

## ORIGINAL RESEARCH

# Traditional and cultural approaches to childrearing: preventing early childhood caries in Norway House Cree Nation, Manitoba

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## ABSTRACT

**Introduction:** Infant health and development is linked to a wide range of interventions including maternal nutrition and infant feeding. Early childhood caries (ECC) is a chronic condition that affects large proportions of Aboriginal children worldwide. The health of a child's mouth is linked to their overall health and wellbeing and can have a significant impact in their day-to-day experiences of eating, playing, and sleeping. The rates of ECC have increased dramatically and communities, parents, and governments are increasingly burdened with the social, economic, and personal costs associated with treatment. There is a close association between ECC and unhealthy infant feeding practices and poor oral health care for infants. This research looked at traditional and culturally based approaches to healthy infant feeding and oral health care for infants in one remote First Nations community in northern Manitoba, Canada.

**Methods:** Research was already under way in the community in a longer term intervention-based project called the Baby Teeth Talk Study (BTT). In discussions on the interim findings of the study, participants discussed traditional cultural approaches practised in the community for healthy infant feeding and oral health. Using a participatory research approach, the authors engaged in a partnership with the community partner who assisted with the development of research questions as well as identifying research participants. Grandmothers in the community were recruited to participate in a total of 20 interviews and four focus groups.



**Results:** This article explores three key findings pertaining specifically to culturally based childrearing practices and infant oral health. Respondents discussed the importance of feeding infants country food (such as fish, moose and rabbit) at a young age for the overall health of the infant. Related to this was the use of traditional medicine to address oral health issues such as teething and thrush with salves made from tree bark rubbed on the gums of the infant. The role of swaddling and other thermal regulation techniques was identified as directly linked to oral health, particularly the development of healthy deciduous teeth.

**Conclusions:** Local health knowledge keepers should be a part of the discussion around health programs and public health promotion. Opportunities to share the traditions of infant feeding is an essential component in restoring skills and pride and is a mechanism for building family and community relationships as well as intergenerational support.

**Key words:** Aboriginal, alternative medicine, complementary medicine, early childhood caries, indigenous, infant feeding, infant health, maternal health, oral health, teething.

## Introduction

Infant health and development is linked to a wide range of interventions including maternal nutrition and infant feeding. Early childhood caries (ECC) is a chronic condition that affects large proportions of Aboriginal children in Canada<sup>1,2</sup>. In northern and rural Manitoba, the rate of hospital extractions of primary teeth can be as high as 68/1000<sup>3</sup> and similar observations have been made in other First Nations communities<sup>4</sup>. The health of a child's mouth is linked to their overall health and can have a significant impact in their day-to-day experiences of eating, playing, and sleeping<sup>5</sup>. The rates of ECC have increased dramatically, and communities, parents, and governments are increasingly burdened with the social, economic, and personal costs associated with treatment<sup>6,7</sup>.

The term 'baby bottle tooth decay' is often synonymous with ECC, highlighting the degree to which dietary practices are the cause of the disease, specifically through the use of the bottles containing sugary liquids<sup>8</sup>. The role of infant feeding is highly related to the prevalence of caries; however, significant research exists that demonstrates the role of other socioeconomic and cultural factors as a significant factor in this chronic condition, specifically within an Aboriginal context, including poverty, education, and income<sup>9</sup>.

This chronic condition causes pain and discomfort for the individual child, and also has a far-reaching impact to the child's family and community<sup>7</sup>. Treatment of ECC often requires expensive anesthetic, which carries its own set of health risks. Other health factors are shown to be linked to ECC, including poor nutrition and childhood obesity<sup>10</sup>. An increasing body of literature emphasizes biomedical interventions and treatments for this condition such as fluoride varnish<sup>11</sup>.

