


## Integrating preventive dental care into general Paediatric practice for Indigenous communities: paediatric residents' perceptions

Mohamed ElSalhy <sup>a</sup>, Mandeep Gill<sup>b</sup>, Daniela Migliarese Isaac<sup>c</sup>, Randy Littlechild<sup>d</sup>, Lola Baydala<sup>c</sup> and Maryam Amin<sup>b</sup>

<sup>a</sup>College of Dental Medicine, University of New England, Portland, ME, USA; <sup>b</sup>School of Dentistry, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada; <sup>c</sup>Department of Pediatrics, Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada; <sup>d</sup>Maskwacis 4 Nations, Alberta, Canada

### ABSTRACT

This qualitative study aimed to explore paediatric residents' perceptions of the feasibility of incorporating preventive dental care into a general paediatric outreach clinic for a First Nations community. Four focus groups were conducted with paediatric residents and attending paediatricians. Interviews were recorded, transcribed verbatim and analysed using a basic interpretive qualitative approach. Three major themes emerged from the data: advantages of integration, barriers to integration and strategies for integration. Comprehensive care and service delivery were the two identified advantages of integration. Three categories of barriers emerged including patient and caregiver-related, resident-related and setting-related barriers. Training and practice, patient education, support and policy were the suggested strategies for successful integration. Providers were found to be open to integrating preventive dental care into their practice. However, barriers impeded the success of this integration. Multiple strategies including oral health care training for medical providers, office support and policy changes would facilitate successful integration.

### ARTICLE HISTORY

Received 16 July 2018  
Revised 28 November 2018  
Accepted 15 January 2019

### KEYWORDS

Oral health; health services; Paediatrics; First Nations

### Introduction



Dental decay remains the most common chronic childhood disease. It is five times more common than asthma, four times more common than early childhood obesity and 20 times more common than diabetes [1]. For children aged 2 to 5 years, 70% of caries are found in 8% of the population [2]. Compared to the general Canadian population, Indigenous<sup>1</sup> children are reported to have poorer oral health and a higher frequency of dental pain [3,4]. Research from across Canada has found that children from First Nations communities suffer needlessly from poor oral health, often as a result of barriers and challenges that exist in the delivery of efficient and effective dental caries prevention programmes [5–7].

The prevalence of tooth decay among Indigenous children is three to five times higher than the national average in Canada [3,4]. About 86% of pre-schoolers and 90% of school children suffer from dental decay [3,4]. Indigenous populations are less likely to access preventive dental health care services because of more limited access to health information resources and lack of availability of

dental care providers in remote areas [3,7]. As a result, on-reserve indigenous children are three times more likely to experience dental decay than their off-reserve counterparts [3,4]. The burden of poor oral health and its associated costs are considerable and may compromise overall well-being and quality of life [8].

Due to challenges associated with securing paediatric patient cooperation and the severity of dental disease, most children receive comprehensive oral rehabilitation under general anaesthesia. In fact, dental surgery constitutes 31% of all day surgeries for children aged 1 to 5 years, making it the leading cause of day surgery for children in many Canadian hospitals at an annual cost of \$22 million each year [8]. Even more troubling are the many indigenous children who receive repeated dental surgeries because of relapse (8.6 times higher than the general population) [9,10]. In addition, it has been shown that 99% of general dental practitioners provide preventive dental health care to children 5 years of age or older, but only 9% see children 1 year of age or younger [11].

Due to the shortage of and difficulties associated with recruiting dentists and barriers to accessing dental

**CONTACT** Maryam Amin  [maryam.amin@ualberta.ca](mailto:maryam.amin@ualberta.ca)  School of Dentistry, Faculty of Medicine and Dentistry, University of Alberta, 5-513 Edmonton Clinic Health Academy, 11405 - 87 Ave NW, Edmonton, AB T6G 1C9 Canada

<sup>1</sup>Used interchangeably with Aboriginal Peoples. Indigenous Peoples include First Nations, Inuit and Métis Peoples.

© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

care in indigenous communities, pre-school children are less likely to visit a dentist as opposed to visiting primary care providers such as paediatricians [7]. Therefore, this study aimed to explore paediatric residents' perceptions of the feasibility of incorporating preventive dental care into a general paediatric outreach clinic for a First Nations community.

