1995) tracked language development among children in different strata of American society, demonstrating a cumulative gap of 30 million heard words between children of professional parents and children in families on welfare by age four. The impact of this early experience endured: language skill at age 10 correlated closely with vocabulary observed at age three. In Canada, developmental mapping of children in all school districts in British Columbia revealed disparate outcomes between children of different social strata by age four (Human Early Learning Partnership 2005).

Interventions to attenuate developmental risks in vulnerable groups of children have consistently catalogued developmental gains. Sustained linguistic, cognitive and behavioural benefits to early childhood education and care (ECEC) interventions have been observed in settings as diverse as Jamaica, Cuba, Romania and the United States (Commission on Social Determinants of Health 2008). For instance, an observational study of Romanian adoptees into Canadian homes found significant cognitive and behavioural differences between children adopted in the first four months in life versus those adopted after eight months of age. Those adopted later scored lower on cognitive testing and suffered from higher rates of attention deficit and other behavioural disorders (Ames 1997). Grantham-McGregor et al. (1991) examined the effects of nutrition and stimulation on stunted children in Jamaica. Their study yielded proof of significant improvements in development with either nutrition or stimulation alone, and even larger cumulative developmental strides among children who received both interventions; in fact, the latter group closed the developmental gap between themselves and healthy peers in a mere 24 months. The seminal Abecedarian study evaluated the impact of supplementary ECD programming for at-risk African American children in North Carolina. It randomized children to the normal school curriculum, a preschool program and a special school program, in various permutations. The children who received both supplementary preschool and school programming performed far better on measures of reading and mathematics than did their peers in the control and partial intervention arms, with persistent trends observed at 20 years (Campbell and Ramey 2002). This study demonstrates the enduring salutary effects of ECD programming on subsequent development, and lends empirical weight to Knudsen's notion of sensitive-period development as the preschool intervention conditioned future gains in the school program. These and other studies provide compelling evidence for the social determination of ECD, through varied but intermingled factors such as income, social cohesion, education, nutrition and early nurturing.

Evolving knowledge of neural epigenetics and the impact

of early experience has profound implications for our understanding of child health and development. The manner in which social milieux mould development over the life course is only now coming to light, but the awareness that biology is implicated and adapted in this process is transformative. If sensitive-period experience shapes developmental opportunities throughout the lifespan, it has the capacity to engender durable and heritable patterns of social deprivation and illness. This challenge to genetic teleology provokes a reappraisal of normative presumptions about health inequalities. The lasting effects of early experience radically condition equality of opportunity, both into adulthood and across generations. Knowledge of this fact has arguably redoubled the importance of mitigating disparities in social circumstance as a means to attenuate enduring patterns of health inequality.

From Science to Policy

The recent WHO Commission on the Social Determinants of Health has sought to shift the weight of the accrued evidence on a social gradient in health, and its implied normative challenge, into a foundation for 21st century global social policy. Its call to arms – an aspiration to “close the health gap in a generation” – seeks to redouble political focus on the social determinants of health as a means of realizing broad gains in health equity (Commission on Social Determinants of Health 2008). The commission explored a broad range of systems and policies that bear on the social determination of health, resulting in the development of three overarching goals: improve daily living conditions for all, mitigate inequities in the distribution of power and implement systems for ongoing evaluation and management of action taken. The report stipulates reform on a range of policy fronts, including ECD, the natural environment, employment, social protection and health systems, among others (Commission on Social Determinants of Health 2008). The commission’s report provides fertile ground for policies promoting health equity to take hold. More fundamentally, it has thrust the notion of social determination of health, and the role of ECD therein, out of academia and onto the world stage.

What do these goals mean in the Canadian context? Despite its place among the world’s wealthiest countries, with enormous natural resources and a relatively small population, Canada’s track record in key outcomes such as rates of child poverty, infant mortality and low birth weight is anything but enviable. We trail behind a considerable number of countries that have parlayed evolving knowledge on ECD into actions and outcomes. Our relative childhood poverty rate is among the worst of all Organisation for Economic Cooperation and Development (OECD) countries, and yet we spend the least public money on ECEC services – 0.25% of GDP, compared with 1.2–1.5% in many other countries. Less than 20% of Canadian children aged zero to three are enrolled in child care.

Cuba, by contrast, boasts almost universal enrolment in ECEC services and has achieved national literacy scores well above a number of richer countries. Canada comes dead last in a recent international league table on ECD programming, fulfilling only one of 10 key benchmarks (OECD 2006).

Raphael (2010a) has documented Canada’s relative ranking among the 21 wealthiest nations on six thematic sets of indicators of child well-being. Canada ranks sixth on maternal well-being, 13th on health and safety, second on educational well-being, 18th on relationships, 17th on behaviours and risks and 15th on subjective well-being. What accounts for this highly variable performance? Does it have anything to do with population size and migration, decentralization of decision-making or a slavish commitment to market economies? Canada’s largest cities have become the stage for impressive demographic shifts, making cities such as Toronto among the most diverse in the world. But it is often these immigrants and refugees who are most disadvantaged, falling easy prey to social conditions that abet higher rates of chronic disease. Compounding this insult, the political system – with its very short election–re-election cycle and fragmented accountability processes – often seems incapable of making the “big” decisions.

Steady progress up the ladder will require concerted effort. Any hope for Canadian policies to yield performance in the top rungs across all indicators demands acknowledgement that our much-vaunted “social safety net” has suffered steady erosion in relation to those countries that top the list. Furthermore, Canada will need to develop innovative approaches to resolving its socio-economic and health discrepancies, given our unique challenges. The rural-urban divide is principal among them. Canada describes a small population flung across a vast land mass and bears a concomitant imbalance in the reach of its social services. Nowhere is this more obvious than among the Aboriginal communities in the north. A second major challenge is to ensure that our richly diverse population of immigrants is afforded a real opportunity to integrate into all aspects of Canadian society – not only in policy but also in fact. Our healthcare system is universal but may lack sensitivity to cultural differences and issues of literacy and numeracy. Finally, we must find a way to protect policy initiatives from the vagaries of the economy, which has lurched from feast to famine and back in a way governed more by global currents than by our own policies and programs.

The solutions seem obvious: (1) an open society that welcomes our rich diversity; (2) available, affordable education through early childhood education and beyond; (3) access to maternal healthcare that targets those most at risk and does everything to engage them; (4) the development of a more robust public health system that goes beyond routine vaccination and rudimentary nutrition; and, not least, (5) the bare bones – clean water, appropriate nutrition, affordable housing, a safe environment and opportunity for meaningful

employment. Assessment and accountability must be an integral part of all new programs. While the costs of these solutions are considerable, the long-term returns will surely dwarf them. We cannot afford the alternative. It's Canada's time to move back to the front of the line. **HQ**

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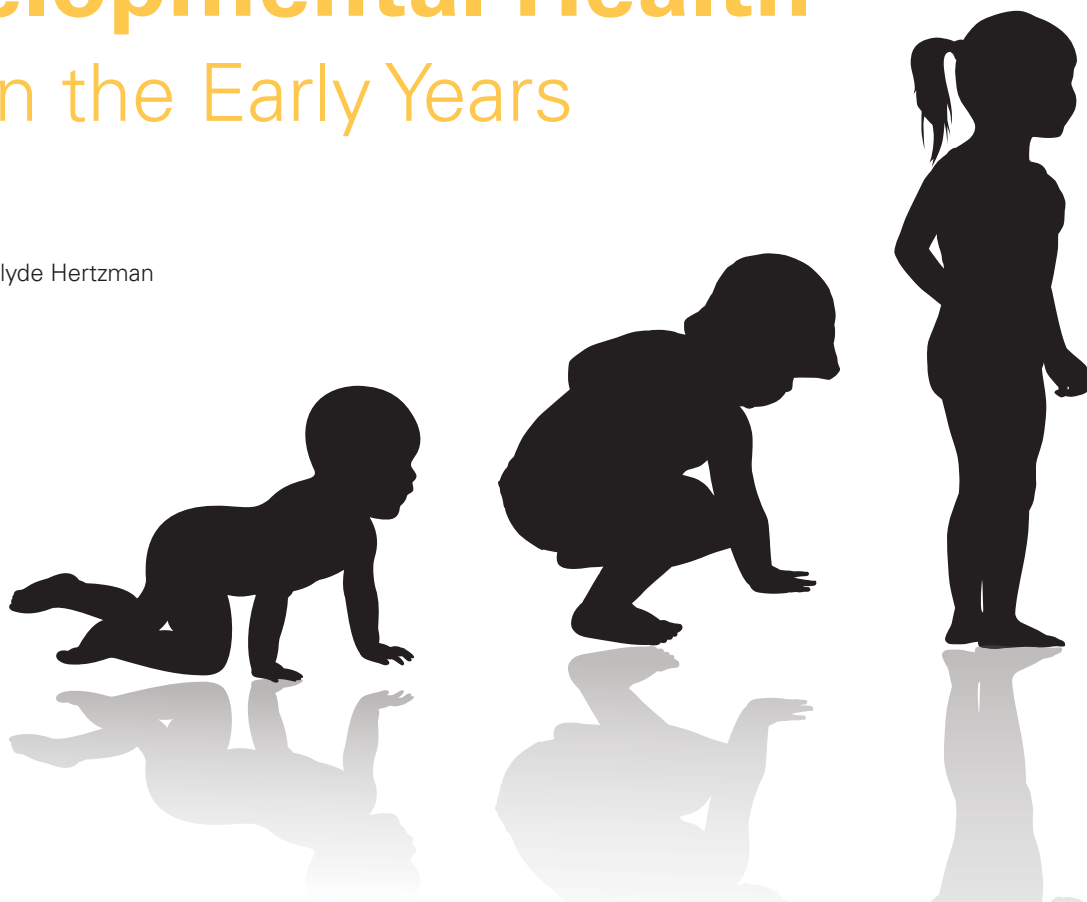
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Social Geography of Developmental Health in the Early Years

Clyde Hertzman



What happens to children in their earliest years is critical for their development throughout the life course. The years from zero to school age are foundational for brain and biological development. Attachment and face recognition; impulse control and regulation of physical aggression; executive function in the prefrontal cortex and focused attention; fine and gross motor functions and coordination; receptive and expressive language; and understandings of quantitative concepts are all established during this time and become embedded in the architecture and function of the brain (Doherty 1997; Kolb 2009; McCain and Mustard 1999). Brain and biological development are in turn expressed through three broad domains of development of the whole child: physical, social-emotional and language-cognitive, which together are the basis of “developmental health” (Keating and Hertzman 1999). Developmental health influences many aspects of well-being, including obesity and stunting, mental health, heart disease, competence in literacy and

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numeracy, criminality and economic participation throughout life (Irwin et al. 2007). Accordingly, developmental health is the central concern of this article.

The emerging architecture and function of the brain are shaped by experience. Which experiences matter? The qualities of stimulation, support, nurturance and participation young children experience in the intimate environments where they grow up, live and learn matter. In other words, development is driven by the interactions that children have with those in their intimate environments (Shonkoff 2000). Internal biological programs may determine which competencies can be acquired at specific periods in a child's early life, but children do not simply grow and develop according to the dictates of internal biology. The qualities of experience when a given biological

window of opportunity opens support or undermine the child's chances of achieving the competencies associated with that window.

Clearly, intimate environments are key, but they in turn are influenced by broader environments that affect the capacity of parents and caregivers to do their best for children. Evidence of this is not difficult to find. In Canada, less than 5% of children at every socio-economic level are born with clinically detectable limitations to their development; but by school age, vulnerability in developmental health grows to over 26% (Council for Early Child Development 2009) and profound socio-economic inequalities in development emerge (Council for Early Child Development 2009). In this respect, Canada is like most societies on the planet where, regardless of national wealth, inequalities in socio-economic resources among families are associated with inequalities in developmental health. The relationship is much more insidious than solely differentiating the rich

from the poor; rather, any gain in social and economic resources to a given family results in increased prospects for positive development of the children in that family. This stepwise relationship between socio-economic conditions and developmental health is called a “gradient effect” (Keating and Hertzman 1999).

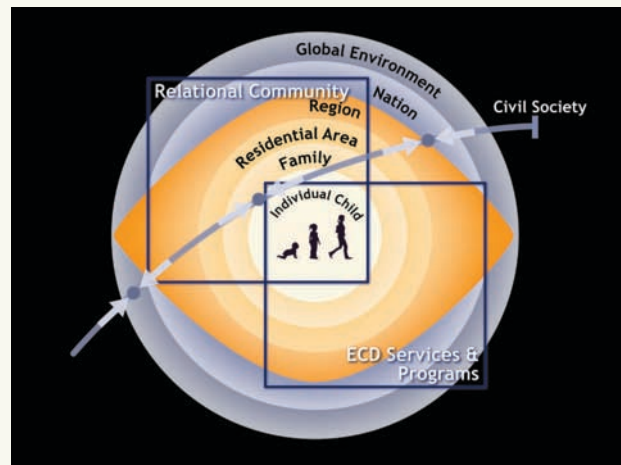
Social Determinants of Developmental Health and Their Geographical Dimension

Here I present a framework that accounts for the environments (and their characteristics) that directly and indirectly influence the quality of children’s early experiences (Figure 1). The framework also acts as a guide to understanding the relationships among these environments, placing the children at the centre of their respective surroundings. The environments are not strictly hierarchical but, rather, are overlapping and interconnected. At the most intimate level is the **family environment**. At a broader level are residential communities (such as neighbourhoods), relational communities (such as those based on religious or other social bonds) and the early learning, care and development service environment. Each of these environments (where the children actually grow up, live and learn) is situated in a broader socio-economic context that is shaped by factors at the regional, national and global levels. The framework also suggests that historical time is critical. The institutional and structural aspects of societies develop slowly over time and can be very difficult to change. Similarly, those aspects that matter for developmental health are created or dismantled over long periods of time.

The family environment is the primary source of socio-economic and relational experiences for children, both because family members (or other primary caregivers) provide the largest share of human contact with children and because families mediate children’s contact and connection with the broader environment. Young children need to spend their time in warm responsive environments that protect them from inappropriate disapproval and punishment. They need opportunities to explore their world, to play and to learn how to speak and listen to others. Family social resources include parenting skills and education, cultural practices and approaches, intra-familial relationships and the health status of family members. Economic resources include wealth, occupational status and dwelling conditions. The gradient effect of family resources on developmental health is the most powerful single explanation for inequalities in developmental health across societies, such that societies with steeper gradients have poorer average developmental health (Siddiqi et al. 2007).

Children and their families are also shaped by **residential communities** (where the children and family live) and

Figure 1. Framework for the social determinants of developmental health



ECD = early learning, care and development.

relational communities (family social ties to those with a common identity) in which they are embedded. Residential and relational communities offer families multiple forms of support, from tangible goods and services that assist with child rearing to emotional connections with others that are instrumental in the well-being of children and their caregivers. At the residential/locality level, both governments and grassroots organizations play a highly influential role. Many resources available to children and families are provided on a community level through local recognition of deficits in resources, problem solving and ingenuity.

Relational communities are the people, adults and children, who help form children’s social identity: tribal, ethnic, religious and language/cultural. Often, they are not geographically clustered communities. Relational communities provide a source of social networks and collective efficacy, including instrumental, informational and emotional forms of support. However, discrimination, social exclusion and other forms of subjugation are often directed at groups defined in relational terms. The consequences of these forms of discrimination (e.g., fewer economic resources) can result in discernable inequalities. Moreover, relational communities can be sources of gender socialization, both equitable and inequitable.

Access to quality **early learning, care and development programs and services** that support children’s development during the early years is crucial for success in childhood. Quality programs provide support for survival, growth and development (Anderson et al. 2003; Clifford et al. 1998; National Institute of Child Health and Human Development Early Child

Care Research Network 1996; United Nations Educational, Scientific and Cultural Organisation 2007), leading to better child (Burchinal and Cryer 2003; Palfrey et al. 2005) and adult outcomes (Palfrey 2005; Temple and Reynolds 2007), by addressing one or more of the following key issues: breast-feeding, early identification of developmental delays, child care, early childhood education, nutrition, parenting, community strengthening and institutional capacities such as instructional and training programs. In Canada, the list of barriers of access to quality programs includes both geographical and non-geographical factors, for instance, local availability, cost, transportation, time offered, language offered and distrust between parents and service providers.

The influence of the **regional and national environments** is fundamental in determining the quality and accessibility of services and resources to families and communities. These environments are also salient for understanding the levels of social organization at which inequalities in opportunity and outcome may be manifest, and the levels of organization at which action can be taken to support developmental health.

There are many related aspects of regional environments that are significant for developmental health: physical (e.g., the degree of urbanization, the health status of the population), social, political and economic. These aspects affect developmental health through their influence on family resources, neighbourhood quality and the accessibility and quality of services. In contrast to the statistically powerful impact of family environments on developmental health, the influence of broader environments, such as the region, is statistically weaker but affects much larger numbers of children. Thus, policy changes at a regional level can have a considerable influence on developmental health in the aggregate.