However, little research is available on the traditional approaches of healthy infant feeding used by Aboriginal parents and caregivers. The academic emphasis on biomedical approaches and the negation of traditional approaches must be considered in the larger colonial context of Aboriginal populations in Canada. Federal policies and programs attempting to assimilate Aboriginal children, such as residential schools, continue to have impacts on childrearing practices. The impact of residential schools has resulted in generational disconnect<sup>12</sup>. Despite this disruption in traditional knowledge (TK) transfer, intergenerational transfer on oral health knowledge has been shown to be an important protective factor between grandchildren and grandparents. For example, Sarson and Wilson<sup>13</sup> describe how Aboriginal parents and caregivers had learned oral health care primarily from their mothers or grandparents including using a facecloth to clean babies' gums and an infant's toothbrush to clean their new teeth. The literature does not



discuss the knowledge around traditional childrearing practices relating to oral health, which may aid in promoting healthier infant feeding and overall improved oral health.

Discussion around traditional culturally based interventions emerged during a research project being led by Dr Herenia P. Lawrence at the University of Toronto called the Baby Teeth Talk (BTT) study, which began in 2011 in both on-reserve and urban sites across Canada. Data collection will conclude in 2014. In Norway House Cree Nation (NHCN), a community located in northern Manitoba, research participants began sharing stories with the community research assistants (CRAs) on the different oral health methods that were used by caregivers, including teething and breastfeeding promotion. As a result, an additional research project was formulated to look at these traditional cultural approaches to infant feeding and oral health practices with a focus on integrating these approaches for the current population of parents.

There was a large amount of information shared by participants which provide an interesting perspective on childrearing transformations. This paper explores three key findings including the early introduction of country food, the use of traditional medicine for infants for teething and oral health, and the mitigation of teething issues through swaddling and temperature regulation.

## *Community background*

Norway House Cree Nation, a Cree community, is one of the largest First Nations communities in Manitoba. It is 456 km north of Winnipeg. The 2011 Census data identified NHCN to have a population of 4758 people, which is an increase of 16.9% (from 4071 in 2006) in only 5 years<sup>13</sup>. Norway House Cree Nation has access to dental services with a full-service dental office located in the community. The federal government provides some coverage for basic preventative oral health and treatment for community members who are 'registered Indians'. The community also operates a federally funded hospital with a varying complement of physicians and other primary healthcare providers, along with a community

clinic. Despite having a hospital, women in NHCN give birth in tertiary care centers in cities such as Thompson and Winnipeg. Norway House Cree Nation is accessible by road and there is an airport that has daily flights.

## Methods

A research relationship was already established with the NHCN Health Division and the investigators as a part of the BTT study. Based on the discussions of interim BTT study findings, and some of the conversations between the CRAs and research participants in the community on traditional cultural approaches, a further research partnership was created with NHCN Health Division. Research began in the winter of 2012 and was completed in the spring of 2013. The topic of cultural approaches to infant feeding required a qualitative approach because the information would be situated in a cultural context. Research involved 20 one-on-one interviews and four focus groups (which ranged in size from 5 to 10 participants, for a total of 31 focus group participants). Using a participatory research approach, the authors engaged in a partnership with the NHCN Health Division in the development of interview and focus group questions as well as identifying research participants. A local community member was hired who was also one of the CRAs for the BTT study. Twenty interviews were held, and four focus groups (December 2012 and February 2013).

The CRA selected participants through her own kinship networks, and additional participants came forward after a series of radio interviews were held to solicit participants. The participants were primarily grandmothers and great grandmothers, some of whom were former and current primary healthcare providers in various capacities, both in traditional health and in the biomedical field. Most of the participants practised or used traditional medicine or 'Indian medicine'. Participants can be described as multiparous, and having their children close in age to one another. At the time of the interviews, the participants ranged in ages from mid-40s to women in their 80s. The role of the CRA was crucial because she had experience working in maternal child health



and research through her regular employment as well as in the BTT study. Preliminary findings were presented in large- and small-group formats as well as one-on-one with stakeholders in the community, which assisted with analysis. Knowledge transfer continues to take place during work towards developing community-based intervention programming in the various mother/child/family programs in the community.

