



Aboriginal Child Health and the Social Determinants

Why Are These Children So Disadvantaged?

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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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About the Authors

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