The most salient feature of the national environment is its capacity to affect multiple determinants of developmental health through wealth creation, public spending, child- and

family-friendly policies, social protection and the defence of basic rights. At the level of the national environment, comprehensive, intersectoral approaches to policy and decision-making work best. Although developmental health tends to be more favourable in wealthy countries than in poor ones, this is not always the case. The policy-level commitment made by certain resource-poor nations, such as Cuba, has enabled them to create an environment that is far more favourable for developmental health than that in many resource-rich countries.

The **global environment** can influence developmental health through its effects on the policies of nations as well as through the direct actions of a range of relevant actors, including multi-lateral economic organizations, industry, multilateral development agencies, non-governmental development agencies and civil society groups. International institutions play both challenging and supporting roles for developmental health. On the challenging side, globalization of the economy has brought the problem of “work life–home life conflict” to many poor countries that do not have the resources to provide quality child care for working parents. This is reflected in the millions of very young children being left home alone, being cared for by other young children or spending their days in their parents’ dangerous workplaces in majority world countries (poorer and less developed countries, where the majority of people in the world live; Heymann 2006). On the supportive side, enforcing the United Nations Convention on the Rights of the Child (UNCRC) has the capacity to raise the bar on developmental health in all 193 signatory countries. At present, initiatives are under way to monitor compliance with the Rights in Early Childhood provisions of UNCRC. It is hoped that this will provide a mechanism whereby international scrutiny can be used to increase the priority of investment in early childhood worldwide (Vaghri et al. 2009).

Civil society groups are conceptualized as being organized at, and acting upon, all levels of society. The ability of civil society

Developmental health influences many aspects of well-being, including obesity and stunting, mental health, heart disease, competence in literacy and numeracy, criminality and economic participation throughout life.

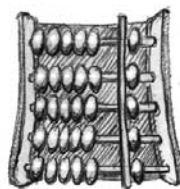
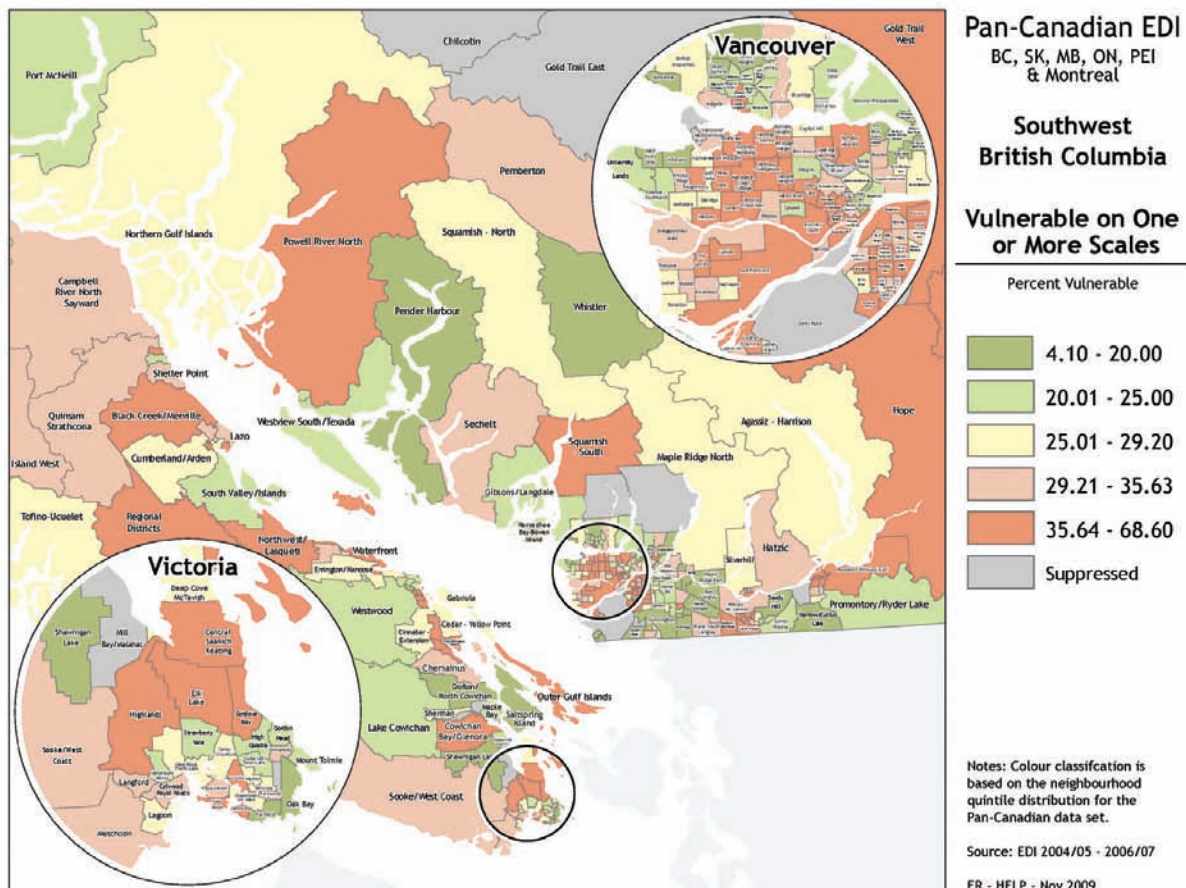


Figure 2. Map of developmental health according to neighbourhood in Greater Vancouver and Greater Victoria



Sources: Data from the Pan-Canadian Early Development Instrument (EDI) Platform 2004–2005 to 2006–2007 (Council for Early Child Development 2009).

groups to act on behalf of children is a function of the extent of connectedness of citizens, and the support of political institutions in promoting expressions of civil organization. When civil society is enabled, there are many avenues through which it can engage on behalf of children. These groups can initiate government, non-government and community action on the social determinants of developmental health. They can advocate on behalf of children to ensure that governments and international agencies adopt policies that positively benefit developmental health. Finally, civil society groups are instrumental in organizing strategies at the local level to provide families and children with effective delivery of services; to improve the safety, cohesion and efficacy of residential environments; and to increase the capacity of local and relational communities to better the lives of children.

Institutional/historical time cannot be ignored because the opportunities and barriers that exist for developmental health in every society are the product of evolutionary processes that are measured in years and decades. For instance, the Nordic model of provision in the early years, widely acknowledged to be the best in the wealthy world, unfolded gradually, beginning with policy discussions in the 1950s and evolving over the following 50 years (Bremberg 2009). The fact that all the wealthy English-speaking countries invest less (as a proportion of gross domestic product [GDP]) in supporting the positive aspects of early human development than do all the non-English-speaking wealthy countries (Organization for Economic Cooperation and Development [OECD] 2006) is not a result of recent policy decisions but is rooted in the punitive character of the English poor laws of the 17th and 19th centuries, which were exported,

in spirit and letter, to Canada, the United States, Australia, New Zealand and Ireland (Halfon 2009).

Geography of Developmental Health – Revelations from Mapping

Between 2000 and 2009, the province of British Columbia completed three population-based assessments of developmental health – including more than 90% of children in school-entry cohorts from across the province, at least three times over. Assessments were done during the kindergarten year, and developmental health was measured using the Early Development Instrument (EDI), which involves kindergarten teachers filling out a detailed checklist for each child in their class based on five scale measures of development: physical well-being; social competence; emotional maturity; language and cognitive development; and communication and general knowledge (Janus and Offord 2000). The EDI allows each child to be scored as “vulnerable” or “not vulnerable” on each of these five scales. The label of “vulnerable” is not placed directly on the child. Instead, rates of vulnerability on the EDI are calculated and mapped according to residential neighbourhoods where children live.

Mapping developmental health by neighbourhood follows logically from the framework in Figure 1. Neighbourhoods aggregate family environments, reflect broader environments and also have emergent properties (such as safety and social cohesion) that influence developing children. The Human Early Learning Partnership team at UBC worked with local communities to define neighbourhoods that were coherent as they pertained to young children. In the urban areas, these had to be large enough to include a minimum of 40 kindergarten children per year (range approximately 40–500) but small enough to be recognizable to families and to have a distinct character. Thus, neighbourhoods tended to include families of similar socio-economic status, unique mixes of relational characteristics and similar levels of access to (or barriers to) programs and services. Over the past year, neighbourhood definitions for EDI have been harmonized across Canada, facilitating pan-Canadian comparisons (Council for Early Child Development 2009).

Figure 2 presents a map of developmental health according to neighbourhood in the most populous area of British Columbia – Greater Vancouver and Greater Victoria – representing a total population of approximately three million and about 30,000 kindergarten children. (The reader is referred to the Council for Early Child Development [2009] to find the full pan-Canadian EDI mapping platform, covering 75–80% of the Canadian population, and including multiple EDI and socio-economic variables by neighbourhood and region across Canada.) The “proportion of children vulnerable on one or more scales of the EDI” is the summary measure used on this map. The pan-Canadian consortium for the EDI has designated this as its overall summary measure of developmental health,

in the same sense that infant mortality is the international summary measure of child survival. What do the maps reveal? The answers are discussed below.

Large Local Area Differences in the Proportion of Developmentally Vulnerable Children

The colour bands on the map reveal surprisingly large differences in developmental vulnerability across geographical neighbourhoods. Among the green-banded neighbourhoods vulnerability goes as low as 4.1%, and among the red-banded neighbourhoods vulnerability goes as high as 68.6%. The bands were established for the whole the country, so there is more than a 16-fold inequality in developmental vulnerability in Canada at the level of the neighbourhood! This range is much larger than one would have predicted on the basis of random sample surveys of child development, which rarely demonstrate social gradients larger than threefold. Why would this be? The best answer is that local geography defines *unique combinations of factors* that support or undermine early child development, which are not readily detected by random sample surveys. For analytical purposes, random sample surveys aggregate children from different geographical locales into statistical (rather than real) neighbourhoods according to a small number of grouping factors (e.g., median family income, proportion of adults with high-school graduation). Such “neighbourhood effects” analyses from random sample surveys do not capture the unique circumstances of real neighbourhoods. Thus, the 16-fold variation in developmental health on the EDI validates the population-based approach since only this tactic captures the circumstances of real Canadian neighbourhoods.

Across the country as a whole, avoidable vulnerability stands at approximately 60%.

High Proportion of Avoidable Vulnerability

Over the past 10 years, the EDI has been performed for several hundred thousand Canadian children, organized into more than a thousand local neighbourhoods. Much like international variations in infant mortality, these data allow us to estimate an achievable minimum level of neighbourhood developmental vulnerability. In principal, the calculation is simple. The lowest level of vulnerability that *has* been achieved is something that *can* be achieved. Developmental vulnerability between 4 and 5% has been accomplished in some (albeit, a very small number of) neighbourhoods in Canada, and this is the range that one would expect based upon clinically significant prematurity, low birth weight and congenital anomalies. Thus, one could assert

that any level of vulnerability above 5% is excess and therefore avoidable. Allowing for cohort effects and random variation over time, as we have done in British Columbia, it is responsible to assert, more conservatively, that any vulnerability above 10% is avoidable. Using this benchmark, in British Columbia, with vulnerability standing at 28.6% in 2008–2009, 65% can be deemed to be “excess vulnerability.” Across the country as a whole, avoidable vulnerability stands at approximately 60%. Moreover, less than 7% of BC neighbourhoods have demonstrated consistently less than 10% vulnerability over successive waves of data collection. Thus, vulnerability reduction is an issue for all communities.

Socio-economic Context Doesn't Always Explain Neighbourhood Variation in Developmental Health

We began with more than 1,000 census and tax filer variables, obtained (through custom orders) from Statistics Canada and Revenue Canada, and matched them to BC neighbourhoods through aggregation by six-digit postal code. Next, we employed a range of theories as to how socio-economic context might influence developmental health in order to reduce the number of variables and create variable clusters that have theoretical coherence. From these, we constructed models that “explained,” in a statistical sense, as much as possible of the variation in vulnerability between neighbourhoods according to socio-economic context. Although the explanatory power varies slightly from wave to wave of EDI data collection, roughly 45–50% of the neighbourhood variance can be explained in the statistical sense by socio-economic context. This is evidence of the socio-economic gradient effect and demonstrates a steep (i.e., strong) gradient in developmental health in British Columbia. A strong gradient is not unexpected, but it is not easily amenable

to modification by the principal agents for young children: families, care providers and social policy makers. On the other hand, more than half of the neighbourhood variation in vulnerability is not explained by socio-economic context. In theory, this ought to be the more easily modifiable variation because it would include such things as day-to-day parenting practices; the quality of local governance and resources for young children; the availability of quality early learning, child care and development programs; and the willingness of families from diverse backgrounds to co-operate in the interests of their children. This leads to the discussion below.

Which Communities Are Positive and Negative Outliers, and Why

One of the most useful outcomes of population-based data collection and mapping is the capacity to identify positive and negative outliers, that is, neighbourhoods where developmental health is *consistently* better or worse than one would predict on the basis of socio-economic context across multiple waves of EDI. The population-based character of EDI data collection is indispensable here because it produces neighbourhood vulnerability rates that are not subject to random error, as they would be if children had merely been sampled from neighbourhoods. Thus, positive and negative outliers are exactly that, and not statistical artifacts. When a given neighbourhood is found to be a positive or negative outlier on three successive waves of EDI, one can say with confidence that it has characteristics that are worth exploring. Our research has now reached the stage where we are systematically studying positive and negative outlier neighbourhoods in order to identify their distinguishing characteristics that, we believe, will also be the most readily modifiable community factors that support or undermine developmental health.

FACTS FOR LIFE

Encouraging children to play and explore helps them learn and develop socially, emotionally, physically and intellectually. This helps children get ready for school.



Source: Facts for Life Global
www.factsforlifeglobal.org/03/messages.html

Change in Developmental Health over Time

With three waves of EDI data collection in British Columbia, it has been possible to analyze trends in developmental health over the first decade of the 21st century. Despite the current high level of interest in the early years, the trends have generally not been favourable. Between wave one (2001–2004) and wave two (2004–2007) of data collection, overall EDI vulnerability in British Columbia rose from 26.1 to 29.6%. Between wave two and 2008–2009 (when the whole province was done in one school year), vulnerability fell slightly to 28.6%. These trends are reflected at the level of the neighbourhood and geographical school district, where many more places got worse than got better. A closer look, however, shows that the trends vary by scale of the EDI. In particular, vulnerability on

Table 1. Characteristics of communities showing sustained improvement in developmental health, British Columbia, 2001–2009

Strong intersectoral leadership – Leadership involves a broad coalition of traditional and non-traditional partners where senior leaders attend, significant resources are shared and long-term commitments are honoured.
Focus on EDI outcomes – Community planning focuses on physical, social-emotional and language-cognitive-communication skills, which are given priority over institutional politics.
Multiple layers of programming and support focused on families – Successful communities find ways to make a virtue out of diverse programming by finding ways to coordinate, co-locate and harmonize rules of admission, costs and ages served so that families have choices of programs and fewer scheduling, financial and transportation challenges.
Vertical coordination – Sustainable benefits in developmental health have come when resources have been attracted from governments with taxing authority: local, provincial and national.
Alignment with the school system – The facilities, resources, permanence, credibility and cachet of universal investment in human development that go with the education system are all indispensable to community initiatives in the early years. All communities that have shown sustained improvements in developmental health have pursued a high degree of alignment with the school system, up to and including full integration.

EDI = Early Development Instrument.

the language and cognitive development scale declined, whereas it increased on the physical, social, emotional and communication skills. Since the language and cognitive scale includes most of the traditional “readiness for school” items (e.g., knowing letters and numbers, familiarity with picture books), the trends suggest that we have been placing emphasis on formal learning in the early years, possibly at the expense of other domains of developmental health.

Level of Social Aggregation Where a Problem Exists

Pan-Canadian mapping of EDI allows variations in developmental health to be readily detected at the level of the community, region, province and nation. This is indispensable for understanding the sources of trends in EDI vulnerability. Once we had determined the overall negative EDI trend in British Columbia, two questions arose. First, was this a BC problem or a Canadian problem? Second, could action at the community level counter the overall trend? Answering these questions requires data to be available at multiple levels of social aggregation. Since British Columbia was not the only province to have collected EDI data over several waves, we were able to determine (from Manitoba

and Ontario) that British Columbia was not alone in seeing negative EDI trends between 2000 and 2009. Thus, we focused on national, rather than provincial, explanations for the trend.

With this in mind, we discovered that the mid-1990s were a watershed for Canadian families with children. By then, infant and under-age-five mortality had dropped to the lowest levels in the world (Gapminder 2009). But between 1992 and 1999, social spending in Canada dropped by 19% as a proportion of GDP (OECD 2004). In 1996, federal-provincial transfer payments were capped, transferring the fiscal crisis of the day from the federal government to the provinces, who provide most of the direct services to families. Starting in 1996, infant mortality began to increase, albeit slightly, for the first time in decades (Public Health Agency of Canada 2008); at the same time, under-age-five mortality stopped decreasing (Gapminder 2009). The year 1996 was also the inflection point for income inequality in Canada and for income inequality among Canadian families with children. Starting then, family income inequality after taxes and transfer payments rose steadily for the following decade (Yalnizyan 2007). At the same time, the number of hours worked by Canadian families with children rose by 300 per year, cutting into quality family time (Yalnizyan 2007). Concurrently, Canada’s response to the new realities of working mothers and modern family needs was the weakest in the OECD. In 2008, the United Nations Children’s Fund (UNICEF) published its report on benchmarks for early learning and care. Of the 10 benchmarks, Canada achieved only one, tying for last among 26 wealthy countries. In contrast, the Nordic countries all achieved eight to 10 benchmarks. Thus, declining developmental health across Canada was consistent with a broader trend showing that the long-term impact of the solution to the fiscal crisis of the 1990s was damaging to Canadian families with children.