Some principles of grounded theory<sup>14</sup> methodology was used in this project because this approach is particularly suitable when little is known about a topic such as is the case for Indigenous approaches for ECC prevention. Indigenous research methodologies, specifically relational accountability as described by Wilson provided an important methodological framework for understanding researcher/participant/community/subject relationality, particularly given that most of the authors of this project are First Nations<sup>15</sup>. Interviews and focus groups were audio recorded, transcribed and coded using NVivo software. After a draft set of themes was identified, the researchers returned to the community to share preliminary findings with stakeholders and research participants. Further themes were identified.

Participants were asked a range of questions on feeding practices as well as oral health. The local CRA was well known in the community as working in the area of maternal and children's health in various programs, and she was able to solicit participants through her own networks as well as by using the local radio station. A First Nations undergraduate student from the local university also participated in gathering the data, conducting analysis and writing of this article.

## **Ethics approval**

This research was approved under the University of Winnipeg Human Ethics Review Board. In addressing the Tri-Council Policy Statement on Research Involving Aboriginal Peoples (Chapter 9), this research took a community engagement approach with the local health division as the authority in not only approving the research

design and tools but also as collaborators and co-authors<sup>16</sup>. The health division assisted in the development of the research questions and research plan. Participants were provided with an overview of the project, how the research was intended to be used at the local level and academically, and the measures that would be taken to ensure that their interviews would be confidential (such as not using names, removal of identifying information). Participants read and signed consent forms. A translator was used when required.

## **Results**

### ***Early introduction of table food***

The research participants discussed at length the role of country food (such as fish, moose meat and rabbit) as being an important part of the early diets of infants for several reasons including health and prevention of illness, and an appreciation for this type of food as adults. During the childbearing years of participants, there was minimal access to store-bought food, and the community relied heavily on food that was harvested and hunted directly from the land. Breastfeeding was the normal practice amongst the women interviewed, with only one indicating that she was unable to breastfeed, and subsequently used bottles and store-bought milk.

Respondents discussed the advice given by their doctors as conflicting with the traditional advice they were given by mothers, grandmothers and aunties. Participants described primary healthcare providers as promoting exclusive breastfeeding and discouraging solid/table food introduction: 'They give you information on how to feed your children ... not feeding them until babies are three to six months. There was no such thing as that. We started feeding our children at least when they were 1 month or 2 months'. One respondent discussed at length what she saw being practised by other mothers in the community:

*I know they used to start feeding their kids early. I didn't feed my kids solid food until they were 3 months. When they*



*turned one is when I gave them baby food or wild soup as they got older. Duck soup, goose soup, rabbit soup stuff like that. Babies did like that.*

This is consistent with the work of Dodgson and Struthers<sup>17</sup> where country food was given at the same time as the commencement of teething. Another respondent discussed the differences she is seeing in terms of infant feeding with the babies being born today: 'From my experience with my granddaughter and daughters, they follow what the health nurses tell them about not feeding them until 6 months'.

Respondents discussed the various ways in which they were taught to feed infants with country food. One respondent described how she ignored the recommendation of the doctors to feed her babies at a later age and instead followed the advice of her grandmother:

*We started feeding them with the food we would eat. We would chew it up for them and give it to them. There was no such thing as mashing it ... we do it ourselves with our mouth. We chew it first then putting it in baby's mouth and teaching them how to eat.*

This is consistent with the work done by Van Esterik<sup>18</sup> which shows the role of the mother in being the primary decision maker around appropriate times for introducing table food, particularly given the environmental and cultural dimensions of childrearing for these mothers. Another respondent indicated other methods for feeding country food: 'I started to give them squished table food: fish, rabbits, potatoes. They liked it. Babies will eat everything. They liked fish soup and broth. I used to put it in their bottle.' One respondent discussed how she alternated breastfeeding and table-food feeding:

*Between breastfeeding I gave them water. I used to give them wild food with a spoon. I gave them fish water. It is when you boil white fish and make broth. They were about 4 months when I started giving them wild food.*

This practice of introducing table foods, specifically country food through fish broths or other wild foods (such as pre-masticated wild meats) along with alternating breastfeeding is likely linked to the issue of iron and vitamin D and iron deficiency in Northern communities and consistent with the research done on Inuit preschoolers by Egeland et al<sup>19</sup>.

