Daniella DeMaré
Healthy Smile Happy Child Project Coordinator
ddemare@chrim.ca
(204) 789-3500
What’s on the Agenda?

- Early Childhood Caries (ECC) and Risk Factors: what every health care provider should know
- Healthy Smile Happy Child (HSHC) Initiative
- Key Take-Home Messages
- HSHC Resources
Objectives

• Recognize what early childhood caries (ECC) is, looks like, who’s affected, and how important early childhood oral health is.

• Understand the impact that severe ECC (S-ECC) can have on childhood health and well-being.

• Recognize the importance of prevention, including early first dental visits.

• Identify what you can do to address the problem of ECC in your role as a health care provider.
How do we define Early Childhood Caries?

- ECC as ≥ 1 primary tooth affected by decay in children < 72 months (6 years) of age
- Severe ECC (S-ECC) is a subtype of ECC

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>SECC</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;12</td>
<td>1 or more smooth dmf surfaces</td>
</tr>
<tr>
<td>12-23</td>
<td>1 or more smooth dmf surfaces</td>
</tr>
<tr>
<td>24-35</td>
<td>1 or more smooth dmf surfaces</td>
</tr>
<tr>
<td>36-47</td>
<td>dmfs score ≥ 4 OR 1 or more smooth dmf surfaces in the primary maxillary anteriors</td>
</tr>
<tr>
<td>48-59</td>
<td>dmfs score ≥ 5 OR 1 or more smooth dmf surfaces in the primary maxillary anteriors</td>
</tr>
<tr>
<td>60-71</td>
<td>dmfs score ≥ 6 OR 1 or more smooth dmf surfaces in the primary maxillary anteriors</td>
</tr>
</tbody>
</table>
Early Childhood Caries

Table 1. Previous used terms for ECC among infants and preschoolers.

<table>
<thead>
<tr>
<th>Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baby-bottle tooth decay (35-38)</td>
</tr>
<tr>
<td>Baby-bottle syndrome (39)</td>
</tr>
<tr>
<td>Labial caries (40)</td>
</tr>
<tr>
<td>Circular caries (41)</td>
</tr>
<tr>
<td>Nursing-bottle mouth (42)</td>
</tr>
<tr>
<td>Milk-bottle caries (43)</td>
</tr>
<tr>
<td>Nursing caries (44-46,54)</td>
</tr>
<tr>
<td>Nursing-bottle caries (4,39)</td>
</tr>
<tr>
<td>Nursing-bottle syndrome (47,48,55)</td>
</tr>
<tr>
<td>Bottle-propping caries (49)</td>
</tr>
<tr>
<td>Bottle-baby syndrome and bottle-mouth caries (50)</td>
</tr>
<tr>
<td>Rampant caries (51)</td>
</tr>
<tr>
<td>Melanodontie infantile/“les dents noire de tout-petits” (52,53)</td>
</tr>
<tr>
<td>Sucking-cup caries (58)</td>
</tr>
<tr>
<td>Sugared-tea caries (56)</td>
</tr>
<tr>
<td>Sweet-tea caries (57)</td>
</tr>
<tr>
<td>Sugar nursing-bottle syndrome (59)</td>
</tr>
</tbody>
</table>
Severe Early Childhood Caries (S-ECC)

**Definition**

Children who are < 3 years of age and present signs of smooth surface caries are considered Severe ECC (S-ECC) (AAPD, 2008)
Cavity Process

Susceptible Host

Fermentable Sugars

Cavity-Causing Bacteria
Multi-factorial & Multi-level nature of child dental disease & Early Childhood Caries

Fisher-Owens et al: Pediatrics 120. 2007
CDA Position on Early Childhood Caries

• ECC is an infectious, transmissible, diet-dependent disease that may begin soon after dental eruption and that may progress rapidly.

• The Canadian Dental Association (CDA) recognizes that early childhood caries (ECC) is a complex and multifactorial chronic disease that is heavily influenced by:
  • biomedical factors (diet, bacteria and host) and
  • by social determinants of health.

• ECC is defined as 1 or more primary teeth affected by decay in infant and preschool children (those < 72 months of age)

• The advanced form of this disease (severe early childhood caries or S-ECC) has raised concerns among health professionals and the public.

• It has a lasting detrimental impact on both primary and permanent teeth.
CDA Position on Early Childhood Caries (cont.)

