

An Interdisciplinary Journal *Honoring the Voices, Perspectives and Knowledges of First Peoples through Research, Critical Analyses, Stories, Standpoints and Media Reviews*

Understanding the Impact of the Pain Experience on Aboriginal Children's Wellbeing: Viewing Through a Two-Eyed Seeing Lens

Margot Latimer,^{1,2} Danielle Simandl,² Allen Finley,^{2,3,4} Sharon Rudderham,⁵ Katherine Harman,⁶ Shelley Young,² Emily MacLeod,² Daphne Hutt-MacLeod,⁵ Julie Francis⁵

¹ School of Nursing, Dalhousie University, Halifax, Nova Scotia, Canada

² Centre for Pediatric Pain Research, IWK Health Centre, Halifax, Nova Scotia, Canada

³ Department of Anesthesia, Dalhousie University, Nova Scotia, Canada

⁴ Department of Psychology and Neuroscience, Dalhousie University, Nova Scotia, Canada

⁵ Eskasoni Community Health Centre, Eskasoni, Nova Scotia, Canada

⁶ School of Physiotherapy, Dalhousie University, Halifax, Nova Scotia, Canada

Corresponding author: Margot Latimer, mlatimer@dal.ca

Abstract

Pain is a universal experience all humans share but can be unique in how it is expressed. The pain experience is influenced by several dynamic factors, including family, community and culture. When it comes to pain expression children are among the most vulnerable often due to difficulty conveying their discomfort. Childhood pain can have significant physical and developmental effects that can last into adulthood. These negative health outcomes may be more pronounced in Aboriginal children given (a) the high prevalence of painful conditions, (b) potential cultural differences in pain expression, (c) the lack of culturally relevant reliable pain assessment approaches; (d) the subsequent shortcomings in pain care resulting in persistent pain (e) impact on wellbeing and untreated childhood pain. Standardized pain scales are based on Western ways of interpreting pain and may not capture the complexities of this experience through Indigenous understandings. Integration of both Western and Indigenous knowledge is accomplished when employing a Two-Eyed Seeing approach which utilizes the best of both Indigenous and Western knowledge. We want to establish reliable means for Aboriginal children to convey pain and hurt from a holistic perspective. By using a Two-Eyed Seeing lens to examine these issues, we hope to learn how to improve health care encounters, reduce hurt and enrich the wellbeing of Aboriginal children.

Keywords: children, youth, pain, pain assessment, First Nations, Aboriginal, culture

Introduction

Pain is a universal experience all humans share but is unique in how it is expressed. The pain experience and the subsequent expression can be influenced by several dynamic factors, including family, community and especially culture (Kristjánsdóttir, Unruh, McAlpine, & McGrath, 2012). When it comes to properly assessing pain expression children are among the most vulnerable, often due to difficulty conveying their discomfort. Untreated pain can interfere with a child's ability to learn, eat, sleep, grow and achieve life goals (Blanchard et al., 2012; Cooper, Kohler, & Blunden, 2012; First Nations Regional Health Survey [FNRHS], 2012; Jackson, Vann, Kotch, Pahel, & Lee, 2011; Leake, Jozzy, & Uswak, 2008; Schroth et al., 2009; Zumach, Gerrits, Chenault, & Anteunis, 2010).¹ These disruptions in healthy developmental activities are highly concerning as they may be more pronounced in Aboriginal children given (a) the high prevalence of painful conditions (b) potential cultural differences in pain expression, (c) the lack of culturally relevant reliable pain assessment approaches; (d) the subsequent shortcomings in pain care and resource inequities resulting in persistent pain; and (e) impact on wellbeing and untreated childhood pain.

Because culture plays such a prominent role in pain socialization we use a *Two-Eyed Seeing* approach to discuss this issue. The *Two-Eyed Seeing* framework was proposed by Mi'kmaq Elders and educators Albert and Murdena Marshall at Cape Breton University's Institute for Integrative Science and Health program. The *Two-Eyed Seeing* philosophy embodies the best of Indigenous and Western worldviews, acknowledging no single perspective is ever complete or superior (Martin, 2012). It challenges the extension of previously held perspectives to encompass new ways of thinking and recognizes the overlap between two distinct, yet evolving knowledge systems (Martin, 2012).

Western based pain assessment involves three areas of assessment; behavioural (crying, grimacing, etc.), physiological (heart rate, blood pressure, etc.) and self-report (Huguet et al., 2010; Jain, Yeluri, & Munshi, 2012). Minimal research has been completed to evaluate whether these assessment strategies are appropriate for use with Aboriginal people (Jimenez, Garroutte, Kundu, Morales, & Buchwald, 2011, Latimer, Rudderham, Finley, Young, Francis & Inglis, in press) and research that has been completed suggests that Western-based behavioural and self-report pain assessment may be inappropriate for use with Aboriginal children and youth (Latimer et al., in press).

This Western perspective of one eye's view is already well established in existing pain literature and clinical practice. However, the Indigenous viewpoint needs to be advanced as it has yet to be incorporated into pediatric pain care. Our *Two-Eyed* team believes considering both views offers a more balanced perspective and will lead to more meaningful pain assessment and treatment in Aboriginal children and youth. We outline in our discussion why we believe pain in Aboriginal communities may be under assessed and under managed as well as the implications of untreated pain on overall development and wellbeing including academic performance and biopsychosocial impacts. Next we describe how western

¹ Several other authors have identified similar trends in the literature, including Bidadi, Nejadkazem & Naderpur, 2008; Bowd, 2005; Casamassimo, Thikkurissy, Edelstein, & Maiorini, 2009; Cooper, Kohler, & Blunden, 2012; Langan, Sockalingam, Caissie, & Corsten, 2007; Lawrence, Binguis, Douglas, McKeown, Switzer, Figueiredo, & Reade, 2009; Milnes, Rubin, Karpa, & Tate, 1993; Peressini, Leake, Mayhall, Maar, & Trudeau, 2004; Ratnayake & Ekanayake, 2005; Shepherd, Nadanovsky, & Sheilham, 1999; Spady, Saunders, Schopflocher, & Svenson, 2004; Thorne, 2004.

knowledge underpins the pain assessment practices of new and practicing clinicians. Our discussion concludes with next step suggestions to help achieve our underlying goal of raising awareness and encouraging the creation of new understandings in pediatric pain knowledge which reflect the best of each perspective on how to enhance the health care encounter, reduce the hurt and increase the wellbeing of Aboriginal children.