Most of the women breastfed exclusively (did not use formula). One of the respondents, who was unable to breastfeed her babies at all, resorted to using canned milk and, knowing this was insufficient, introduced country food immediately after they were born: 'That's why I started feeding mine early because I knew there wasn't enough iron in the Pacific milk'.

The importance of introducing nutrient-dense food such as country food<sup>20</sup> is even more important in the context that women who were unable to breastfeed had little alternatives for providing adequate childhood nutrition. As the Canadian Pediatric Standards have indicated in 2007 for infants residing north of the 55th parallel, vitamin D supplementation should be provided. Another factor is that many of the research participants had children close in age and they would have likely weaned their children off breastfeeding while pregnant because of cultural beliefs around breastfeeding harming the pregnancy<sup>20</sup>. The early introduction of country food to the infant's diet was considered to be intimately linked to improved health and the prevention of illness:

*It was good they were healthy. The white fish, we would make a stew out of that and feed it to our kids. They were healthy. They hardly ever got sick. Nowadays I see children get sick so easily.*

The women were able to identify that an infant feeding regimen based on breast milk as well as the early introduction of country food resulted in the best infant health outcomes.

The links between cognitive development and the consumption of country food was described by many respondents. As one participant indicated: 'I was told that your kids would be bright if you eat fish. You need it (fish) to



be smart, you have to eat fish. I've seen studies today that show that mothers that eat fish have kids with high IQs. Children that eat chips have lower IQs'. Related to the consumption of low-nutrient, high-fat, high-sodium foods another respondent describes the traditional teachings around infant food:

*Juice has a lot of sugar and kids will start having problems with their teeth. They don't need that, we just gave them the fish soup and they'll be healthy. That's what I did. That's the teaching I had.*

Information on infant feeding was a part of the oral knowledge passed down through generations. Like traditional medicine, country food is often called medicine in Aboriginal culture because of the more holistic and spiritual perspectives on health. This is consistent with what Adelson<sup>21</sup> describes: 'The nutritional value of meat is connected to the significance of the animal powers or spirits. The larger and more powerful animals have a greater nutritional value and are thus viewed as stronger foods'<sup>21</sup>.

## **Use of traditional medicines for oral health and teething**

The use of traditional medicine and other approaches to address symptoms related to teething (pain and discomfort) as well as preventative oral health was discussed by all the participants. While some participants described at length the process of harvesting and processing medicine, the specific information on this traditional medicine is not appropriate to discuss in an academic article beyond a general discussion because the researchers were not given authority to disclose this information. As one respondent stated: 'Whatever medicines that we use (traditional) we can't say what it is. You need to provide an offering'. This is consistent with the work of Pinto and Smylie who identify that there '... should be an explicit plan to protect traditional knowledge, recognizing the troubling history of appropriation, commodification and unauthorized adaptation of Indigenous knowledge that has occurred'<sup>22</sup>. Given the ethical issues of sharing specific information on traditional medicine and

knowledge, what was in the scope of this project and article is to make the general connection that the participants made, which is that there are local methods that have been used to treat both the pain and discomfort associated with the eruption of deciduous teeth. Traditional knowledge practitioners have increasingly played an important role for biomedical approaches to contemporary illness and the treatment of childhood disease however in the area of ECC, there has been little attention in the academic literature.

Beyond the efficacy of traditional medicine, it is important to acknowledge that the role of TK in childrearing practices is also related to the much larger issue of cultural reclamation. In recent years there has been a resurgence of Aboriginal identity, and a restoration of TK and associated skills. This knowledge still exists in the community and people in the community have access to traditional medicine people:

*We have some traditional women who we used to go see to get traditional medicine. It works: I used it on my grandkids. The fever goes away and they don't need to give them [paracetamol]. The irritability is gone, and the sores in their mouth, because they get sores.*

*There was some type of root that she got from the bush. I don't know what it was but it helped soothed the pain. She would boil it; they would take it out, chew on it with the medicine. It was for a fever, sore tummy, and colds. Weekis, it was used for basically everything.*

Weekis is described as a traditional medicine used to treat teething and an overall oral health intervention for infants. The details of the method used to harvest and process were provided in interviews; however, for ethical reasons this was not recorded because it is considered to be TK belonging to the community.