• Some of the potential consequences of ECC are
  • acute and chronic pain;
  • interference with the child’s eating, sleeping and proper growth;
  • tooth loss and malocclusion;
  • increased expenses for dental care throughout life;
  • and compromise of general health.
Who’s at Risk for ECC?

• ECC is prevalent in children from the following groups:
  • Low income households/poverty
  • Indigenous populations (e.g., First Nations, Inuit, and Metis Canadians)
  • Disadvantaged urban communities
  • Rural and remote areas
  • Newcomers – refugees & immigrants
Prevalence of ECC

<table>
<thead>
<tr>
<th>Location</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garden Hill</td>
<td>98.9</td>
</tr>
<tr>
<td>Carman</td>
<td>44.3</td>
</tr>
<tr>
<td>Northern FN</td>
<td>58.6</td>
</tr>
<tr>
<td>Roseau River FN</td>
<td>56.5</td>
</tr>
<tr>
<td>Thompson</td>
<td>64.6</td>
</tr>
<tr>
<td>Winnipeg</td>
<td>51.4</td>
</tr>
<tr>
<td>Mount Carmel...</td>
<td>46.6</td>
</tr>
<tr>
<td>Hutterite</td>
<td>52.3</td>
</tr>
<tr>
<td>Newcomers</td>
<td>53</td>
</tr>
</tbody>
</table>

MB Pediatric Dental Surgery Rates by RHA (2013-2014)**

- **Number of Children (Age 1-5)**
  - Southern RHA: 12.4
  - Northern RHA: 101.9
  - Interlake-Eastern RHA: 1.6
  - Prairie Mountain Health: 4.2
  - Winnipeg RHA: 9.9
Treatment of Preventable Dental Cavities in Preschoolers: A Focus on Day Surgery Under General Anesthesia

Figure 1 – percentage of day surgery operations by type of procedure. 4-year pooled (2010-2011 to 2013-2014)

Schroth, Quinonez, Shwart, Wagar 2015 submitted
Cost of Pediatric Dental Surgery

• $2.7 million in hospital costs is spent on pediatric dental surgery every year in Manitoba (doesn’t include the dental fees or transportation costs)

• Average hospital cost for pediatric dental surgery in Canada is $21.2 million per year (excluding Quebec).
Test your knowledge of Children’s Oral Health
True or False

- Cavity-causing germs are usually given to children by caregivers kissing them on the mouth, testing food or cleaning a dropped soother using the mouth.
• If caregivers have cavities they can pass on the cavity-causing bacteria to their babies by kissing them on the mouth, testing food or cleaning a dropped soother using the mouth.
It’s recommended that you start brushing a baby’s teeth when they turn 2 years old.
Tooth care and gum care should start **soon after baby is born**.

Use a clean wet face cloth to gently wipe gums after feeding and before bed. Once teeth appear continue using a facecloth or use a baby-sized toothbrush and water only until they turn 1 year old.
True or False

Parents can check their child’s teeth for signs of childhood dental decay.
As soon as a baby gets his or her first tooth it’s a good idea to **check at least once a month for tooth decay.**

Look for white lines along the gums of the front teeth and brown or decayed spots on teeth.
True or False

A child can start brushing their own teeth as soon as they are able to hold a toothbrush.
False

It is important for an adult to brush a child’s teeth until they turn around 5 or 6 years old.

Children still need supervision when brushing until they turn around 8 years old.
True or False

Baby’s should be
Weaned off the bottle
Or
Sippy cup at 12 months old.
Once a baby turns a year old it is important for their teeth that they are weaned off the bottle or sippy cup onto a regular cup.
A child should see a dentist by the time he or she turns 3 years old.
False

A child should see a dentist by the time they turn **one year old**.
At the age of 1-2 years old children can use a pea-size amount of toothpaste.
False

A very slight smear on the toothbrush is all a child 1-2 years old should be using.

