Early Childhood Caries in Manitoba: Statistics and Strategies

Telehealth Presentation
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Objectives

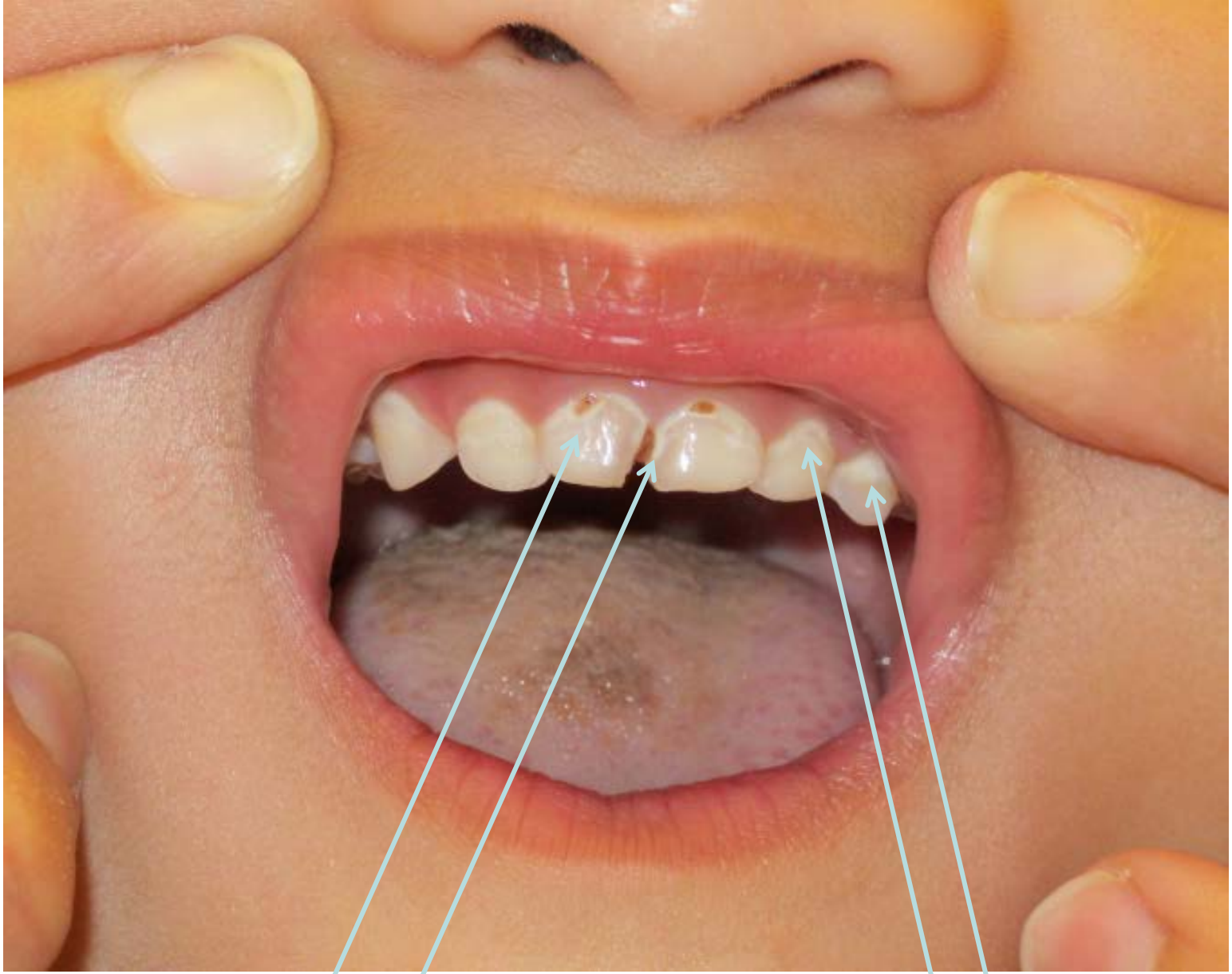
- Impact of ECC on childhood health & well-being
- Review current status of early childhood oral health in Manitoba
- The role of health and community professionals in improving childhood oral health

CDA Position on Early Childhood Caries

- 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 the presence of one or more decayed (noncavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary preschool-age child, i.e., between birth and 7 age.

For full position statement please visit the CDA website at:
http://www.cda-adc.ca/en/oral_health/faqs_resources/position_statements.asp



Cavitated Lesions

White Spot Lesions

Early Childhood Caries (ECC)

- Defined as 1 or more primary teeth affected by decay in infant and preschool children AAPD 2007

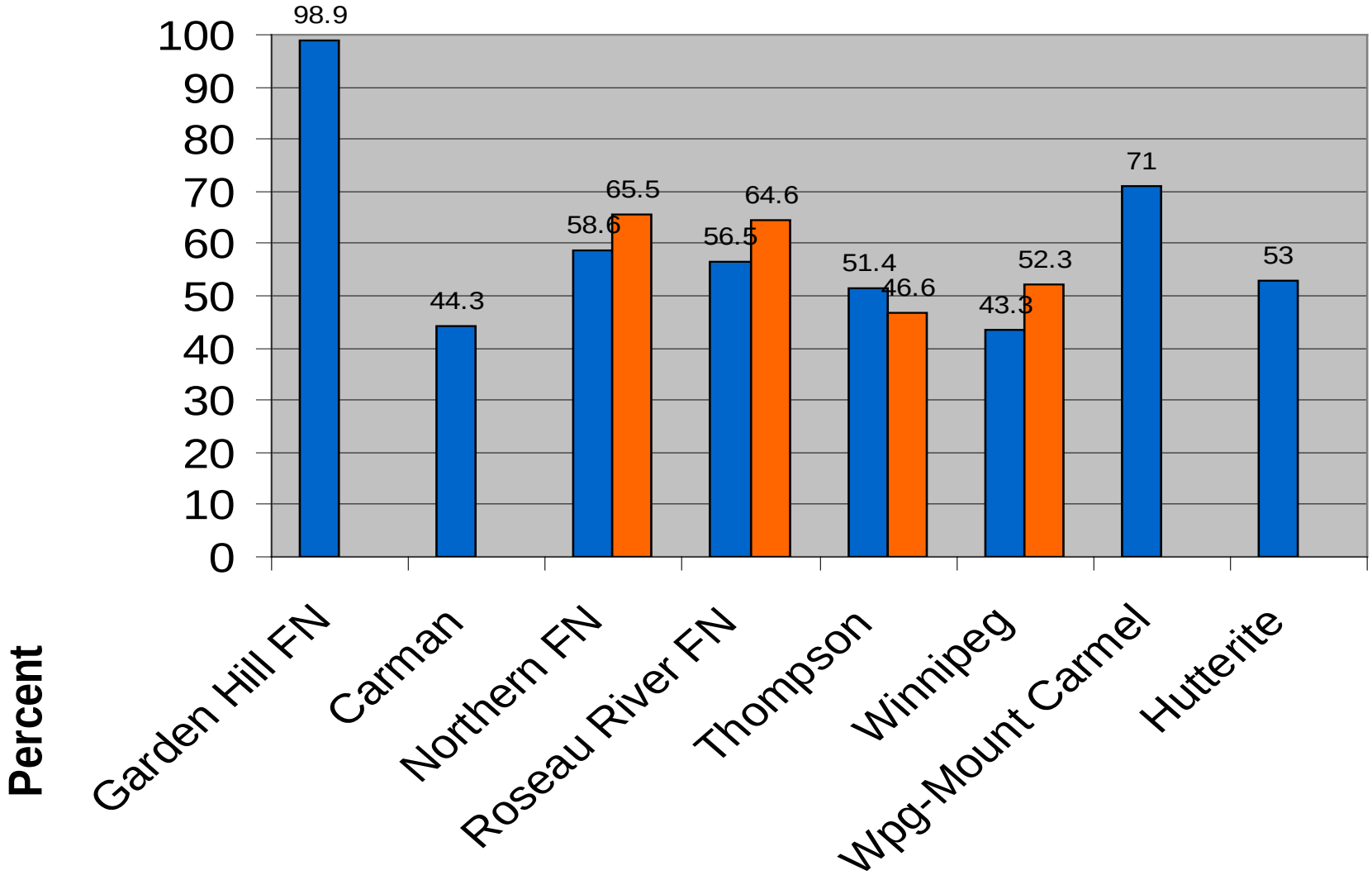
- Theoretically 100% preventable

Early Childhood Caries (ECC)

