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Commentary
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Commentary

Identification of early childhood caries in primary care settings

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Abstract

Early childhood caries (ECC) is the most common chronic disease affecting young children in Canada. ECC may lead to pain and infection, compromised general health, decreased quality of life and increased risk for dental caries in primary and permanent teeth. A multidisciplinary approach to prevent and identify dental disease is recommended by dental and medical national organizations. Young children visit primary care providers at regular intervals from an early age. These encounters provide an ideal opportunity for primary care providers to educate clients about their children's oral health and its importance for general health. We designed an office-based oral health screening guide to help primary care providers identify ECC, a dental referral form to facilitate dental care access and an oral health education resource to raise parental awareness. These resources were reviewed and trialled with a small number of primary care providers.

Keywords: *Early childhood caries; Oral health screening; Physician; Primary care; Tooth decay.*

Early childhood caries (ECC) is the most common chronic disease affecting children younger than 6 years of age (1). The disease may begin soon after primary teeth erupt and can progress rapidly. The consequences of ECC are multifaceted and long-lasting (1–8). Severe forms of ECC necessitate dental surgery and comprehensive restorative treatment, frequently performed under general anaesthesia in a hospital setting. This is the most common day surgery performed in young children at most Canadian paediatric hospitals (9–11). Timely access to hospital-based dental treatment remains an important issue, as almost 50% of children in need of such care have to wait longer than medically acceptable (12).

The Canadian Dental Association (CDA), Canadian Academy of Pediatric Dentistry, and American Academy of Pediatric Dentistry (AAPD) recommend establishing a 'dental home' at a young age and visiting the dentist by 12 months of age (1,3,13).

The Canadian Paediatric Society (CPS) recognizes oral health as a fundamental component of general health and recommends a multidisciplinary approach to identify and control ECC (8).

In contrast to dental visits, most children see a physician multiple times before their first birthday (14). Primary care providers are thus strategically positioned to conduct basic oral health assessments, provide counselling and facilitate access to dental care. Despite having many competing interests for the limited time available at the check-up appointments, more than 90% of paediatricians surveyed in a national study in the U.S. believed that dental assessments and preventive counselling should be part of the well-child care visits (15). The majority of paediatricians surveyed routinely checked babies' teeth for decay, discussed with the caregivers the importance of dental visits and

provided dietary counselling. The paediatric primary care providers in a North Carolina study achieved an adequate level of accuracy in identifying children with dental caries and proved that dental screenings can easily be incorporated into a busy practice (16).

The current state of recommendations for primary care providers on oral health for children is limited. The Rourke Baby Record mentions 'Teeth' under the 'Physical Examination' category, beginning with Guide III, the 12 to 13 Months column. The additional information on oral health available in the Resources 1: General section of the Rourke Baby Record includes a tooth eruption chart, limited dental cleaning instructions, a hyperlink to the AAPD Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents, a hyperlink to the CDA's Fluoride and Your Child resource, and the following advice on ECC prevention: avoid sweetened juices/liquids and constant sipping of milk or natural juices in both bottle and cup.

PAEDIATRIC DENTAL HEALTH SCREENING GUIDE

The screening guide is intended to assist primary care professionals in identifying dental disease and to instruct them on the next steps.

The use of this guide is not meant to replace a more formal oral health assessment performed by an oral health professional in the dental office.

Step 1: Lift-the-Lip and check the teeth for tooth decay for all patients 5 years of age and younger

Healthy teeth are creamy-white, shiny and smooth (Figure 1, first picture). Dental plaque is a soft, sticky, light yellow to greyish, dull film of bacteria that can be mechanically removed. The earliest clinical sign of dental caries is the so-called 'white-spot lesion' (Figure 1, second picture). The lesion typically follows the curvature of the gum line and corresponds to the sites where a band/spots of dental plaque has been developing and has been left undisturbed. The surface of the affected tooth is dull, chalky and opaque. White-spot lesions cannot be removed (e.g., by brushing). While the white-spot lesion is the first sign that can be seen by the human eye, it takes months for the white-spot lesions to develop. At this stage in the process, prior to cavitation, therapeutic intervention (e.g., fluoride treatments) can arrest or reverse the process by remineralization (17).