We recognize there is not one uniform 'Aboriginal culture', and for this paper we acknowledge that the three main groups of Aboriginal people, including First Nation, Métis and Inuit, have distinct cultures, languages and beliefs.. The specific three group identifiers used in this paper, as well as terms such as Native American, are not intended to suggest that these terms are interchangeable or diminish the rich diversity amongst all Indigenous groups, but rather reflect the language used in the original research from which they were derived. Further, references are made specifically to research conducted by several of the authors with the Mi'kmaq First Nation. To the best of our knowledge no other comparable Aboriginal children's pain research has been conducted in Canada to include in our discussions here. One study has been conducted by Ellis et al (2009) to develop a pain assessment scale for Inuit children however pain expression was not included in their research.

Pain and Aboriginal People

One in five Canadians aged 12-44 years, or roughly 3.6 million people, experience chronic pain. The incidence is highest in Aboriginal households, those with low educational attainment (Statistics Canada, 2012) and Aboriginal women (Meana, Cho, & Des Meules, 2004). While Canada ranks third out of 177 countries on the Human Development Index (a measure of education, life expectancy and income), the ranking slips to an appalling 68th place if only Canada's First Nations communities are considered (Canadian UNICEF Committee, 2009). This indicates there are serious impediments to optimizing wellness in Aboriginal communities; we believe pain may play a central role. In a recent comprehensive review of the epidemiology and management of pain among US, Alaskan and Canadian Aboriginal peoples, only five of the 28 studies included children and/or adolescents and only one was based in Canada (Jimenez et al., 2011). Results indicated higher rates of dental pain (Leake et al., 2008), chest pain (Rhee, 2005), headaches (Rhee, 2000), musculoskeletal pain (Buchwald, Goldberg, Noonan, Beals, & Manson, 2005; Rhee, 2005) and pain related to juvenile rheumatoid arthritis (Mauldin, Cameron, Jeanotte, Solomon, & Jarvis, 2004) in Aboriginal children and adolescents; yet these children were less likely to be treated for it (Leake et al., 2008; Mauldin et al., 2004; and Rhee, 2000). The recent First Nations Regional Health Survey (2012) also identified a higher prevalence of dental, ear and musculoskeletal pain among Aboriginal children and youth, which is further supported in the broader literature (Bowd, 2005; Langan et al., 2007; Lawrence et al., 2009; Leake et al., 2008; Schroth et al., 2009; Spady, et al., 2004).

We believe many Aboriginal children are suffering with untreated pain, receiving inequitable healthcare and experiencing negative pain-related health outcomes that could be addressed in part by clinicians' ability to properly assess and treat pain in a culturally relevant manner. The context of compromised social determinants of health inflicted by the effects of colonization efforts (Greenwood & de Leeuw, 2012) and health inequities likely play a factor in the prevalence of pain conditions. Stewart et al., (2013) conducted a Canadian study to identify health inequities in Aboriginal children with respiratory conditions. In Stewart's study both parents and children reported that health inequities included

substandard educational resources, exclusion, isolation, barriers to health-service access, inadequate health care, disrespectful treatment and discrimination by health-care providers as well as deficient health insurance. These unacceptable inequities continue to place Aboriginal children at a disadvantage and likely result in a greater burden of ill health (Kay-Raining Bird, 2011; Egeland, Faraj, & Osborne, 2010; FNRHS, 2012; Greenwood & de Leeuw, 2012; Ning & Wilson, 2012).

While Aboriginal people comprise 4% of the Canadian population, Aboriginal children represent the fastest growing demographic of all Canadians. Between 2006 and 2011, there was a 20% increase in population rates, compared to 5% in the non-Aboriginal population (Statistics Canada, 2011). In 2011, Aboriginal children under 14 years of age made up 28% of the total Aboriginal population and 7% of all children in Canada (FNRHS, , 2011). With such a youthful population, the health and development of Aboriginal communities may be compromised by the absence of culturally safe pediatric pain care.

How Do Practitioners Know When a Child is in Pain?

Pain is something that is experienced by all individuals throughout the lifespan. It is the most common presenting issue in Emergency Departments (Cohen et al., 2008; Cordell et al., 2002; Jimenez et al., 2011; Le May et al., 2009; Rogovik, Rostami, Hussain & Goldman, 2007; Todd et al., 2007; Zempsky & Cravero, 2004). The ability to accurately identify pain location, intensity and quality is essential for appropriate pain management (Cohen et al., 2008; Fanciullo, Cravero, Mudge, McHugo & Baird, 2007; Stevens et al., 2012).

Much of what is known about pain care is derived from studies based in Western settings. Three main categories of evaluating pain intensity in children from a Western knowledge perspective are physiological (heart rate, blood pressure, etc.), behavioural (facial grimacing, body posturing, etc.) and self-report (Huguet et al., 2010; Jain et al., 2012). In western-based practice self-report measures are considered to be the 'gold standard' in pediatric pain care. In recent reviews of pediatric self-report tools, the Pieces of Hurt (Poker Chip Tool) (Hester, 1979), Faces Pain Scale-Revised (Hicks, von Baeyer, Spafford, van Korlaar & Goodenough, 1993), Oucher (Beyer, 1984) and Visual Analogue Scale were considered some of the best validated measures available in clinical practice (Jain et al., 2012; Huguet et al., 2010).

Evaluation of the cross-cultural relevance of existing pain tool adaptations through acculturation tests are rarely provided (Finley, Kristjánsdóttir, & Forgeron, 2009). The ability to accurately assess pain in Aboriginal children and youth using these tools has not been determined; confirming their reliability or developing methods that produce meaningful valuations is the first step toward addressing high rates of pain and delivering culturally safe care. This raises questions as to whether Western-based pain assessment tools can effectively translate the Aboriginal pain experience.