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

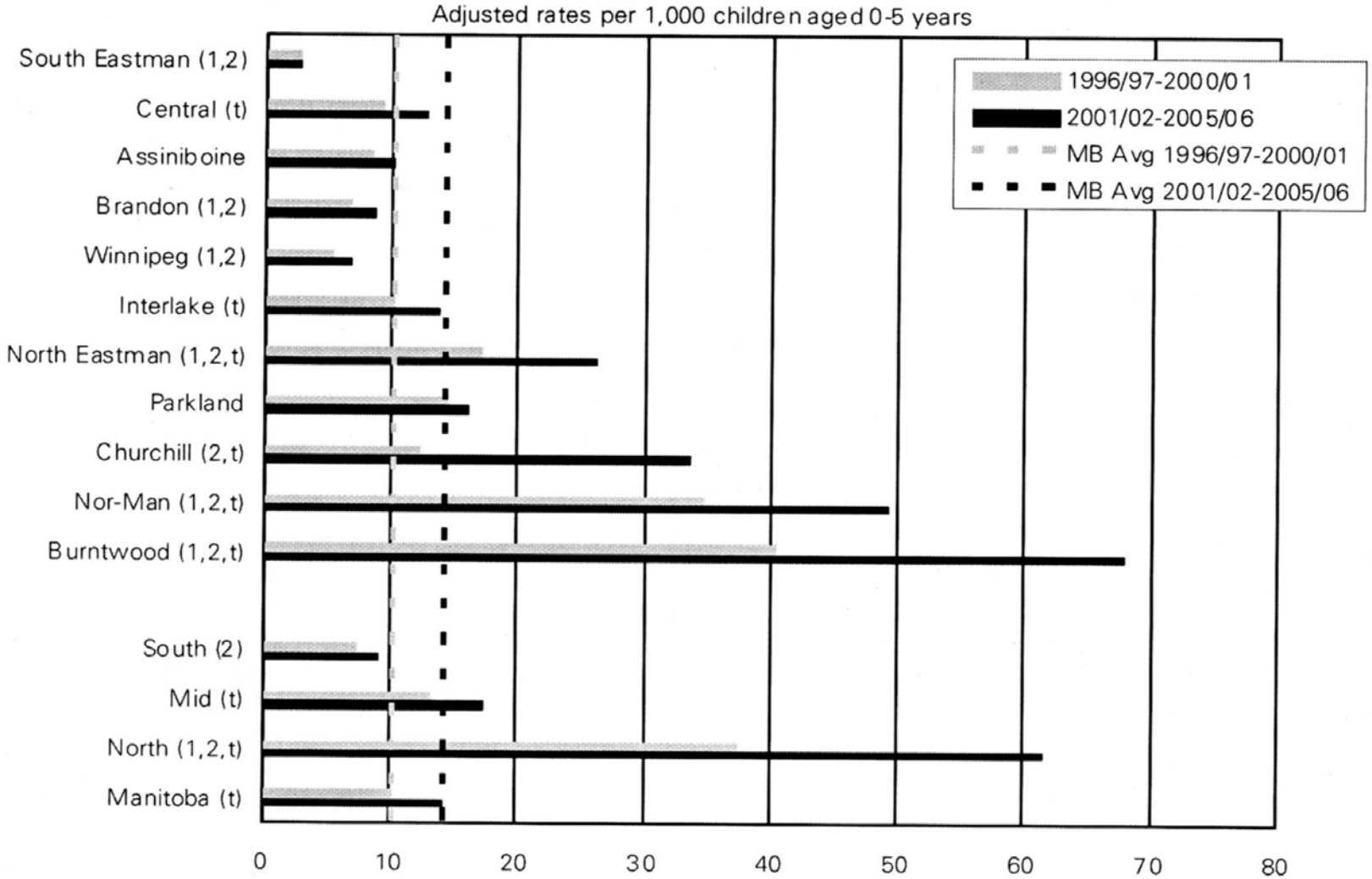
Baby-bottle tooth decay (35-38)
Baby-bottle syndrome (39)
Labial caries (40)
Circular caries (41)
Nursing-bottle mouth (42)
Milk-bottle caries (43)
Nursing caries (44-46,54)
Nursing-bottle caries (4,39)
Nursing-bottle syndrome (47,48,55)
Bottle-propping caries (49)
Bottle-baby syndrome and bottle-mouth caries (50)
Rampant caries (51)
Melanodontie infantile/"les dents noire de tout-petits" (52,53)
Sucking-cup caries (58)
Sugared-tea caries (56)
Sweet-tea caries (57)
Sugar nursing-bottle syndrome (59)

Prevalence of ECC by Manitoba Community



Schroth et al 2005 J Can Dent Assoc; Schroth & Moffatt Pedatir Dent 2005; Schroth, Moore, Brothwell J Can Dent Assoc 2005; Schroth, Cheba. Pediatr Dent 2007, Schroth et al 2010 Rural & Remote Health.

Figure 5.33: Hospital-Based Dental Extractions Rates by RHA



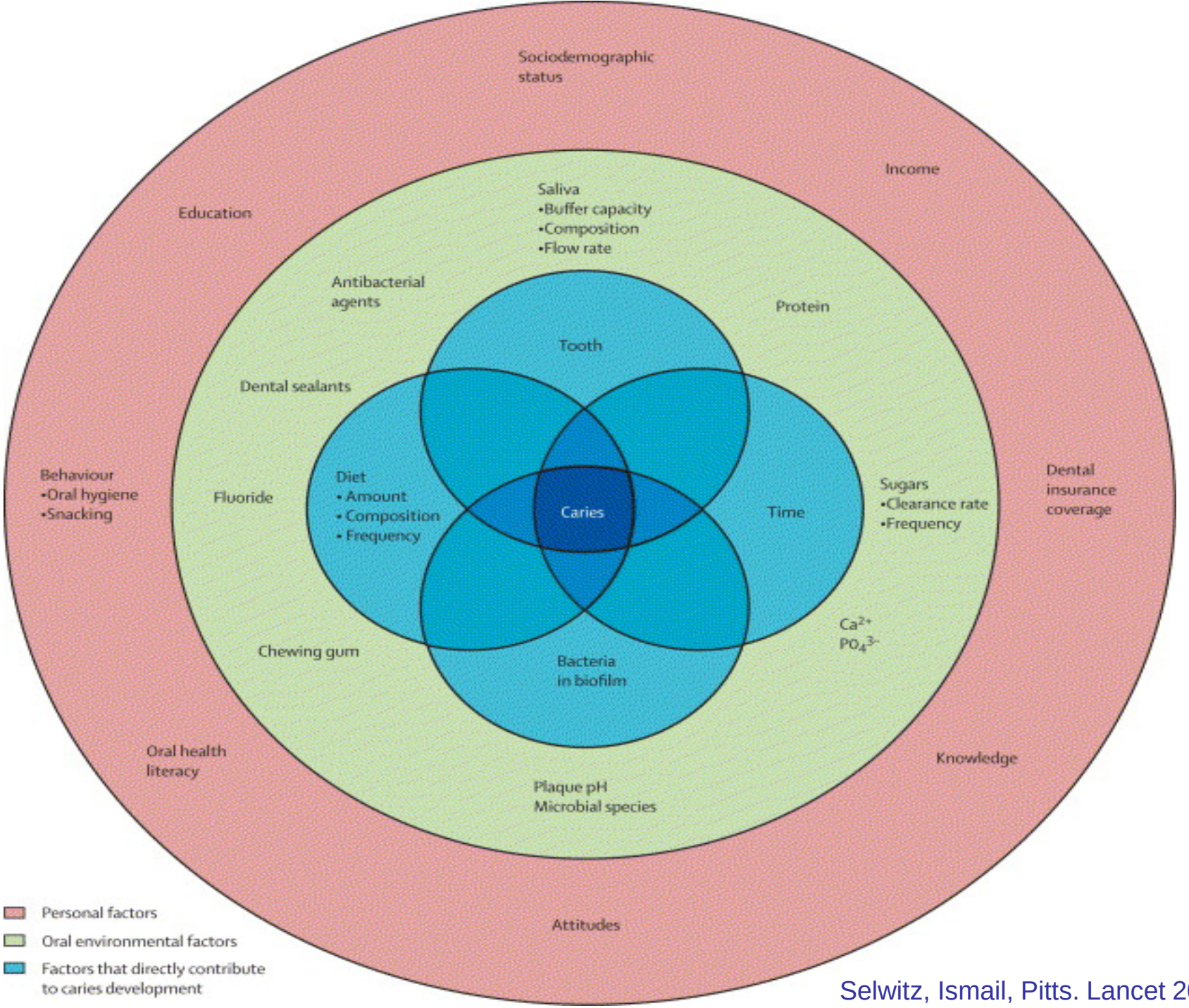
'1' indicates area's rate was statistically different from Manitoba average in first time period
'2' indicates area's rate was statistically different from Manitoba average in second time period
't' indicates change over time was statistically significant for that area
's' indicates data suppressed due to small numbers

Source: Manitoba Centre for Health Policy, 2008

10 Year Review of Pediatric Dental Surgery for ECC

Year of Age (months)	N (%)
0 (< 12)	2 (0.0)
1 (12-23)	434 (2.3)
2 (24-35)	3753 (20.2)
3 (36-47)	7063 (38.1)
4 (48-59)	4685 (25.3)
5 (60-71)	2607 (14.1)
Total	**18544 (100.0)**