Some respondents had easier access to traditional medicines because they had people in the family who were traditional healers and herbalists:



*My grannie used to make the medicine. The elders will only give us the medicine if we give them tobacco. There are only certain people who have that gift to make that medicine. If I go and make it, it is not going to work. These people are still around.*

*I never used to have problems with my kids because my grannie used to make Indian medicine for them. The medicine used to be in syrup, so they liked the taste of it. When they were three months I would put it in their mouth about once a week, and they never had problems, the teeth just came. My sister makes it. Mothers are coming to see her, and she helps out the babies.*

Respondents also discussed the disconnection between biomedical approaches to infant health and the efficacy of traditional Indian medicine: 'The doctor diagnosed my daughter and I gave her some Indian medicine and the day after she was better'. Another respondent discussed the efficacy of traditional medicine over biomedical approaches:

*Even her granddaughter was in the hospital and she was really sick. The doctor couldn't help them. I got this lady to give me this medicine and gave it to her to drink. The baby was in the hospital for 7 days because of her teething, and my sister took her. The doctor said that 'it's in your hands if something happens to her'. She got some Indian medicine. After they gave her that, she took her back to the clinic to show the doctor, and he was so surprised. He asked if he could have what she gave her, and my sister said 'no'.*

The respondents discussed the disconnection between them as the 'older generation' and their children and grandchildren. This typical generational gap is of course common to all parents and their grandparents, but it is particularly salient when discussing traditional Indigenous approaches because of the layer of colonialism and loss of traditional practices:

*It don't care how I explained things to her, they'll say 'mom this is 2000 it's not those days' so if I talk to them about the old ways, it's not the way it is now. A lot of our young people don't want to follow the traditional way they want to go this*

*way. Just like me being a traditional woman I go teach them, they won't listen but if it was a white woman teaching they would listen.*

The prevalence of thrush was also discussed as one of the illnesses associated with teething. The treatment of thrush and teething appears to be similar, and the relationship to the air temperature was also discussed:

*Even in the summer, you don't let your child go out when it is really cold and that's when their teeth grew. We would use Indian medicine for thrush. They have these rashes or yeast infections in their mouths. They catch it from the cold or the cold floor and we have Indian medicine. We ask one of the locals if they have any and it helped. They teach you how to do it. Even nowadays, my grandkids used it. It works for the thrush and for the teething. That's what they used. It heals the thrush. It is really bad if you get it. I know they cry a lot when the teeth are trying to pop.*

The respondents spent a great deal of time discussing the importance of traditional medicine for oral health and teething issues. In NHCN there are still traditional medicine people who harvest and manufacture the medicine. The respondents felt that the use of this medicine was still prevalent in the community and was an important cultural component of child rearing.

### **Temperature regulation as an oral health intervention**

The participants noted that during the teething process they practised methods that were either preventative in nature or helped manage existing symptoms. They used certain techniques such as swaddling, which served to keep the infant dry and helped to regulate the temperature of the infant. While the literature shows no connection between regulating temperature through swaddling and other techniques as an oral health intervention, what is much more salient is that these approaches place an emphasis on mother–infant bonding. In these traditional approaches such as swaddling or cradleboards, mothers are highly attuned to their infant's needs, enabling the mother to more effectively address those



needs. Cradleboards or *tikinagens* have been used by many Aboriginal societies in North America. As Nahwegahbow describes, cradleboards are protective baby carriers with a flat wooden backboard, a curved frame along the bottom and a cover attached to the board<sup>23</sup>. A curved set of wooden bows extend from where the infant's head is placed, acting as protection in case the *tikinagen* was to fall forward. The cradleboard covering in which the infant is placed, which is then secured to the board, is ornately decorated. It is made out of material or animal hide and is stuffed with natural material such as sphagnum moss<sup>23</sup>, and is sometimes referred to as a moss bag or bunting bag. This acts as a sort of diaper/nappy. Cradleboards are used as a way to keep the child secure, comforted and protected, although they are less commonly used by new mothers today. The teachings associated with swaddling and cradleboards as a childrearing practice were passed down through generations and confirm the findings by Meer and Meer<sup>24</sup> that the soothing actions of swaddling and cradleboards made the baby feel more comfortable or secure.