To say there is limited research on pain expression in Aboriginal children is a glaring understatement. As far as we know the *Two-Eyed Seeing* work conducted with one Mi'kmaq community (Latimer et al., in press) is the sole published work in Canada. Minimal research has been completed on the use of self-reported pain tools within Aboriginal communities (Ellis et al., 2009; Jimenez et al., 2011; Latimer et al., in press). We wonder whether the standard use of numbers through the numeric rating scale (NRS) to quantify pain would be inappropriate or ineffective in the Aboriginal population. Aboriginal people historically communicate through storytelling and oral descriptive methods. Depicting pain or hurt with a single number on a one-dimensional scale may not be sufficient. Burhansstipanov and Hollow (2001)

explored the use of numeric scales in Native American communities; the significance of numbers selected aligned more closely to the sacred meaning of the number as opposed to the severity of pain. It has been suggested that the use of a more descriptive tool that employs a narrative may capture more accurate pain information (Barkwell 2005; Fenwick, 2006; Green, 2011; Haozous & Knobf, 2013; Latimer et al., 2012). It is possible that the use of the word 'pain' may also be inappropriate within some Aboriginal communities. For example, Latimer et al. (in press) highlight the fact there is no translatable word for 'pain' within the Mi'kmaq language. This suggests a potential for confusion regarding the intention and purpose of pain tools. Instead, the word 'hurt', which in Mi'kmaq *kesa'si* means 'I am hurting', may be used by Mi'kmaq speaking people when discussing pain.

In addition to the shortcomings of standardized self-reported pain scales, another consideration is the potential for discrepancies between the child's stated pain level and the perceptions of health care providers. Evidence suggests health practitioners often prioritize physical indicators of pain, such as frowning, grimacing, moaning etc., over what a patient reports when determining the presence of pain (Forgeron, et al., 2009; Jain et al., 2012; Rajasagaram, Taylor, Braitberg, Pearsell, & Capp, 2009; Voepel-Lewis, Piscotty, Annis, & Kalisch, 2012). As a result, clinicians tend to discredit the patient's self-report, particularly with ambiguous or absent pain behaviours, high pain scores and/or if the patient's ethnicity differs from their own (Anderson, Green, & Payne, 2009; Forgeron, et al., 2009; Kaseweter, Drwecki, & Prkachin, 2012; Rajasagaram et al., 2009; Voepel-Lewis et al., 2012).

According to Honeyman and Jacobs (1996) Indigenous people suppress pain behaviours and are reluctant to discuss their pain experience with others possibly from the oppression experienced by Aboriginal peoples since colonization (Beers, personal communication 1997 in Fenwick, 2005). Fenwick (2005) notes that pain may be viewed by Indigenous people as a sign of human weakness leading to a tendency to not want to draw attention to their pain experience. In fact, in McGrath's work (2006) with Australian Aboriginal people's views on pain in palliative care, and Latimer's (in press 2014) work clinicians reported that it was more difficult to assess pain and both studies indicated that community members said it was a weakness to show their pain. Despite the high prevalence of painful conditions in Aboriginal children, the absence of conventional and Western-trained expected pain cues and behaviours places children and youth at a significantly higher risk for under-recognized, untreated pain. Though pain experiences are unique to the individual regardless of cultural identity, in an effort to better identify pain in Aboriginal children, it is important to avoid cultural stereotyping while maintaining consideration for how socialized pain expression may vary from Western norms. Cultural variances need to be acknowledged during pain assessment and self-reporting in order to produce meaningful results.

According to the Mi'kmaq Association for Cultural Studies (2013), cultural knowledge and teachings are found only in individuals and their relationships, not in books. For this reason, teachings and traditions are rarely written or translated into print. The best knowledge source regarding Aboriginal culture and traditions are the Aboriginal people and communities themselves. Aboriginal people have a strong oral history; values, beliefs and complex ideas are expressed by way of stories (Sinquin, 2009). In terms of pain, the purpose of the storytelling according to Fixico (2003) is to draw the listener into the experience of the event, allowing them to come to their own conclusions concerning the degree of pain the child is suffering.

Discourse patterns vary across cultures (Fixico, 2003; Chafe, 1980). For example, Mi'kmaq people in pain

do not often use English adjectival or adverbial phrases to quantify pain (Inglis, 2002, 2004). If clinicians pay attention to the details of 'the story of pain causation', in some Mi'kmaq communities, this is where the level of pain is expressed; not through Western ways of using numeric or face scales. In Latimer, Rudderham and colleagues (in press) research one Aboriginal Mi'kmaq Elder shared that 'the more pain, the more story' yet, healthcare encounters are not designed to allow the time to hear stories. Ellis et al (2009) created the Northern Pain Scale to be used in Inuit children to describe their pain and it was shown that it was favoured over typical gold standard measures. Little else has been published about Aboriginal children's pain expression or attempts to describe ways it is expressed and consequently treated. The cultural richness and diversity of Aboriginal peoples combined with the multidimensional approach to communicating pain underlines the central importance of engaging Aboriginal people in the development of relevant pain care; this would help ensure cultural insights, values, and traditions are reflected in the methods used to evaluate pain. The negative outcomes of untreated pain are too high a risk to not pay attention to this issue. These outcomes are further described in the following section.

Impact of Under Treated Pain on Children's Overall Development and Wellbeing

Children with poorly managed pain often experience detrimental and pervasive effects to their overall wellness. Though there is no singular piece of literature that comprehensively summarizes these issues, several overlapping themes have been identified in the works of several authors. Untreated pain has been found to negatively influence (a) future experiences with pain; (b) participation in play and (c) physical activity; (d) academic performance; (e) language development; (f) sleep patterns; (g) growth; (h) behavior; (i) social development; (j) mental health; (k) substance use and (l) risk for future illness (Bidadi et al., 2008; Blanchard et al., 2012; Cooper et al., 2012; FNRHS, 2012; Hammen, Brennan, Keenan-Miller, & Herr, 2008; Jackson et al., 2011; Kennedy, Luhmann, & Zempsky, 2008; Langan et al., 2007; Noel, Chambers, McGrath, Klein & Stewart, 2012; Schroth et al., 2009; Scott & Sullivan, 2012; Zumach, et al., 2010).² Further expansion of these outcomes follows with specific discussion regarding academic performance and bio-psychosocial impacts.