## Methods

### Study design

A qualitative approach of inquiry was used in this study. Qualitative data was collected through focus groups using a semi-structured interview guide. The study protocol was approved by the University of Alberta Research Ethics Board (Pro00058627).

### Setting

As part of their general paediatric residency programme at the University of Alberta, paediatric residents provide medical services in a general paediatric outreach clinic that serves children of four First Nations communities. The paediatric clinic runs once a week. It is staffed with alternating two primary paediatricians and rotating paediatric residents. The average appointment times are between 15 to 30 min. The total population of the four communities is approximately 15,000 and half are less than 18 years of age. The division of Pediatric Dentistry and General Pediatrics in the Faculty of Medicine and Dentistry at the University of Alberta have partnered with the Maskwacis Health Centre to integrate dental screenings and fluoride varnish applications into their existing paediatric outreach clinic. The director of the

clinic who is a community member facilitated the integration and the conduction of this study.

### Sampling

A total of 34 paediatric residents were invited to participate in the present study. Recruitment was initiated through the general paediatric chief resident. Invitations were sent by email with a link to select the time slot suitable for them to attend. All residents who accepted the invitation to participate in the study were included. Informed consent was collected from all participants. No incentive was offered to participants.

### Data collection

Questions asked during the focus groups revolved around paediatric resident perceptions regarding the feasibility of incorporating preventive dental care into the general paediatric outreach clinic. Focus groups were conducted by a single interviewer (MA) and attended by those who conducted the analysis (MG and ME). Focus groups were approximately 40 to 60 min in length and were held in quiet rooms at the Edmonton Clinic Health Academy. The discussions held throughout the duration of the focus groups were recorded and transcribed verbatim. Researchers avoided any misleading comments and refrained from distorting responses presented by participants. A semi-structured interview guide (Table 1) was used to reduce bias introduced by the researchers. Depending on the participants' response to questions, prompts were utilised whenever deemed suitable. Participants were de-identified and each received an identification number.

**Table 1.** Interview guide questions used during the focus groups.

<b>Effectiveness</b>
a. How do you feel about the integrating preventive oral care as part of the pediatric medical care?
b. Perception of effectiveness: Do YOU think this integration is effective? In which way?
c. What are your expectations of this integration?
d. Perception of efficacy: Do you think this integration can affect children? Or will this service be effective for the children?
e. Outcome: What are you expecting from this integration?
i. What are the potential outcomes of this integration?
ii. Do you think this intervention can influence parents' oral health: 1) knowledge 2) attitude 3) behaviors 4) skills
<b>Adoption</b>
f. How can adoption of preventive oral care as part of pediatric care be enhanced?
g. What are the challenges for medical providers to adopt preventive oral care into the pediatric care regular practice?
h. Do you have any suggestions on how to overcome these challenges within adoption for pediatricians? What are your strategies?
i. How can adoption of oral care enhanced your practice?
<b>Implementation</b>
j. How can the integration of oral preventive care (especially fluoride varnish) into pediatric care be implemented?
k. What resources do you need in order to implement the integration?
l. What are the potential challenges with implementing?
m. How can you enhance the implementation of this integration?
<b>Maintenance</b>
n. How often do you think you will be able to keep oral health as part of your daily practice?
o. What resources do you need to make this tool a permanent part of your clinical practice?

## **Data management and analysis**

A basic interpretive inductive approach was used for data analysis. Two team members independently coded the transcripts. Each code was assigned textual quotes and given a specific definition. Discussions were then held between all researchers until a consensus was reached for the initial codes and their definitions. Codes were then grouped into themes and categories and discussed in detail among all researchers. Reflections about personal expectations and biases were discussed during regular meetings and debriefing sessions through all phases of the study.

## **Results**

### **Participants**

Four focus groups were conducted with ten residents and two attending paediatricians. Five residents were in year 1, three in year 2 and two in year 3 and 4. All residents were female 20–30 years old. All residents attended medical schools in Canada. Six residents attended a Paediatric Oral Health and Fluoride Varnish workshop delivered by the University of Alberta dental school specifically designed for paediatric residents. All residents had worked at least one full day in the First Nations outreach paediatric clinic.