Highly demineralized enamel is porous and stained, as shown in Figure 1, third picture. Increased loss of structure results in shallow cavitated lesions which can be filled with bacteria. The light/dark yellow or brown appearance

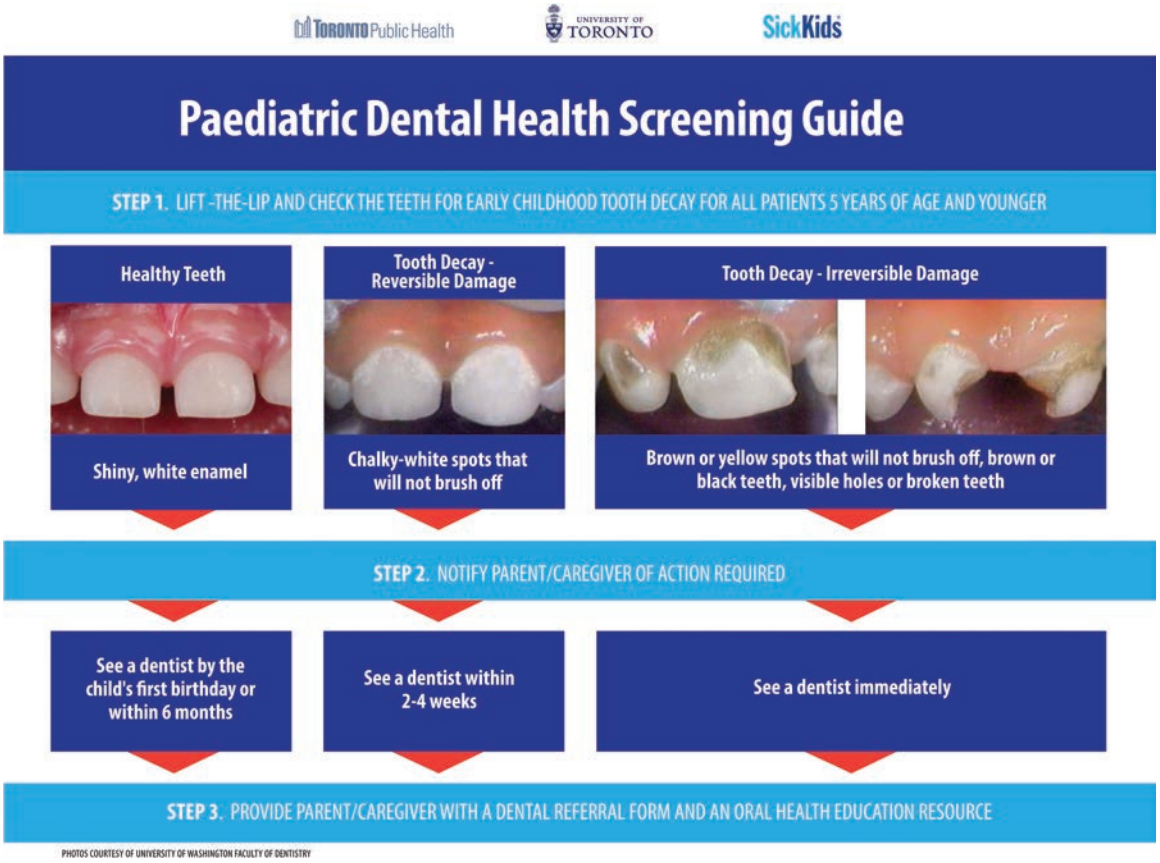

Figure 1. Paediatric dental health screening guide

of the lesion is the result of discoloration of the softened dentin located under the enamel (Figure 1, third and fourth pictures). Left untreated, the lesion will progress until the entire crown is destroyed (Figure 1, fourth picture) (17).

Lift the child's lips using a tongue depressor, a long cotton swab (15 cm/6") or gloved hands and inspect tooth surfaces starting at the gum line. Ask the child to open his/her mouth and inspect the flat surfaces of the back teeth. The cotton swab can be used to remove dental plaque and/or food debris to allow inspection of the dental surfaces underneath. As a reminder, while dental plaque and food debris can be removed mechanically, dental caries cannot. A light source (e.g., flashlight) can improve visibility and facilitate identification of ECC.

Step 2: Notify parent/caregiver of action required

Infants should visit the dentist within 6 months of the eruption of the first tooth or by 12 months of age to determine caries risk, appropriate interventions and the periodicity of future dental assessments.

Children with healthy teeth (Figure 1, first picture) are encouraged to visit the dentist within 6 months, if they are not already under the care of a dental professional.