Lower educational attainment among Aboriginal people is another area of inequity that we believe may be linked to untreated pain issues. First Nations youth with good overall health have better educational success, better class attendance, higher course completion and enjoyment of school and fewer problems learning in a school setting (FNRHS, 2012). Approximately 34%-50% of Aboriginal people do not complete high school *versus* 15% of non-Aboriginal Canadians (Statistics Canada, 2006). More recently, the First Nations Regional Health Survey (2012) indicated 18% of First Nations children had repeated a grade compared to 3.6% of Canadian children at large. Van der Woerd, Dixon, McDiarmid, Chittenden and Murphy (2005) reported that 45% of 1700 British Columbia youth report missing school and other

² Several additional authors have contributed to this body of knowledge, including Baulch, 2010; Bowd, 2005; Casamassimo et al., 2009; Currie & Wang, 2004; Forgeron, Finley, & Arnaout, 2006; Gravel et al., 2006; Grossman, Milligan, & Deyo, 1991; Grunau, Weinberg, & Whitfield, 2004; Huguet, et al., 2010; Jongudomkarn, Aungsupakorn, & Camfield, 2006; Mitchell & Boss, 2002; Lawrence et al., 2009; Mauldin et al., 2004; McWilliams, Cox, & Enns, 2003; Milnes et al., 1993; Mota, Elias, et al., 2012; Ortiz, López-Zarco, & Arreola-Bautista, 2012; Peressini et al., 2004; Ratnayake & Ekanayake, 2005; Rennick, Johnston, Dougherty, Platt & Ritchie, 2002; Shepherd et al., 1999; Spady, et al., 2004; Thorne, 2004; Young, 2005.

activities due to pain. This finding mirrors our own work where 48% of the young people in a Nova Scotian Aboriginal Mi'kmaq community also indicated they regularly miss school due to pain (Latimer et al., in press). Further to the above Canadian findings, Jackson et al. (2011) analyzed school absenteeism related to dental health in non-Aboriginal children. Results indicated that missing school due to dental pain was associated with poor school performance while missing school for routine dental care had no bearing on academic achievement (Jackson et al., 2011). These findings isolate the crucial impact of pain on the educational experience.

In addition, chronic ear infections (otitis media) are up to 40 times more prevalent in some Aboriginal Inuit communities relative to urban dwelling Canadians (Bowd, 2005). The prevalence rates of chronic ear infections among Inuit school-age children range from 3.1-50% (Bowd, 2005). Elevated rates of ear infections with hearing loss were also found in Aboriginal Mi'kmaq children of Nova Scotia, ranging from 10-16% (Langan et al., 2007). According to World Health Organization (WHO) reports (1996; 2004), prevalence rates of chronic otitis media above 4% indicate a substantial public health concern that requires urgent intervention. Considering that rates of ear infections are well beyond the WHO parameters of public health concern in many Aboriginal communities and lower overall levels of treatment (Langan et al., 2007), there are several opportunities to improve the detection of ear pain and prevention of long term concerns, as discussed below. Yet, if health professionals are not culturally safe in their pain assessment knowledge than the infections and accompanying pain will persist with negative outcomes.

Recurrent ear infections can result in hearing loss and subsequent issues related to language, literacy, concentration, behaviour, learning disabilities, socialization and overall academic performance (Bidadi et al., 2008; Bowd, 2005; Langan, et al., 2007; Thorne, 2004; Zumach et al., 2010). Although some research suggests ear infection-related hearing loss is sufficiently transient to resolve by school age, it is important to note that the prevalence, frequency, severity and wide age range of these infections in Aboriginal children far exceeds non-Aboriginal norms (Bidadi et al., 2008; Bowd, 2005; FNRHS, 2012; Gravel et al., 2006; Gunasekera, Morris, Daniels, Couzos, & Craig, 2009a; 2009b; Langan et al., 2007). The 2002-2003 First Nations Regional Health Survey (2005) indicated only 27.4% of First Nations children with chronic ear infections were receiving treatment; equivalent data was not included in the most recent FNRHS (2012). Persistent ear infections often require treatment and earlier detection of painful symptoms has great potential to prevent downstream complications. Thus, untreated ear pain in Aboriginal First Nations children increases their risk for hearing problems and related impacts on learning.

Aboriginal children have higher injury-related mortality rates (26%) when compared to non-Aboriginal Canadian children (6%) (FNRHS, 2012; Saylor, 2004; Spady et al., 2004). These painful incidents can prevent school attendance, normal development and may lead to long-term disability (Spady et al., 2004). Without appropriate treatment, pain and disability may linger into adulthood and interfere with a productive, healthy active life. Being pain free means a child has the potential to be more physically active, and this can contribute to better overall physical and mental health (FNRHS, 2012; Janssen & LeBlanc, 2010).

Bio-psychosocial Impacts

Research in non-Aboriginal populations has shown that infants, children and youth who repeatedly

experience pain react adversely to subsequent pain events (Kennedy et al., 2008; Mitchell & Boss, 2002). Early and untreated experiences of pain, including those in a neonatal intensive care environment, disrupt the development of normal stress and neurological mechanisms (Grunau et al., 2004; Rennick et al., 2002; Young, 2005). In the absence of culturally relevant approaches to pain assessment, Aboriginal children are at higher risk for not having their pain properly assessed and treated which leaves them susceptible to suffering unnecessarily from pain and developing negative pain memories, chronic pain and disability.

Finally, untreated pain threatens an individual's mental health, associated with increased rates of depression, suicide, and substance abuse (Amari, Rehm, Goldner, & Fischer, 2011; Currie & Wang, 2004; FNRHS, 2012; Grossman et al., 1991; Larson et al., 2007; Lynch, 2013; McWilliams et al., 2003; Mota et al., 2012). According to the First Nations Regional Health Survey (2012), youth who were diagnosed with at least one health condition reported alarmingly increased levels of depression (31.6% vs. 20.6%), suicidal ideation (23% vs. 12%) and suicide attempts (8.1% vs. 4.5%) in comparison to those without a health condition (FNRHS, 2012). Equally concerning, 56.7% of Aboriginal youth with the lowest self-reported mental health have never actually accessed mental health services (FNRHS, 2012). Thus, the most vulnerable youth are not likely receiving essential support and at an increased risk for suicide in the presence of physical health conditions. Further, Scott and Sullivan (2012) noted that perceived injustice can modulate the relationship between pain and depression. Consequently, the social and health care inequities previously discussed (Greenwood & de Leeuw, 2012; Stewart et al., 2013) that Aboriginal youth face may increase the chance of developing depressive symptoms in response to persistent pain. Lastly, earlier onset mood disorders have higher rates of relapse in adulthood (FNRHS, 2012; Hammen et al., 2008), emphasizing the preventative importance of assessing and treating pain appropriately in Aboriginal children and youth.