They shouldn’t use a pea-size amount of toothpaste until they turn 6 years old.
Healthy Smile Happy Child

- Collaborative, multi-agency partnership

- Move from traditional health educator paradigm towards community development approach to health promotion

- Enable communities to address Early Childhood Caries through existing programs and services
HSHC Goals

- To **gain community acceptance** of the importance of early childhood oral health

- To **build on existing programs** which target young children

- To **increase parental knowledge** of ECC prevention

- To **increase the knowledge of existing service providers** (i.e. public health) of the importance of prevention of ECC

- To encourage existing service providers to **incorporate ECC prevention activities into their practice**
Began in response to the growing wait list for dental surgery

Started as a baseline study in 2001
- 4 pilot communities
- 2 First Nations communities

Dental exam
- 408 children under 6 years of age

Caregiver questionnaire
Results of Baseline Study

- 54% of all children had ECC
- 74% of children over 2 years had ECC
- 20% reported problems with pain, infections, eating and sleeping
- 30% still using bottle at 2 years
- 63% had never seen a dentist
- No tooth brushing in 1/3 of children
Knowledge Transfer

Profiles were compiled for each community

Key risk factors for ECC in the communities were shared with the community at large

Assisted with community-based oral health promotion strategies and community developed health promotion tools
Resources Developed

Prevent Early Childhood Tooth Decay

Action Plan Workbook and Toolkit

Healthy Smile Happy Child Pilot Project of the Manitoba Collaborative Project for the Prevention of Early Childhood Tooth Decay
Resources Developed

Games

BINGO

True & False

Dental Bingo Card #4

It's recommended that you start brushing your baby's teeth when they turn 2 years old.
Resources Developed
Follow-Up Study

- Same 4 pilot sites as baseline study
- Cross-sectional design
- Children < 72 months of age & caregiver
- Dental examination following established indices
- Interviewed questionnaire with caregiver
- $p \leq 0.05$ denoted significance

Schroth RJ, Brothwell DJ, Moffatt ME. Int J Circumpolar Health 2007
Follow-up Study Results

Compared to the baseline study, caregivers were more likely to report that:

- Baby teeth are important (98.8% vs. 91%)
- Problems with baby teeth will affect adult teeth (74.6% vs. 59.3%)
- Babies without teeth need their mouth cleaned (95% vs. 79.8%)
- Breastfeeding is important for healthy teeth (88.4% vs. 74.8%)
- Bottle feeding after 1 year is bad for their teeth (78.1% vs. 62%)
- Children should see the dentist by their first birthday. (82.4% vs. 74.3%)
Follow-up Study Results

- Prevalence of ECC was 52%
  - Did not differ from baseline study
- Significant reduction in the prevalence of S-ECC

- In all 4 communities:
  - More children had visited the dentist
  - More parents reported cleaning their children’s teeth
  - Fewer children had untreated tooth decay compared to before
## Prevalence of ECC and S-ECC in follow-up study children by community

<table>
<thead>
<tr>
<th>Community</th>
<th>Prevalence of ECC Follow-up study(^a) (%)</th>
<th>Prevalence of ECC Baseline study(19) (%)</th>
<th>Prevalence of S-ECC Follow-up study(^b) (%)</th>
<th>Prevalence of S-ECC Baseline study (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anonymous Northern First Nation</td>
<td>51/76 (67.1%)</td>
<td>75/128 (58.6%)</td>
<td>35/76 (46.1%)</td>
<td>58/125 (46.4%)</td>
</tr>
<tr>
<td>Anonymous Southern First Nation</td>
<td>34/57 (59.7%)</td>
<td>61/108 (56.5%)</td>
<td>31/57 (54.4%)</td>
<td>53/108 (49.1%)</td>
</tr>
<tr>
<td>Thompson</td>
<td>38/99 (38.4%)</td>
<td>54/105 (51.4%)</td>
<td>30/99 (30.3%)</td>
<td>24/104 (23.1%)</td>
</tr>
<tr>
<td>Winnipeg (Point Douglas neighbourhood)</td>
<td>43/87 (49.4%)</td>
<td>29/67 (43.3%)</td>
<td>27/87 (31.0%)</td>
<td>45/63 (71.4%)</td>
</tr>
<tr>
<td>Total</td>
<td>166/319 (52.0%)(^*)</td>
<td>218/407 (53.6%)</td>
<td>123/319 (38.6%)(^*)</td>
<td>180/400 (45.0%)</td>
</tr>
</tbody>
</table>

\(^*\) Comparison of follow-up study prevalence of ECC to baseline prevalence p=0.68
\(^a\) Comparison of community follow-up study prevalence of ECC between communities p=0.0012
\(^b\) Comparison of community follow-up study prevalence of S-ECC between communities p=0.0052
\(^\dagger\) Comparison of follow-up study prevalence of S-ECC to baseline prevalence p=0.08
Provincial Roll Out of Initiative

- Funded by Manitoba Health with additional supplementary funding from grants. Started April 1, 2006
- Funds enabled us to expand beyond 4 initial communities
- Roll out based on short term (3 year) educational and community engagement approach using the existing community developed tools and working with existing community based programs and services
- Ongoing funding exists for 0.5 coordinator to work with Regional Health Authorities (RHA’s) and community contacts
Train the Trainer study showed that non-dental health professionals can promote oral health in their communities.
What can I do to address ECC in my role?