Opportunities for “Place-Based” Learning

Mapping of developmental health – neighbourhood, regional, provincial, national and over time – allows for many types of learning to take place. It permits large numbers of outlier neighbourhoods and regions to be sampled as if they were individuals and studied in statistically rigorous ways. It allows for the study of factors, such as residential transiency, that do not vary much within regions in Canada but vary significantly over the country as a whole. It makes possible the comparison of the impact of different social policy regimes by province. Finally, it allows hypotheses on the determinants of developmental health to be generated in one part of the country and tested in others. The latter is occurring in relation to the question posed above: could action at the community level counter the overall (negative) trend in developmental health in Canada? Already, ethnographic studies have identified characteristics of BC communities that have shown sustained *improvement* in EDI scores over the period 2001–2009 when the national and provincial trends

were negative (Table 1). These characteristics serve as hypotheses to be tested in other parts of Canada over time.

Conclusion


Developmental health is socially determined and, in turn, influences health, well-being, learning and behaviour across the life course. Because the social determinants of developmental health and the remedies for developmental vulnerability range from the intimate to the global, population-based data monitoring is indispensable for understanding and intervention. Promulgation of the EDI and community mapping shows promise as tools to help Canada sustain an era of “evidence-based social change” in this field. Such change needs to take place at all levels of society if developmental vulnerability is to be reduced from its current level of more than one quarter of Canadian children to less than one tenth, where we know it should be. **HQ**

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Dr. Brenda Gallie
ophthalmologist and researcher

Dr. Helen Chan
researcher and oncologist

Sarah Slingsby
cancer survivor

Good science leads to better patient care

The research and treatment provided by Drs. Helen Chan and Brenda Gallie has helped save the eyesight of untold numbers of children with retinoblastoma, a rare cancer of the eye. Sarah Slingsby is one of them. Diagnosed last year, the bubbly nine-year-old is now cancer-free.



Aboriginal Child Health and the Social Determinants

Why Are These Children So Disadvantaged?

Brian Postl, Catherine Cook and Michael Moffatt

Canada's original people consist of First Nations, Inuit and Metis peoples. Their estimated population is 1.17 million. The total fertility rate for the period 1996–2001 was 2.6 for Aboriginal women versus 1.5 for Canada (Statistics Canada 2006). Thus, a high proportion of this rapidly growing segment of the population are children. Numerous articles have reviewed the health status of Canada's Aboriginal children and shown comparatively high prevalence and incidence of most of the common diseases that affect children. This article highlights some of the more specific disparities, but also attempts to provide some historical context and a few composite case studies that illustrate how the social determinants, colonialism, jurisdictional issues, geography and healthcare can interact to amplify disproportionately the disadvantage these children have in so many ways. Much of the historical detail recounts the contact with First Nations people, the most numerous and the first group to have contact with European settlement.

History

Prior to contact, First Nations and Inuit communities were diverse entities with established governance, economic, health and social support and education systems with unique cultural influences that enhanced and sustained the individual, the family and community structures. Aboriginal peoples had a balanced and holistic approach to health and wellness focused on all of the physical, mental, emotional and spiritual aspects of life. Traditional approaches to health and healing incorporated natural medicines derived from plants and animals and involved the practice of ceremonies and natural healing with the guidance of healers and skilled lay midwives (Anderson et al. 2004, 2006).

Colonization

With the European settlers' arrival, the colonization of the lands resulted in altered governance structures, including legislation and policies, that had a profound impact on the existing community structures and continues to have implications today (Anderson et al. 2006; Moffatt and Cook 2005; Mowbray 2007; Reading et al. 2007).

Colonialism is the exploitation of a people for economic purposes, and this is consistent with the colonization of the Aboriginal peoples in Canada, as with indigenous peoples throughout the world. Colonization of indigenous peoples has been described in the international context as having three phases – invasion, intervention and reassessment of government responsibility (Anderson et al. 2007). Colonization has predictable outcomes for indigenous peoples – the process of assimilation that results in the establishment of systems that are ultimately racist in their administration, cultural genocide and inter-generational trauma. Efforts to enforce assimilation through the establishment of residential schools resulted in significant

family and social dysfunction through the fragmentation and disintegration of traditional family constructs. The residential schools also contributed to physical, sexual and mental abuse as well as substance and alcohol abuse, with the resultant effects on children of fetal alcohol spectrum disorder and neglect. Active involvement of the federal government in the social structures of the Aboriginal peoples has resulted in dysfunction, dependency and traumatization. This has had a profound effect on the health and well-being of the Aboriginal people of Canada.

The shared responsibility for health and social services has not been a collaborative effort but, rather, has resulted in a jurisdictional ambiguity leading frequently to barriers to services.

Legislation and Policies

The Royal Proclamation Act of 1763 implied an equitable arrangement between the sovereign nations and established the protection of the First Nations peoples by the Crown. The British North America Act (1867) reaffirmed the relationship with First Nations peoples and outlined how Canada would be governed, with the responsibilities for parliament (the federal government) and the provincial governments identified in the act. Health and social services became the responsibility of provincial governments, with the responsibility for “Indians and lands reserved for Indians” resting with parliament. The delivery of health and social services for First Nations people on reserve became the direct responsibility of the federal government. Subsequent legislation – such as the Canada Health Act, supporting universal healthcare – has resulted in fragmented approaches to the delivery of health and social services, with discrepancies in the funding levels to the First Nations as compared with funding to the provincial systems. The Indian Act (1876) incorporated the key elements of earlier legislation that defined the title “Indian,” restricted self-government, established residential schools, limited appeals of government decisions, established a pass system for leaving the reserve, limited the ability of First Nations people to own or mortgage land and focused on removing cultural influences by outlawing ceremonial practices such as the Sundance and Potlatch. First Nations leaders continued to assert their right to be autonomous nations with authority, and the federal government entered into agreements with the First Nations on a national level through the signing of formal treaties, which are viewed by the First Nations as binding agreements negotiated and signed between sovereign nations.

In 1876, Treaty Six was signed between the federal government and the Cree Nation of Alberta and Saskatchewan. It included a “medicine chest” clause that states that “the Queen ... will grant

to the Indians assistance ... sufficient to relieve them from the calamity that shall have befallen them. Medicine chest shall be kept at the house of each Indian Agent for the use and Benefit of the Indians at the direction of such agent." (Morris 1991: 355). While the federal government has stated that the provision of health benefits to First Nations and Inuit peoples is a policy directive, the First Nations maintain that health and healthcare is a treaty right, as indicated in the language of Treaty Six. Although reference to a medicine chest is not made in any other treaty, the negotiation proceedings for subsequent treaties (seven through 11) reference the provision of medicines and medical services.

The white paper of 1969 proposed the shelving of treaties and the transfer of responsibility for all health and social services for First Nations and Inuit peoples to the provinces (Government of Canada 1969). The white paper received resounding criticism from the First Nations, and it was withdrawn, although many of the proposed actions for assimilation continue through a gradual withdrawal of federal services. The Constitution Act of 1982 reaffirmed the existing Aboriginal and treaty rights, and recognized First Nations, Metis and Inuit peoples as the Aboriginal peoples of Canada.

Service Organization

In addition to the effects of colonization, the First Nations and Inuit people were exposed to infectious diseases to which they were highly susceptible, and the resultant mortality for communities was high. The traditional healing system was undermined through the rapid changes to existing community infrastructures and resources resulting from the enforcement of new legislation. Initial Western health services were provided by missionaries, the Royal Canadian Mounted Police, the Hudson's Bay Company and the military, and later by physicians accompanying the "Indian Agent" on community visits in an effort to address epidemics of infectious diseases. An organized health service through the Branch of National Health and Welfare was initially offered in the 1940s and has evolved to the Regional First Nations and Inuit Health Department of Health Canada (Anderson et al. 2006; Moffatt and Cook 2005). Health Canada provides access to insured health services provided by the provincial governments and provides non-insured health benefits to registered First Nations and Inuit peoples.

The existing shared federal/provincial responsibility for the provision of health and social services for First Nations peoples includes health services, education, social supports and child welfare. The shared responsibility has not been a collaborative effort based on meeting the needs of the client but, rather, has resulted in a jurisdictional ambiguity leading to inequitable access to required services – and, frequently, gaps in or barriers to service.

Mortality and Morbidity

The Inuit infant mortality rate in the 1960s approached 250 in

1,000. It is now at three times the national rate, and mortality in First Nations children is twice the national rate. Recent Canadian data for Inuit infants still indicate a neonatal death rate of 5.8 versus a national rate of 2.8, post-neonatal mortality rate of 10.8 versus 1.7 and an infant mortality rate of 16.5 versus 4.6. Rates in First Nations communities are intermediate but still reflect a relative risk of two or more compared with the Canadian infant population as a whole.

When hospital utilization is used as a measure of morbidity, virtually all International Classification of Diseases, 10th revision (ICD-10) codes for First Nations children have a relative risk in excess of one. A Manitoba population-based study found excess utilization for First Nations children in all of ICD coding (Martens et al. 2002).

Burden of Illness

The burden of illness can be defined with a great degree of illness specificity. Infectious diseases remain a key element of the morbidity experienced by Aboriginal children. Indeed, the second epidemiological revolution, a shift from infectious to chronic diseases, does not appear to have occurred completely in this population (Terris 1983).

Aboriginal children bear a disproportionate burden of illness in the Canadian mosaic. Although there have been substantive improvements over several decades, there remains a marked differential of disadvantage.

Specific Diseases and Conditions

In the 1980s, 7% of Inuit children suffered meningitis by seven years of age (Postl et al. 1984). This has improved dramatically with the introduction of *Haemophilus influenzae* vaccines, but rates for all forms of meningitis remain elevated. The recent experience with influenza A H1N1 demonstrates the impact of novel viruses on the Canadian Aboriginal population. The First Nations demonstrated an odds ratio of 6.52, with a particular emphasis on First Nations children (Zarychanski et al. 2010).

Similar patterns were seen with adenoviral infections (Wenman et al. 1982) and continue with outbreaks of respiratory syncytial viruses in Aboriginal communities (Banerji et al. 2001). Indeed, outbreaks of smallpox at the turn of the century were devastating in their impact (MacGregor 1975).

Tuberculosis remains an issue, particularly in the northern and western parts of the country, with rates of infection approaching as much as 50 times the Canadian mean. Manitoba has the highest risk ratio (Ellis et al. 2009).

Hepatitis is prevalent. Hepatitis A is endemic, and increased rates of hepatitis B exist throughout all age groups (Minuk et al. 1982, 1985).

Rheumatic fever has been more prevalent and more severe in Aboriginal children, with an incidence three times higher than expected in First Nations children in Manitoba.

There remain other interesting anomalies in infectious burdens that have persisted for decades. The Northern infant syndrome (Godel and Hart 1984) – composed of hepatitis, bronchiolitis and rickets – continues to occur in Western provinces.

Environmental exposures also demonstrate a marked predisposition for Aboriginal children. Statistics Canada suggests a rate of alcohol-related effects in childhood involving 20% of the population (Fetal Alcohol Syndrome/Fetal Alcohol Effects Technical Working Group 1997). The impacts on educational attainment, social development and social interaction are profound.

Rickets continues to be an issue in First Nations and Inuit communities, with rates approaching eight times expected rates (Haworth and Dilling 1986). Iron-deficiency anemia (Moffatt et al. 1994) is of much higher prevalence, with its attendant risk of developmental defects.

Suicide in Aboriginal communities is relatively common and is two to three times national rates.

Injuries are the most common cause of death beyond infancy and involve motor vehicle accidents, fires, self-harm and harm to others within that context. It is in this area that the highest rate of hospitalizations is documented in this community (Health Canada 2005).

Suicide in Aboriginal communities is relatively common and is two to three times national rates (MacMillan et al. 1996). Indeed, suicide and para-suicide often occur in clusters within communities.

Chronic multi-factorial disease has become increasingly common and is superimposed on infections and environmental issues. Diabetes is now endemic in this community. Type 2

diabetes has increased dramatically in Aboriginal populations (Dean et al. 1992; Walker 1977) and carries associated risks for chronic renal disease and cardiovascular disease. The rate of dialysis in the adult population increases annually. The relative risk of requiring dialysis is twice that in the Canadian adult population (Tonelli et al. 2005). Obesity rates are also increasing.

There are also a few congenital or hereditary predispositions. As an example, a very high prevalence of carnitine palmitoyl-transferase type I (CPT-1) deficiency (Greenberg et al. 2009) has recently been described in Inuit children, with a theoretical propensity to hypoglycemia.

Congenital dislocation of the hip with autosomal dominant expression is common in certain Northern Manitoban communities (Walker 1977). Hereditary polymorphic light eruption first described by Birt (1968) remains a common manifestation of sunlight sensitivity.

Also, Inuit children have a higher and later peak of neonatal jaundice that can sometimes require prolonged hospital stays and the use of phototherapy (Postl 1982).

Determinants of Health

The health status of the community can be attributed to the effects of the social determinants of health on physical, emotional and spiritual well-being of individuals or communities. The specific determinants are defined with slight differences on the international, national and local community scales. The primary social determinants of health as identified by the World Health Organization (WHO) are presented in Table 1, as are the Canadian determinants of health. While these determinants are relevant for indigenous populations of the world, emerging literature indicates that there are some specific determinants of health that have particular relevance for the health and well-being of indigenous peoples (see Table 1) (Anderson et al. 2006, 2007; Loppie-Reading and Wien 2009; Mowbray 2007).

Table 1. Key determinants of health

World Health Organization	Canada	Indigenous Peoples
Social gradient Stress Social exclusion Work Unemployment Social support Early life	Education Income and social status Social support networks Employment and working conditions Social and physical environments Personal health practices and coping skills Healthy child development Culture Gender Health services Biology Genetic endowment	Cultural continuity Physical and social environments Self-determination Connectivity to land and reconciliation History of health issues Racism and marginalization

At the community level, healthcare providers have identified the key determinants of health as balance, life control, education, material resources, social resources and environmental/cultural connections (Richmond and Ross 2009). There are variations in terminology, but the conclusions are the same: inequitable access to health services, education, employment and social support networks have a profound impact on the ability that Aboriginal people have, as individuals and communities, on decision-making and control over their lives.

Loppie-Reading and Wiens (2009) categorize the social determinants of health as “distal” (historic, political, social and economic contexts), “intermediate” (community infrastructure, resources, systems and capacities) and “proximal” (health behaviours and physical and social environments). They indicate that distal determinants have the most profound influence on the health of populations because they represent contexts that construct both intermediate and proximal determinants (Wenman et al. 1982).

Federal policy dictates that although the federal government will pay foster parents to care for First Nations children with special needs, it will not provide support for a child's own family to care for him or her at home.

A collection of background articles prepared for the WHO Commission on the Social Determinants of Health provides insights into the impacts of distal determinants of health, such as colonialism, racism and social exclusion and self-determination: “The colonization of Indigenous Peoples was seen as a fundamental underlying health determinant. This process continues to impact health and wellbeing and must be remedied if the health disadvantages of Indigenous Peoples are to be overcome” (Mowbray et al. 2007: 2).

Anderson et al. indicate that the relationship for indigenous peoples with mainstream society is “more than achieving equitable access to services – it is fundamentally about the relationship ... and the impact that this relationship has on ... identity and self-esteem” (Anderson et al. 2007: 13). They suggest that the social determinants of indigenous health arise from the processes of colonization and de-colonization. They further suggest that since the social determinants of indigenous health are a response to colonization impacting negatively on indigenous health, a method of de-colonization to address this impact is required to enhance the health and well-being of indigenous peoples. The recent literature (Anderson et al. 2006, 2007; Mowbray et al. 2007; National Collaborating Centre for Aboriginal Health 2006; Navarro 2009; Reading et

al. 2007) supports this concept and indicates that countermeasures should include processes that support self-determination, restore cultural pride and heritage and establish clear methods for acknowledging and dealing with racism.

Studies have shown that within societal organizations, a complex interaction of social class or social status in combination with the degree to which individuals have control over their life, including work life, is the most predictive of positive health outcomes (Anderson et al. 2006; Loppie-Reading and Wien 2009; Marmot 2005, 2007; Navarro 2009; Reading et al. 2007). Confidence and self-esteem are closely related to education outcomes and, invariably, income and social status. For Aboriginal people, colonization resulted in a loss of control over their destiny, inequitable access to educational models that promote confidence and self-esteem and restricted access to opportunities for employment, economic development and self-determination.