The pain and discomfort associated with teething or the eruption of deciduous teeth was described at length by every participant as being closely related to regulating body temperature of infants. Non-typical methods of mitigation of pain commonly associated with teething were employed and encouraged by women in this study. There was a strong advocacy for ensuring that the infant was adequately warm. This emphasis is likely related to the cold temperatures experienced during winter months. Norway House Cree Nation is located at the 54th parallel and is characterized as having a humid subArctic continental climate with cool summers and no dry season. When the participants were having babies, they were typically living in homes that relied on wood stoves rather than furnace-based central heating or baseboard heating. As such, maintaining an optimal temperature for infants posed a great challenge. Respondents discussed the relationship between weather and teething: 'Even in the summer, you don't let your child go out when it is really cold and that's when their teeth grew'. These findings are consistent with the work by Adelson<sup>21</sup>, who

describes the Cree cultural connections between warmth and infant development as the key to survival in cold regions.

One respondent described the challenges in winter months in keeping her infant warm: 'The feet, make sure they are covered because the floors were cold. We didn't have a furnace or a baseboard heater, so we had to keep babies' feet warm with moccasins, and yarn knitted socks'. Another woman describes regulating body temperature and the introduction of electric heat in her household and a subsequent decrease in swaddling:

*I started not to tie her up. If you kept your babies too warm they could get too sick. So I felt I didn't need to tie her up anymore. We had electric heat.*

All women described the importance of keeping the feet and heads of infants covered as it related closely to the problems associated with teething. This generational transfer of knowledge on the cultural practice was described by one respondent:

*I don't know, maybe it's a native thing ... a belief that we have that you should dress your babies' feet warm, keep the head warm. Maybe it's a myth or a belief system that's instilled in that we in turn teach our children. That's why my daughters believe it; because I told them that. They don't ask why. They will probably tell their children's children. They just do it.*

Transferring knowledge around childrearing was described as happening between aunts, mothers, mothers-in-law and grandmothers. By listening to these traditional teachings around childrearing, women also felt supported, which reduced their stress as parents. One respondent describes this: 'In my days we didn't really have many problems with that because we were taught to take good care of our children'. Another respondent described this knowledge transfer from her auntie:

*When my baby was born my aunts were the ones who really taught how to take care of them; how to wrap them up, how*





*to clean them up not to get them cold, and make sure they wore hats all the time. The soft part (of the newborn's head) that's where they get sick. They used to teach me to make sure I always covered their head and keep their feet warm.*

The respondents made the direct connection between regulating body temperature by dressing babies with warm clothes as well as swaddling for teething. One respondent described the various teachings she received in regards to warmth, moisture and teething:

*Keep warm ... feet are warm, warm head. Make sure baby is dry when you change them. Make sure the room was warm where they sleep, change diapers. We were told not to put baby by a window. There was no such thing as baby cribs. We made room for our children in our bed to make sure they are warm. It was all connected with teething.*

Some of the women described the role of *tikinagens* and bunting bags used as a part of thermal regulation:

*Our babies were put into bunting bags and tied tightly. This would help them with their teething. If they were warm, their teeth would come out easily. Remember the soft part of your head, if that or your feet got cold, it would make teething harder.*

Women also described having hats or bonnets as well as socks or moccasins made for the infants as being an approach to regulating body temperature: 'I learned how to make those socks myself. I stopped making them when they started school. They would have trouble popping teeth if their feet and head wasn't warm'.