1. Learn More about Preschool Oral Health
2. Promote Early Visits to the Dentist

• The Canadian Dental Association encourages dental assessments of infants **within 6 months of the eruption of the first tooth or by one year (12 months) of age**

• At the first dental visit, the infant’s risk of caries should be assessed and discussed with a parent or caregiver

• The goal is to have children visit the dentist before there is a problem

• Establishment of a dental home

Manitoba Dental Association’s Free First Visit Program
3. Provide Information on Diet & Nutrition

- Caring for baby teeth begins before baby arrives.

- Vitamin D and calcium are essential building blocks for strong teeth.

- Give your child dental friendly snacks like fruit, vegetables, and cheese. Vitamin D rich foods and supplements may also help prevent cavities.

![Graph showing the relationship between 25OHD level and predicted number of decayed primary teeth.](image)

*Figure 1: Predicted number of decayed primary teeth (dt score) according to 25OHD level.*

*Prenatal Vitamin D and Dental Caries in Infants*

Robert J. Schroth, Christopher Lavelle, Robert Tate, Sharon Bruce, Ronald J. Billings and Michael E.K. Moffatt

*Pediatrics; originally published online April 21, 2014; DOI: 10.1542/peds.2013-2215*
4. Talk about Weaning & Good Infant Feeding Choices

• Breast-feed. Not only is it natural, but it is also lowers the risk for decay.

• For those choosing to bottle-feed, limit bottles to feeding times only and wean your child from the bottle by 14-18 months.

• Avoid bottles at bedtime. While milk and juice appear healthy they contain sugars, which can lead to cavities. Only plain water is safe in the bedtime bottle.
5. Talk about Limiting Sugar

- Limit the number of between meal snacks and drinks containing sugar.
6. Oral Hygiene with the First Tooth

- Begin cleaning your child’s mouth with a soft cloth before teeth arrive.
- Once teeth erupt begin with a smear of toothpaste the size of a grain of rice.
- Once your child turns 3 years old use a green pea size of toothpaste.
- Most children need assistance with brushing until age 8.
7. Promote Fluoride – Toothpaste & Varnishes

- Children at high-risk for caries needing toothpaste at early ages include:
  - living in a community with non-fluoridated water supply or low natural fluoride levels (< 0.3 ppm),
  - enamel defects, incipient caries (i.e. white chalky spots), or cavities,
  - frequent intake of sugary snacks/drinks between meals (including bottle or sippy cup containing liquids other than water and sweetened medications),
  - special health care needs that limit cooperation with brushing and oral hygiene,
  - teeth are not brushed daily,
  - premature birth and low birth weight,
  - parent or caregiver has tooth decay,
  - visible plaque on teeth.
Fluoride Varnish

**CHANGE IN PRACTICE:**
- Fluoride varnish recommended at least every 3 to 6 months for children < 6 years of age (American Dental Association 2013)

Table 1. Caries-risk Assessment Form for 0-3 Year Olds\textsuperscript{59,60}
(For Physicians and Other Non-Dental Health Care Providers)

<table>
<thead>
<tr>
<th>Factors</th>
<th>High Risk</th>
<th>Low Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biological</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother/primary caregiver has active cavities</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Parent/caregiver has low socioeconomic status</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has $\geq$3 between meal sugar-containing snacks or beverages per day</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child is put to bed with a bottle containing natural or added sugar</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has special health care needs</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child is a recent immigrant</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Protective</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child receives optimally-fluoridated drinking water or fluoride supplements</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has teeth brushed daily with fluoridated toothpaste</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child receives topical fluoride from health professional</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has dental home/regular dental care</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td><strong>Clinical Findings</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child has white spot lesions or enamel defects</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has visible cavities or fillings</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Child has plaque on teeth</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Circling those conditions that apply to a specific patient helps the health care worker and parent understand the factors that contribute to or protect from caries. Risk assessment categorization of low or high is based on preponderance of factors for the individual. However, clinical judgment may justify the use of one factor (eg, frequent exposure to sugar containing snacks or beverages, visible cavities) in determining overall risk.