Children with white-spot lesions (Figure 1, second picture) require preventive interventions that can arrest/reverse the demineralization process. The child should see a dentist within 2 to 4 weeks from the date of the referral.

Children with light yellow/brownish spots that won't brush off, brown or black teeth, visible holes or broken teeth need to see a dentist immediately (Figure 1, third and fourth pictures).

Step 3: Provide parent/caregiver with a dental referral form and an oral health education resource

The referral form (Figure 2) was designed for the use of primary care providers. The form should be provided to the parents/caregivers to encourage them to take action on the dental need identified. When a referral form is provided for the patient, the primary care provider should follow up on the outcome of the referral at the patient's next visit.

Primary care providers are encouraged to establish relationships with dental professionals in their area who accept children 5 years of age and younger. Parents/caregivers who already have a dental home may seek information from their dental care provider or can request a consultation for the child.

Publicly financed dental programs are available in every province and territory. Contact your local public health unit or visit their website to inquire about services available in your local community (Table 1).

The oral health education resource (Figure 3) serves to instruct parents/caregivers about oral hygiene practices and nutrition


Dental Services

Doctor's Office Stamp:

Date:

Child's Name:

Child's Age:

Reason for Referral:

- ☐ First dental visit - by 1st birthday
- ☐ Check-up (see a dentist within 6 months)
- ☐ Suspected cavity or cavities (see a dentist as per dental screening guide)
- ☐ Pain (see a dentist immediately)
- ☐ Swelling or abscess (see a dentist immediately)
- ☐ Bleeding or swollen gums (see a dentist immediately)
- ☐ Other

Comments:

Notes for parents/caregivers:

- Start improving your child's oral hygiene and feeding practices as advised by your primary care provider.
- Your child may be eligible to receive free dental care through public programs. Please contact your local public health unit to find out about dental public health programs in your area.

Toronto Public Health · University of Toronto · SickKids

Figure 2. Dental referral form.

matters, and to provide them with key messages that can lead to improved oral health in young children (e.g., Lift-the-Lip once a month, first dental visit by first birthday). It can be reviewed with the parents/caregivers and/or provided to them as a handout, if appropriate. Primary care providers are encouraged to use oral health education materials that best meet the needs of their clients (e.g., considering language, cultural background, format, etc.). Such resources may be available from local public health units.

VALIDATION OF THE DENTAL HEALTH SCREENING GUIDE

The screening guide has not yet been validated, but a number of 22 primary care providers (paediatricians, physicians, nurses, paediatric residents) reviewed/tested the guide and provided their feedback. Of these, 20 indicated that the screening guide is easy to understand, that it contains the information necessary to identify tooth decay and to make a decision about the next steps. In their opinion, the use of the screening guide could be implemented in primary care settings. Half of respondents (11 primary care providers) tried the screening guide in their practices and indicated that it took them less than 3 minutes and

Table 1. Provincial and territorial resources

Alberta	http://www.albertahealthservices.ca/services/Page13202.aspx
British Columbia	http://www2.gov.bc.ca/gov/content/health/managing-your-health/healthy-women-children/child-teen-health/dental-eyeglasses
Manitoba	http://wrha.mb.ca/prog/oralhealth/index.php
New Brunswick	http://www2.gnb.ca/content/gnb/en/services/services_renderer.8075.Health_Services_Dental_Program.html
Newfoundland and Labrador	http://www.health.gov.nl.ca/health/dentalservices/general_info.html
Northwest Territories	https://www.nthssa.ca
Nova Scotia	http://novascotia.ca/dhw/children-dental/
Nunavut	http://www.gov.nu.ca/health/information/oral-health
Ontario	https://www.ontario.ca/page/get-dental-care
Prince Edward Island	http://www.healthpei.ca/dentalhealth
Quebec	http://www.ramq.gouv.qc.ca/en/citizens/health-insurance/healthcare/Pages/dental-services.aspx
Saskatchewan	https://www.saskatchewan.ca/residents/health/understanding-the-health-care-system/saskatchewan-health-regions/health-region-contact-information-and-websites
Yukon	http://www.hss.gov.yk.ca/dental.php