Three major themes emerged from the data: advantages of integration, barriers to integration and strategies for integration.

### **Advantages of integration**

Two major categories related to the advantages of integration were identified: comprehensive care (i.e. concurrent prevention and management of multiple health needs) and service delivery (i.e. provision of needed care). Residents highlighted the importance of learning about preventive dental care and delivering preventive dental care to their patients. They believed that integration of preventive dental care into paediatric practice would optimise patient health and contribute to well-rounded care. Also, it would provide caregivers with a sense of relief that their child would have good oral health in the future:

[It would be a] well-rounded health care and that you're doing both in one shot for them so you're optimizing their visit.... I think they are excited that maybe you're going to get on top of it early for their child and maybe they will have better outcomes'. [FG1/P4].

In addition, participants mentioned that integration of preventive dental care would help identify at-risk children:

'...we can refer the ones that actually need [dental care] rather than saying every patient should see a dentist ... If you can get 5 people to go see a dentist in the first year instead of referring them when they are three and you see holes, you could actually improve some of the patient population from an oral health standpoint' [FG4/P2].

Another resident stated:

When I put fluoride on the teeth that's a good time to have a discussion because you're focusing on the teeth'. [FG3/P3].

Participants also highlighted that integration of preventive dental care might help reach vulnerable populations and deliver needed services to them:

We have this point of contact; all preschool kids get sick and they will eventually come to see a doctor/paediatrician, so we have that opportunity to put fluoride on'. [FG3/P1].

Participants noted that preventive dental care would be convenient for caregivers who would not have to make another appointment to see a dentist. They believed that the convenience of seeing one health care professional would facilitate service delivery and would be appreciated by caregivers who may have limited time or access to transportation.

### **Barriers to integration**

Three categories of barriers emerged from the data: patient and caregiver-related barriers, resident-related barriers and setting-related barriers. For patient and caregiver-related barriers, four subcategories were identified: knowledge, attitude, behaviours and socioeconomic factors.

#### **Patient and caregiver-related barriers**

Residents identified caregivers' lack of knowledge and misconceptions as an obstacle to the successful delivery of dental care to their young children. They believed that caregivers do not always recognise the value of having their child see a dentist. They were also concerned about caregiver's uptake when multiple competing issues are discussed during one visit:

'You're sitting in the room with the mom .... you're talking about hearing, early literacy, healthy food...I wonder how much the family actually takes away' [FG3/P1].

Furthermore, residents suspected that by delivering preventive dental care services, caregivers might overlook the services as the only dental care their child needs. Participants also noted that some counselling recommendations like changes in diet or oral health habits may be beyond the caregivers' control:

'It may not be feasible for them like if it's the issue of having [clean] running water... talking about brushing teeth may be out of the realm of possibilities for them unfortunately' [FG2/P2].

They were concerned about the family's receptiveness and the child's resistance to the dental examination and application of fluoride varnish:

'the [child] was upset and wandering all over the place... crying which was not good...' [FG4/P1].

Paediatric residents mentioned socioeconomic factors that may affect the success of integrating preventive dental care including affordability and accessibility of healthy food and clean water:

'... healthy food is expensive ... in a place like ..., [there] is no food security and so there isn't a lot of healthy food available to the family' [FG3/P1].

Other identified socioeconomic factors were lack of transportation, family size and affordability of oral hygiene supplies:

'They might not be able to buy toothpaste or toothbrushes because a lot of the people are on social assistance and don't have the money'. [FG1/P1]

### **Resident-related barriers**

Three subcategories of resident-related barriers were identified: resident's receptiveness, lack of knowledge and skills and scope of practice. Residents were generally very receptive to incorporating oral hygiene and diet counselling as well as fluoride varnish application into their daily paediatric care. However, they felt conducting a dental examination was beyond their ability. They believed that their training on oral health was insufficient and their current scope of practice does not involve a dental examination or oral health counselling:

'The only screening we do is asking how many times do you brush your teeth, have you seen a dentist and those type of things' [FG1/P1].