The proximal determinants of health as described by Loppie-Reading and Wien (2009) reflect on the impacts of health behaviours that have the ability to negatively influence the lives of Aboriginal people – excessive smoking, misuse of alcohol, lack of exercise and poor diet. They indicate that “poor prenatal care as well as drinking and smoking during pregnancy, have been linked to poor physical, emotional and intellectual development among Aboriginal children” (Loppie-Reading and Wien 2009: 6). The physical environments of Aboriginal people are stressors from several perspectives: many First Nations, Metis and Inuit communities are geographically distant from urban or rural centres, with their desirable resources in education, training, employment and health services. The housing shortages and overcrowding experienced by many communities have resulted in infectious disease outbreaks such as tuberculosis, and the social conditions have been linked with parenting difficulties, poor school performance for youth and children, youth substance abuse and violence (Loppie-Reading and Wien 2009).

“Intermediate social determinants are the origin of proximal determinants and include healthcare and education systems, community infrastructure and cultural continuity” (Loppie-Reading and Wien 2009: 15). Educational attainment of and employment opportunities for individuals determine their ability for future opportunities regarding healthy choices and access to resources. Existing social systems, by the nature of the legislation and policies that have shaped them, expose Aboriginal people to racism at multiple levels. Social exclusion for Aboriginal people is a consequence of environments that allow racism through established systemic and indirect processes. As a result, access to culturally relevant and appropriate health services and education is challenging for Aboriginal people. Early childhood education has been correlated with positive child development; however, access to positive programs such as Aboriginal Head Start remain limited due to inadequate funding (Loppie-Reading and Wien 2009; Reading et al. 2007). Aboriginal youth continue to drop

out of high schools at higher rates than those for non-Aboriginal youth. The resultant outcomes for Aboriginal people include poorer health outcomes, challenges in achieving desired levels of education, restricted access to employment and limited access to social support networks. Loppie-Reading and Wien observe that “social determinants not only have a differential impact on health across the life course, but the ensuing health issues may themselves create conditions that subsequently influence health” (2009: 3). Aboriginal people are over-represented in the justice system – many of the social conditions in communities resulting from the colonialist legislation and policy development have contributed to this situation. Poverty, social exclusion and barriers to equitable education and social support resources for families and youth are contributing factors, as are historic stereotypes and assumptions of Aboriginal people.

Marmot (2005: 1103) indicates that “if the major determinants of health are social, so must be the remedies” and that the relationship between health status and socio-economic status must be an issue for action for social sectors other than the health sector (Loppie-Reading and Wien 2009; Marmot 2005, 2007; Reading et al. 2007). Navarro (2009) identifies the need for systems to recognize the inherent power balances that exist in order to mitigate the risk conditions for populations when addressing the social determinants of health. Navarro states the perspective that “it is not inequalities that kill people, it is the people who are responsible for inequalities that kill people” (2009: 423).

Political Environment

The historical evolution of legislation and policy development respective of health and social services, with their lack of clarity for relationships with and provision of services for First Nations peoples, has resulted in a state of jurisdictional ambiguity that is best exemplified by story behind Jordan's Principle.

The provision of services to First Nations people has been a long-standing jurisdictional debate between federal and provincial governments and relates to disagreement over which level of government has responsibility for the provision

of these services. Of particular concern are the disputes over services for First Nations children and the potential implications for those children. The range of services often at the core of the dispute includes funding for health services, particularly those federally supported non-insured health benefits and services necessary for the support of delivery of the provincially insured services. Off-reserve clients, particularly those individuals who cannot return to their home community as a result of medical needs or requirements, face particular challenges in having their health needs met.

The funding of education services and social supports for First Nations children is based on the place of residence and is provided by the federal government. Historically, funding levels for First Nations children for education and supports for First Nations children in foster care have been lower than the same services funded by the provincial governments for non-First Nations children.

Jordan's Principle is a statement of principle that puts the “child first” when funding and jurisdictional disputes arise. Jordan Anderson was a First Nation child born with complex medical needs secondary to a genetic and medical condition

Of particular importance to health is Treaty 6 that was signed in 1876 by the Cree Nation in relation to land in Saskatchewan and Alberta. Treaty 6 includes a clause that states a “medicine chest” will be kept in the house of each Indian Agent for the benefit of the Indian people.

There was considerable debate in the following years about the meaning of this clause, but the “medicine chest” clause was eventually interpreted to mean free medical care to the Indian people.



Medicine chest note from: *Entitlements and Health Services for First Nations and Métis Women* by Kathy Bent, Joanne Havelock, Margaret Haworth-Brockman

(Blackstock 2008; BC Child and Youth Advocacy Coalition 2008; Canadian Pediatric Society 2009; Legislative Assembly of Manitoba 2008). After two years in hospital, Jordan was deemed ready to be released from hospital to a special foster care home. Federal policy dictates that although the federal government will pay foster parents to care for First Nations children with special needs, it will not provide support for a child's own family to care for him or her at home, even in the case of special needs with no abuse or neglect. The provincial and federal governments could not come to agreement on how to fund Jordan's care outside the hospital system. As a result, Jordan spent two more years in hospital and died before a resolution on the funding issue was forthcoming. Jordan's Principle ensures that First Nations children are not denied services that they require and to which they are entitled. Under this principle, the government or ministry/department of first contact must pay for the services without delay or disruption, and the paying government can then refer the matter to a jurisdictional dispute mechanism (BC Child and Youth Advocacy Coalition 2008; Legislative Assembly of Manitoba 2008).

Their situation leaves Aboriginal children more susceptible to health issues and then creates a multiplier effect, increasing the consequences of ill health.

The situations faced by children and families as a result of jurisdictional disputes specific to child and family service agencies numbered 400 in just one year (Canadian Pediatric Society 2009). Although these cases are particularly alarming, First Nations people of all ages experience similar situations in healthcare and education on a routine basis (Canadian Pediatric Society 2009).

Jordan's Principle could be applied in all health and social services situations. Disputes continue to occur routinely, and First Nations children and their families are the innocent victims of this ambiguity. In order to facilitate access to the higher education not available in many communities, First Nations persons are required to provide payment to the school divisions to support the education of the First Nations youth attending schools off reserve. Education levies for First Nations youth off reserve can create challenges for smaller communities, which also struggle with establishing mechanisms for providing supportive environments for these youth in education systems that often are not conducive to building confidence or self-esteem in First Nations youth. Jurisdictional disputes often result, to the detriment of the youth.

First Nations people experience similar challenges in

accessing healthcare, and this is of particular concern when families are faced with the need to relocate to urban environments for medical reasons. The most frequent situation involves a family member who requires medical interventions or dialysis at a level that is not available in the community. The relocation of an entire family brings new and significant challenges to the health and well-being of all family members. Notwithstanding the need to adjust to the stressors of a life-changing medical diagnosis, the family is faced with finding appropriate housing to meet their needs, establishing the children in a new school system and gathering information on how to access transportation to medical services, as well as adjusting to a new grocery store, school system and life in an environment that is absent of the familiar social and family supports. The federal policy for medical relocation is such that the families are expected to transition rapidly to the provincial system for all services except some eligible non-insured health benefits. Jurisdictional debates arise regarding the eligibility of First Nations clients for provincial supports as well as eligibility for federal supports in these situations. To facilitate an ease of transition, the need for advocacy for First Nations families in these situations is extremely high. Jurisdictional debates specific to eligibility for services can result in needed services not being delivered. This situation has the potential to enhance destructive behaviours that impact the self-esteem of all involved, and are particularly challenging for youth. Resolution of jurisdictional ambiguity and debates on jurisdictional responsibility could be addressed through a general application of Jordan's Principle.

Illustrative Case Histories

The following composite case histories constructed from the authors' experience with patients over decades illustrate the complex relationship between poverty, culture, colonialism and remoteness. Their situation leaves Aboriginal children more susceptible to health issues and then creates a multiplier effect, increasing the consequences of ill health.

Case One

Cody was a five-year-old boy living in an isolated Arctic community. His mother was Inuit and his father Caucasian, from southern Canada. The family was on social assistance. The cultural difference led to a partial estrangement between his parents, and although they still lived together, Cody was mostly cared for by his mother and her extended family. The parents did not communicate well about Cody when they switched between caregivers. They did not take him to the local health centre unless he was extremely ill. Frequent mild sore throats were managed at home. However, he had been taken to see nurses several times for sore joints. At the father's insistence, the nurse referred him to a visiting pediatrician, who discovered a heart murmur and referred him for assessment in the south. There, he was found to

have rheumatic heart disease with mild mitral regurgitation and stenosis. He was placed on prophylactic penicillin orally, rather than monthly injections, at the father's request.

Unfortunately, with the changes in caregivers, the penicillin was given intermittently. Cody presented six months later with a rash, fever and intermittent joint swelling. Rheumatic fever was diagnosed by the nurse, and he was transferred to a pediatric hospital in the south. He recovered but was left with more damage to his mitral valve and evidence of aortic valve involvement.

Cody's health was uneventful for almost a year, until he began experiencing mild fevers and a mysterious recurring rash. He was seen several times by different nurses (who were transient due to recruitment difficulties), none of whom recognized the seriousness of the situation. This situation continued for a month before a permanent nurse noted the rash to be petechial and consulted by phone with a doctor. Cody was transferred to a pediatric hospital in the south, where he was diagnosed with subacute bacterial endocarditis (SBE).

Sadly, he now had severe mitral valve disease and chronic congestive heart failure. He survived the SBE, but progressed into end-stage heart disease. Cody's only hope was to undergo heart transplantation. Cody's father was in favour of the transplantation, but his mother was less certain. A transplantation of any kind in this situation means relocating the patient to a southern city, away from the cultural support, or alternatively placing the child in permanent medical foster care. Cody had to be transferred to another city in Canada to undergo the transplantation. Unfortunately, he died while waiting for a suitable organ donation.

Case Two

Penny was a 14-year-old girl who lived in a remote community that was accessible by road. Her parents were poor. Ten children and the parents and two grandparents lived in a small three-bedroom house. People shared sleeping platforms and sometimes slept in shifts. Although she was quite smart and had done well in the early years of school, her school performance had fallen off in the middle years. Her peers meant a lot to her as it was from them that she got her attention. Everyone in her peer group smoked, so she began smoking. However, she did not venture into drugs or alcohol. She had a boyfriend, and she became pregnant, a state that she concealed until the fifth month. Subsequently, she started receiving prenatal care and made plans for caring for the baby, which involved taking a year off school and having her mother help with the baby's care.

When the H1N1 influenza arrived unexpectedly, before an outbreak had been declared and before immunization was available, her brother was the first to get sick. Within a week, eight people in the household, including Penny, had developed symptoms. All the others recovered; but on day three of symptoms, Penny took a dramatic turn for the worse, devel-

oping extreme respiratory distress. She had to be evacuated to the city by air ambulance. Keeping her ventilated was extremely difficult, and she almost died during the three-hour wait for the ambulance. At the tertiary care hospital, she was so ill that doctors could not ventilate her, partially because of the added resistance of the gravid uterus. An informed decision was made to deliver the baby at 28 weeks' gestation by emergency Caesarean section. There was insufficient time to give steroids to the mother to protect the baby from respiratory distress syndrome (RDS). The baby was born alive, but developed severe RDS and had to be ventilated.

During the course of the baby's hospitalization, he suffered an intracranial hemorrhage and was left with a neurological deficit. Meanwhile, Penny remained extremely ill for more than three weeks. She was placed under maximum ventilation during that time period. After a month, she began to make a remarkable recovery, but she still was left with a form of chronic lung disease that is likely to compromise her health in the long term. She was unable to provide any care for the baby for the first year. The baby was placed in foster care and had two changes of caregiver during that year.

Case Three

David was born in a remote community, accessible by road. His mother's family was both large and dysfunctional, and she had suffered sexual abuse as a child. She had later married a man who had a violent temper. Eventually, she left him after he beat her while she was pregnant with David's younger brother. She struggled to raise four boys on social assistance. In addition, she had to battle her own depression, for which minimal services were available. She and the boys lived in an 800-square-foot wood-frame home that was in terrible condition. The children were frequently left alone.

It was extremely cold in the winter, and there was no recreational area near their house. One winter day, the boys were entertaining themselves. David, who was 12 at the time, had just seen freestyle skiing on TV during the Winter Olympics. He thought he could demonstrate a back flip off the sofa in the living room. The sofa was situated right beside a high-backed chair. He did the flip but his back struck the chair back, and he suffered a T1 spinal fracture with spinal cord compression. He was transferred to the city for medical care, but surgery was not seen as an option. He remained a paraplegic and spent a significant period in rehabilitation.

David was discharged in good condition four months later. But, as is common, there were arguments about jurisdictional responsibility, and his wheelchair and special cushion were not there when he went home. There was not enough home care service in the community, so his care fell to the mother. Within two weeks, David was back at the urban hospital with a severe bedsore that enlarged even after he was admitted. It was

over a bony prominence in his coccyx. When two months of aggressive treatment failed to heal the ulcer, David underwent a plastic surgery procedure to remove the bony prominence. Subsequently, the ulcer healed.

David, however, developed other issues. He had no place to exercise in his wheelchair, but he continued to have the healthy appetite of a teenage boy. He gained weight rapidly and became obese. He developed urinary tract infections from the use of a poor sterile technique for self-catheterization. He missed a year of school and never caught up to his peer group. He is currently struggling and may not complete his schooling.

Conclusion

Aboriginal people of all ages carry a heavy burden of illness. Children are vulnerable and therefore suffer excessively. The social determinants play a major role in disadvantaging Aboriginal children, and these include our colonial history. Often, one problem leads to another in a continuous spiral, creating ever-wider disparities throughout the life course. Solutions are not easy, but the current situation is not acceptable. We must start by improving our understanding of how all these factors interact. **HQ**

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SOCIAL DETERMINANTS IN CONTEXT



Immigrant Health and the Children and Youth of Canada

Are We Doing Enough?

Tony Barozzino

Sitting across from me in the crowded examining room of an inner-city Toronto pediatric clinic is a mother, a child and their family friend. The mother and her three-year-old have been in Canada for almost a year, having emigrated from Vietnam (insert virtually any country of origin here) and are currently living in a multi-family dwelling in a well-known area of lower socio-economic status. The mother speaks very little English, and the family friend is attempting to act as interpreter and support person. No official interpreter services are available today, and after completing my consultation (to the best of my abilities) regarding the presenting problem of “language delay,” I am faced with having to try to discuss the possibility of this child having a much broader communication disorder, autism.

Where to start? Is there an ethno-cultural equivalent to autism? How will this diagnosis affect this mother and child and the rest of the family dynamics? How do I get the importance of advocacy across to them? The questions go on. Even with English as a first language and no educational or economic barriers, navigating the “system” is complex and exhausting (e.g., myriad agencies, separate contact individuals, multiple appointments, variable therapeutic options etc.). What resources are available or accessible for this particular family financially,

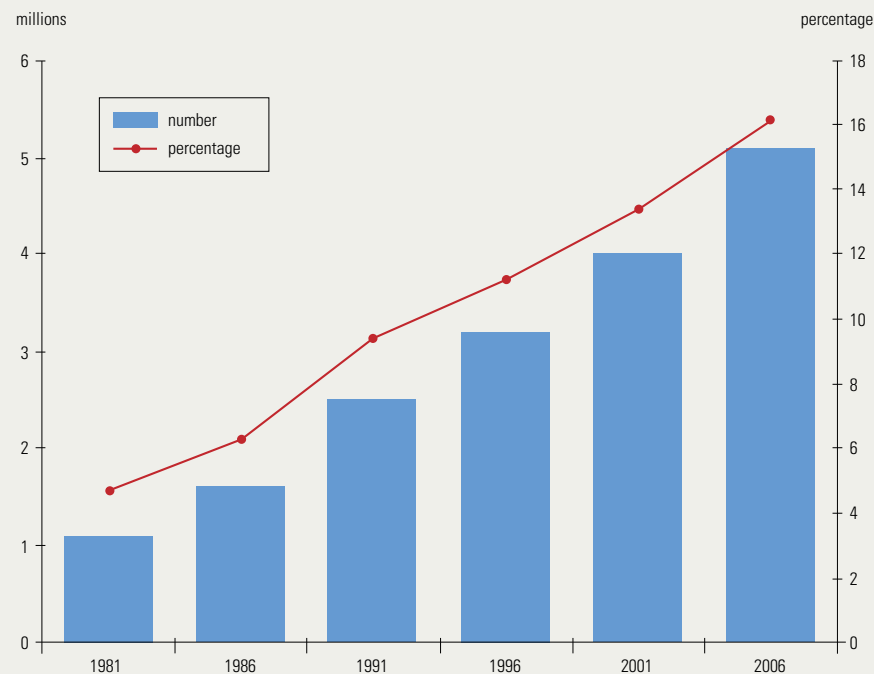
emotionally and socially? My first thought is, “Am I going to be able to do enough to help this family, and what happens when they walk out this door?”

Such an encounter would certainly not be an uncommon event for Canadian healthcare providers, and it is meant to highlight some of the issues around immigrant health, particularly as it applies to children and youth.

Canadian Immigrants

Immigrants, defined as individuals who come to a country where they were not born in order to settle, make up an increasing proportion of the Canadian population. In the 2006 government of Canada census report, immigrants made up 19.8% (6.1 million) of the over 31 million Canadians, up from 17.4% in 1996 (Statistics Canada 2006). Overall, 16.4% of Canadians identified themselves as being of a “visible minority,” compared with 11.2% in 1996 (Figure 1), which is likely indicative of the shift in immigration patterns away from European origins and toward African, Caribbean, Central American, Chinese, Middle Eastern, South Asian and Southeast Asian origins (Statistics Canada 2006).