- Utilized MB Health administrative data that spanned the fiscal years 1997/1998 to 2006/2007
- over 60% were less than 48 months (< 4 years) of age
- those between 36 and 47 months of age represented the greatest age group undergoing GA (38.1%)



Selwitz, Ismail, Pitts. Lancet 2007

Impact of ECC on Health & Well-being

Oral Health of Indigenous Children and the Influence of Early Childhood Caries on Childhood Health and Well-being

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KEYWORDS
• Dental caries • Early childhood caries • Health services
• Indigenous • North America • Health promotion • Indians

Dental caries in Indigenous children is a child health issue that is multifactorial in origin and strongly influenced by the determinants of health. The evidence, although generally of a lower quality, suggests that extensive dental caries has an effect on health and well-being of the young child. Although counseling about dietary practices and tooth brushing and interventions involving fluoride show promise in reducing the severity of early childhood caries (ECC), the level of evidence for each is variable. Combined approaches are recommended. This article focuses on ECC as an overall proxy for Indigenous childhood oral health, because decay during early life sets the foundation

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Pediatr Clin N Am 56 (2009) 1481–1499
doi:10.1016/j.pcl.2009.09.010 pediatric.theclinics.com
0031-3955/09/$ – see front matter

- Growth & Development
  - Speech development
  - Height
  - Weight and Body Mass Index (BMI)
- Common Pediatric Illnesses & Conditions
  - Otitis media
  - Respiratory tract infections
  - Eating patterns
  - Iron deficiency
- Quality of Life
  - Pain
  - Sleep
  - Behaviour

Impact of ECC and Growth & Development

- Speech Development
  - Small studies reporting some children who lost primary teeth from ECC have speech distortion & difficulty speaking.
  - No significant association between speech difficulties with increasing severity of caries.
  - Aggregated evidence suggests a plausible association, but the existing evidence is of low quality.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

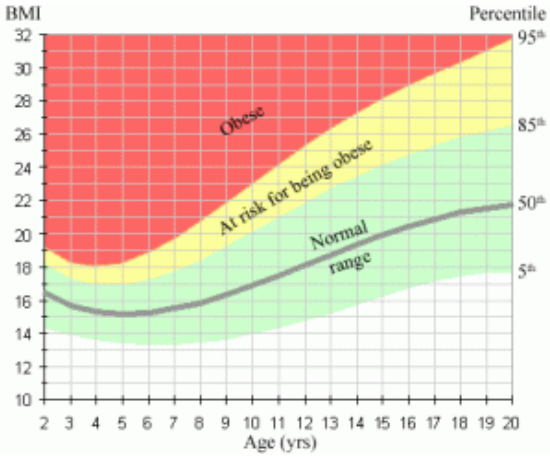
Impact of ECC and Growth & Development

- Weight & BMI
  - Observational studies reveal children with S-ECC weigh less than cavity-free children.
  - Some large representative samples do not support a relationship with Body Mass Index (BMI), but one study reported low BMI-for-age was associated with caries prevalence.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Impact of ECC and Growth & Development

- Weight & BMI
  - Cohort & case studies suggest that children gain weight after oral rehabilitation under general anesthesia (GA).
  - Overall: extensive caries in young children may contribute to low weight.



Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Impact of ECC on Illnesses & Conditions

- Otitis media (OM)
  - Poor evidence suggesting that ECC is a risk factor for OM.
  - Children who had OM during the first year of life were 29% more likely to develop ECC.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Impact of ECC on Illnesses & Conditions

- Respiratory tract infections
  - Increased risk of 34% for ECC in children who had reported respiratory infections in the first year of life.
  - Case-control study of ECC found no association with respiratory infections.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Impact of ECC on Illnesses & Conditions

- Eating patterns
  - Children with S-ECC more likely to have trouble eating than cavity-free controls.
  - Improved eating behaviours and fewer difficulties chewing after dental surgery.
  - S-ECC may be a risk marker for iron deficiency anemia.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Impact of ECC on Quality of Life

- Pain
  - Parents report that children with S-ECC and ECC suffer dental pain.
  - Significant reductions in reported pain following dental surgery.
- Sleep
  - Children with S-ECC may have significantly more problems sleeping.
  - Dental surgery under GA may improve sleeping patterns.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

CAUTION!

- Evidence to support these associations is in many cases limited and of low-grade.
- It suggests that severe dental caries may indeed have an impact on the health and wellbeing of young children.
- The scarcity of high quality evidence should be a "Call to Action" for more focused research on the impact of ECC on childhood health.

Schroth, Harrison, Moffatt. Pediatr Clin N Am 2009

Current Early Childhood Oral Health Activities in MB

- Review postal code mapping of Manitoba Dental Association's Free First Visit (FFV) program

- Review postal code mapping of pediatric dental surgeries (at Winnipeg facilities)

CDA Position

http://www.cda-adc.ca/_files/position_statements/Early_Childhood_Caries_2010-05-18.pdf

- The Canadian Dental Association encourages dental assessments of infants within 6 months of the eruption of the first tooth or by one year 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

Descriptive Findings

- 264 dentists originally registered to participate in the Manitoba Dental Association's (MDA's) Free First Visit (FFV) program.

- In the first fiscal year 100 (37.9%) dentists out of the 264 submitted a completed FFV program tracking form.

Date(DD/MM/YYYY):

MDA Free First Visit Program Tracking Form

Office Stamp

Information about the Dentist

Name:

and

Location (City/Postal Code):

Information about the Child

Patinet No.	Date of Free First Visit (dd/mm/yyyy)	Child's Date of Birth (dd/mm/yyyy)	Child's Age (months)	Child's Sex	City of Residence	Child's Postal Code	Signs of Early Childhood Caries?	Dental Benefits?
1				M/F			Yes/No	Yes/No
2				M/F			Yes/No	Yes/No
3				M/F			Yes/No	Yes/No
4				M/F			Yes/No	Yes/No
5				M/F			Yes/No	Yes/No
6				M/F			Yes/No	Yes/No

THANK YOU! We appreciate your time taken in completing this form. Please submit this information to the **Manitoba Dental Association**

Descriptive Findings

- 2,570 FFV forms were submitted by dental practitioners in Manitoba.
- Overall, 455 cases were excluded because they either involved children > 36 months of age or did not fall within the first year of the program (April 1, 2010 to March 31, 2011).
- Year 1 analysis is limited to 2,115 FFV tracking forms.