Untreated pain profoundly interferes with a child's ability to achieve developmental milestones, academic success, productivity as a contributing member of society and overall wellness (FNRHS, 2012). Considering the disproportionate burden of illness and pain among Aboriginal children, we must first recognize this as a critical health issue; second, learn how best to assess and manage pain in Aboriginal children; third, create mechanisms to develop and share this knowledge.

Next Steps

It is clear that Aboriginal children experience more pain than their non-Aboriginal counterparts. There are undisputed discrepancies between Aboriginal and non-Aboriginal children for infection, injury, mental health and school achievement rates. Cultural variances in pain expression combined with the use of Western-based assessment tools contribute to the invisibility of Aboriginal children's pain. In the absence of a reliable means to evaluate pain in Aboriginal children, there is an urgent need for culturally relevant approaches to assist Aboriginal children in conveying their pain. Using a *Two-Eyed Seeing* approach, considering both Western and Indigenous knowledge to first validate that there is an issue and then proceed with establishing culturally relevant communication and management strategies, will be necessary to reverse the trends and negative impacts on future pain experiences and children's wellbeing.

The development of culturally safe approaches to pain care does not address the underlying social determinants of health that perpetuate widespread illness and pain in many Aboriginal communities.

However, it is an important first step in resolving health inequities, preventing downstream implications of untreated pain, rebuilding trust with health care providers and giving a voice to Aboriginal perspectives in guiding culturally relevant pain care. When an Aboriginal child presents in a clinical setting, it is imperative that health care providers be adept at culturally safe pain assessment.

In order to move forward, we must recognize the differences in how pain is expressed and partner with Aboriginal communities to learn how pain and hurt can be conveyed. Recent research by Stevens et al. (2012) indicated an excess of 90 different mechanisms to measure pain for infants, children and youth. However, the Indigenous viewpoint has been previously overlooked and has yet to be incorporated into pediatric pain care. Though Aboriginal children and youth will likely benefit from the revitalization of Indigenous knowledge in evaluating pain, there may be elements of this new understanding that also enhance pre-existing Western tools. Our goal is to raise awareness and encourage the creation of new understandings in pediatric pain knowledge, reflecting the best of the *Two-Eyed Seeing* perspective on how to enhance the health care encounter, reduce the hurt and increase the wellbeing of Aboriginal children.

References

- Anderson, K. O., Green, C. R., & Payne, R. (2009). Racial and ethnic disparities in pain: Causes and consequences of unequal care. *The Journal of Pain: Official Journal of the American Pain Society, 10*(12), 1187-1204.
- Amari, E., Rehm, J., Goldner, E., & Fischer, B. (2011). Nonmedical prescription opioid use and mental health and pain comorbidities: A narrative review. *Canadian Journal of Psychiatry, 56*, 495-502.
- Barkwell, D. (2005). Cancer pain: Voices of the Ojibway people. *Journal of Pain & Symptom Management, 30*(5), 454-464.
- Baulch, I. (2010). Assessment and management of pain in the pediatric patient. *Nursing Standard, 25*(10), 35-40.
- Beyer, J. E. (1984). *The Oucher: A user's manual and technical report*. Evanston, IL: The Hospital Play Equipment Company.
- Bidadi, S., Nejadkazem M., & Naderpur, M. (2008). The relationship between chronic otitis media-induced hearing loss and the acquisition of social skills. *Otolaryngology, 139*, 665-670.
- Blanchard, A. K., Wang, X., El-Gabalawy, H., Tan, Q., Orr., P., Elias, B., Rawsthorne, P., Hart, D., Chubey, S., & Berstein, C. N. (2012). Oral health in a First Nations and a non-Aboriginal population in Manitoba. *International Journal of Circumpolar Health, 71*, 17394. doi: 10.3402/ijch.v71i0.17394.
- Bowd, A. (2005). Otitis media: Health and social consequences for Aboriginal youth in Canada's north. *International Journal of Circumpolar Health, 64*, 5-15.
- Buchwald, D., Goldberg, J., Noonan, C., Beals, J., & Manson, S. (2005). Relationship between post-traumatic stress disorder and pain in two American Indian Tribes. *Pain Medicine, 6*, 72-79.
- Burhansstipanov, L., & Hollow, W. (2001). Native American cultural aspects of oncology nursing care.