Figure 1 shows the absolute number and the percentage of visible minorities from the 1981 to 2006 censuses. In 1981, there were 1.1 million visible minority persons in Canada, and the number

Figure 1. Number and share of visible minority persons in Canada, 1981–2006

Sources: Data from Statistics Canada censuses of population, 1981–2006.

increased to 1.6 million in the next census, 1986. From 1986 to 1991, the number of visible minority persons almost doubled to 2.5 million. In 10 years, the proportion of visible minority persons almost doubled from 4.7% of Canada's population in 1981 to 9.4% in 1991. In 1996, the visible minority population was 3.2 million, constituting 11.2% of Canada's population. The growth in the visible minority population continued in 2001, when it was 3.9 million, forming 13.4% of Canada's population. In 2006, it reached over 5 million and constituted 16.4% of the total population of Canada (Statistics Canada, Census of Population, 2006).

The immigrant population can be further subdivided into traditional immigrants, refugees (those who cannot return to their home country because of fear of persecution due to belonging to a particular social, political or religious group) and the illegal or undocumented. It has long been recognized that migration carries with it implications and challenges for individuals' health in the context of physical, emotional and social well-being. Immigrants also represent an extraordinarily diverse population with varying cultural beliefs, ethnic backgrounds and societal characteristics that factor into their risk for physical and mental illnesses.

The country of origin has features – such as endemic infectious diseases; general living conditions; economic well-

being; and political, social and environmental conditions – that play a role in the overall health status of immigrants. Upon arrival, however, there are many host country factors that may contribute to the health and health disparities among immigrants, such as social isolation, low socio-economic status, cultural conflicts, role changes and identity crises, racial discrimination and acquired risk for chronic diseases, to name but a few (Messias and Rubio 2004).

Health Status of Immigrants to Canada

For many decades, the medical care of the immigrant community and research into immigrant health focused predominantly on the diseases or health issues (infectious, nutritional or otherwise) that these individuals “brought” with them. This has been referred to as the *sick*

immigrant paradigm (Beiser 2005), and it was based on the belief that only the least healthy and less well-adjusted people would choose to emigrate from their home countries of origin and was based on protectionist ideologies evolved from both scientific and political arguments. This concept was quite embedded in the mentality of the day in the 19th and early 20th centuries.

However, the combination of observed differences and changing socio-political realities ushered in a new immigrant construct that has been termed the *healthy immigrant paradigm* (Beiser 2005) or *healthy migrant effect* (Chen et al. 1996; Kinnon 1999; Perez 2002). Researchers in both Canada and the United States have suggested that, overall, immigrants – particularly those in their new country less than 10 years – generally have lower rates of chronic diseases and mortality (excluding certain infectious diseases such as human immunodeficiency virus/acquired immunodeficiency syndrome and tuberculosis) than their native-born counterparts (DesMeules et al. 2004, 2005; Gold et al. 2004; Hyman 2000; Parakulam et al. 1992; Sharma et al. 1990; Singh and Siahpush 2001). These same researchers acknowledge that it remains unclear whether these findings are due to genetic predispositions, a practice of positive health behaviours, a requirement to be deemed or screened as “healthy” to migrate in the first place or some other factors not being taken into account. The concern that is repeatedly

mentioned is that the finding of an immigrant health benefit may be misleading. There are numerous factors, for example, that may play a role in determining health outcome at an individual level (e.g., personal genetics or health characteristics, ethno-cultural background, the presence or absence of “community of support,” the duration in the new country, family/social and economic supports etc.) and at a broader group level (e.g., changes in immigration policies, migration experiences, being a refugee versus being a non-refugee etc.).

Inherent difficulties with the collection and interpretation of data also need to be considered when reviewing the available literature. The small numbers of immigrants represented overall, the lack of detail regarding immigrant subgroups, an inability to evaluate in-/out-migration, under-representation of certain immigrants due to language or cultural barriers, loss to follow-up and difficulty with longitudinal data collection are but a few of the reported limitations that further complicate the use of such research findings.

There are also multiple studies, however, that document immigrant and native health patterns becoming similar as the time spent in the new host country increases (Dunn and Dyck 2000; Kliewer and Smith 1995; Kliewer and Ward 1988; Nair et al. 1990; Newbold 2005, 2009). This has been termed the *convergence effect* where ongoing “exposure to the physical, social, cultural and environmental influences in a destination country sets in motion a process in which migrant patterns of morbidity and mortality shift so that they come to resemble the usually worse health norms of the resettlement country” (Beiser 2005: 33). Beiser reviews the concept of “resettlement stress,” which purports that immigration increases the probability of experiencing certain socio-economic stressors such as poverty, unemployment, under-housing, a lack of access to services, social isolation and so on (Beiser et al. 1993; Beiser and Hou 2002; Citizenship and Immigration Canada 2000; DeVoretz 1995), which then further increase the likelihood of exposure to risk factors for disease and limited access to care for these illnesses (Dryburgh and Humel 2004; Kinnon 1999; Kliewer and Jones 1998).

These social determinants of health (Table 1) are also felt to affect immigrants more powerfully than their native-born counterparts and may account for the phenomenon called *immigrant overshoot*, where the average health of immigrants not only deteriorates to the average but may in fact get worse (Jolly et al. 1996; Kampman et al. 1999; Newbold and Danforth 2003). Paradoxically, despite poverty being one of the major risk factors for the mental health of children, and although immigrant children are almost three times more likely than their non-immigrant counterparts to live in poverty, immigrant children seem to enjoy better mental health and have fewer behavioural difficulties, perhaps suggesting strengths that these individuals and families bring to the country (Beiser and Hou 2002).

Table 1. Social determinants of health as defined by the SDOH National Conference*

Early life
Education
Employment and working conditions
Food security
Gender
Healthcare services
Housing
Income and its distribution
Social safety net
Social exclusion
Unemployment and employment security

*This list is unique in that it specifically focuses on the public policy environment (e.g., income and its distribution) rather than characteristics associated with individuals (e.g. income and social status).

Multiple other facets of the immigrant experience have been looked at as factors affecting their health and mental well-being, including concepts such as degree of acculturation, maintenance of biculturalism, “undocumentedness,” social connectedness (like-ethnic networks), racial discrimination and many others.

Immigrant Health of Youth and Children

Recently, researchers have begun to look at the health of immigrant children and youth through a different lens. Studies have been developed to better define their health status on arrival; the factors that help them maintain, improve or regain health; and the similarities or discrepancies in health outcomes and access to healthcare. For example, Singh et al. (2008) looked at levels of sedentary behaviours and physical inactivity in US children and adolescents and found that even after controlling for several socio-economic and demographic characteristics, the recent immigrant groups had substantially higher levels of both. The investigators suggested a number of possible ethno-cultural, socio-economic, familial and environmental influences and concluded that these could lead to a reduction of immigrant children’s overall health advantage over US-born children as they enter adulthood.

MacDonald and Kennedy (2005) concluded that the likelihood of being classified as obese or overweight for most immigrants is lower than that for native-born Canadians on arrival to Canada but increases gradually; by approximately 20–30 years after immigration, the immigrants’ unhealthy weight meets or exceeds that of levels for native-born Canadians. The rates were however lower for immigrants living in neighbourhoods with larger ethnic social networks and whose ethnic communities had lower rates of being obese or overweight.

Steele et al. (2002) looked at recent health and social policy changes in Ontario and the effect on recent immigrants and refugees in inner-city Toronto. They postulated that socio-

economic factors are likely more important as determinants of health for immigrants versus non-immigrants and that, therefore, during times of policy change affecting the socio-economic environment, immigrants are more vulnerable. Women seem to bear a disproportionate part of the burden as primary caregivers whose financial autonomy is affected by cuts to welfare, homecare support and community services. They are put at increased risk of spousal abuse, and, by extension, their children's well-being is likely also affected.

Despite the study by Steele et al. suggesting at least a perception of increasing barriers to accessing care, other studies such as that by Guttman et al. (2008) have shown at least similar access to care for children of immigrants regarding immunizations in Ontario. There have also been conflicting findings when looking at rates of perinatal morbidity and mortality (Doucet et al. 1992; Hyman 2000; Hyman and Dussault 1996; Kramer 1987; Reeb et al. 1987; Rumbaut and Weeks 1996) and psychological and behavioural difficulties among children and adolescents (Bagley 1972; Beiser et al. 2002; Hamilton 2005; Harker 2001; Harris 1999; Kao 1999; Malzberg and Lee 1956; Portes and Rumbaut 1996; Rumbaut 1997a, 1997b; Rutter et al. 1974).

Understanding the Unique Health Needs of Immigrant Youth and Children

Ultimately, the understanding of immigrant health, particularly in the context of children and youth, is clearly a multi-faceted and nuanced entity with several layers of complexity and a considerable number of interacting characteristics. As individuals responsible for the healthcare of our nation, do we understand the intricacies of this diverse group of people? Are we asking the right questions of the right stakeholders and looking at subgroups of immigrants with enough detail? Are we missing opportunities to support or promote inherent positive health behaviours among immigrants and their like-ethnic communities?

If, on average, immigrant families are more likely to be exposed to the negative aspects of the social determinants of health, why are some health outcomes more negatively affected while others are not? Can we better align health promotion and preventive care measures, traditional/non-traditional clinical care models and cross-departmental (e.g., education, health, immigration etc.) policy development to achieve better and more fiscally sustainable outcomes for the immigrant children and youth of Canada? How would this impact on policy makers, healthcare administrators and front-line care providers of immigrant children and youth?

The Canadian Paediatric Society (CPS) quotes as its mission statement that it is "the national association of paediatricians, committed to working together and with others to advance the health of children and youth by promoting excellence in healthcare, advocacy, education, research and support of its membership" (2009: 3). CPS has published a report biannually over the

past several years titled *Are We Doing Enough? A Status Report on Canadian Public Policy and Child and Youth Health*. The report essentially functions as a report card for the provinces and various policy makers to highlight four major areas where government interventions can be or have been targeted: (1) disease prevention, (2) health promotion, (3) injury prevention and (4) the best interests of children and youth.

The hope is to allow for critical evaluation of progress across the country with regards to these issues and to promote the use of policy change and implementation to improve the health and safety of Canadian children and youth (CPS 2009). Despite the excellent track record of CPS and numerous gains made on many issues across the nation, immigrant health of children remains a relative non-issue. In fact, immigrant health is mentioned only once and in the context of child poverty ("immigrant families are over-represented among the poor"). This is in no way meant as a criticism of CPS or the extraordinary advocacy and leadership that they provide, but acts merely as an example of the difficulties faced when trying to make immigrant health of children and youth part of the local, provincial or national agenda, especially in the face of multiple, equally important and disparate healthcare priorities.

"Resettlement stress" purports that immigration increases the probability of experiencing certain socio-economic stressors, which then further increase the likelihood of exposure to risk factors for disease and limited access to care for these illnesses.

Challenges and Opportunities for Improving the Health of Immigrant Children and Youth

I think that anyone who has worked with an immigrant child and family, be it in an office, emergency room, home visit, school meeting or elsewhere, can relate to the sense of frustration at knowing or at least feeling that there are barriers and challenges that we could do a better job at alleviating. The interface that immigrant families have with the medical system, in its broadest sense, is different from that of the non-immigrant. Family members, friends from within the community and settlement workers, for example, often act as their conduit to care and information.

Cultural differences, trust issues or fear of perceived authority figures, language and educational barriers and so on are all likely impediments to overall care and general access. The gap is further widened by the average care providers' lack of knowledge

Table 2. Some challenges in and opportunities for improving health of immigrant children and youth

Challenges	Opportunities
Assumptions/biases of healthcare providers	Advocacy
Differing roles and responsibilities of family members	Barrier/bias removal
Ethno-cultural differences	Cross-cultural similarities
Fear/mistrust of authority	Innovative solutions – specific or universal
Healthcare rationing	Interpreter service availability
Language barriers	Intra-community leadership
Literacy and education	Policy development and promotion
Magnified effect of social determinants of health	Research into better defining and supporting immigrant health

of or familiarity with these issues, the individuals we serve and their respective points of reference. We carry with us our own biases, assumptions and assertions as to how individual health-care, prevention and promotion should proceed, and we are sometimes perhaps guilty of having a “one size fits all” approach to our interactions (Table 2).

There are, however, many examples of innovative and functional solutions to some of the immigrant health issues. In Ontario, community health centres and specific immigrant/refugee health centres have evolved with alternative funding structures for care providers to allow for provision of care to the non-insured or under-insured populations. These centres include medical staff (i.e., physicians, nurses, etc), ethno-cultural-specific staff support workers, interpreter services and even legal supports for their clientele. There have been collaborative efforts between the Ministry of Health and Long-Term Care and medical service providers, such as professional midwives and family practitioners, to come up with unique ways of providing access to care for those living without status to receive obstetrical and neonatal services. Schools, with the buy-in and vision of their school boards, are being looked at as a natural hub for children and youth to have improved access to healthcare with the built in “trust” and convenience that allows immigrant parents to accept and be involved in their children’s health maintenance.

Conclusion

There is clearly much that is being done, some of it by dedicated individuals, some at the grassroots community level relying on local organizations and other components that are more programmatic, government driven and policy directed. In my opinion, what needs to be asked is not, What are we doing? but, rather: Are we doing enough? Are we doing the right stuff

in the right way? and, How can we, as healthcare providers and policy makers, “level the playing field” for all children? I believe that by focusing in on these types of questions, we can fulfill our obligation to all the people of Canada and to the immigrant children and youth who will become a significant part of the future of this country. **HQ**

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Family as a Social Determinant of Health

Implications for Governments and Institutions to Promote the Health and Well-Being of Families

Ted McNeill

With evidence of a growing divide in society contributing to a polarization of health and social outcomes along this continuum, there is an urgent need for revisioning priorities for health and social policies.

A growing appreciation of the powerful impact of the social determinants of health, particularly the toxic effect of poverty on health, is driving the need for a re-evaluation of the role of governments and institutions such as hospitals in the lives of children and families. The well-being of families is the cornerstone on which society rests; yet evidence is growing that families are facing significant challenges beyond their control that adversely impact their ability to perform their essential role. With evidence of a growing divide in society – an expanding gap between the rich and the poor (Novak 2007) – contributing to a polarization of health and social outcomes along this continuum, there is an urgent need for revisioning priorities for health and social policies. Bold new ideas and leadership are needed to plan a future that encompasses social justice as a key value and operating assumption.

Families have a pivotal role to care for their loved ones, and, in the case of children, readying them for healthy, happy and productive lives as active contributors to

society. The capacity of parents to provide the key functions associated with optimal care for their children is absolutely central. Loving care, a secure attachment, sufficient structure for healthy growth and development, non-coercive discipline and an overall safe family environment characterized by empathic relationships are among the important factors needed to raise healthy and well-adjusted children. In addition, the capacity of parents to provide sufficient material support in the form of good-quality housing, nutrition and opportunities to participate in social and recreational activities is among other essential dimensions associated with the social context in which children develop. In turn, society not only reflects the collective success of families and their capacity to prepare the next generation but, through the decisions of governments and institutions, powerfully shapes the social environment in which families live.

It is clear that the choices made today that affect the social world in which children are raised have both immediate and far-reaching consequences. For example, reflecting what is

now understood about the “remarkable sensitivity of health to the social environment and to what have become known as the social determinants of health” (Wilkinson and Marmot 2003: 7), poverty is known to be one of the most toxic environments in which children can live. Research has shown that children living in poverty face higher rates of just about any adverse health or social outcome (Canadian Institute of Child Health 2000; Wilkinson and Pickett 2009), and rates of hospital admission, unplanned hospital readmissions, missed clinic appointments and death have been shown to be positively associated with higher rates of poverty (McNeill 2009). In addition to the tragic human burden associated with these findings, the healthcare system faces added financial costs providing this care.

With estimates of child poverty rates as high as 28.8% in large urban centres, the need is urgent.

As compelling as this evidence may be in the short run, it assumes even greater significance over the longer term. Hardship experienced in childhood is also associated with adverse adult outcomes. For example, recent research has found that childhood physical abuse is associated with 49% higher odds of cancer among adults (Fuller-Thomson and Brennenstuhl 2009). Further, sustained adverse experiences in early life that are not buffered by protective adult support are increasingly seen to be linked with problems in multiple organ systems that can lead to lifelong disease. This has significant implications not only regarding quality of life and capacity for productive contributions to society but also regarding the need for increased government expenditures for health and social services throughout the life cycle (Shonkoff et al. 2009). In this way, preventive planning regarding the social determinants of health – the “causes of the causes” of so many adverse health and social outcomes – has the potential to transform society.

