An Ontario Primary Health Care System to Support a Cavity-Free Future – A Qualitative Study

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Abstract

Objectives: Fluoride varnish (FV) is a proven intervention for preventing tooth decay. Due to frequent contact with children, physicians and nurses may be ideally situated for FV application during well-child visits. Currently, public health units across Ontario are have been successfully piloting this intervention. Yet, challenges remain at both the political and practice level. The objectives of this research were: 1) To understand the perspectives of key stakeholders on making FV application routine primary care practice in Ontario; and 2) To consider the potential enabling factors and/or barriers for its implementation.

Methods: In this qualitative study, 16 key stakeholders representing medicine, nursing, dentistry, dental hygiene, public health, and government were interviewed. Interview data was transcribed and coded, and a conceptual framework for implementing change to daily healthcare practice was utilized as a guide for thematic analysis.

Results: Our findings suggest that there is an opportunity for interdisciplinary care when considering children’s oral health. There is also motivation and acceptance for this specific intervention across all fields. However, we found that concerns related to funding, oral health knowledge, and inter-professional relationships could impede implementation and limit any potential short- or mid-term window for meaningful policy and practice change.

Interpretation: With respect to introducing FV into medical practice, the many factors required to implement immediate change are arguably not in alignment. However, policy-makers and practitioners across all fields are motivated and have identified opportunities for change that may form the foundation for this program in the future.
**Introduction**

Oral health is an essential component of overall health (1). Although preventable, dental caries (tooth decay) is the most common chronic disease of childhood and affects a disproportionate number of low-income children (2). Untreated decay can be devastating to a child’s health and may lead to pain, malnutrition, and a reduced quality of life (3,4). In Canada, where 60-90% of children experience dental disease, dental treatment has been shown to be the leading cause of outpatient surgery for children, representing a significant cost to the health care system (5, 6).

Access to timely dental care is a problem and finding ways to prevent caries is a challenge. The Canadian Paediatric Society and the Canadian Dental Association recommend that children have their first dental visit by the age of one, however these guidelines have not successfully been integrated into practice (7, 8). Few physicians refer children for dental care and many dentists are not comfortable treating young children (9). As a result, many children will not see a dentist until the age of three when prevention may no longer be an option (2).

Fluoride varnish (FV) is an easy and effective intervention that can reduce the prevalence of dental caries (10,11). Research has shown that when applied bi-annually, FV can reduce dental caries by 38% (12). Due to frequent contact with children, primary health care professionals are ideally situated for early oral health assessment and FV application (13). A study in the United States showed that 89% of infants had at least one annual physician visit, compared with only 1.5% who had a dental visit (14). Further, the use of FV during well-child visits is an established model in the United States that has gained widespread support (15). Recently, local public health units
throughout Ontario have successfully implemented FV pilot programs in primary care settings. Yet challenges and concerns for adoption remain at both the political and practice level. Through a qualitative research design, this study aims to understand the perspectives of key stakeholders on making FV application routine primary care practice.

Methods

Study design

A qualitative approach using semi-structured interviews was undertaken in this investigation. A qualitative approach provided greater depth and meaning through the exploration of an individual’s experiences and allowed for a better understanding of the challenges that may arise when implementing change to healthcare practice (16).

Conceptual model

An adapted conceptual model for practice change, first described by Cohen et al. (17) was used to evaluate the challenges associated with implementing FV. This model depicts four critical elements that must be in balance to see change. The key elements are illustrated in figure 5 and include: 1) motivation of key stakeholders; 2) resources for change; 3) opportunities for change; and 4) outside motivators. There are many factors that contribute to each theme, however without alignment, attempts to implement change will likely fail (17). The model was used as a guide for
data coding and analysis and was used to help organize key components into a hierarchy of themes that helped to map out the overall readiness for change.

**Figure 5: Conceptual model for practice change**

Sample

Twelve key leaders within medicine, nursing, public health, dentistry, dental hygiene, and the provincial government were recruited to participate. These individuals were the executive directors, presidents, and/or those who had the authority to make decisions on behalf of their members. Individuals were recruited from member-based associations, regulatory bodies, advocacy groups, and government agencies. Additionally, we invited four healthcare professionals who have experience using FV. This included a pediatric dentist, a dental hygienist employed in a public health unit, and a family physician and registered nurse who participated in a FV pilot program.
Protection of confidentiality

All invitees were taken through an informed consent process. Participants agreed to take part based on the expectation of confidentiality. Due to the high-profile nature of many executives, care was taken to keep their identities protected while providing an atmosphere for them to answer questions candidly. For this reason, the organizations represented are not listed, and individuals who were interviewed are only identified in quotations only by the professional fields that they represent.