- Seminars in Oncology Nursing*, 17(3), 206-219.
- Canadian UNICEF Committee (2009). *Aboriginal children's health: Leaving no child behind - Canadian supplement to the state of the world's children*. Toronto, ON: UNICEF Canada.
- Casamassimo, P. S., Thikkurissy, S., Edelstein, B. L., & Maiorini, E. (2009). Beyond the dmft: The human and economic cost of early childhood caries. *The Journal of the American Dental Association*, 140(6), 650-657.
- Chafe, W. (1980). *The Pear Stories: Cognitive, Cultural, and Linguistic Aspects of Narrative Production*. Norwood, NJ: Ablex.
- Cohen, L. L., Lemanek, K., Blount, R. L., Dahlquist, L. M., Lim, C. S., Palermo, T. M., McKenna, K. D., Weiss, K. E. (2008). Evidence-based assessment of pediatric pain. *Journal of Pediatric Psychology*, 33(9), 939-955.
- Cooper, P., Kohler, M., & Blunden, S. (2012). Sleep and academic performance in Indigenous Australian children from a remote community: An exploratory study. *Journal of Pediatrics and Child Health*, 48, 122-127.
- Cordell, W. H., Keene, K. K., Giles, B. K., Jones, J. B., Jones, J. H., & Brizendine, E. J. (2002). The high prevalence of pain in emergency medical care. *American Journal of Emergency Medicine*, 20(3), 165-169.
- Currie, S. R., & Wang, J. (2004). Chronic back pain and major depression in the general Canadian population. *Pain*, 107, 54-60.
- Egeland, G. M., Faraj, N., & Osborne, G. (2010). Cultural, socioeconomic, and health indicators among Inuit preschoolers: Nunavut Inuit child health survey, 2007-2008. *Rural & Remote Health*, 10(2), 1365-1365.
- Ellis, J. A., Ootoova, A., Blouin, R., Rowley, B., Taylor, M., Decourtney, C., . . . Gaboury, I. (2011). Establishing the psychometric properties and preferences for the northern pain scale. *International Journal of Circumpolar Health*, 70(3), 274-285.
- Fanciullo, G. J., Cravero, J. P., Mudge, B. O., McHugo, G. J., & Baird, J. C. (2007). Development of a new computer method to assess children's pain. *Pain Medicine (Malden, Mass.)*, 8 Suppl 3, S121-8.
- Fenwick, C. (2006). Assessing pain across the cultural gap: Central Australian Indigenous peoples pain assessment. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 22(2), 218-227.
- Finley, G. A., Kristjánsdóttir, O., & Forgeron, P. A. (2009). Cultural influences on the assessment of children's pain. *Pain Research & Management: The Journal of the Canadian Pain Society*, 14(1), 33-37.
- First Nations Regional Health Survey [FNRHS] 2008/10. (2012). *National Report on Adults, Youth and Children Living in First Nations Communities*. Ottawa: Assembly of First Nations/First Nations Information Governance Centre.

- First Nations Regional Health Survey 2002/03 (2005). *Results on Adults, Youth and Children Living in First Nations Communities*. Ottawa, ON: First Nations Centre.
- Fixico, D. L. (2003). *The American Indian Mind in a Linear World: American Indian Studies and Traditional Knowledge*. New York: Routledge.
- Forgeron, P. A., Finley, G. A., & Arnaout, M. (2006). Pediatric pain prevalence and parents' attitudes at a cancer hospital in Jordan. *Journal of Pain and Symptom Management, 31*(5), 440-448.
- Forgeron, P. A., Jongudomkarn, D., Evans, J., Finley, G. A., Thienthong, S., Siripul, P., Pairojkul, S., Sriraj, W., Boonyawatanangkool, K. (2009). Children's pain assessment in northeastern Thailand: Perspectives of health professionals. *Qualitative Health Research, 19*(1), 71-81.
- Gravel, J., Roberts, J., Roush, J., Grose, J., Besing, J., Burchinal, M., Neebe, E., Wallace, I., & Zeisel, S. (2006). Early otitis media with effusion, hearing loss and auditory processes at school age. *Ear and Hearing, 27*(4), 353-368.
- Green, C. R. (2011). Being present: The role of narrative medicine in reducing the unequal burden of pain. *Pain, 152*(5), 965-966.
- Greenwood, M. & de Leeuw, S. (2012). Social determinants of health and the future well-being of Aboriginal children in Canada. *Pediatric Child Health, 17*(7), 381-384.
- Grossman, D. C., Milligan, C., & Deyo, R. A. (1991). Risk factors for suicide attempts among Navajo adolescents. *American Journal of Public Health, 81*(7), 870-874.
- Grunau, R. E., Weinberg, J., & Whitfield, W. F. (2004). Neonatal procedural pain and preterm infant cortisol response to novelty at 8 months. *Pediatrics, 114*(1), e77-e84.
- Gunasekera, H., Morris, P., Daniels, J., Couzos, S., & Craig, J. (2009a). Otitis media in Aboriginal children: The discordance between burden of illness and access to service in rural remote urban Australia. *Journal of Pediatrics and Child Health, 45*, 425-430.
- Gunasekera, H., Morris, P., Daniels, J., Couzos, S., & Craig, J. (2009b). Management of children with otitis media: A survey of Australian Aboriginal Medical Service practitioners. *Journal of Pediatrics and Child Health, 45*, 457-463.
- Hammen, C., Brennan, P., Keenan-Miller, D., & Herr, N. (2008). Early onset recurrent subtype of adolescent depression: Clinical and psychological correlates. *Journal of Child Psychology and Psychiatry, 49*(4), 433-440.
- Haozous, E. A., & Knobf, M. T. (2013). "All my tears were gone": Suffering and cancer pain in southwest American Indians. *Journal of Pain and Symptom Management, 45*(6), 1050-1060.
- Hester, N. K. (1979). The preoperational child's reaction to immunization. *Nursing Research, 28*(4), 250-255.
- Hicks, C. L., von Baeyer, C. L., Spafford, P., van Korlaar, I., & Goodenough, B. (2001). The Faces Pain Scale – revised: Toward a common metric in pediatric pain measurement. *Pain, 93*, 173-183.