Age Distribution of Children Participating in the FFV Program

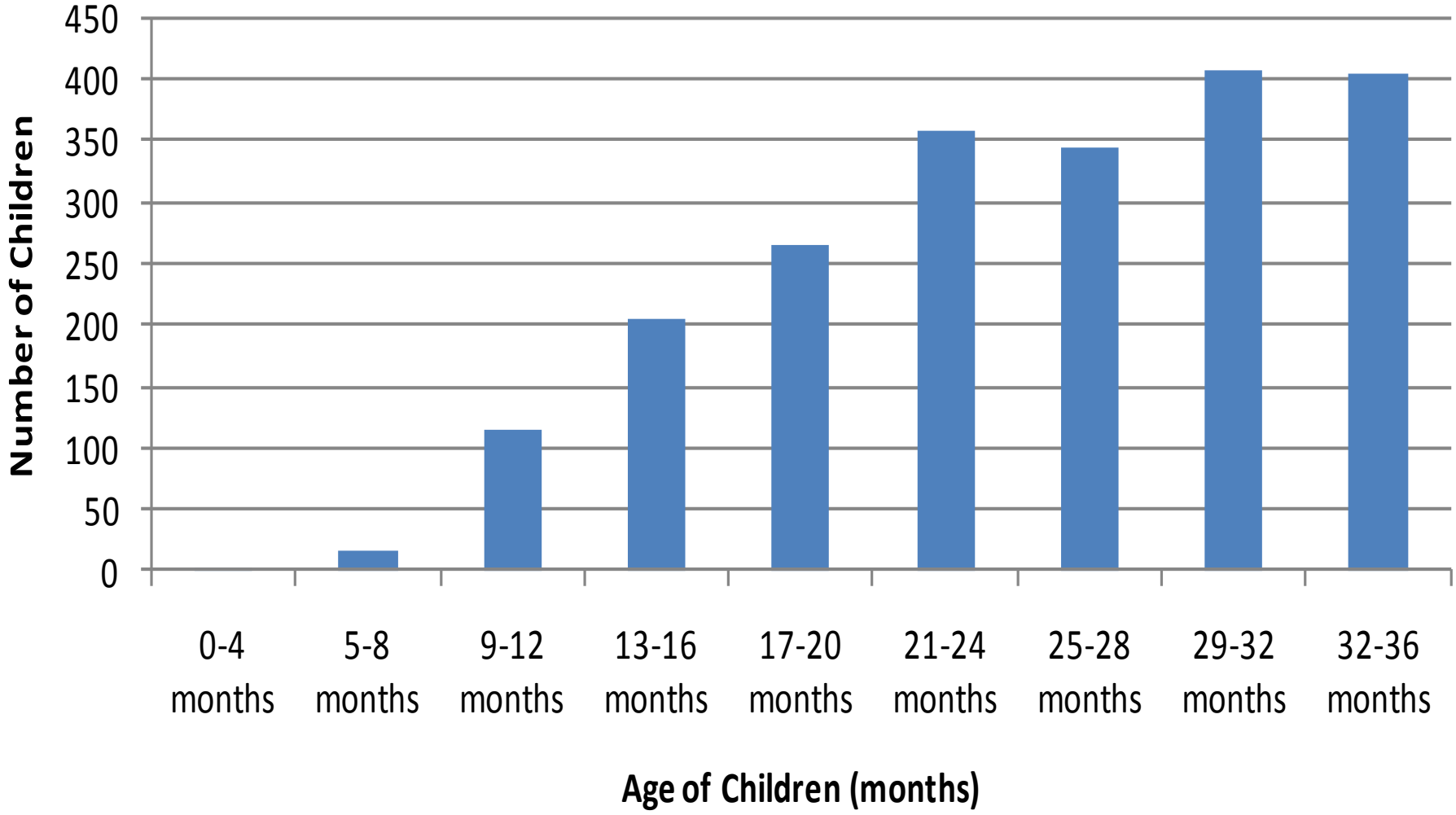
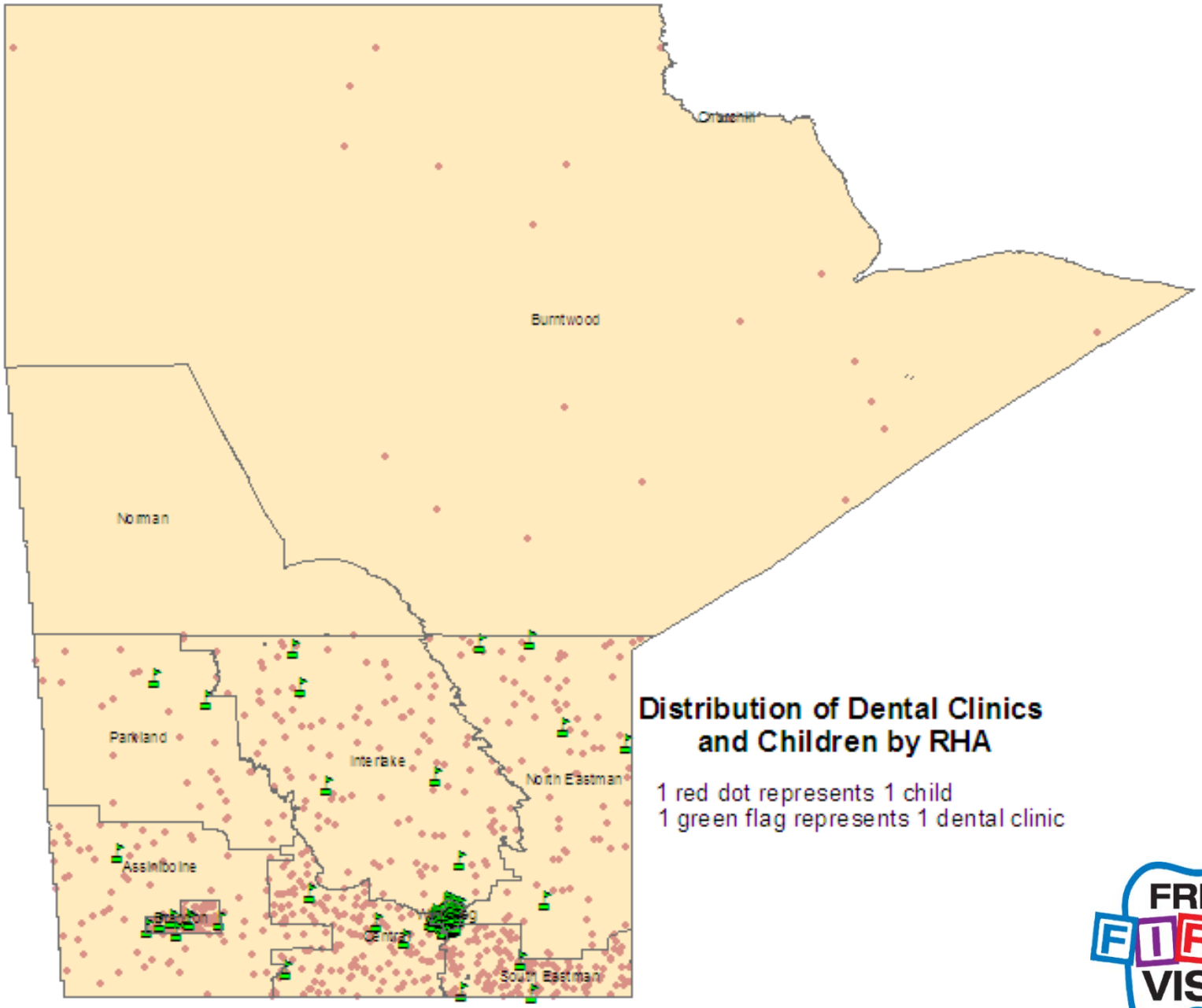


Table 1. Number of Participating Dental Clinics and Number of Children by RHA

RHA	Number of Dental Clinics	Number of Children Seen by RHA of Residence
Winnipeg	56	1395
Brandon	7	95
North Eastman	5	78
South Eastman	3	129
Interlake	5	113
Central	4	158
Assiniboine	1	66
Parkland	2	29
Nor-Man	0	3
Burntwood	0	20
Churchill	0	1
Missing postal code and city name	6	28
Total	**89**	**2115**



Distribution of Dental Clinics and Children by RHA

1 red dot represents 1 child
1 green flag represents 1 dental clinic

FREE FIRST VISIT

- 20.2% (413/2,045) of children were reported to have ECC

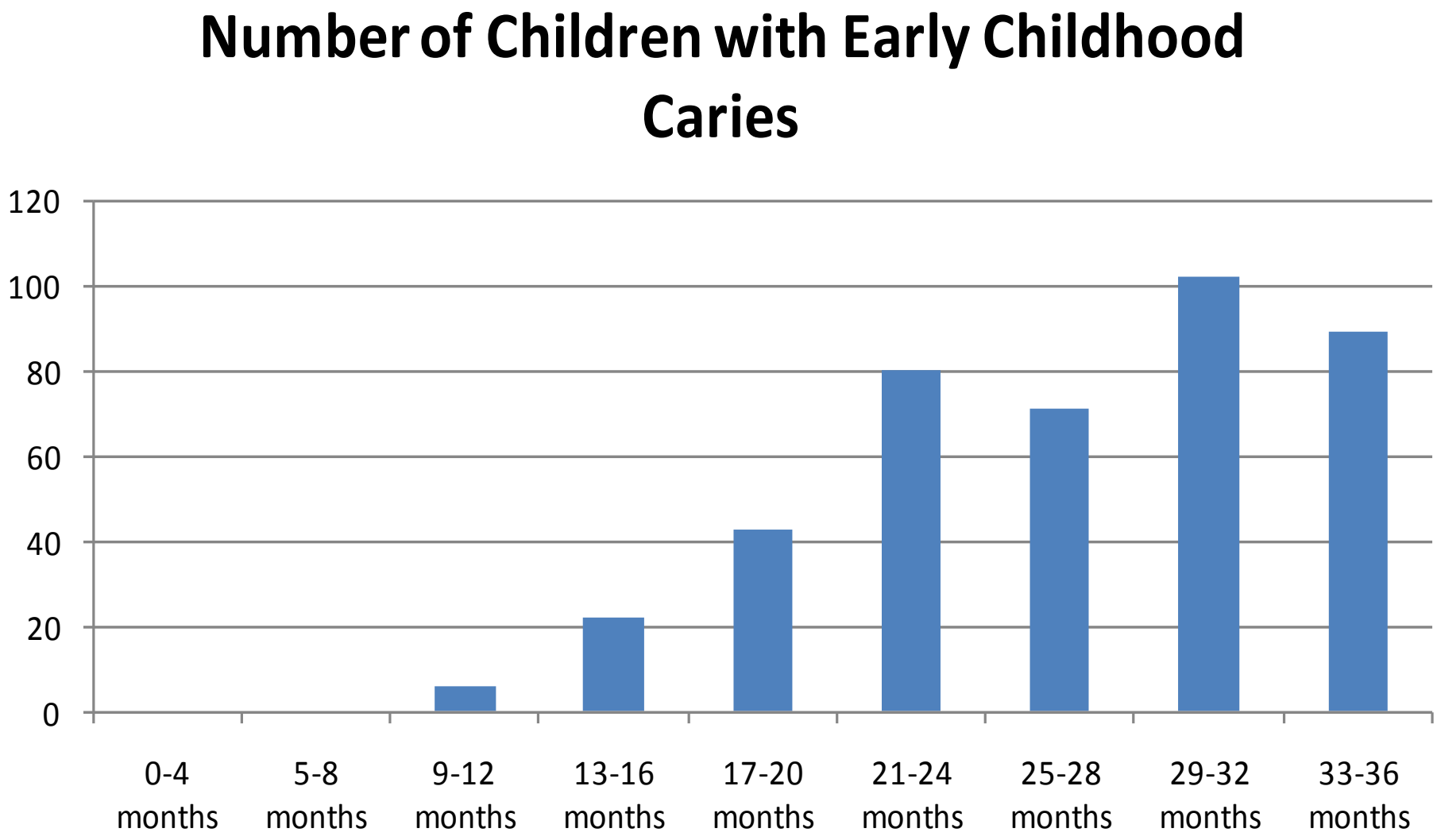


Table 4. ECC Status by Child's RHA of Residence

Child's RHA of Residence	ECC	
	No	**Yes**
Assiniboine	46	16
Brandon	87	6
Burntwood	5	15
Central	121	32
Churchill	0	1
Interlake	85	26
NorMan	2	1
North Eastman	59	17
Parkland	22	7
South Eastman	108	18
Winnipeg	1077	267
Total	**1612**	**406**