Overall assessment of the child’s dental caries risk:    High [ ]    Low [ ]
Oral Health Risk Assessment Tool

The American Academy of Pediatrics (AAP) has developed this tool to aid in the implementation of oral health risk assessment during health supervision visits. This tool has been subsequently reviewed and endorsed by the National Interprofessional Initiative on Oral Health.

Instructions for Use
This tool is intended for documenting caries risk of the child, however, two risk factors are based on the mother or primary caregiver’s oral health. All other factors and findings should be documented based on the child.

The child is at an absolute high risk for caries if any risk factors or clinical findings, marked with a ▲ sign, are documented yes. In the absence of ▲ risk factors or clinical findings, the clinician may determine the child is at high risk of caries based on one or more positive responses to other risk factors or clinical findings. Answering yes to protective factors should be taken into account with risk factors/clinical findings in determining low versus high risk.

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Protective Factors</th>
<th>Clinical Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>▲ Mother or primary caregiver had active decay in the past 12 months</td>
<td>▲ Existing dental home</td>
<td>▲ White spots or visible decalcification in the past 12 months</td>
</tr>
<tr>
<td>▲ Mother or primary caregiver does not have a dentist</td>
<td>▲ Drinks fluoridated water or takes fluoride supplements</td>
<td>▲ Obvious decay</td>
</tr>
<tr>
<td></td>
<td>▲ Fluoride varnish in the last 6 months</td>
<td>▲ Restorations (fillings) present</td>
</tr>
<tr>
<td></td>
<td>▲ Continual bottle/sippy cup use with fluid other than water</td>
<td>▲ Visible plaque accumulation</td>
</tr>
<tr>
<td></td>
<td>▲ Frequent snacking</td>
<td>▲ Gingivitis (swollen/bleeding gums)</td>
</tr>
<tr>
<td></td>
<td>▲ Special health care needs</td>
<td>▲ Teeth present</td>
</tr>
<tr>
<td></td>
<td>▲ Medicaid eligible</td>
<td>▲ Healthy teeth</td>
</tr>
</tbody>
</table>

ASSESSMENT/PLAN

Caries Risk: [ ] Low  [ ] High
Self Management Goals:
[ ] Regular dental visits
[ ] Wean off bottle
[ ] Dental treatment for parents
[ ] Less/No juice
[ ] Brush twice daily
[ ] Only water in sippy cup
[ ] Use fluoride toothpaste
[ ] Drink tap water

Healthy snacks: [ ] Lose/No junk food or candy
[ ] Xyitol

Treatment of High Risk Children
If appropriate, high-risk children should receive professionally applied fluoride varnish and have their teeth brushed twice daily with an age-appropriate amount of fluoridated toothpaste. Referral to a pediatric dentist or a dentist comfortable caring for children should be made with follow-up to ensure that the child is being cared for in the dental home.

Daily oral health care routines for mom during pregnancy is important.

Breastfeeding is promoted.

Clean infant’s mouth with clean washcloth after each feeding.
Key Messages

- Lift the lip once a month to check for tooth decay.
Key Messages

- Only put water in bottle at night
Key Messages

- Wean the bottle/sippy cup by 12-14 months
Key Messages

- Help child brush their teeth until they are 8 years old
- Brush child’s teeth two times everyday
- Avoid prolonged use of sippy cup
- Child’s first visit to dentist by 1st birthday.
EARLY CHILDHOOD TOOTH DECAY

Healthy Smile Happy Child Pamphlets

Healthy Smile Happy Child: Prenatal Information
- English
- French
- Cree

Healthy Smile Happy Child: Newborn to 6 Years
- English
- French
- Cree

Mouth Care for Your Baby: Newborn
- English
- French

Healthy Smile Happy Child: 2 Months
- English
- French

Preventing Illness Home
Outbreak of Infectious Syphilis
Tobacco Reduction
Early Childhood Tooth Decay
Preventing Influenza

http://www.wrha.mb.ca/healthinfo/preventill/oral_child.php
Let's Work Together!

We can make a difference in the lives of Manitoba children!
QUESTIONS
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