



Community
Water
Fluoridation

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What is at stake? Early childhood cavities

Cavities in baby or primary or milk teeth for kids < than 6

Tooth decay in young children is a public health problem at epidemic levels



**Pain
Poor nutrition
Disrupted sleep
Poor learning
Disrupted socialization
Low self-esteem**

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First off, when young children have cavities in their primary teeth they will be more likely to have cavities in their permanent teeth. And so for the long term not having cavities in baby teeth is better.

But of more immediate concern is that young children with tooth decay are suffering.

Poor oral health can also have dramatic effects on our overall health and quality of life- for example- Early childhood decay (cavities in primary or baby teeth) is the most common childhood disease, and is increasing in Canada- Early childhood decay affects



What is at stake?

- Tooth decay

- ~ \$4-6 M spent on Emergency Dept visits for tooth pain related to decay in Alberta
- For children 1-5 years old those visits cost ~ \$1.2-1.8 million/year
- But, ED's don't provide dental care or services!!



(Figueiredo et al, 2017)

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When we have very good access to hospitals and physicians on the one hand and poor access to dental services for many on the other hand, we see some very costly and inefficient trends. Albertans spend between \$4 - 6 million yearly on Emergency Department visits for tooth complaints that arise from decay and infection. And a significant portion of that is for young children with primary tooth decay. However, emergency depts don't generally provide dental care, so these young patients will leave with a prescription for pain killers and/or antibiotics and a recommendation to seek out a dentist. They won't receive any dental treatment at an ED but physicians still need to bill the system for the visit of course. So that is costly and ineffective care.

What is at stake?

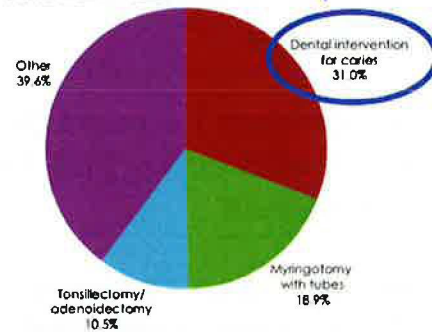
- Tooth decay

#1 reason for day surgery in children under 6

Canadians spend \$21 M yearly, to treat cavities in >19,000 children under 6 surgically (CIHI 2013)

Surgical re-treatment rate is 35% (Schroth, 2016)

Figure 1: Percentage of pediatric day surgeries in Canada by type of procedure, 2010/11 to 2013/14




(Schroth, 2016)


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Another inefficiency is in the treatment of severe tooth decay among very young children. Treatment of tooth decay under general anaesthesia is the # 1 reason for day surgery in children under 6 years old. Canadians spend **\$21 million/year** treating cavities in this way. That estimate doesn't count Anesthesiologist/dental surgeon fees, parent's travel, lost work costs, or costs of similar surgeries carried out in private dental offices. So it is only a hint at what we are actually spending. And retreatment rates are ~35%- so one third of those may undergo the surgery a second time! High risk (general anaesthetic is not recommended by AAPD and FDA for 2-4 year olds where it is not necessary) and poor outcomes (35% of cases need retreatment within 2 years).


How Fluoride in water works?



- **Systemic**
- Fluoride in tap water (or fluoride drops) is integrated into the developing permanent teeth before age 7