They stressed that doing preventive dental care during the regular visit is not always achievable because they need to prioritise the visit for many children:

'... depends on the appointment. If they are there because they are sick and have pneumonia like

I usually wouldn't be spending extra time to counsel them' [FG2/P2].

In addition, some residents believed that dental care is not part of their scope of practice and should be delivered by dentists:

'You certainly think like oh its oral health we will leave it to the people who are more experienced' [FG2/P3].

### **Setting-related barriers**

Four subcategories of setting-related barriers were identified: patient load, workforce, records and policy. Residents mentioned that numerous tasks such as seeing multiple patients and their families, completing numerous forms and charting could be too overwhelming. Adding additional services to their practice may disrupt the overall flow of the clinic. They commented that support staff could make a significant impact on the success of integrating preventive dental care. For instance, in the outreach clinic, support staff may not be readily available, and even if they are, they may not have the necessary skills. Medical record keeping was another setting-related barrier. Residents highlighted a lack of clear medical records on whether the child had received fluoride varnish or preventive counselling in another setting, for example, in a public health clinic or dental office, and caregivers often could not recall this information.

Residents identified potential policy-related issues that might affect the successful integration of preventive dental care. Lack of a defined referral system between physicians and dentists was one of these issues. In addition, there is no fee schedule or billing codes for paediatricians who provide preventive dental care and fluoride applications, a service which prolongs the medical appointment and may have a financial impact on the service provider.

'...then you can't bill for it and it takes up visiting time for something else that you could be seeing a kid for' [FG4/P2].

### **Strategies for integration**

Four categories related to strategies for integrating preventive dental care emerged: training and practice, patient education, support and policy.

The training and practice category was composed of three subcategories: curriculum, simplicity and practice. Residents recognised that they play an important role in providing preventive dental care to an at-risk population. Residents were willing to learn; however, they identified the need for more training. Participants recommended that a formal education module be

developed on site at the outreach clinic so that residents could learn more effectively and have the opportunity to then practice the skills they learned. In addition, the module and added services should be simple enough to incorporate into the regular practice and should not take more than a few minutes. They also highlighted that preventive dental care training early in their career would mean they would be more likely to carry on doing it in the future:

'I think that in my exposure to general paediatrics over the next couple of years, it starts becoming something habitually; I will be more likely to integrate. It's just hard for me to imagine right now what it would look like' [FG1/P3].

Patient education strategies included five subcategories: encouraging dental visits, discussing caries as infectious diseases, graphic presentation of caries, specific targeted messages and 'shock value' education. Participants suggested advocating for an early dental visit so that children can see a dentist earlier rather than conducting the dental assessment themselves. They also believed that discussing caries as an infectious disease can help patients and caregivers understand the serious nature of the condition. They emphasised that the right vocabulary could make a significant impact. In addition, they felt that having these targeted messages through a paediatrician as opposed to other healthcare providers would have a greater impact:

'having a discussion about dental caries as an infectious disease was quite powerful for parents' [FG4/P1].

Participants also suggested that a graphical presentation of caries can help patients and caregivers view caries from a different perspective. Delivering messages that are specific and brief were believed to have the highest impact by reducing the amount of information that caregivers need to absorb. Some participants believed that delivering messages forcefully may be the best way to get the point across to some patients:

'It's almost a bit of a shock value... I hate to say that... but it's true you remember what's uncomfortable' [FG4/P1].

Support strategies comprised three subcategories: record system, supplies and buy-in. Because paediatric residents felt that it was hard to keep track of which patients had received fluoride, a record system is needed. The system could be as simple as a coloured sticker or if available an electronic medical record. To track patients accurately one resident mentioned how:

'If you had a sticker and you put it in the chart like a bright pink sticker and the next time if it's the same

chart and it's been done properly you should be able to flip back and be like "oh pink sticker no varnish or oh no pink sticker I can varnish' [FG3/P2].

Another suggested support strategy was the need for free dental care supplies including toothbrushes, paste and fluoride. In addition, they added the need for paediatrician buy-in, which could be facilitated by creating a billing code for dental care prevention and fluoride varnish application.