The concern over the temperature of infants is also related to the environmental, social and economic context in which the women were living at the time. During the time period in which these women were having babies (around the 1930s to the 1970s), they would have heavily relied on childrearing practices informed by their elders. The limited access to physicians as well as other technology would have meant that the participants placed a great deal of faith in the childrearing

practices embedded in their local culture, passed down from generation to generation.

## Conclusions

Healthy childrearing practices result in healthy children and can act as an intervention for the onset of childhood disease and illness. Early childhood caries is a chronic disease that is increasingly prevalent in Aboriginal communities. The high rates are related to a complex set of socioeconomic and cultural challenges in communities including unhealthy infant feeding and childrearing. Despite these challenges, the many culturally based traditions continue to influence childrearing practices, resulting in strong and resilient children and families.

Three practices highlighted by Aboriginal grandmothers in NHCN contribute not only to improved oral health, but overall infant health. This study's findings identify that local traditional health knowledge on infant feeding and infant care is an important part of the resiliency of Cree culture. For parents and health practitioners, this type of local knowledge should be considered as providing a whole range of benefits to the infant and family. At the community level, an examination into traditional childrearing practices should be considered along with discussion with the knowledge keepers in the community (which includes TK keepers, primary healthcare providers and other professionals working in the area of maternal child health) on the potential benefits and challenges of these approaches in a contemporary context.

The early introduction of country food is acknowledged in the community as an appropriate way to reduce reliance on store-bought foods and develops a deep connection to land-based sustenance. The high prices of food in the community are often offset by the consumption of country food, which is known to be nutrient-dense. The use of traditional medicines described by respondents also makes the larger connection to the more holistic perspective of infant health. As many respondents indicated, the different 'Indian medicines' used by participants were highly efficacious not only for oral health



issues such as teething. In NHCN it was acknowledged that there are still people who harvest and process this medicine. The connection between traditional country foods as a medicine in itself was also described by participants because of the spiritual connection to the land.

The most commonly discussed early childhood intervention for oral health issues, specifically teething, was swaddling or 'keeping the head and feet warm' through various methods such as bunting bags, hats, moccasins, and socks. While little academic literature beyond Adelson<sup>21</sup> discusses this practice specifically, it is related to the holistic practice of childrearing. By maintaining body temperature through close contact with infants there was an increased physical and thereby emotional connection between mother and child. As well, women were at home with their children tending to the needs of the family while the men worked outside of the home. While this article does not suggest a nostalgic return to the 'old days', what is suggested is the importance, particularly given the high rates of chronic illness in children such as ECC, of examining these known effective practices within a contemporary context. The authors also suggest that intergenerational opportunities between mothers and older generations would provide reciprocal benefits to both. 'Returning to the teachings', or promoting TK and teaching transcultural skills in childrearing, is an essential component in restoring skills and pride, building community capacity, and is a mechanism for building family and community relationships as well as intergenerational support<sup>25</sup>.

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## References

1. Schroth RJ, Harrison RL, Lawrence HP et al. Oral health and the aboriginal child: a forum for community members, researchers and policy-makers. *Journal of the Canadian Dental Association* 2008; **74**: 429-432.
2. Lawrence HP, Binguis D, Douglas J et al. Oral health inequalities between young Aboriginal and non-Aboriginal children living in Ontario, Canada. *Community Dentistry and Oral Epidemiology Online*: Sep 2009.
3. Lawrence, HP., et al. Effects of a community-based prenatal nutrition program on the oral health of Aboriginal preschool children in Northern Ontario.
4. Schroth RJ, Halchuk S, Star L. Prevalence and risk factors of caregiver reported severe early childhood caries in Manitoba First Nations children: results from the RHS Phase 2 (2008–2010) *International Journal of Circumpolar Health* 2013; **72**: 10.3402/ijch.v72i0.21167.
5. Lawrence HP, Romanetz M, Rutherford L, Cappel L, Binguis D, Rogers JB. Effects of a community-based prenatal nutrition program on the oral health of Aboriginal preschool children in Northern Ontario. *Probe* 2004; **38(4)**: 172-190.
6. Schroth RJ, Morey B. Providing timely dental treatment for young children under general anesthesia in a government priority. *Journal of the Canadian Dental Association* 2007; **73(3)**: 241-243.
7. Casamassimo PS, Thikkurissy S, Edelstein BL. Beyond the DMFT: the human and economic cost of early childhood caries. *Journal of the American Dental Association* 2009; **140**: 650-657.
8. Lawrence HP, Romanetz M, Rutherford L, Cappel L, Binguis D, Rogers JB. Effects of a community-based prenatal nutrition program on the oral health of Aboriginal preschool children in Northern Ontario. *Probe* 2004; **38(4)**: 172-190.