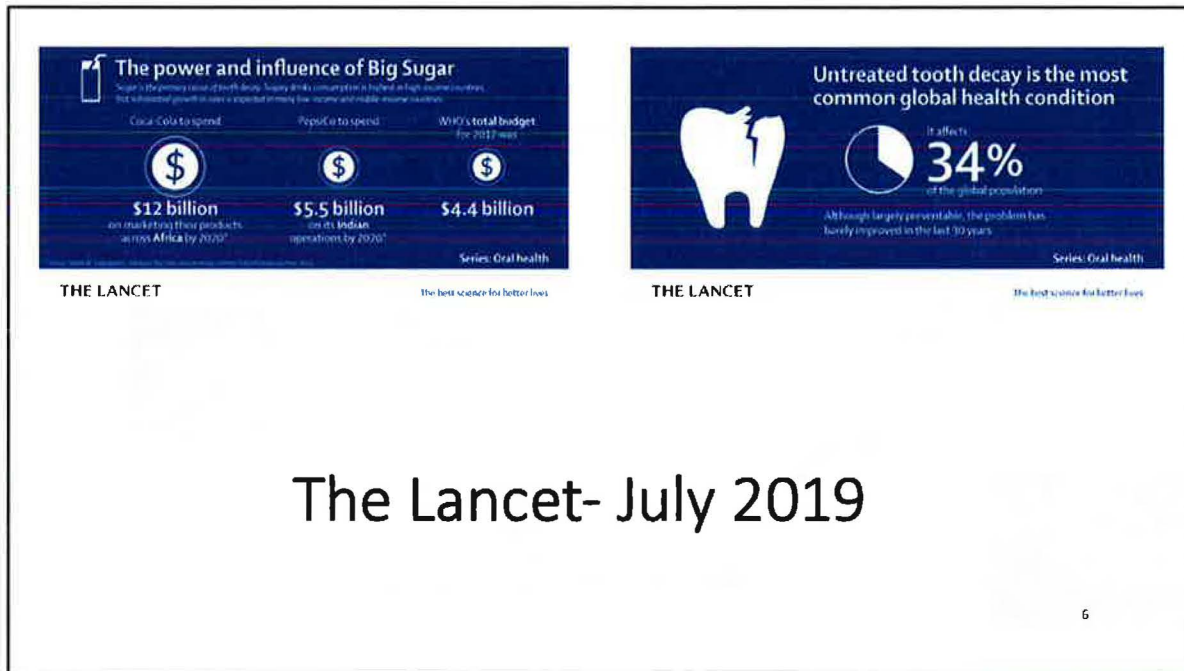




- **Topical**
- Toothpaste
- Fluoride varnish/fluoride gel @ dental office
- Fluoride in tap water

The benefit of fluoride comes mostly from topical use- when low doses of fluoride continually mix with saliva, and bathe the teeth- hardening your teeth to prevent decay, and remineralizing teeth where cavities have started. Importantly, with respect to young children, the topical effect of fluoridated water is a key reason why this intervention reduces 50% of the surgeries that treat decay.

Toothpaste is a challenge for parents of young children. Because it has a very high fluoride content. Children cannot reliably spit toothpaste out until they are 6 or 7 years old, and swallowing toothpaste increases chances for dental fluorosis. Hence the recommendations to use very small amounts. The systemic effects of water fluoridation are indeed minimal, but its topical effects are significant, and it works without a person having to think about using it and no need for parental supervision of water intake.



The Lancet- July 2019

Why we have high decay rates among young children despite having fluoride in the water for so many years.

Fluoride, while an important piece, is not a simple fix for dental decay. We are in the midst of an epidemic of decay that has been highlighted by the The Lancet in July 2019. Essentially the key messages are that the private dental model has not been successful and cannot be successful in achieving sustained improvements in population oral health or address the persistent inequalities in oral health. Childhood decay especially, is a community/public health problem and like similar problems, it is best addressed at the community level by every possible option (municipal and provincial) at this point in time.

Education not fluoridation: The answer to this problem is not simply parent education. Education has not been shown to have the long term impact needed. As council likely well knows, parent's role in looking after their children's teeth needs to be understood in the context of social factors that affect all lifestyle behaviours. The success of the Childsmile program in Scotland rests on how well they can continue to support families in the community.

Other factors identified in the Lancet are the problem of significant amounts of sugar in our food system and the influence of the sugar industry. This is a fundamental, society-level issue, not one we can expect individual parents to deal with without support at the community and population level.

Early childhood cavities are not fundamentally about access to dental care, but rather they are about community-level support for the behaviours that prevent cavities (similar to breastfeeding, vaccination, and other well child initiatives in public health). If access to care was the answer, the children of Calgarians who have dental plans (~70% of Albertans) would not be undergoing surgery for treatment. The focus needs to shift to community-level prevention initiatives that needs to include public health, private dentistry and community organizations.

AHS has several small and targeted programs for dental public health (e.g., fluoride varnish). Beyond that, there is very little capacity for prevention efforts for children under 6 either in dental public health or the private dental health system. It is hard to focus on prevention in the face of so many treatment needs.