- 79.2% of children were reported to have dental benefits [either private or government sponsored benefits]

Pediatric Dental Surgery

*Winnipeg facilities only

- Postal code mapping software to track postal code of residence for children undergoing dental surgery

- Analysis was done by Liping Zhang of the Research & Evaluation Unit, WRHA. August, 2011.

Healthy Smile Happy Child Project

Newborn to 6 Years

Table 1 Manitoba Pediatric Dental - Completed Patient by Regional Health Authority (RHA) 2010/2011

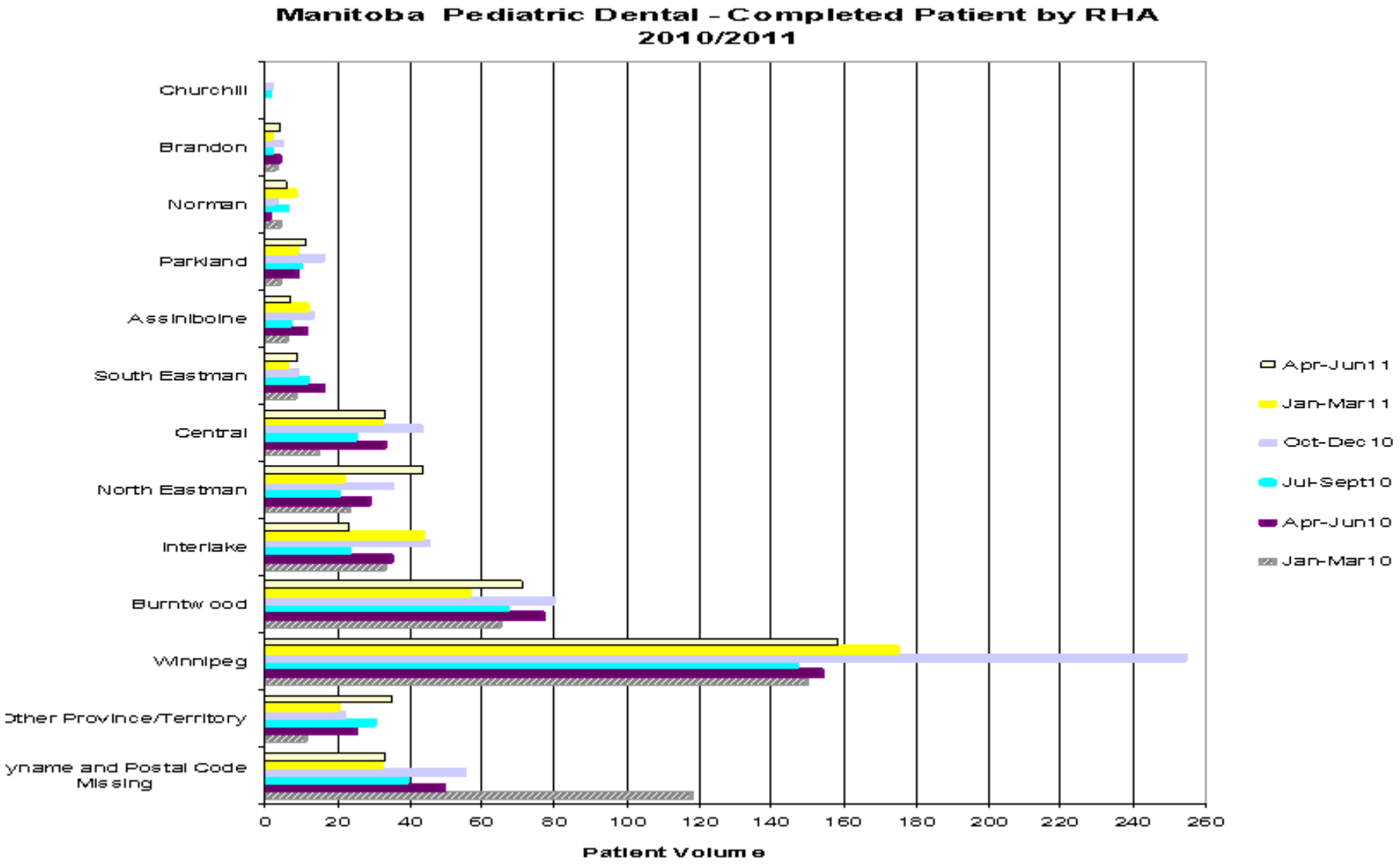
RHA Name	Jan-Mar2010	Apr-Jun2010	Jul-Sept2010	Oct-Dec2010	Jan-Mar2011	Apr-Jun2011
Assiniboine	6	11	7	13	12	7
Brandon	3	4	2	5	2	4
Burntwood	65	77	67	80	56	71
Central	15	33	25	43	32	33
Churchill			1	2		
Interlake	33	35	23	45	44	23
NorMan	4	1	6	3	8	6
North Eastman	23	29	20	35	22	44
Parkland	4	9	10	16	9	11
South Eastman	8	16	12	9	6	9
Winnipeg	150	154	147	254	175	158
Manitoba	311	369	320	505	366	366
Other Province/Territory	11	25	30	22	20	35
Cityname and Postal Code Missing	118	49	39	55	32	33
Total	440	443	389	582	418	434

Notes:

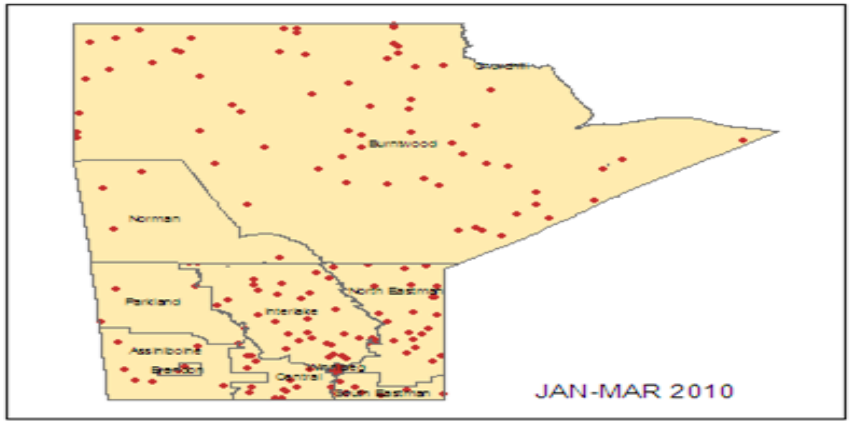
Data Source: Healthy Smile Happy Child Project

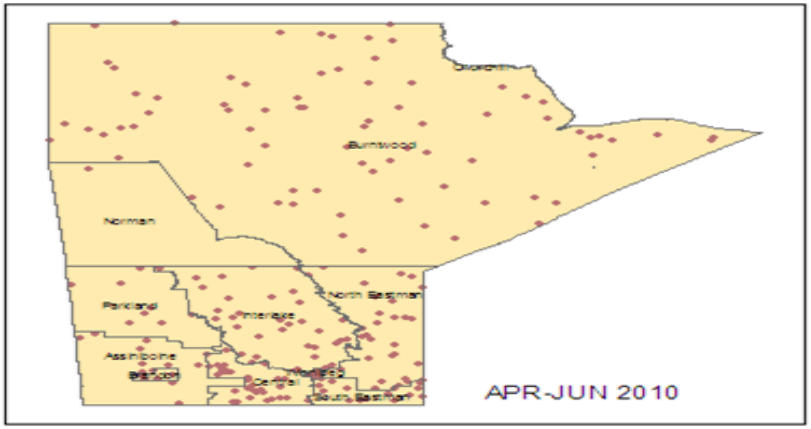
Postal code convert file : version 2008

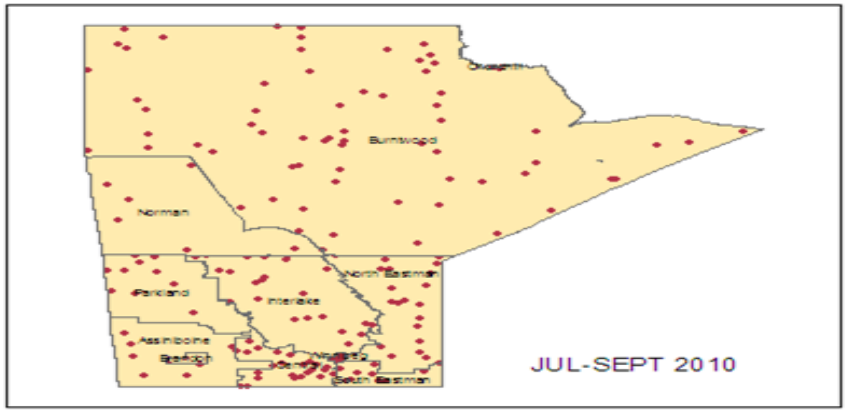
Analysis is done by Research & Evaluation Unit, WRHA. August, 2011