- Huguet, A., Stinson, J., & McGrath, P. (2010). Measurement of self-reported pain intensity in children and adolescents. *Journal of Psychosomatic Research, 68*, 329-336.
- Inglis, S. (2004). 400 years of linguistic contact between the Mi'kmaq and the English and the interchange of two world views. *The Canadian Journal of Native Studies XXIV, 2*, 389-402.
- Inglis, S. (2002). *Speaker's Experience: A Study of Mi'kmaq Modality* (Unpublished doctoral thesis). Memorial University of Newfoundland, St. John's, Newfoundland.
- Jackson, S. L., Vann, W. F., Kotch, J. B., Pahel, B. T., & Lee, J. Y. (2011). Impact of poor oral health on children's school attendance and performance. *American Journal of Public Health, 101*(10), 1900-1906.
- Jain, A. A., Yeluri, R., & Munshi, A. K. (2012). Measurement and assessment of pain in children: A review. *The Journal of Clinical Pediatric Dentistry, 37*(2), 125-136.
- Janssen, I., & LeBlanc, A. G. (2010). Systematic review of the health benefits of physical activity and fitness in school-aged children and youth. *International Journal of Behavioural Nutrition and Physical Activity, 7*, 40.
- Jimenez, N., Garrouette, E., Kundu, A., Morales, L., & Buchwald, D. (2011). A review of the experience, epidemiology and management of pain among American Indian, Alaska Native and Aboriginal Canadian peoples. *The Journal of Pain, 12*(5), 511-522.
- Jongudomkarn, D., Aungsupakorn, N., & Camfield, L. (2006). The meanings of pain: A qualitative study of the perspectives of children living with pain in north-eastern Thailand. *Nursing & Health Sciences, 8*(3), 156-63.
- Kaseweter, K. A., Drwecki, B. B., & Prkachin, K. M. (2012). Racial differences in pain treatment and empathy in a Canadian sample. *Pain Research & Management: The Journal of the Canadian Pain Society, 17*(6), 381-384.
- Kay-Raining Bird, E. (2011). Health, education, language, dialect, and culture in First Nations, Inuit, and Métis communities in Canada: An overview. *Canadian Journal of Speech-Language Pathology & Audiology, 35*(2), 110-124.
- Kennedy, R. M., Luhmann, J. & Zempsky, W. T. (2008). Clinical implications of unmanaged needle insertion pain and distress in children. *Pediatrics, 122*, S130-S133.
- Kristjánsdóttir, O., Unruh, A. M., McAlpine, L., & McGrath, P. J. (2012). A systematic review of cross-cultural comparison studies of child, parent, and health professional outcomes associated with pediatric medical procedures. *The Journal of Pain: Official Journal of the American Pain Society, 13*(3), 207-219.
- Langan, L., Sockalingam, R., Caissie, R., & Corsten, G. (2007). Occurrence of otitis media and hearing loss among First Nations elementary school children. *Canadian Journal of Speech-Language Pathology and Audiology, 31*(4), 178-185.
- Larson, M. J., Paasche-Orlow, M., Cheng, D. M., Lloyd-Travaglini, C., Saitz, R. & Samet, J. H. (2007).

- Persistent pain is associated with substance use after detoxification: a prospective cohort analysis. *Addiction*, 2007, 102(5), 752-760.
- Latimer, M., Young, S., Dell, C., & Finley, G. A. (2012). Aboriginal children and physical pain: What do we know? *Journal of Aboriginal Health*, 9(1), 7-14.
- Latimer, M., Rudderham, S., Finley, G. A., Young, S. & Inglis, S. (2013). A Qualitative Investigation into Aboriginal Children and Youth's Expression of Pain: What's the Story? *CMAJ-Open* [In Press].
- Lawrence, H. P., Binguis, D., Douglas, J., McKeown, L., Switzer, B., Figueiredo, R., & Reade, M. (2009). Oral health inequalities between young Aboriginal and non-Aboriginal children living in Ontario, Canada. *Community Dentistry and Oral Epidemiology*, 37, 495-508.
- Leake, J., Jozzy, S., & Uswak, G. (2008). Severe dental caries, impacts and determinants among children 2-6 years of age in Inuvik Region, Northwest Territories, Canada. *Journal of the Canadian Dental Association*, 74(6), 519-519g.
- Le May, S., Johnston, C. C., Choiniere, M., Fortin, C., Kudirka, D., Murray, L., & Chalut, D. (2009). Pain management practices in a pediatric emergency room (PAMPER) study: Interventions with nurses. *Pediatric Emergency Care*, 25(8), 498-503.
- Levy, D. M., Peschken, C. A., Tucker, L. B., Chedeville, G., Huber, A. M., Pope, J. E., Canadian Network for Improved Outcomes in SLE & Silverman, E. D. (2014). Health related quality of life in childhood-onset systemic lupus erythematosus is associated with ethnicity: Results from a multiethnic multicenter Canadian cohort. *Arthritis Care & Research*. Accepted Article. doi: 10.1002/acr.22363.
- Lynch, M. (2013). Nonmedical use of prescription opioids: what is the real problem? *Pain Research and Management*, 18(2), 67-68.
- Martin, D. (2012). Two-eyed seeing: A framework for understanding Indigenous and non-Indigenous approaches to Indigenous health research. *Canadian Journal Nursing Research*, 44(2), 20-42.
- Mauldin, J., Cameron, H. D., Jeanotte, D., Solomon, G., & Jarvis, J. (2004). Chronic arthritis in children and adolescents in two Indian health service user populations. *BMC Musculoskeletal Disorders*, 5, 30.
- McGrath, P. (2006). "The biggest worry...": Research findings on pain management for Aboriginal peoples in Northern Territory, Australia. *Rural Remote Health*, 6(3): 549-563.
- McWilliams, L. A., Cox, B. J., & Enns, M. W. (2003) Mood and anxiety disorders associated with chronic pain: An examination in a nationally representative sample. *Pain*, 106, 127-133.
- Meana, M., Cho, R., & DesMeules, M. (2004). Chronic pain: The extra burden on Canadian women. *BMC Women's Health*, 4(Supp 1), S17.
- Mi'kmaq Association for Cultural Studies (n.d.). *Mi'kmaq Association for Cultural Studies*. Retrieved March 6, 2014, from <http://www.mikmaqculture.com/>
- Milnes, A., Rubin, C., Karpa, M., & Tate, R. (1993). A retrospective analysis of the costs associated with