Among the defined social determinants of health (York University Consensus Conference 2002), early child development is particularly important because it sets the stage for a child’s entire life. In the way that adverse experiences in childhood have been shown above to have a profound effect on later health and well-being, the quality of child development experiences has its own trajectory with significant implications for later functioning. For example, research has clearly established a link between experiences in early childhood and developmental neurobiology. The developing human brain is intimately connected to the social environment (Shonkoff et al. 2009), which profoundly affects the development of neural pathways that are central to the structure and functioning of the brain. This hard-wiring of the developing brain is time sensitive, with

children’s brains reaching 90% the size of adult brains by four years of age. The sheer volume of neural connections that are established in early years is strongly associated with the quality of the social environment. This is crucially important because brain development affects a broad range of child functions such as emotion, temperament, social functioning, perceptual and cognitive ability, language development, literacy and numeracy capacity and so on (Mustard 2008). With the emphasis in today’s knowledge-based world on the intellectual abilities of individuals and their capacity to contribute effectively to an ever-changing workplace, attention to the fundamental importance of brain development in children deserves scrutiny, not only for the well-being of children as individuals but also for the collective well-being of society.

Therefore, examining the social environment of children and the forces that shape their lives is of profound importance. This article explores the place of families in caring for their children within the context of the broader social environment in which they live, with particular attention given to the role of governments and institutions such as hospitals. When families struggle to fulfill their role, too often the analysis of the reasons stops at the critical point of identifying family characteristics and dynamics without an appreciation of the influence of the social context in which they are situated. Adding to this victimization, parents who are found wanting face the shame associated with being labelled “bad parents.” Consequently, for the purpose of this analysis, families are cast as the dependent variable, and the roles of governments and institutions that shape the ability of parents to care for their children are explored as independent variables. The intent of this discussion is to highlight promising practices and simultaneously point to areas in need of development, with a particular focus on families in vulnerable circumstances.

Implications for Governments

Recognition of the interdependence of factors associated with the social determinants of health that affect the ability of families to care for their children points to an essential role for governments. Putting in place policies and programs needed to support families in the crucial role that they have is essential. Of primary importance are government efforts to enhance equality by reducing the gap between the rich and the poor. The high levels of poverty that characterize Canadian society are not inevitable, and government policies are crucial components for achieving low levels of poverty. With estimates of national child poverty rates ranging from 14.9 to 19% (Innocenti Research Centre 2005; MacDonnell 2007) and as high as 28.8% in large urban centres such as Toronto, (MacDonnell 2007), the need is urgent.

Reducing the gap between the rich and the poor is crucial because international research has demonstrated a very strong association between the level of inequality in any society, measured by the size of the gap between the rich and the poor, and popula-

tion outcomes such as infant mortality, readiness to learn at school, high-school completion, unplanned teenage pregnancy, prison incarceration rates, incidence of disease and longevity of life (Wilkinson and Pickett 2009). Furthermore, with the related knowledge that inadequate support today results in higher costs down the road associated with a greater use of health and social services, higher incarceration rates within the criminal justice system and the loss of productivity associated with school dropout and teenage pregnancy, the stark choice for governments to plan now or pay later has never been so clear. Given the knowledge that adults of all socio-economic levels live longer and healthier lives in more equal societies, there is strong evidence for personal self-interest beyond altruism to support efforts to create greater equality in society (Wilkinson and Pickett 2009). To underscore this assertion, earlier research also indicates that governments that provide services to correct for social inequalities improve the health of the entire population (Navarro et al. 2006). Social justice has never been such a compelling yet simultaneously self-serving goal for governments to achieve.

Unfortunately, Canada currently invests less than international comparators on programs and supports for families (Raphael 2010). This has created a social deficit that must change if we hope to reduce the widening income gap and provide adequate support for families. Programs such as the following support families and contribute to achieving greater equality:

- **Employment-related strategies.** Employment is the primary means by which parents provide for their families; thus, a goal of full employment is needed. Related strategies include setting a minimum wage rate that is high enough to ensure that a person working full time does not slip below the poverty line. The concept of a “living wage,” the level of pay that is needed by two parents to pay for the essentials of food, rent, child care and transportation, has emerged as a benchmark for fairness. In addition, extending employment insurance to ensure that displaced workers have access to benefits and providing job training to prepare youth and others such as those on public assistance who may need additional support to enter the job market are necessary supports. Ensuring safe working conditions that protect workers from harm is essential to supporting the overall well-being of families. While often unpopular with employers, the presence of unions to support collective bargaining is nevertheless associated with fair wages that are sufficient to raise a family. Finally, finding ways to curtail exorbitant wages in both the public and private sectors that exacerbate the gap between the rich and poor is an essential part of an overall strategy.
- **Child support programs.** Children are our most precious resource, and working in partnership with parents to support child development and education is an essential investment. Services to support children and families include best start

programs for young children, nationally regulated daycare that simultaneously ensures affordable high-quality care for children and supports working parents, generous child tax credits and cash transfers to support families raising children. Growing use of the Early Development Instrument (EDI) to monitor the progress of children, particularly those living in disadvantaged neighbourhoods and regions across Canada, is a very positive development, one that will provide essential information for planning. In addition, efforts to support latency-aged children and adolescents to stay in school are important to long-term success and the likelihood that they will grow up to be productive members of society.

- **Social safety net.** The presence of a safety net for those in vulnerable circumstances is central to supporting families. The National Council on Welfare, the government’s own advisory body, has described the state of Canada’s social safety net as an utter disaster. Current welfare rates result in too many children growing up in poverty. Expressions of fear about the fraudulent misuse of social supports or the promotion of dependency are often punitive, ill-informed and short sighted in terms of enhancing the likelihood that children will grow up to be productive members of society. Further, the focus on “un-deserving recipients” obscures the structural barriers associated with the social determinants of health that create obstacles for vulnerable families. Finally, the availability of good-quality, affordable and subsidized housing is an essential component of these strategies. Canada lags well behind other countries in ensuring the availability of this most fundamental resource.

Consideration of the best way to provide programs inevitably leads to a discussion of universal versus targeted services. The value of investments in universal programs that provide a baseline of support for all children and families should not be underestimated. Universal programs eliminate the aura of stigma that is often associated with targeted programs and ensure a broad commitment to maintaining high quality. Although universal programs are often touted as unaffordable, they need to be considered – it is frequently a question of priority rather than affordability. The examples of providing affordable daycare in Quebec and all-day kindergarten recently initiated in Ontario are innovative developments that promise significant benefits for children, families and society.

It is often asserted that it is not possible to have generous social programs and a competitive economy; however, a natural experiment involving governments in Northern Europe has demonstrated this to be erroneous. Sweden, Norway, Finland and Denmark have achieved some of the best population health and social outcomes worldwide by offering comprehensive government programs while simultaneously maintaining highly competitive economies. In the global economy in which

countries compete for businesses to locate within their boundaries, the evidence of this success is significant. The example of Northern Europe challenges the mantra of low taxes and minimalist approaches to government that too often results in inadequate programs and services for families, growing inequality and, consequently, poor population outcomes. There is a vibrant role for government to address the limitations of our economic systems that leave many individuals and groups behind. Business and economic leaders are key advisors about the operation of the market and have been dominant voices in shaping public policy in Canada, but governments must re-balance their consultations to provide a greater role for health and social scientists who can provide essential insights needed to inform public policy.

A lack of scientific evidence in the past regarding the potent influence of the social environment may have contributed to the role of political ideology in the formation of government policy; however, with the quality of evidence available today, governments have an obligation to ensure that health and social policies are shaped by the best evidence available. In the way that evidence-based practice is a hallmark of best practices for healthcare practitioners of all disciplines, government policy must also reflect best evidence. "Evidence, not ideology" should be the rallying cry of citizens, planners and governments. Collectively, governments must do a better job of partnering with colleges, universities and other knowledge-based organizations to mobilize knowledge to inform public planning. Of equal importance, they must engage the public in understanding the relationship between the social circumstances in which people live and the collective well-being of both individuals and society.

Understanding the mechanisms of how the social determinants of health "get under the skin" to cause illness and the way that the social environment impacts the hard-wiring of children's brains are central to this important task. An informed public is at the heart of a strong and vibrant democracy.

It is worth noting that the extent of the perceived role for governments related to these issues differs across the political spectrum. Right-of-centre parties that advocate tax cuts and small government as a policy panacea appear least able to provide leadership regarding these issues. Research suggests that this approach is also out of step with the Canadian public, who perceive an important role for governments to advocate for the common good and to actively shape Canadian society (Harris/Decima 2010, March 13). Canada differs in its desire for active governments from other countries, notably the United States where the recent rise of the Tea Party movement reflects a fundamental mistrust of government that exists among many there. In the name of liberty and low taxes, government involvement in the lives of citizens beyond an absolute minimum is disparaged. The consequences of this approach have been shown to have a devastating effect on society in general and vulnerable populations in particular. The tide may be shifting in Canada regarding an openness for higher taxes as one strategy to support the kind of society that Canadians want, rather than another round of program and service cuts that erode the foundations on which society rests. Reallocation of resources is another strategy. For example, the "tough on crime" agenda promoted by some governments where tax revenues are used to build prisons and incarcerate individuals for long sentences has been shown to be an expensive and ineffective way to rehabilitate those who break the

law. With crime rates falling in Canada, greater attention to the conditions in which people live and efforts to address the growing levels of inequality in Canadian society that undermine individuals and families would be far better targets for government intervention. There is a long-standing tradition that Canadians embrace a different set of values that diverge in significant ways from those in the United States (Adams 2003), and we would do well to model ourselves after other jurisdictions in the world, such as those in Northern Europe, that have demonstrated significantly higher levels of success supporting families and achieving a healthier population than both Canada and the United States. As Canadians, we need to nourish our collective inclination to support the common good and look to our governments to reflect these values.

Finally, recognizing the fundamental interconnectedness of government departments and

FACTS FOR LIFE

Entering primary school on time is critical to ensure the continuity of a child's development. Support from parents, other caregivers, teachers and the community is very important.



Source: Facts for Life Global
<www.factsforlifeglobal.org/03/messages.html>

ministries such as health, social services and education points to the need for better integration and planning. As boundaries between health and social well-being disintegrate, the need for a bold integrated vision is greater than ever before. Combining health and social policy may be a fruitful way of achieving greater sectoral integration, re-balancing government support across these portfolios and simultaneously moving in a proactive way to address the “causes of the causes” of so many adverse health and social outcomes associated with the social determinants of health. One international approach regarding health policy that is worth watching is in Sweden where a national health strategy based on the social determinants of health rather than disease categories has been adopted. This has been accompanied by rigorous research to evaluate the effectiveness of the strategy. To support such a move in Canada, a national dialogue is needed about the kind of Canada we want for children and families.

Sweden, Norway, Finland and Denmark have achieved some of the best population health and social outcomes worldwide by offering comprehensive government programs while simultaneously maintaining highly competitive economies.

Adopting a “child-centred” philosophy, one in which the needs of children are primary and inform government planning at all levels, would be a powerful step in creating a just society. Indeed, promoting a children’s rights approach, informed by the United Nations Convention on the Rights of the Child that Canada endorsed 20 years ago, may hold particular promise for harnessing the political determination necessary to achieve this vision (Hertzman 2010, March). Increasingly, a children’s rights approach (e.g., the right to health as a resource for life) is seen as necessary to provide motivation for governments to take the needs of children seriously and to invest in human capital development. A recent policy statement from the American Academy of Pediatrics advocates that the integration of children’s rights, social justice, human capital investment and health equity is necessary to achieve child well-being (American Academy of Pediatrics 2010). The creation of a national think tank, supported by foundations and other granting bodies, that is dedicated to identifying the best targets for investment, together with an international search for evidence-based programs that represent best practices, would contribute to building consensus regarding key priorities for supporting children and families that could be used to inform public policy and program development. Governments of all stripes would benefit from the recommendations of such a group.

Implications for Institutions

As stewards of large budgets, hospitals and other institutions are key players in the delivery of health services; but what is their role in supporting families, in particular those families that face challenges? In a context of finite resources and seemingly infinite need, hospitals need clear priorities to shape their investments and expenditures. Of central importance is a question of whether *health* is defined in narrow medical terms or more inclusively and in a manner consistent with the definition used by the World Health Organization (WHO), which asserts that health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO 1948: 100). Such a definition of health sets the stage for a responsive approach to delivering health services, one that is informed by knowledge regarding the powerful influence of the social determinants of health and the need to treat patients within the social context in which they live. Evidence is accumulating that medical interventions alone may have limited effectiveness for vulnerable populations in particular if they are not complemented by efforts to ensure families’ legal and social stability.

With this in mind, five key responsibilities for hospitals stand out. They relate to making a commitment to health equity a central value, promoting a philosophy of family-centred care, adopting an inter-professional approach to care, training all healthcare providers in a core curriculum about the powerful impact of the social environment on health and taking an advocacy role to achieving social justice.

A commitment to achieving health equity ensures efforts to work with all families. In Ontario, a recent move by a regional health planning body (i.e., the Toronto Central Local Health Integration Network) has required all hospitals within its area to develop and submit health equity plans. This is a welcome development and defines hospitals as key stakeholders in promoting social justice. As hospitals begin to get used to this new responsibility, they are recognizing a variety of related issues that need to be addressed, such as providing staff education to promote cultural competency among their workforce, setting appropriate indicators for achieving health equity within a Balanced Scorecard and planning for the appropriate staffing mix of professionals on programs. Finding a new balance between expenditures to support traditional priorities and ensuring appropriate care to their most vulnerable patients is central to this challenge. Ethical issues related to the allocation of resources are inherent in this challenge, but the need to target some resources to achieve health equity is paramount. With limited capacity for accessing new public funding, achieving health equity will mean having to confront challenges associated with reallocating resources.

Family-centred care is an approach that defines the family as the unit of care. This philosophy serves to unite all health-care providers in a common approach to working with families as partners in care. Such a commitment helps to ensure that

the diversity of families related to race, culture, religion, ability, sexual orientation, socio-economic status etc. is respected and recognizes that equal care is often not enough to achieve health equity – that some family circumstances require additional services and understanding. A related commitment to involving families in defining the important institutional parameters of family-centred care and promoting such care within the hospital is of central importance. Moving beyond a rhetorical commitment to family-centred care and relinquishing sufficient control to give families a real voice in defining the services they need are indicators of the commitment to family-centred care. Strategies to provide opportunities for “patient engagement,” whether targeted for personal care or hospital planning, hold promise for mutual benefit, including increased responsiveness of hospitals to patient needs and preferences.

Recognizing the complexity of healthcare, hospitals have moved to embrace inter-professional practice (IPP). This approach recognizes that healthcare needs are often complex, requiring the skill sets of many disciplines. For example, social workers have an important role to assist vulnerable families to address the adverse impact of poverty and other social determinants of health by (1) connecting families to community-based services, (2) accessing financial resources, (3) advocating for entitlements when needed, (4) addressing social obstacles that may limit access to care or compromise the effectiveness of medical interventions, (5) providing clinical interventions to assist families with high levels of stress that are associated with living in difficult social circumstances, (6) coaching to maximize personal agency to deal with structural obstacles, (7) identifying systemic gaps in service and advocating for changes and so on. Similarly, the need for interpreters is fundamental to serving diverse populations that may not understand English or French. An institutional commitment to provide adequate staffing levels consistent with benchmarks and/or available standards to address these dimensions of care is an indication of the level of commitment to serving at-risk families and achieving health equity.

While the value of IPP for front-line care is frequently articulated, an expanded knowledge base is also needed for overall hospital planning and decision-making. If hospitals are to be successful achieving health equity and supporting families, they will need a mix of leaders and disciplines to contribute the knowledge and expertise required for this essential planning. In Ontario, the government has recently announced an intention to revise the Public Hospitals Act to open up medical advisory committees in hospitals to include a broader mix of disciplines, which is a welcome move. The same may be needed in many hospitals regarding the executive team that has overall responsibility for budgets and operational decisions. A concentration of decision-making within one or two dominant healthcare disciplines is likely to lead to approaches to care associated with these scopes of practice, and there is a risk of bias in the

form of attention to the priorities and aspirations of these disciplines. In the move to program management, there has been a significant deterioration in many hospitals of the capacity for disciplines beyond medicine and nursing to have a real voice in planning. Hospitals must do more to level the playing field to enhance the contributions of all healthcare professions to ensure the needed range of knowledge and expertise is available to inform planning. Similarly, the composition of hospital boards may need to expand to ensure adequate expertise to inform decision-making regarding strategic directions related to these emerging priorities. Consistent with a children’s-rights approach, in institutions serving children, there is a need for a vibrant children’s council or a similar mechanism to ensure that the voices of children are heard and included in planning. For academic health science centres, programs of research that cross disciplines and examine the interface between health and the social circumstances of children and their families are needed to generate knowledge to inform care.

A related role for healthcare institutions is to partner with colleges and universities to provide training to all healthcare providers to ensure a necessary degree of literacy in key dimensions of practice. A core curriculum is emerging that includes training about the social determinants of health, the toxic effect of poverty on children’s health and development, cultural competency, family-centred care, IPP and the expertise that each healthcare discipline brings to providing care. Conceptual frameworks such as the social ecological model (Bronfenbrenner 1979) are useful theoretical approaches for appreciating the range of issues that may need to be addressed in individual circumstances to provide effective care. This integrative framework includes considerations at the micro-level (e.g., individual biology and functioning), mezzo-level (e.g., social context of the family, school etc.) and macro-level (e.g., structural configuration of society including the social determinants of health). Attention to these domains helps to equip inter-professional healthcare teams to provide integrated care, maximizing the likelihood of achieving health equity for all patients.