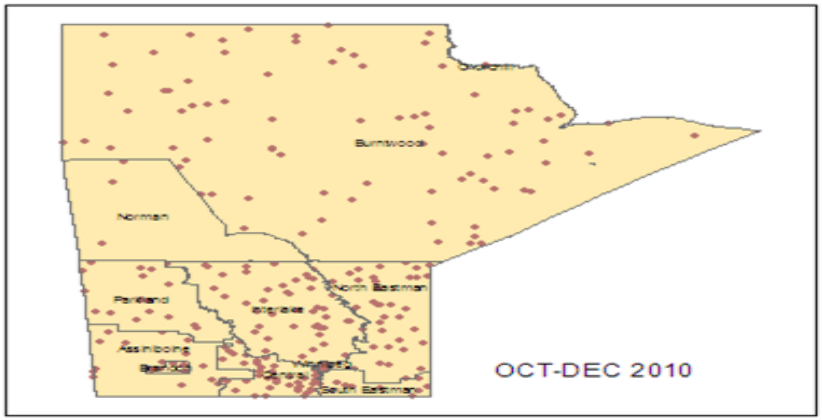

Manitoba Pediatric Dental - Completed Patient by RHA
2010/2011
Churchill
Brandon
Norman
Parkland
Assiniboine
South Eastman
Central
North Eastman
Interlake
Burntwood
Winnipeg
Other Province/Territory
yname and Postal Code Missing
0
20
40
60
80
100
120
140
160
180
200
220
240
260
Patient Volume
Apr-Jun11
Jan-Mar11
Oct-Dec10
Jul-Sept10
Apr-Jun10
Jan-Mar10

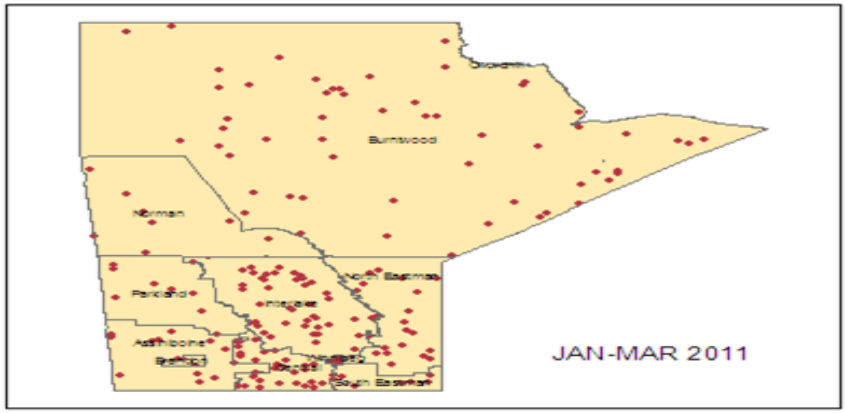
Manitoba Pediatric Dental - Completed Patients by RHA
1 Dot = 1 Person

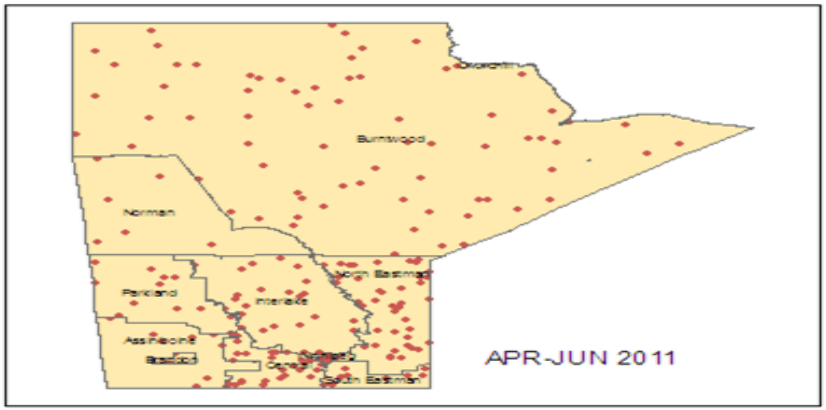






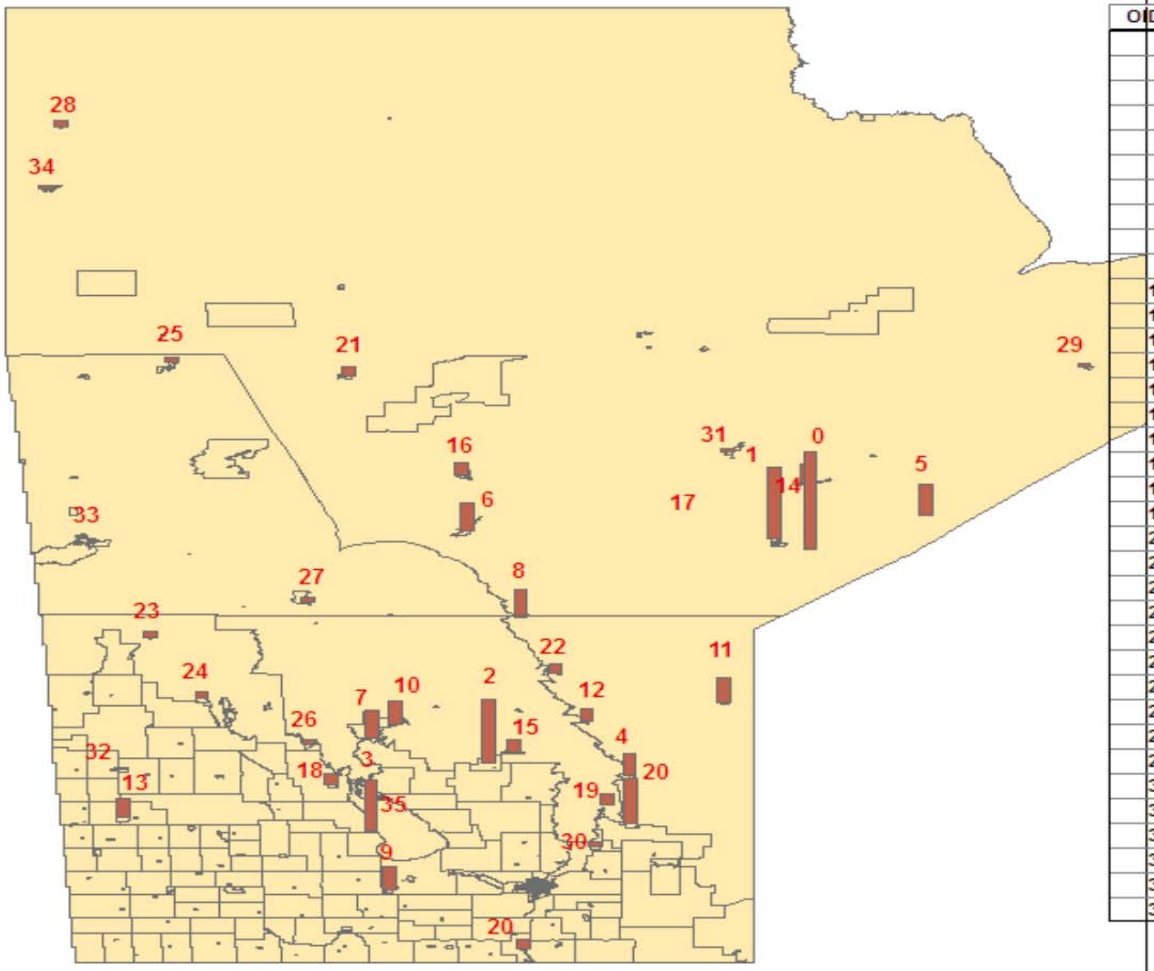






Manitoba Pediatric Dental - Completed Patients in First Nation Reserves

April 2010 to June 2011



OID	S4NAME *	COUNT
0	Garden Hill FN	91
1	Wasagamack FN	66
2	Peguis FN	60
3	Sandy Bay FN	49
4	Fort Alexander FN	43
5	Red Sucker Lake FN	28
6	Norway House FN	27
7	Fairford FN	26
8	Poplar River FN	24
9	Long Plain FN	22
10	Lake St. Martin FN	22
11	Little Grand Rapids	22
12	Hollow Water FN	20
13	Waywayseecappo FN	18
14	Gods Lake FN	18
15	Fisher River FN	12
16	Cross Lake FN	12
17	Bloodvein FN	12
18	Ebb & Flow FN	11
19	Little Black River F	10
20	Roseau River FN	9
21	Nelson House FN	9
22	Berens River FN	9
23	Shoal River FN	6
24	Pine Creek FN	6
25	Mathias Colomb FN	5
26	Crane River FN	5
27	Grand Rapids FN	5
28	Northlands FN	5
29	Shamattawa FN	4
30	Brokenhead FN	4
31	Oxford House FN	3
32	Valley River FN	2
33	The Pas FN	2
34	Barren Lands FN	2
35	Lake Manitoba FN	1

Notes: S4NAME is area name from Phras4 geographies shapefile which contain First Nation Reserves and related postal code.
The counts are calculated by linking postal code from Happy smile Health child data with Phrase4 postal code convert file.