- the treatment of nursing caries in a remote Canadian Aboriginal preschool population. *Community Dentistry and Oral Epidemiology*, 21, 253-260.
- Mitchell, A. & Boss, B. J. (2002). Adverse effects of pain on the nervous systems of newborns and young children: a review of the literature. *Journal of Neuroscience Nursing*, 34, 228-236.
- Mota, N., Elias, B., Tefft, B., Medved, M., Munro, G., & Sareen, J. (2012). Correlates of suicidality: Investigation of a representative sample of Manitoba First Nations Adolescents. *American Journal of Public Health*, 102(7), 1353-1361.
- Ning, A., & Wilson, K. (2012). A research review: Exploring the health of Canada's Aboriginal youth. *International Journal of Circumpolar Health*, 71, 10.
- Noel, M., Chambers, C. T., McGrath, P., Klein, R. M., & Stewart, S. H. (2012). The influence of children's pain memories on subsequent pain experience. *Pain*, 153, 1563-1572.
- Ortiz, M., López-Zarco, M., & Arreola-Bautista, E. J. (2012). Procedural pain and anxiety in pediatric patients in a Mexican emergency department. *Journal of Advanced Nursing*, 68(12), 2700-2709.
- Peressini, S., Leake, J. L., Mayhall, J. T., Maar, M., & Trudeau, R. (2004). Prevalence of early childhood caries among First Nations children, district of Manitoulin, Ontario. *International Journal of Paediatric Dentistry*, 14(2), 101-110.
- Rajasagaram, U., Taylor, D. M., Braitberg, G., Pearsell, J. P., & Capp, B. A. (2009). Paediatric pain assessment: Differences between triage nurse, child and parent. *Journal of Paediatrics & Child Health*, 45(4), 199-203.
- Ratnayake, N. & Ekanayake, L. (2005). Prevalence and impact of oral pain in 8 year old children in Sri Lanka. *International Journal of Pediatric Dentistry*, 15, 105-112.
- Rennick, J. E., Johnston, C. C., Dougherty, G., Platt, R., & Ritchie., J. A. (2002). Children's psychological responses after critical illness and exposure to invasive technology. *Journal of Developmental and Behavioural Pediatrics*, 23(3), 133-144.
- Rhee, H. (2000). Prevalence and predictors of headaches in US adolescence. *Headache*, 40, 528-538.
- Rhee, H. (2005). Racial/ethnic differences in adolescents' physical symptoms. *Journal of Pediatric Nursing*, 20, 153-162.
- Rogovik, A. L., Rostami, M., Hussain, S., & Goldman, R. D. (2007). Physician pain reminder as an intervention to enhance analgesia for extremity and clavicle injuries in pediatric emergency. *The Journal of Pain: Official Journal of the American Pain Society*, 8(1), 26-32.
- Saylor, K. (2004). Injuries in Aboriginal Children. *Pediatric Child Health*, 9, 312-314.
- Schroth, R.J., Harrison, R.L., & Moffatt, M. (2009). Oral health of indigenous children and the influence of early caries on childhood health and well-being. *Pediatric Clinics of North America*, 56, 1481-1499.
- Scott, W. & Sullivan, M. (2012). Perceived injustice moderates the relationship between pain and

- depressive symptoms among individuals with persistent musculoskeletal pain. *Pain Research and Management*, 17(5), 335-340.
- Shepherd, M. A., Nadanovsky, P., & Sheilham, A. (1999). The prevalence and impact of dental pain in 8 year old school children in Harrow, England. *British Dental Journal*, 187(1), 38-41.
- Sinquin, A. (2009). *Our Voices, our stories: First Nations, Métis and Inuit stories*. Library and Archives Canada. Retrieved from <http://www.collectionscanada.gc.ca/stories/020020-1000-e.html> (accessed April 29, 2013).
- Spady, D., Saunders, D., Schopflocher, D., & Svenson, L. (2004). Patterns of injury in children: A population-based approach. *Pediatrics*, 113(3), 522-529.
- Statistics Canada (2012). *Canadian Community Health Survey*. Catalogue no. 11-001-X. Retrieved from: <http://www.statcan.gc.ca/daily-quotidien/130617/dq130617b-eng.pdf> (Accessed July 24, 2013).
- Statistics Canada (2011). *Aboriginal Peoples in Canada: First Nations People, Metis and Inuit, 2011 National Household Survey*. Retrieved from <http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-011-x/99-011-x2011001-eng.pdf> (accessed May 14, 2013).
- Statistics Canada (2006). *Census of Populations*. INAC Tabulations. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1315424049095/1315424155048#fig3> (accessed July 24, 2013).
- Stevens, B. J., Harrison, D., Rashotte, J., Yamada, J., Abbott, L. K., Coburn, G., Stinson, J., Le May, S. (2012). Pain assessment and intensity in hospitalized children in Canada. *Journal of Pain*, 13(9), 857-865.
- Stewart, M., King, M., Blood, R., Letourneau, N., Masuda, J. R., Anderson, S. & Bearskin, L. B. (2013). Health inequities experienced by Aboriginal children with respiratory conditions and their parents. *Canadian Journal of Nursing Research*, 45(3), 6-27.
- Thorne, J. A. (2004). Middle ear problems in Aboriginal school children cause developmental and educational concerns. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 16(1-2), 145-150.
- Todd, K. H., Ducharme, J., Choiniere, M., Crandall, C. S., Fosnocht, D. E., Homel, P., Tanabe, P., & PEMI Study Group. (2007). Pain in the emergency department: Results of the pain and emergency medicine initiative (PEMI) multicenter study. *The Journal of Pain: Official Journal of the American Pain Society*, 8(6), 460-466.
- Van der Woerd, K. A., Dixon, B. L., McDiarmid, T., Chittenden, M., Murphy, A., & The McCreary Centre Society. (2005). *Raven's children II: Aboriginal youth health in BC*. Vancouver, BC: The McCreary Centre Society.
- Van Herk, K. A., Smith, D., Tedford Gold, S. (2012). Safe care spaces and places: Exploring urban Aboriginal families access to preventive care. *Health & Place*, 18, 649-656.
- Voepel-Lewis, T., Piscotty, R. J., Annis, A., & Kalisch, B. (2012). Empirical review supporting the application of the "pain assessment as a social transaction" model in pediatrics. *Journal of Pain &*

Symptom Management, 44(3), 446-457.

World Health Organization (1996). *Prevention of hearing impairment from chronic otitis media: Report of a WHO/CIBA Foundation Workshop*. World Health Organization, London, UK; Workshop Proceedings, November 19-21.

World Health Organization (2004). *Chronic suppurative otitis media: Burden of illness and management options*. Geneva, Switzerland: Department of Child and Adolescent Health and Development and the Team for Prevention of Blindness and Deafness of the World Health Organization.

Young, K. D. (2005). Pediatric procedural pain. *Annals of Emergency Medicine*, 45(2), 160-171.

Zempsky, W. T., Cravero, J. P., & American Academy of Pediatrics Committee on Pediatric Emergency Medicine and Section on Anesthesiology and Pain Medicine. (2004). Relief of pain and anxiety in pediatric patients in emergency medical systems. *Pediatrics*, 114(5), 1348-1356.

Zumach, A., Gerrits, E., Chenault, M., & Anteunis, L. (2010). Long-term effects of early life otitis media on language development. *Journal of Speech and Language and Hearing Research*, 53, 34-43.