Finally, an emerging role for hospitals is related to taking an active role as an advocate to promote systemic changes and policy reform. Identifying gaps in service and structural barriers adversely impacting families is central to this emerging role. Hospitals are in an ideal location to identify potential reforms that would better serve families. The notion of advocacy may be uncomfortable for some healthcare leaders and board members due to concerns about the risk of creating antagonistic relationships with stakeholders such as government funders and donors, but the need to reform systems of care is essential. The language of “knowledge mobilization” may be a more comfortable approach that could lead to partnering with stakeholders such as government, patients and families and other service providers to promote needed changes.

Conclusions

What are the implications of these ideas and developments for healthcare leaders? We must all reflect on these challenging issues and consider the next evolution of the healthcare field. Our personal values as healthcare leaders are at play in the context of hospital decision-making and require personal reflection and transparent planning processes. The recognition that we cannot provide healthcare to children in a vacuum is essential knowledge for healthcare leaders. The social environment in which children live must be taken into account if we hope to achieve health equity for vulnerable populations in particular. Beyond hospital roles, during elections we must ask ourselves about which political parties are advancing policies that will support families to care effectively for their children and thereby prepare them to be productive contributors to society in the future.

With the emergence of scientific evidence concerning the social determinants of health and their powerful impact, governments and hospitals must re-evaluate their role supporting families. It is no coincidence that the frequent observation within hospitals that medical acuity is increasing has been paralleled by a simultaneous deterioration of the social safety net in Canada, leaving many families in vulnerable circumstances. Governments have a key role to promote policy reforms to create a more egalitarian society by reducing the growing gap between the rich and the poor and by providing programs that support families. With the quality of evidence available worldwide about the types of policies, programs and services that are associated with positive population health and social outcomes for children and families, the way forward is emerging with greater clarity. Hospitals must also do their part to address the social injustice of health inequalities and re-cast themselves as advocates of change within an expanded vision of health to legitimate their role as healthcare leaders. **HQ**

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Turning the Social Determinants of Health to Our Advantage

Policy Fundamentals for a Better Approach to Children's Health

Adalsteinn D. Brown, Wendy Katherine, Katy Allen,
Uyen Quach, Elizabeth Chiu and Lauren Bialystok



Role of Policy in Reframing Our Approach to Child Health

The first two articles in this volume provide a compelling case for improving child health and for the critical role to be played by social determinants. The goal of this article is more prosaic: to lay out the policy approaches that can support the case for improving child health by improving the social determinants of health.

But first, it's important to define what we mean by policy. *Policy* is often used as a synonym for anything that government does, and it can cover election platform commitments, capital investments, new legislation and the written and unwritten practices of bureaucrats as they administer government programs. However, this is too broad a definition of policy to address in a single article or even an entire edition of *Healthcare Quarterly*. Instead, we will work with a more traditional definition of policy – a standing or consistent position on repeated decisions. This means that policy takes the form of frameworks, that is, the conceptual models that decision-makers use when approaching any relevant problem. In this sense, a policy functions as a sort of checklist covering the set of factors that need to be addressed in any decision on how to improve child health.

There are several reasons for this more narrow focus, including the current economic situation, the focus across the country on broader policy questions around access to safe care and difficulties in deciding how to balance programs that favour one population group (e.g., children) against another (e.g., the elderly). The most important reason for the more narrow focus is the fact – already well described by Halfon et al. in this issue – that improving the social determinants of children's health requires joined-up action across government. This in turn requires decision-makers across the health and social services ministries, agencies and providers to approach their policy decisions in a consistent way that supports improvements in the determinants of health for children.

This is not the usual approach in parliamentary democracies, or in the health system itself. After more than a century focused on sanitation, nutrition and acute, intermittent infectious disease, contemporary Canadian child health systems are now

heavily invested in caring for complex medically fragile children with multiple health needs. Technological innovations enabling the survival of newborns at earlier gestational ages mean that the largest share of child health expenditures in Ontario – and likely Canada – focuses on children under one month old. Bringing a more comprehensive, joined-up approach to child health policy deserves the focus of an entire article.

Reframing a Policy Approach to Child Health

An innovative concept called **population health inheritance** (PHI) enables reframing of complex child health questions. PHI focuses on policies improving the societal asset of health passed from adults to children in two forms: direct PHI, each generation's collective resiliency, lifespan and quality of life; and indirect PHI, the health system as a sustainable asset, in and of itself, and its capacity to meet enduring population health needs. This inter-generational frame enables us to consider the importance of child health outcomes within the context of a health system that overwhelmingly treats people much later in life and considers health improvement in the context of individuals rather than collectively, as passed between generations.

Critical to the notion of direct PHI is the **life course approach**. Strategies based on this approach reflect an understanding that a person's developmental trajectory can be substantially altered and improved based on factors present during pregnancy and early parenthood (Ben-Shlomo and Kuh 2002). As such, research using this framework tends to emphasize parenting education, an enriched preschool environment and various interventions for mothers and infants. Similarly, critical to indirect PHI are **transitions** out of the child or youth health system and into the adult health system. Thanks to the progress and success of medicine, children who would have died in infancy or adolescence from a range of health problems now survive into adulthood but enter into an adult healthcare system that is poorly prepared to deal with challenges that, in many cases, are entirely new to this system.

Almost by definition, a focus on PHI, the life course approach and *transitions* requires policy approaches that both recognize

and engage the full range of issues surrounding a child. This necessitates that policies (1) be cognizant of the factors that define a child's social status including gender, ethnicity and the parents' social status and (2) engage policy responses across the range of available services. None of this should be surprising. A wealth of material has recognized the importance of the social determinants of health, including prominent made-in-Canada documents such as the Lalonde Report (Health Canada 1974) and the *The Ottawa Charter* (World Health Organization 1986). What is surprising is how long it has taken to engage **multidisciplinary teams** in the care of children and to create a truly joined approach within governments to child health. The challenge for policy makers becomes how to ensure that policies reflect a consistent emphasis on the importance of these approaches.

Implementing a New Approach to Child Health

Use of the life course approach, better attention to transitions and a focus on multidisciplinary teams and joined-up policy making can all help to improve the effectiveness of child health policy. The evidence behind these approaches is strong, and a number of articles and published frameworks from different countries point to how these factors can become part of policy making.

Using the Life Course Approach

The life course approach to child health policy steers policy away from single interventions toward clusters or packages of interventions aimed at children and mothers. Studies have shown that "when children or families at risk receive interventions that transform basic context and relationships (e.g., through parenting education and enriched preschool environment) their developmental trajectory can be significantly altered, compared with the trajectories of children who did not receive such interventions" (Karoly et al. 1997, as cited in Halfon and Hochstein 2002: 460). These health-promoting interventions may also be more effective if organized into integrated health management pathways (addressing biological, emotional, cognitive and environmental determinants of adult diseases) and if they recommend the organization of developmental health services in a way that recognizes the value of improvements in the health of the entire population over their life course (Halfon and Hochstein 2002).

In a 2007 review article, Kerber and colleagues (2007) proposed eight packages to promote health for mothers, babies and children. These packages can be used to deliver more than 190 separate interventions. Three of the packages were limited to interventions that were delivered through clinical care (reproductive health, obstetrical care and care of sick newborns and children); four packages were delivered through outpatient and outreach services (reproductive health, antenatal care, postnatal care and child health services); and one package was delivered

through integrated family and community care throughout the life cycle. Using a broader lens, Ekman and colleagues found that "maternal-newborn-child health can be improved through integrated packages of cost-effective interventions that are implemented incrementally in accordance with the capacity of health systems. Such packages should include community-based interventions that act in combination with social protection and intersectoral action in education, infrastructure, and poverty reduction" (2008: 990). In order to pay better attention to social context, they also suggested that interventions should be planned and implemented at the local level. This attention to context, however, extends to the individual level. Browne et al. (2004) found that programs that address a specific problem or problems and that are sensitive to cultural or gender-based differences have a greater effect than broad, unfocused interventions.

This bundled and context-sensitive approach to child health policy development has been captured in a number of policy statements and child health strategies. A recent World Health Organization (WHO) report describing a global strategy for diet, physical activity and health emphasized the need for a life course perspective for the prevention and control of non-communicable diseases, noting in particular that infants who suffer prenatal and possibly postnatal growth restrictions appear to be at higher risk for non-communicable diseases in adulthood (WHO 2004).

Table 1 shows how a number of jurisdictions have attempted to model a life course approach in their own child health strategies. In each case, the strategies required joined up action across social and health services, a common set of goals around health and well-being and a strong understanding of the social context in which children grow.

Paying Attention to Transitions

Transitions in the child health system occur at developmental interfaces, that is, maternal to infant and youth to adulthood, and along the continuum of acuity from health promotion/prevention to quaternary care. Transitions also take place between health and social services in contexts where the collaborative linkages should be across preschools, elementary schools and others in the community in ways that support congruency across programs (Pianta et al. 1999; Rous et al. 1994). There are a number of examples of how transitions can be managed. Rous et al. (2007) conducted a series of 10 focus groups with a total of 43 participants including practitioners, administrators, trainers, faculty/researchers and family members of children with disabilities. Positive transitions occurred with the consistent use of developmentally appropriate practices across programs, especially for children with disabilities. Two major themes emerged from this study. The first was the critical role of *inter-agency collaboration* (defined as strategies that support an inter-agency process involving multiple parties). Common

Table 1. Overview of four jurisdictions' life course approaches to a child health strategy

Australia: Health Gain for Children and Youth of Central Sydney (Alperstein et al. 2008)
<p>Ten main strategies or categories of interventions, with detailed rationale for each, were proposed:</p> <ol style="list-style-type: none"> 1. Nurse home visiting program 2. Health promoting schools program 3. Health worker education initiatives 4. Early intervention strategies through community development, early literacy and parenting programs 5. Multidisciplinary assessment and multimodal therapy for children with attention deficit disorder and attention deficit/hyperactivity disorder 6. Individual and public health education 7. Local community-based health promotion 8. Targeted screening for some conditions and reduction of universal screening for certain conditions 9. Universal screening for congenital sensorineural hearing loss 10. Advocacy around child and youth health issues and services
United Kingdom: The Children's Plan (UK Department for Children, Schools and Families 2008)
<p>The seven chapters of the plan discuss the following:</p> <ul style="list-style-type: none"> • The Every Child Matters framework and how it is being used to put health, enjoyment and well-being at the heart of services for children and young people, and on an equal footing with other outcomes • Arrangements to safeguard the most vulnerable children • Early years settings and children with special educational needs as well as those with disabilities • Leadership and collaboration • Young people developing the right skills and opportunities to participate in further and higher-education work, and developing the skills they need to succeed in life • Supporting children and young people to make positive contributions and stay on the path to success • The vision of the Children's Plan for world-class services in every local area <p>The Children's Plan was based on discussions with children, young people, parents and professionals across the country, and focuses on five fundamental principles:</p> <ol style="list-style-type: none"> 1. Parents bring up children, not government – but families need help and support to do their job. 2. All children have the potential to succeed and should go as far as their talents can take them. 3. Children and young people need to be safe and healthy and enjoy their childhood as well as grow up prepared for adult life. 4. All children and families deserve services that work together for them and meet their individual needs. 5. It is always better to prevent failure than to tackle a crisis later.
Nova Scotia, Canada: Our Kids Are Worth It: Strategy for Children and Youth (Government of Nova Scotia 2008)
<p>The report contains a mix of both immediate and longer-term priorities. There are five key areas the report targets to ensure the success of implementing this strategy:</p> <ol style="list-style-type: none"> 1. Build a strong foundation 2. Identify problems, help early 3. Coordinate programs, services 4. Improve access, close gaps 5. Engage youth, promote shared accountability
New Zealand: Child Health Strategy (New Zealand Ministry of Health 1998)
<p>The principles include the following:</p> <ul style="list-style-type: none"> • Children/tamariki [young children] should have their needs treated as paramount. • Child health and disability support services should be focused on the child/tamariki and the family and whānau [extended family]. • Child health and disability support services should be available as close to home as possible, within the bounds of quality and safety. • Child health and disability support services staff should work together with each other and with staff from other sectors to benefit the child. • Child health and disability support services should be provided to achieve equity. • Child health and disability support services should be based on international best practice, research and education. • Child health and disability support services should be regularly monitored and evaluated. • Child health and disability support services should be culturally safe and culturally acceptable and value diversity. • Child health and disability support services should take into account the available resources.

“strategy sets” identified by the focus groups for this theme included guidelines for transition, communication and collaboration, and continuity across programs (i.e., coherence across programs in terms of curricula and expectations). *Comprehensive transition practices and activities* (defined as practices that address child, family, staff, program and community-specific activities) was the second theme. Common strategy sets included family participation in meetings, sharing of information and program-wide activities (i.e., those designed for both child and family members that include home visits, formal orientation events and individualized materials).

Continuity across programs is considered an optimal principle within which to ensure common approaches to child health. Case studies have highlighted inter-governmental and social service policy opportunities to set common criteria for complex care to Aboriginal children regarding eligibility, funding and performance management (Indian and Northern Affairs Canada 2007). Many studies discussed the *transition* from youth to adulthood as related to a specific condition, for example, diabetes (Allen and Gregory 2009), learning disabilities (King et al. 2006), chronic physical health conditions (King et al. 2006; Paone et al. 2006) and mental disorders (King et al. 2006; Wright et al. 2006). Several of these articles identified problems with such transitions (Allen and Gregory 2009; Davis and Sondheimer 2005; Lotstein et al. 2009), but all noted their importance to positive health outcomes. Notably, several articles identified the benefit of high-quality parent-provider relationships in terms of successful transitions (Lotstein et al. 2009; Scal and Ireland 2005).

PHI requires policy makers to reach across traditional divides, define shared goals, align their strategies and – in essence – share control over their programs.

However, successful transition models have several common factors that emphasize the importance of a joined-up approach to policy and to care: “Such comprehensive transition services should address skill instruction and self-awareness; provide customized informational, emotional, and instrumental supports to meet the needs of youth and families; provide direct opportunities and experiences for skill development; and address the welcoming nature of community activities and settings” (King et al. 2006: 155). These sorts of multidisciplinary models can be helpful even for children within quaternary acute care settings. The ON TRAC (Taking Responsibility for Adolescent/Adult Care) model of transition of care for adolescents with chronic health conditions, as applied to pediatric transplant transition (Paone et al. 2006), is associated with better outcomes.

Interestingly, much of the literature concerning children and youth strategies in general focuses on the transition from childhood to youth or youth to adulthood for children and youth with special needs (i.e., disabilities, specific health conditions).

However, decision-making partitions between governments, ministries and social service sectors along chronological interfaces of care (i.e., between maternal and child health services) and/or acuity levels (i.e., between health promotion, primary and acute services) can pose challenges for health system policy makers seeking overall improvements to child health outcomes. Continued attention to inter-governmental (federal, provincial/territorial) and inter-ministry/-sector collaboration on measurement, funding and accountability is warranted to support establishing, communicating and achieving improved child health targets.

Focusing on Multidisciplinary Care

A number of multidisciplinary care interventions have been shown to improve care coordination/access, particularly for children with special healthcare needs and at-risk mothers or children. For example, an evaluation of the Starting Early Starting Smart (SESS) initiative, an intervention to integrate behavioural health services (parenting, mental health and drug treatment) into the pediatric healthcare setting for families with young children, indicated that SESS caregiver participants were 4.6 times more likely to receive parenting services, 2.1 times more likely to receive outpatient mental health treatment and 1.8 times more likely to receive drug treatment than comparison group participants (Morrow et al. 2009). Parent/patient satisfaction also appears to improve with multidisciplinary care. For example, an evaluation of the Maternity Centre of Hamilton, Ontario (a pilot project to help family physicians provide full obstetrical care), noted that 94.3% of patients reported that they would return to the centre for subsequent births (Price et al. 2005). And several studies have shown an impact on reducing healthcare utilization. For example, one intervention targeting children with special healthcare needs found a statistically significant decrease in hospitalizations (58% versus 43.2%) at baseline compared with post-intervention (Palfrey et al. 2004). An exception was Healthy Steps for Young Children, an early childhood intervention targeting all children that found no impact on hospitalization and overall emergency department use in three- and five-and-a-half-year follow-ups (Minkovitz et al. 2003, 2007).

Throughout the literature, some of the key characteristics of the various multidisciplinary models for child health include (1) the provision of coordinating services by a team member, (2) a general goal to provide comprehensive care through the provision of various support and information services and (3) patient-centred services (e.g., culturally appropriate services, family collaboration). Providing coordinating services is also a

common function, particularly for children with special health-care needs and at-risk families (see, for example, Farmer et al. 2005; Gilles et al. 2007; Kelly 2008; King et al. 2009; Palfrey et al. 2004). Examples of this type of role include the coordination of patient appointments as well as ensuring that clinical information is accessible to be shared with other child health professionals (Palfrey et al. 2004).