Policy-related strategies comprised three subcategories: policy changes, advocating for universal dental coverage and community-based approaches. Participants noted that there is a need for a Canadian Paediatric Society position statement that addresses and supports the integration of oral health into paediatric care. They also suggested advocating for universal dental care coverage so that children and youth can access dental care free of charge. Another suggestion was to use community-based approaches that promote oral health at community events, immunisation appointments and within schools.

## Discussion

This qualitative inquiry explored paediatric resident perceptions about the integration of preventive dental care into a paediatric outreach clinic serving First Nations children. Paediatric residents recognised the importance of their role in improving the oral health of indigenous children and acknowledged that integrated preventive oral care would reach at-risk children and provide more comprehensive care. These findings were similar to a US national survey which showed that the majority of paediatricians frequently observed dental caries, and acknowledged that they had an important role in identifying dental problems and counselling families on the prevention of caries [12]. They were also interested in being more involved in managing children with oral health problems, in particular for underserved children [12]. Similarly, three-quarters of primary care providers in another study reported that they frequently identified children with signs of early decay and referred them to a dentist [13].

Although medical providers have shown great interest in contributing to improving the oral health of underserved populations, their limited knowledge and skills due to lack of training in oral health during their medical education have been reported as a common barrier to integrating oral health into paediatric care [12]. This barrier, also mentioned by our participants, could be overcome by adequate training and practice [14]. Lack of knowledge and difficulty applying fluoride varnish were both considered to be significant barriers.

Close et al. [14] suggested that difficulties related to fluoride varnish application should be anticipated, and multiple possible solutions should be part of the training. In addition, the use of interactive workshops and small group trainings to overcome these barriers were suggested in addition to in-office training on actual patients in the same setting where future applications are anticipated [14]. Participants in the present study had similar insights on how training should be delivered. They suggested developing an on-site education module specific to the outreach clinic so that they could learn the required skills efficiently and get enough practice to feel comfortable doing it regularly.

Although incorporating oral health care into primary care has been advocated by the Canadian Paediatric Society and the American Academy of Paediatrics, prioritising patient's needs and scope of practice as medical care providers were barriers identified in the present as well as previous studies [14,15]. These barriers affect 'buy-in' by health care providers and staff. In a survey involving 76 primary care practices, 14.8% of providers highlighted that their infant and toddler patients had so many problems other than tooth decay [14]. In addition, nursing staff believed that oral health should not be part of the medical office role and should be done by dentists [15]. A qualitative inquiry involving primary care providers showed that the main reason behind this attitude is the perception that adding oral health counselling and fluoride varnish into daily practice is time-consuming, and is considered unpractical because of an increase in workload with no financial incentive [15]. However, this attitude was overcome in 40% of providers after they adopted primary dental services into their regular care [14]. A suggested approach was to use an incentive system where physicians perform oral screening, and an assigned personnel applies fluoride varnish and receives a monetary incentive for every application [14]. Our participants similarly believed that attaching a billing code to fluoride varnish application would improve the buy-in among health care providers.

Participants in the present study expressed concerns about a proper referral system, which was also reported as a reason for not performing dental screening by medical providers in a previous study [14]. Although this barrier was overcome by 40% of the providers [14], it may be more complicated for on-reserve children who may not have access to a paediatrician or dentist within a reasonable distance. The difficulty of finding a dentist for children either younger than 2 years old, with significant developmental disabilities, or with no insurance was another barrier reported by

paediatric primary care providers [13]. It was suggested that the training of primary care providers in oral health should also include detailed referral resources for both providers and patients [15]. Our participants' suggestion on the referral system was the development of an integral universal health care system with dental care included. This was a general suggestion for most centres and not specific to this outreach clinic, as the outreach clinic has a dental office within the same medical centre.

Accurate and complete records of patients who previously received fluoride varnish at the clinic and at other sites was also a barrier. This barrier was a result of inconsistent record keeping in the on-reserve clinic, lack of sharing of information from other sites including immunisation clinics and schools and lack of caregiver recollection on whether their child had received a fluoride treatment previously. Similar concerns were highlighted by primary care providers in another qualitative study [15]. In this study, a successful alternative was to have front office staff determine eligibility and flag the chart for those who qualified. Primary care providers then provided oral health counselling and applied fluoride varnish. In addition, office staff documented the fluoride varnish application in the patient's record of preventive care [15]. Although such approach seems easy to implement in primary care offices, it may be challenging if resources are limited and support staff are not available. Multiple approaches suggested by our caregiver participants ranged from simple colour-coded stickers to an electronic medical record system.