What can dental, health and community staff do about Early Childhood Oral Health?

#1 Think Oral Health for High-Risk Children

All

- Medical condition & children with special health care needs (e.g. DD, ↓ saliva, metabolic/genetic conditions, medications, etc.)
- Children in families of low socioeconomic status (SES)
- Children of mothers or sibling(s) with caries
- Between meal & bedtime exposure to cavity-producing foods/liquids (e.g. sleeping with bottle or sippy cup)

#2 Learn to Screen for ECC

All

- Environmental risk factors

- “Lift the lip” and look:
  - Visible plaque
  - Gingivitis
  - White spots
  - Pits and fissures

CLINICAL EVALUATION

- A complete oral examination should be part of every routine visit, beginning at 6 months of age.

- A knee-to-knee examination is often best for an infant or small child. Older children and adolescents can sit up or lie down on the table.

#3 Encourage Oral Hygiene Starting with the First Tooth Primary

- Wiping
- Brushing

Birth to 3 years of age: If child is at risk*****, use a **rice grain-sized** amount of fluoride toothpaste

3 to 6 years of age: use a **green pea-sized** amount of fluoride toothpaste

***Risk of early childhood tooth decay includes if the child:** is living in an area with non-fluoridated water, has white chalky areas or cavities on teeth, has lots of sugary snacks/drinks between meals, teeth are not brushed daily, or caregiver has tooth decay.

- Whole family

#4 Referral to a Dentist

Primary

- Recommended first visit by 6 – 12 months
- Dental Home by age 1 year

#5 Sugar, Sugar! All

Remember
This picture

#6 Weaning Counseling Primary

Tips to allow an easy transition:

- Start by offering the sip cup instead of the bottle at all feeds between meals.
- Give your child the sip cup instead of the bottle at a new meal every other day until you are no longer using the bottle.
- Always use the cup at the same meal.
- It is important to involve everyone who feeds the baby in this effort.
- Avoid sitting in your favourite nursing chair or other familiar spots.
- Don't wean "cold turkey". Wean in a gradual and loving way.
- Don't let your child take the bottle or sip cup to bed with them.
- Don't let the bottle or sip cup substitute for a pacifier.
- If your child asks for the bottle, offer the sip cup instead and hold them if they need soothing.

Potential barriers you may encounter when weaning from the bottle:

- Your child may demand the bottle at first. Be determined in offering the cup. After a short time, your child will like the cup just as much.
- Breaking the habit of taking the bottle to bed can be very difficult. Be persistent. This is a bad habit.
- Your infant may not hold the cup by itself at first. You may need to hold the cup until they get the hang of it.
- Your child may not want to stop sucking. Offering your child a pacifier is OK.

Remember, eliminating the bottle now may have significant health benefits for your child in the long run.

Weaning your child from the bottle to a cup starts today!

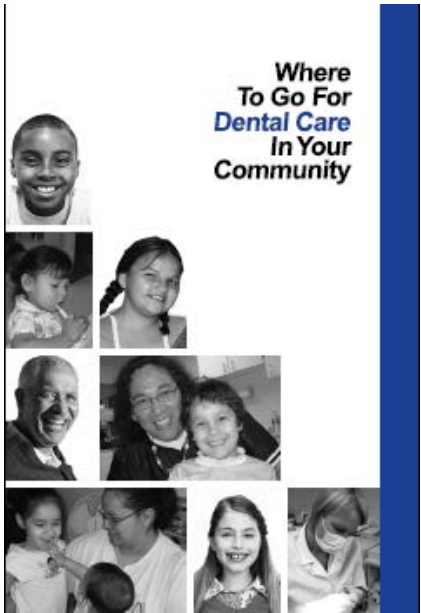
Maguire, J. L. et al. Pediatrics 2010;126:e343-e350

PEDIATRICS®

#7 Team Work

All

- Dentists as colleagues
- Support collaborative efforts with daycare workers, health promotion specialists, PHNs, etc.
- Raise public awareness
- Advocacy
  - Milk subsidization for remote?
  - Improved dental access



American Academy of Pediatric Dentistry (AAPD) Caries Risk Assessment

Table 1. Caries-risk Assessment Form for 0-3 Year Olds[59,60]

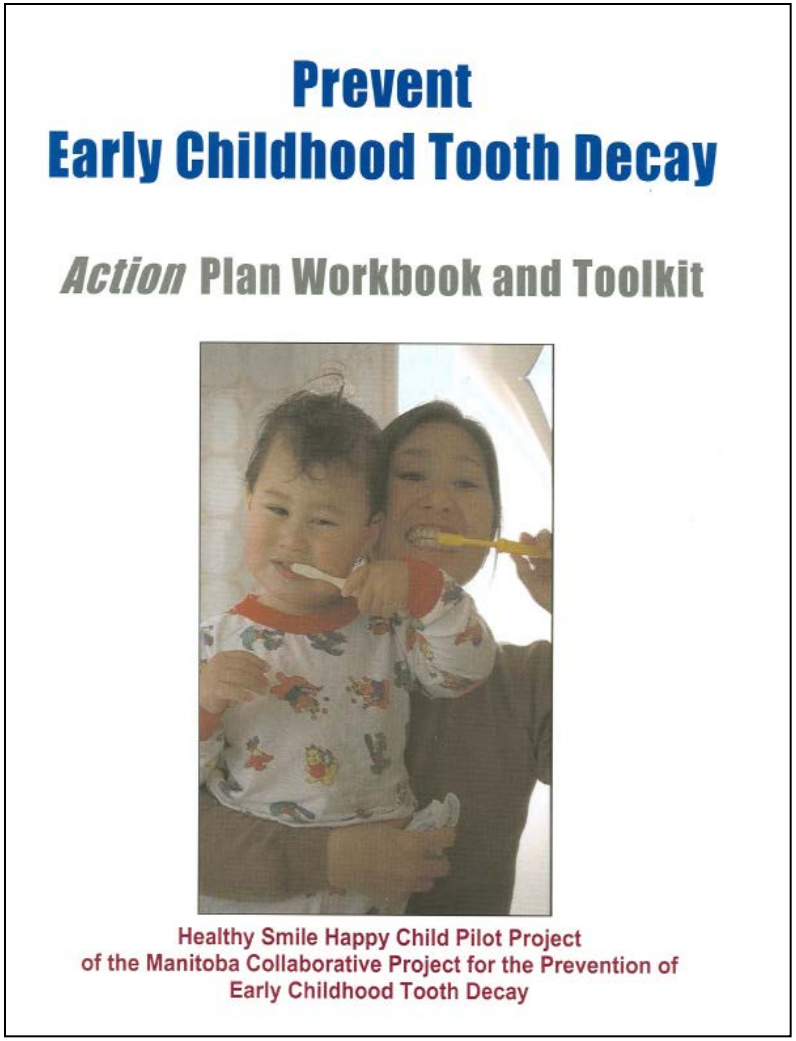
(For Physicians and Other Non-Dental Health Care Providers)

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

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, moderate, 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.