Comprehensive care through the provision of various support and information services that goes beyond the healthcare sector is another common feature of multidisciplinary models. This ranges from the provision of family help such as emotional support and encouragement (Farmer et al. 2005; King et al. 2009), to health education (see, for example, Harris et al. 2003; Reece et al. 2002), to intensive social work appraisal (Quinlivan and Evans 2004) and to information and education resources through websites, brochures and toll-free numbers (see, for example, Gilles et al. 2007; Piotrowski et al. 2009). Home visits were another common service provided in a number of these models (Farmer et al. 2005; Morrow et al. 2009; Piotrowski et al. 2009; Reece et al. 2002; Stevens-Simon et al. 2001).

There is also an emphasis on providing patient-centred care in a number of studies, for example efforts to provide culturally sensitive and appropriate services (Gilles et al. 2007; Harris et al. 2003; Morrow et al. 2009; Reece et al. 2002). In models that focus on children with special healthcare needs, promoting family-centred aspects of care is also emphasized by providing a parent consultant or advocate (Farmer et al. 2005; Morrow et al. 2009; Palfrey et al. 2004), sponsored outreach and social activities (Palfrey et al. 2004) and collaboration between families and physicians (Farmer et al. 2005; McMenamy and Perrin 2004).

It should be noted that there have been challenges at the service provider level identified in the literature for multidisciplinary care. These challenges can occur at the professional, personal or interpersonal level (King et al. 2009). Differences in vision and philosophy, competing beliefs and practices in the various professions and threats to professional identity or status, to name a few, are potential issues that can affect the success of multidisciplinary care (Kateman and Herschderfer 2005; King et al. 2009; Malin and Morrow 2007). Finally, multidisciplinary care is not always necessary. According to Choi and Pak, some projects are relatively “simple and straightforward [and] are best performed by one expert, or experts from one discipline. Other projects may be more complex and require multiple disciplines, but the expertise may not be available or exist” (2006: 360). Patel et al. also note that while it is “presumed and intuitive that these approaches are cost-effective, improve quality of care, and reduce errors in delivery of health care ... there is little evidence that multiple discipline approaches to education, service delivery, and research are always necessary” (2008: 1387). The challenge – and one area still requiring further research – is to develop decision rules that can help guide policy makers in

determining whether particular problems require the creation of multidisciplinary teams.

Conclusions: The Way Forward for Policy Makers

The PHI approach presents a significant challenge to policy makers. It requires them to reach across traditional divides, define shared goals, align their strategies and – in essence – share control over their programs with their sister institutions. The Health in All Policies (HiAP) model provides some guidance to policy makers wishing to pursue this sort of goal. Pioneered in several European jurisdictions, HiAP is a high-level approach to population health predicated on the evidence that policies across government may negatively impact health and its social determinants such as socioeconomic status and systemic exclusion. HiAP provides structures and processes that allow policy makers in all sectors to identify and mitigate the unintended health consequences of their decisions, most often through Health Impact Assessment tools (St.-Pierre 2008; Wismar et al. 2007). Unlike traditional approaches to health promotion and the prevention of disease, HiAP is uniquely equipped to align policies across government rather than containing all policies that affect health within a designated sector. It has been recognized as an effective joined-up approach to addressing health inequities and the social determinants of health (Stahl et al. 2006; WHO 2008), and Health Impact Assessment has been explicitly recommended as a standard procedure by the Senate Subcommittee on the Social Determinants of Health (Standing Senate Committee 2009). By educating policy makers about health pathways and furnishing them with tools to assess their effects on health, HiAP is a promising strategy for responding to the needs of vulnerable populations such as medically fragile children and for introducing a more holistic approach to health promotion.

Given that the HiAP approach has not yet taken root in North American policy making in a significant way, this article provides some guidance on how policy makers can integrate key elements of a PHI approach into their decision-making around a life course approach, transitions and multidisciplinary care. However, this does not yet capture the full implications of the PHI approach. It is still important for policy makers to consider the impact of their investments on the sustainability of the healthcare system.

Unfortunately, the financial literature on child health strategies is relatively limited. One systematic review (Romeo et al. 2005) on economic evaluations of child and adolescent mental health interventions noted such evaluations are few in number and generally poor in quality, although the number of studies being undertaken now appears to be rising. Studies on behavioural disorders tentatively suggest child behavioural gains and parent satisfaction from parent and child training programs, although the cost-effectiveness of the location of delivery (e.g.,

day versus residential treatment, community versus clinic based) for behavioural therapies is less clear. One US-based study found that in comparison to a historical control group, a crisis intervention program for children at risk of harm to themselves and others resulted in a 23% reduction in the use of psychiatric treatment beds and a savings of approximately \$20,000. Another article that briefly discussed the economic analysis of early intervention programs introduced to provide at-risk children with a better start in life found that there is some increase in earnings income for participants versus control subjects, though the greatest return on investment is societal. Specifically, this is due to a decreased need for special education, a decreased amount of time spent on welfare and a decreased need for prison cells (Herrod 2007).

As work progresses toward the implementation of a PHI approach, it will be important for researchers and practitioners to structure the data sets and evaluations that will provide greater evidence on the financial impact of child health strategies. Shared child health improvement strategies may be championed through joint health and social policy ministries at the provincial level and via federal/provincial/territorial partnerships, where mandates and standardized targets can be jointly managed. As inter-disciplinary care contexts continue to develop, it will be important to advance as well as evaluate joint education and training opportunities, shared accountability for outcomes and team approaches to transition. Sufficient evidence exists to support Canadian policy decision-makers to advance early interventions in women's, maternal and infant health to maximize the improvement of social determinants of health and life course health. Stronger partnerships across policy makers will remain the best way to ensure Canadian child health systems deliver the greatest population health inheritance for young Canadians. **HQ**

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The Challenge of Child and Youth Mental Health

Mary Jo Haddad, in conversation with Michael Kirby

Michael Kirby is the chair of the Mental Health Commission of Canada. Born in Montreal, Quebec, in 1941, Kirby obtained his MA in mathematics from Dalhousie University and his PhD in applied mathematics from Northwestern University. In 1984, he was appointed to the Senate of Canada, a position he held for 22 years. From 1999 to 2006, Kirby chaired the Standing Senate Committee on Social Affairs, Science and Technology, which, under his leadership, produced the first-ever national report on mental health, mental illness and addiction.

Recently, Mary Jo Haddad, chief executive officer of The Hospital for Sick Children (SickKids), Toronto, Ontario, had a chance to sit down and chat with Michael Kirby about the challenge of children's mental health.

MJH: A tremendous amount of work has been done in the last little while to bring the conversation about children's health to a much broader agenda. There's clearly a new dialogue unfolding in healthcare. However, when you think about children and children's mental health, what concerns come to mind in that arena, and why do you think we're facing challenges in the area of child and youth mental health?

MK: I think there are two or three principle reasons for these challenges. One reason is the views of parents. The stigma that's attached to all of mental health is particularly noticeable with respect to kids. There are surveys that show that 38% of Canadian parents would be too embarrassed to tell anyone if their child had a mental illness. Well, that's a pretty telling

Illustration credit: The *My Dream* collection of artwork and poems was produced for – *Achieving Health Equity for Kids, Whatever It Takes*, a conference hosted by The Hospital for Sick Children to address the social determinants of health and advance work to ensure the success of children by supporting healthy and positive outcomes for children, families and society. The whole collection is now on display on the SickKids Create profile of www.collectionx.museum, the Virtual Museum of Canada's online gallery, with support from the Art Gallery of Ontario (AGO).

number. So right away you have the crisis caused, in part, by the fact that a significant number of kids aren't taken for help because of social stigma.

The second reason is that there is such a scarcity of resources in mental health. If you look at any of the most recent numbers, Canada is spending somewhere between 7 and 8% of its health-care dollars on mental health. This is in comparison to 12% in most of the other major industrialized countries in the Organisation for Economic Co-operation and Development. Mental health, by any measure you want to use, is underfunded – both on the research side and on the service side.

In any case like that, children always get the short end of the stick because they're not in a position to lobby and argue for extra services or even for adequate services – and their parents won't say anything. So, you have a combination of social stigma and underfunding, a combination that really hurts kids.

MJH: When you're thinking about the work that you've done and you recognize that it is underfunded, do you see that as a significant problem in our day and age?

MK: It's a huge problem – although money is by no means the only issue. Nor can the problem be solved just by throwing money at it. We also have a huge human resource shortage across mental health. And everything that's true for mental health is true to an even greater extent for children's mental health; there are fewer people, there are fewer services and there is less funding.

Until we begin to deal with the entire system comprehensively, which is why the Mental Health Commission has been asked to create a national strategy, it will be very difficult to make systemic improvements. All the individual pieces need to be interlocking, and the situation for children is a good example of that. In many provinces, for example, the minute you turn 16 (or in some places 17), you move from being part of the children's system to being a part of the adult one. Many of the services you received as a child in the mental health system are not available to adults. It's almost as if, overnight, you're a different person and you get a different set of services.

There's no seamless transition here across a person's lifespan. And that's another big problem. If you think of youth – let's say, 16 to 24 – that's an age bracket that needs a huge amount of mental health services. But they are treated as adults and not as children. Therefore, they get not only a different range of services but a different volume of services than would otherwise be available. The lack of a seamless transition across age breaks creates a real problem.

The same thing occurs, by the way, at the other end of the spectrum, in the sense that there are certain things that are available to seniors that are not available to people who are not seniors. The most common example is pharmaceutical plans;

the provinces run plans for seniors but not necessarily for other people. There's a significant problem, for example, when a 62-year-old is ineligible to have her antidepressants paid for, whereas if she were three years older, they would be covered. When you think about it, it doesn't make a lot of sense.

MJH: Thinking about children and youth in today's environment, would you comment a little on what you're seeing in terms of your work and who is most at risk? I would also like to hear your views on whether this is a growing problem or just one that we're becoming more aware of.

MK: I have two comments on that. First, it's a rapidly accelerating problem – not just for kids, but for everybody. But, again, the stresses and strains of being a teenager these days (compared with when I was a teenager, many years ago) are significantly greater for all kinds of reasons: there's peer pressure, there's education pressure, there's pressure from home and we have many more single-parent families. We also have many more children living in poverty or on the edge of poverty. All those problems existed in part in the past, but they are much worse now than they were, say, 50 or 60 years ago. Today, you have a whole lot more vulnerable children.

Canada has also become more multicultural and cosmopolitan. The problem is compounded by the fact that children are seeking and needing services that are culturally and linguistically appropriate for them, yet the reality is that virtually all the services we provide are in English or French. As opposed to some other types of health services, it is critically important in mental health to be able to operate in the language and the culture of the people you're dealing with.

MJH: You've been talking about children's mental health as a growing concern, and about the kinds of pressures and stresses youth face. Thinking long term, what do you see as the implications for society and the economy if we don't address those challenges today?

MK: First, if you stick strictly to the level of the individual, you'll find a whole lot of underserved people who clearly need help. They will become adults with problems that have not been dealt with, and that raises economic problems.

Seventy percent of adults with mental illnesses had the onset of their illnesses when they were young. When people have mental illness that is not treated appropriately, they end up costing the state a lot of money. They need income support, they often end up in jail, they need supportive housing and so on. Not only do the individuals suffer because the problem wasn't treated properly, but society suffers both in terms of what's happening and because it has lost productive citizens.

The impact on public expenditures is also huge. Forgetting

about the human side for a minute, it is much, much cheaper to simply treat children when they have their initial onset. Then, having done that, you can avoid a lot of expenditures down the road. But trying to get decision-makers to focus on making an investment in children's mental health so as to avoid long-term expenditures in the prison system, in social welfare and so on is a very difficult thing to do. It's hard to identify specific individuals who ended up in jail or on social assistance because they didn't get treatment. Yet, the reality is that the evidence is all around us that that's exactly what's happening.

MJH: What should we be doing from a policy perspective?

MK: That, of course, is what our national mental health strategy is all about. I can't, therefore, give you a definitive prescription now, but I think it is pretty clear that our strategy will focus on the need to increase significantly the number of services that are available to children and youth, to attack the stigma issue so that parents are willing to take children to get help when they need it and to restructure the system so that it is significantly more efficient.

On that last point, the current system is very much silo driven in the sense that each service is typically delivered by a series of not-for-profit agencies that are not systemically integrated. You need to change the way services are delivered, to get more people who can deliver them and to change the way funding is given. Even if you improve the delivery system by making it more efficient, you still need the people and the money to make it work. But, conversely, just getting the people and the money will not solve the problem. You must change the way the system operates.

MJH: One of the concerns I hear relates to the numerous reports that have been written about the state of children's mental health – or mental health in general – and the worry that we're putting a tremendous amount of effort into trying to understand the issues when many experts in the field say we already know what the issues are. We seem to be stuck in a quagmire: across the country there are creative examples of projects, tools and support systems, but they are not impactful enough to effect change.

So, how will we move on this agenda in a major way? Given that we have a policy framework and recommendations arising from the work that you're doing, what are some of the things that the providers

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of mental health services should be thinking about to keep this moving before we have the "big answer"?

MK: Well, first, there won't be one big answer. A whole lot of little pieces will make up the answer.

One of the things we will be doing is identifying best practices. The challenge in that process is getting people who are already inside the system to imagine themselves as external to it and to then offer objective advice about how they would alter the system. In other words, what the Mental Health Commission will need from people is information about what is precisely required to make the system work better – in a pragmatic sense. Nobody can provide that advice better than the people inside the system, but they're often reluctant to give you proposals that would require that they change the way they do things. I'm often fond of quoting Mark Twain's observation that "everyone is in favour of progress; it's just change they don't like." The hardest thing is to get people to be willing to be open-minded enough to talk about how they would or could do things differently to make the system operate better for patients as opposed to organizations. The system is very much organization driven, and people look at it in terms of whether it serves their organization or not. By the way, that's human nature, and I understand that. But we've got to get beyond that approach and focus on how we're going to build a patient-centred system. People should start to think about that issue because we are going to recommend a number of changes that, when taken together, will have a large impact.

My biggest fear is that objective, knowledgeable people will develop a way to restructure the system that isn't theoretical

or academic but that will collide with people's willingness to embrace change in everything but themselves. Now, I'm hoping that if that happens, governments will have the fortitude to ride over those changes as they did with a lot of the things the Senate Committee proposed in 2002 when we developed the acute care report. A lot of the more controversial recommendations we made in that report are in fact being implemented by governments because, in some sense, they have simply blamed the people who wrote the report. I frankly think that one of the roles of the commission will be to take some of the flak by allowing governments to sort of say, "Look, we're going to do what the commission says. So, if you don't like the changes, blame the commission. Don't blame us." I believe that's a reasonable role for an outside third party like us to play.

MJH: You spoke earlier about the need to get at some of the challenges and issues early on so that we're operating in a prevention mode – at least, prevention of some of the most acute types of mental health challenges. In that regard, having a health system that's focused on early-years, long-term prevention is critical.

Would you leave us with some encouraging words on how you "think big" while you're taking small steps, and on how you keep your eye on the ultimate vision for child and youth mental health? What is your vision of excellence for the mental health system for children and youth in Canada?

MK: My vision is that public attitudes will shift so much that parents won't feel stigmatized and discriminated against if their children need mental health help. I look toward a day when parents will be willing to seek help and to talk about their children's situations as openly as if they had cancer. Realizing that vision requires changing both public attitudes and behaviours.

I also have a vision of a seamless system that enables a child with a mental illness to be treated quickly. Young people may have to live with mental illness for the rest of their life, but if they receive early treatment, they'll be perfectly good and productive citizens. When I think about "recovery" in terms of mental illness, I liken the situation to people who have diabetes: individuals who manage to live with their illness for their entire life. People with mental illnesses can do the same thing. But getting to that point is going to require a sea change in public attitudes and in the attitudes of people who are delivering healthcare services.

I'm optimistic, not because I'm naive but because I believe there's a groundswell happening right now. Everywhere I go in Canada, I detect growing support for changing and improving mental health services. That fact makes me optimistic that the combination of really good knowledge of the right things that need to be done and the Mental Health Commission's

development of a powerful social movement in support of system change will, given the current climate and attitudes, bring about huge transformation.

MJH: I share your optimism. Everywhere I've been across the country, mental health is always first on the list of the top three challenges facing children and youth.

MK: Absolutely. And I'll give you another good reason to be optimistic: When I started in healthcare with the Senate Committee in 2000, if you had asked provincial or territorial health ministers anywhere in the country what their top three priorities were, mental health – in general or for kids – would never, ever have been listed. If you were to ask that same question to any health ministers today, they would all put mental health in their top three, and many would put it at the very top.

Now, you might ask, "What difference does that make?" What it tells you is that a whole lot of people are now looking at this issue in a way they weren't less than a decade ago. As you know, it takes a long time to change attitudes in big organizations. We're coming across fertile ground at the present moment. The role of the Mental Health Commission and of people in mental health services is to capitalize on that opportunity so that we can get the kind of support that's required to make the changes that we really need.

MJH: I believe we owe it to the groundswell of public optimism to make sure we have an impact over the next generation.

MK: That's exactly right. That's exactly what we have to do. I keep saying to people working in the system, "Look, very seldom in life do you have an opportunity to really make a difference. But now is one of those times." I think that there's now a whole confluence of events that makes change possible at this particular point in time. I hope that everyone pitches in to make it work.

MJH: Terrific, Michael. Thank you.



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