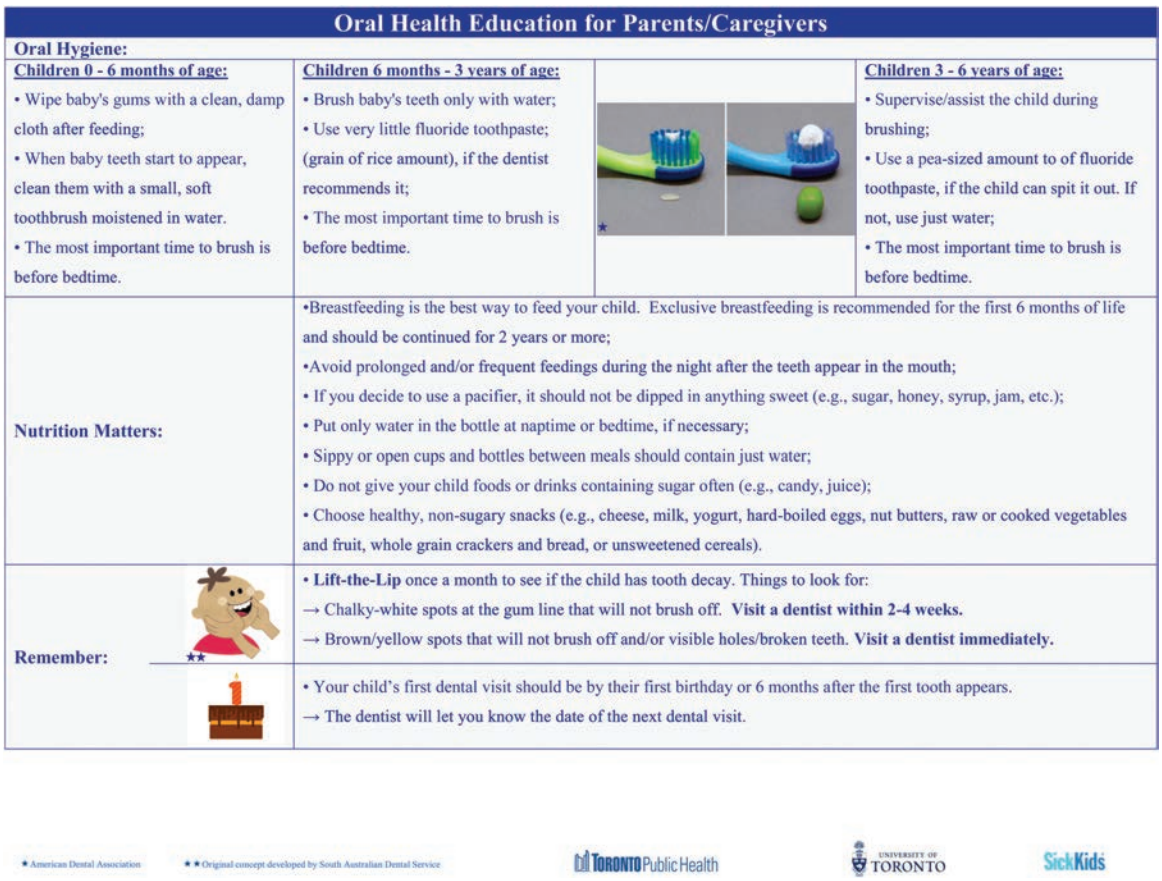

Figure 3. Oral Health Education for Parents/Caregivers.

sometimes less than 1 minute to check baby teeth. Some participants suggested to provide hard copies of the dental screening guide to all primary care providers, free of charge, to incorporate/link it to the Rourke Baby Record, and to have it available as an app version so parents can access it anytime as well.

All respondents indicated that the dental referral identifies the main reasons for referral and that they would provide it to parents/caregivers. They also indicated that the Oral Health Education handout would be relevant and useful for their clients, suggesting that having available versions also in languages other than English would be helpful. More than half of the respondents would use this resource as a handout and to initiate a discussion, while the rest would use it as a handout only.

CONCLUSION

Dental caries, the most common chronic childhood disease, is accompanied by serious comorbidities; its management requires a collaborative approach to prevent, identify and treat.

The dental screening guide provides a practical aid for primary care providers to identify ECC; it offers guidance for parents/caregivers regarding oral hygiene practices, home-based monthly oral check-ups (Lift-the-Lip), harmful behaviours and timing of the first dental visit. This approach is supported by the CDA Position Statement on ECC and the CPS Position Statement on Oral Health Care for Children.

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Conflict of Interest

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