Our study limitations included small focus groups of three to four participants due to limited resident availability to attend a focus group. Having a larger number of participants would have created a richer dialogue. However, we believe that the residents who did attend were motivated and fully engaged in the focus group discussions. A limitation of the study is not seeking views of other health care staff on their feedback on barrier and facilitators to implementation. Another limitation is that this study did not include community focus groups of caregivers to assess local perceptions and feedback on the experience of oral health care provision during paediatrician appointments.

In conclusion, paediatric residents and attending paediatricians were interested in integrating preventive dental care into their paediatric care for on-reserve children. However, several barriers may impede the success of this integration. Multiple strategies need to be considered and implemented to facilitate the integration. Exploring other stakeholders' perceived barriers and proposed

improvement strategies using a qualitative approach is an essential next step in creating a unified action plan for improved oral health care for indigenous children.

### Disclosure statement

No potential conflict of interest was reported by the authors.

### ORCID

Mohamed ElSahy  <http://orcid.org/0000-0002-7410-457X>

### References

- [1] American Academy on Pediatric Dentistry, American Academy of Pediatrics. Policy on early childhood caries (ECC): classifications, consequences, and preventive strategies. *Pediatr Dent*. 2008;30(7):40–43.
- [2] Macek MD, Heller KE, Selwitz RH, et al. Is 75 percent of dental caries really found in 25 percent of the population? *J Public Health Dent*. 2004;64(1):20–25.
- [3] The First Nations Information Governance Centre. Report on the Findings of the First Nations Oral Health Survey (FNOHS) 2009-10. Ottawa: The First Nations Information Governance Centre; 2012.
- [4] Health Canada. Summary Report Inuit Oral Health Survey 2008 – 2009. Ottawa: Health Canada; 2011.
- [5] Lawrence HP. Oral health interventions among Indigenous populations in Canada. *Int Dent J*. 2010;60(3):229–234.
- [6] Lawrence HP, Binguis D, Douglas J, et al. Oral health inequalities between young aboriginal and non-aboriginal children living in Ontario, Canada. *Community Dent Oral Epidemiol*. 2009;37(6):495–508.
- [7] Irvine J, Holve S, Krol D, et al. Early childhood caries in Indigenous communities: A joint statement with the American Academy of Pediatrics. *Paediatr Child Health*. 2011 Jun;16(6):351–364.
- [8] Canadian Institutes for Health Information. Treatment of preventable dental cavities in preschoolers: a focus on day surgery under general anesthesia. Ottawa: Canadian Institutes for Health Information; 2013.
- [9] Almeida AG, Roseman MM, Sheff M, et al. Future caries susceptibility in children with early childhood caries following treatment under general anesthesia. *Pediatr Dent*. 2000;22(4):302–306.
- [10] Schroth RJ, Smith WF. A review of repeat general anesthesia for pediatric dental surgery in Alberta, Canada. *Pediatr Dent*. 2007 Nov-Dec;29(6):480–487.
- [11] Smith RG, Lewis CW. Availability of dental appointments for young children in King County, Washington: implications for access to care. *Pediatr Dent*. 2005;27(3):207–211.
- [12] Lewis CW, Grossman DC, Domoto PK, et al. The role of the pediatrician in the oral health of children: A national survey. *Pediatrics*. 2000;106(6):E84.
- [13] Dela Cruz GG, Rozier RG, Slade G. Dental screening and referral of young children by pediatric primary care providers. *Pediatrics*. 2004;114(5):642–652.
- [14] Close K, Rozier RG, Zeldin LP, et al. Barriers to the adoption and implementation of preventive dental services in primary medical care. *Pediatrics*. 2010;125(3):509–517.
- [15] Lewis C, Lynch H, Richardson L. Fluoride varnish use in primary care: what do providers think? *Pediatrics*. 2005;115(1):69–76.