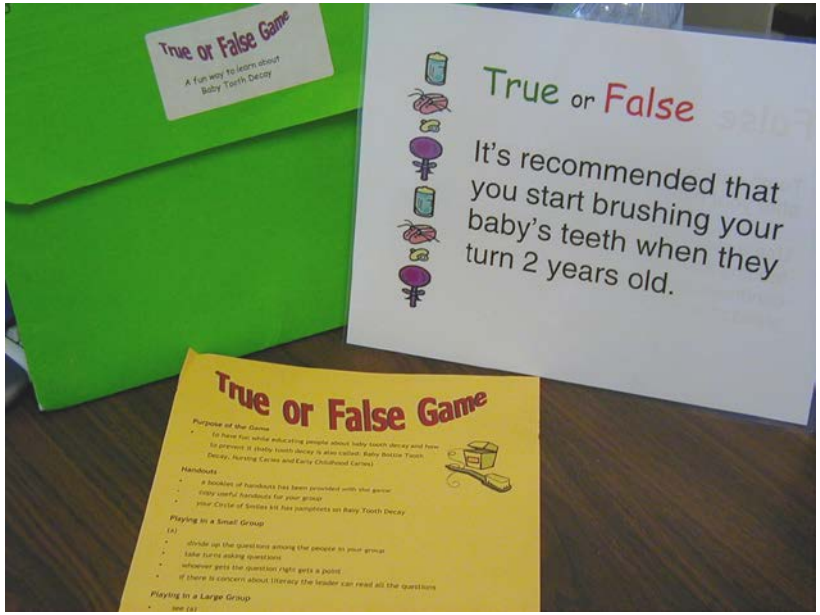
Overall assessment of the child's dental caries risk: High ❐ Moderate ❐ Low ❐

Resources


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


Dental Bingo Card #4
B I N G O
Wipe your baby's gums daily from birth.
Early Childhood Tooth Decay can be prevented!
Limit juice to 1 a cup a day. Give water for thirst.
Early Childhood Tooth Decay is painful!
Free Space
Brush your child's teeth until they turn 8 years old.
Sweets and soothers do not mix!
Breast to cup is best.
Babies, bottles and beds do not mix.
Baby teeth are important!
Brush teeth gently, bottom teeth up and top teeth down.


True or False Game
A fun way to learn about Baby Tooth Decay
True or False
It's recommended that you start brushing your baby's teeth when they turn 2 years old.
True or False Game

Resources


Newborn
$5
Gerber
NUK
Newborn
Prevent Baby Tooth Decay
Breastfeeding is Best


6
Months
$5
months
Baby Tooth Decay
Protect Your Baby's
Beautiful Smile


2
months
$5
2 months
Prevent Baby Tooth Decay
Baby Teeth
Are Important!


1 Year
$5
Healthy Smile
Happy Child!
1 year
Prevent Baby Tooth Decay
Crest
CAVITY PROTECTION
Trident
LIFT
the LIP
to check
baby's teeth

Resources

TOOTHBRUSHING TIPS FOR PARENTS

Positioning You and Your Baby

It's easier and more comfortable to brush when your baby is lying down ~ you will see better and do a better job!

A Few Ideas To Try:

- Hold your baby in your arms in feeding position
- Lay baby on change table (always with an adult)
- Place baby on couch or bed, with head in your lap
- Lay toddler on the floor with head on a pillow placed between your legs
- Sit in a chair facing another adult helper in the knee-to-knee position:
  - baby lies on adults' legs with head in your (brusher's) lap
  - helper gently holds baby's legs and arms

It is easier to brush with your baby's head in your lap

Brushing Your Child's Teeth

- Use a child-size toothbrush with soft bristles
- Brush using small circles; begin where teeth and gums meet
- Brush:
  - both the cheek and tongue sides of the teeth
  - the flat chewing surfaces
  - the gums and tongue too!
- Gums that bleed need more brushing to make them healthy

Help Your Child Develop Good Brushing Habits

Children will:

- Want to brush their teeth when they see you brushing your own teeth ~ great!
- Need you to finish brushing for them until they are about 8 years old and able to do a good job on their own
- Be motivated to brush longer with helpers such as an egg timer
- Enjoy getting a small reward once they complete their own toothbrushing chart (see other side) ~ a good way to encourage good brushing habits!

ME Wener & CA Yakiwchuk
July 2004

Early Childhood Tooth Decay

Prevent Early Childhood Tooth Decay - Action Plan Workbook and Toolkit

Download Workbook and Toolkit (Full)

Mouth Care for Your Baby - Newborn

Healthy Smile Happy Child - 2 Months

Healthy Smile Happy Child - 6 Months

Healthy Smile Happy Child - 1 Year

"Think About Your Baby's Teeth"

Download this poster, which can be printed out for use in your community.

Additional Resources

Toothbrushing Tips for Parents

Pamphlet: Prenatal Information English | Cree

Pamphlet: Newborn to 6 Years English | French | Cree

Healthy Smile Happy Child
The Manitoba Collaborative Project for the Prevention of Early Childhood Tooth Decay

"Healthy Smile, Happy Child" Flip Chart English | French

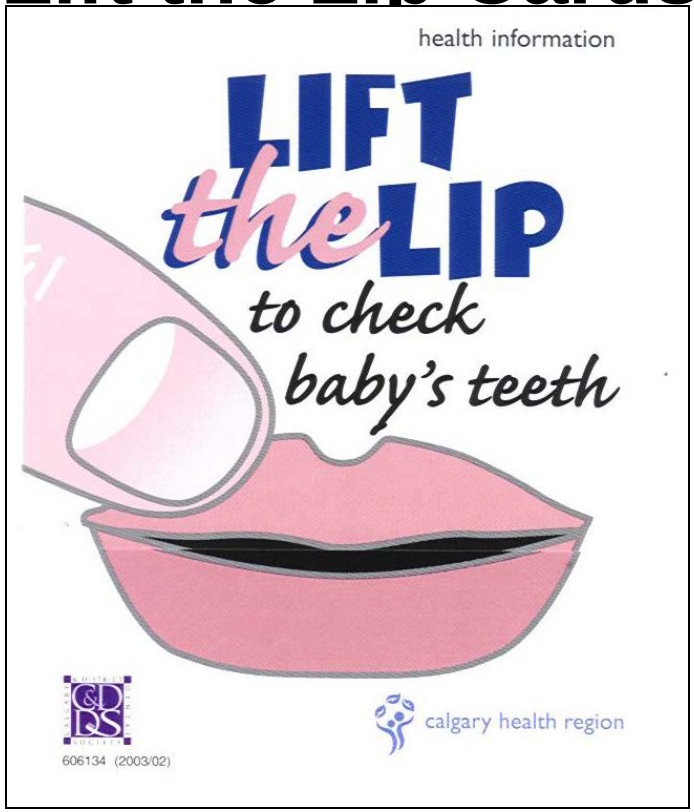
"Healthy Smile, Happy Child" Pamphlet

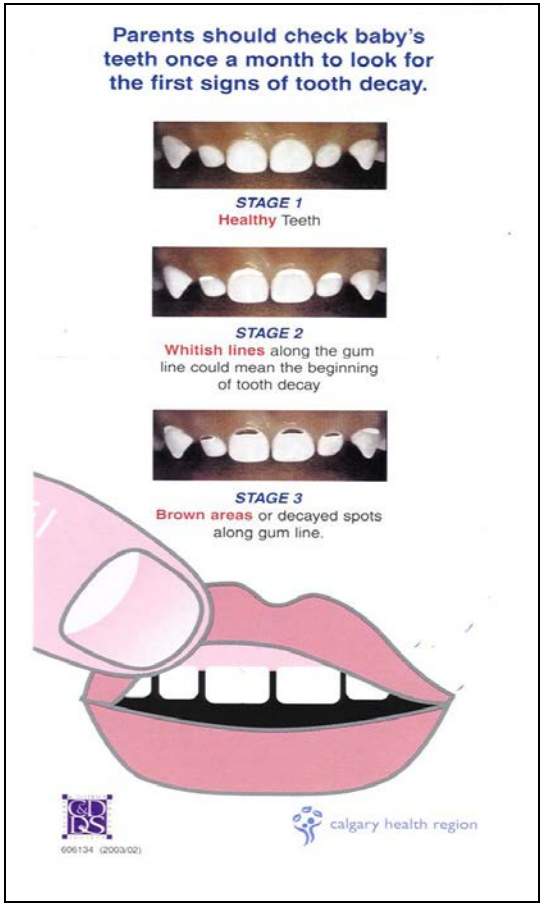
Updates

Below, you'll find quarterly report updates of the "Healthy Smile, Healthy Child" initiative's activities:

Resources

Lift the Lip Cards

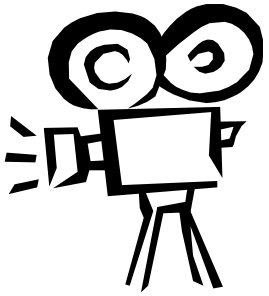




Calgary Health Region

Order on-line or by phone @ (403) 228-3384

Resources



DVDs

Brushing Baby Teeth Daily

University of Washington

Lift The Lip

University of Washington

Circle of Smiles

FNIHB/Healthy Smile Happy Child

Baby Oral Health: Pregnancy Through Childhood

University Of Toronto

Websites

- Calgary Health Region – Community Oral Health teacher resource

http://www.calgaryhealthregion.ca/programs/dental/teacher.html

- Manitoba Dental Association

http://www.manitobadentist.ca/

- Early Childhood Tooth Decay resources

http://www.wrha.mb.ca/healthinfo/preventill/oral_child.php

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- The Manitoba Institute of Child Health
- Faculty of Dentistry, University of Manitoba

the Manitoba Institute of Child Health
a division of The Children's Hospital Foundation

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Questions?