9. Peressini S, Leake JL, Mayhall JT, Maar M, Trudeau R. Prevalence of dental caries among 7- and 13-year old First Nations children, District of Manitoulin, Ontario. *Journal of the Canadian Dental Association* 2004; **70(6)**: 382-398.
10. Marshall TA, Eichenberger-Gilmore JM, Broffitt BA, Warren JJ, Levy SM. Dental caries and childhood obesity: roles of diet and socioeconomic status. *Community Dentistry and Oral Epidemiology* 2007; **35(6)**: 449-458.
11. Lawrence HP, Binguis D, Douglas J et al. A 2-year community-randomized controlled trial of fluoride varnish to prevent early childhood caries in Aboriginal children. *Community Dentistry and Oral Epidemiology* 2008; **36**: 503-516.
12. 12. Statistics Canada. (2011) Census of Population. Norway House 17, Manitoba (Indian reserve). (Online) October 2012. Available: <http://www12.statcan.gc.ca/mobile/2011/cp-pr/table-eng.cfm?SGC=4622058> (Accessed 24 November 2012).
13. 13. Sarson J, Wilson A. *A qualitative look at Early Childhood Oral Health and Healthy Smile Happy Child activities in Manitoba. Report on findings.* The Manitoba Collaborative Project on Preventing Early Childhood Tooth Decay, 2008.
14. Strauss A, Corbin J. Grounded theory methodology: an overview. In: NK Denzin, YS Lincoln (Eds). *Handbook of qualitative research*. London: Sage Publications, 1994; 273-285.
15. Wilson, S. (2008). *Research as ceremony: Indigenous research methods*. Winnipeg: Fernwood.
16. Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, and Social Sciences and Humanities Research Council of Canada. *Tri-council policy statement: ethical conduct for research involving humans*, 2010.
17. Dodgson JE, Struthers R. Traditional breastfeeding practices of the Ojibwe of Northern Minnesota. *Health Care for Women International* 2003; **24(1)**: 49-61.
18. Van Esterik P. Contemporary trends in infant feeding research. *Annual Review of Anthropology* 2002; **31**: 257-278.
19. Egeland GM, Faraj N, Osborne G. Cultural, socioeconomic, and health indicators among Inuit preschoolers: Nunavut Inuit Child Health Survey, 2007–2008. *Rural Remote Health* **10**: 1-13. (Online) 2010. Available: [www.rrh.org.au](http://www.rrh.org.au) (Accessed 28 October 2014).
20. Power EM. Conceptualizing food security for Aboriginal people in Canada. *Canadian Journal of Public Health* 2008; **96**: 32-36.
21. Adelson N. *Being alive well: health and politics of Cree well-being*. Toronto: University of Toronto Press, 2000.
22. Pinto AD, Smylie J. Indigenous health and ethics: lessons for global health. In AD Pinto and EG Ross (Eds). *An introduction to global health ethics*. New York: Routledge, 2013.
23. Nahwegahbow A. Springtime in n'Daki Menan, the Homeland of the Teme Augama Anishnabai: babies, cradleboards and community wrapping. Master's Thesis: Carleton University, 2013.
24. Meer Z, Meer A. Teething trouble and its management in children. *International Journal of Dental Clinics* 2011; **(3)2**: 75-77.
25. Van Wagner V, Epoo B, Nastapoka J, Harney E. Reclaiming birth, health, and community: midwifery in the Inuit villages of Nunavik, Canada. *Journal of Midwifery & Women's Health* 2007; **52(4)**: 384-391.