Data collection

The main researcher (KD) used a semi-structured interview guide during each session. Questions in the guide were developed by the research team’s a priori notions of relevance, while encouraging participants to talk freely about all topics (18). The guide was developed and piloted considering the following domains: knowledge; attitude; readiness; barriers; enabling factors.

All interviews were audio-recorded and conducted in person at each participant’s main office. As body language and non-verbal cues are sometimes critical for understanding the context of a conversation, field notes were also recorded. Recordings for each session were transcribed verbatim within two days and transcriptions were compared back to the original recording to ensure accuracy. All potential information that could be used to identify a specific person were omitted.
Data analysis

Interview data was evaluated using thematic analysis aided by NVivo® software. Thematic analysis is usually either inductive or deductive. This analysis was driven both by theoretical interest and the nature of the data, consequently, using a type of abductive analysis (19). Transcribed data was read several times, and initial ideas were noted. Line-by-line coding, using the Straus and Corbin approach began with open coding, where text was broken down into units and compared for similarities and differences (20). Coded data was then reviewed by KD and organized into categories and themes.

Ethics approval

This study was approved by the Research Ethics Board of the University of Toronto Office (protocol reference # 34966).

Results

Sixteen respondents participated in this study with representation from the following disciplines; medicine (M), nursing (N), dental hygiene (DH), dentistry (D), public health (PH), and government ministries and/or agencies (GVT). A summary of respondent characteristics is presented in Table 1. Various practice-level, economic, social, political, inter-professional, and historical facilitators and barriers were captured as well as concrete suggestions for addressing
these challenges. We present here the major and minor themes which emerged with consistency and clarity.

**Table 2: Study participant characteristics**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Leaders</th>
<th>Healthcare professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total participants (n)</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Sex (n)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
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<td>1</td>
</tr>
<tr>
<td>Female</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Number of years at current position (range)</td>
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<td>6 - 27</td>
</tr>
<tr>
<td>Representative fields</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicine</td>
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<td>1</td>
</tr>
<tr>
<td>Nursing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dentistry</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Dental hygiene</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Public health</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Mean interview time (minutes)</td>
<td>42</td>
<td>38</td>
</tr>
</tbody>
</table>

**Motivation of stakeholders**

Dental and public health professionals had a better understanding of the oral health status of children, however, it was recognized by all that oral health is an integral component of health. All respondents also agreed that oral healthcare need not be limited to the dental office. As per one respondent:

“I do think that healthcare as a whole, if the patient’s best interest is put first, needs to have a collaborative and multidiscipline approach. We all need to be more involved” [D]
Access to dental care was a concern for 15 respondents, with barriers such as cost, lack of insurance, and the fragmented healthcare system being the most commonly cited. As per one individual:

“We know that oral health is a critical component of general health however our healthcare system doesn’t reflect that. As dentistry is mostly fee-for-service, a lot of people think of it as a luxury or an auxiliary type of investment to their health.” [PH]

While there was motivation amongst stakeholders, concerns were also raised. This includes 11 respondents perceiving that this may only be supported by public health professionals and lacks any other champions. For example:

“I could see this working well in a public health unit clinic. But it would take a lot of coordination and some motivated people from the private side to make it happen outside of that.” [M]

There was also a concern from non-dental professionals that dentists may act to protect their scope of practice. In the opinion of one respondent:

“The biggest obstacle would be the uproar from dentists. I imagine they would not be too excited about a service leaving their office. You may have a turf battle with all the egos involved.” [PH]
Conversely, the majority of respondents believed that there could be resistance from physicians regarding the new role. As stated:

“It’s not really within a physician’s scope of practice, however I don’t see why they wouldn’t be able to learn. Physicians would likely ask themselves, why me? Why should I be providing treatment when there is already an expert group?” [M]

**Resources for change**

There was consensus that FV is an effective intervention that should be considered as part of any caries prevention program:

“It [FV] is very efficacious and widely accepted by the public and used by the profession. You can train almost anyone to apply it.” [DH]

While additional training may be required, this was not perceived as an obstacle:

“It was easy to use from a technical standpoint. Once we had additional training and saw how easy it was to apply there wasn’t much issue.” [N]

All respondents believed that the biggest challenge is financing. Without publicly funded reimbursements, it will be difficult for physicians to adopt this service:
“For this to be impactful, the Ministry and OHIP [Ontario Health Insurance Plan] will need to be involved. I’m pretty sure it’s not in the schedule, so if it’s not in OHIP, it’s not going to happen.” [M]

Opportunities for change

Respondents identified opportunities that support implementation. First, most agreed that physicians and nurses are ideally situated during well-child visits:

“I think a big advantage is that most people go to their doctors, so you have the opportunity, you have the trust. The reality is most children who really need us will not see a dentist until they get to school.” [D]

It was also noted by the majority that involving primary care providers would lead to an increased number of age one dental visits:

“I think [a] real key to this program would be for physicians to start routinely looking into the mouth and referring for comprehensive care. The physician’s office being the starting point for establishing a dental home.” [PH]

Conversely, it was noted several times that physician’s practices are busy with limited time for new services. For example:
“Well child visits are busy, there are a lot of things to discuss with parents, including the paperwork and vaccinations. There could be resistance for any additional tasks.” [N]

There was also concern with the current political landscape in Ontario, and that the ongoing tension between the government and physicians could act as a barrier. As per one respondent:

“They [physicians] have their hands full with the province, with OHIP, salary, regulations and what not, so it may not be the right time to ask. And in today’s political climate, with budget cuts, I can’t see adding oral health on their [Ministry] list of priorities.” [PH]

It is also believed that public support is a key piece missing from the equation:

“So fundamentally, oral health is not an attention-grabbing issue. Sadly, it will never become a major point in an election, so it often remains overlooked. Without the public’s support, it is hard to push any agenda item forward.” [GVT]

**Outside motivators**

External factors in support include the fact that this is an established model that has worked the United States and Ontario:
“It is a feasible program, and something that public health units should consider. With the success of what we have seen in other areas, it needs to be considered.” [PH]

Interestingly, one concern that was noted, particularly from the respondents from medicine and nursing, was the growing anti-fluoride movement:

“We had a lot of parents decline fluoride for fears of toxicity. We have our hands full dealing with the anti-vaccination folks, so opening up a discussion about another politically charged topic may not be favorable.” [N]

There was also a sentiment from many that although this could be a great service that it should be limited to community clinics:

“I think this could benefit children but rolling it out into every practice will be a monumental challenge. Start with community health centers, this would be a more realistic and targeted approach.” [N]

**Interpretation**

FV has the potential to improve primary care with respect to oral health promotion and disease prevention. It may also improve the oral health of children in Ontario, particularly high-risk children who invariably suffer greater rates of dental caries and all the associated developmental, familial, and social impacts. Our findings suggest that there is an opportunity for interdisciplinary
care when considering children’s oral health in Ontario. There is also motivation and acceptance for this intervention. However, we also found that concerns related to funding, oral health knowledge and inter-relationships between regulated healthcare professionals, public health units, and government, may limit any potential short- or mid-term window for meaningful policy and practice change.

The model(s) for this intervention has evolved over many years in the United States (9, 13). While clinical practice guidelines support the use of FV, the implementation of these recommendations into primary settings has been slow (21). Despite recommendations, many providers do not incorporate oral health examinations in their well-child visits (22). Similar to concerns addressed in our study, physicians and nurses have previously reported a willingness to provide preventive dental care, but optimal methods for training and support have not always been available (23). Self-reported barriers also include: insufficient time during well-child visits; limited knowledge about dental interventions; lack of clear guidelines; difficulty in applying FV; funding; and staff resistance (21, 24-26). For this intervention to be successful, training and knowledge-based resources must be readily available, with optimally an oral health component integrated into medical and nursing education.

Finding ways implement new treatments based on the best possible evidence has also been problematic (27). The resistance to practice behavior changes has been well documented (17, 28). Focused interventions aimed at trying to get physicians to adopt clinical guidelines have shown mixed results (29,30). These interventions to promote practice behaviour change have included: continuing education programs; focused office tools, such as checklists and questionnaires;
outreach visits; mentoring; feedback audits; and reminders (28). However, these approaches only address knowledge and behaviour, and often do not consider the context and complexity in which practice occurs (27). In our study, we also reveal additional economic, political, and social factors that are often poorly understood and need to be considered in the context of how a primary healthcare practice and the healthcare professions at-large may operate. This must be taken into consideration when developing any provincial strategy for implementing FV as well as determining the appropriate window of opportunity to move forward.

Through our research, we were able to gain a rich understanding of the current context in Ontario for implementing the use of FV in primary care settings. However, there are several limitations to this study. We recruited senior leaders on the basis that they have the best understanding of their membership, as well as a degree of control over their internal agendas. However, in most organizations, members will be consulted, and their views and beliefs will impact decision-making and so the views of our respondents may not always be representative. Additionally, generalizability of the results is limited due to the small sample size and caution must be taken when applying these findings outside the context of Ontario.

Children will benefit if there is an interdisciplinary approach to oral health promotion and the prevention of dental disease in children. Changing the habits of healthcare providers is a complex issue, with many associated practice and policy barriers. With respect to introducing a dental intervention into primary care, the many factors required to implement change may not be in alignment at this time in Ontario. However, policy-makers and practitioners are motivated and have identified some of the opportunities that may form the foundation for this program in the
future. Going forward, stakeholders must remain engaged and involved with the development of a provincial strategy to build the awareness and momentum necessary to support a primary care system that includes promoting good oral health.
References


