



# Parent Reports of Their Children's Oral Health Behaviors as Predictors of Oral Health Status

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# Disclosures

Susan Patton, PhD

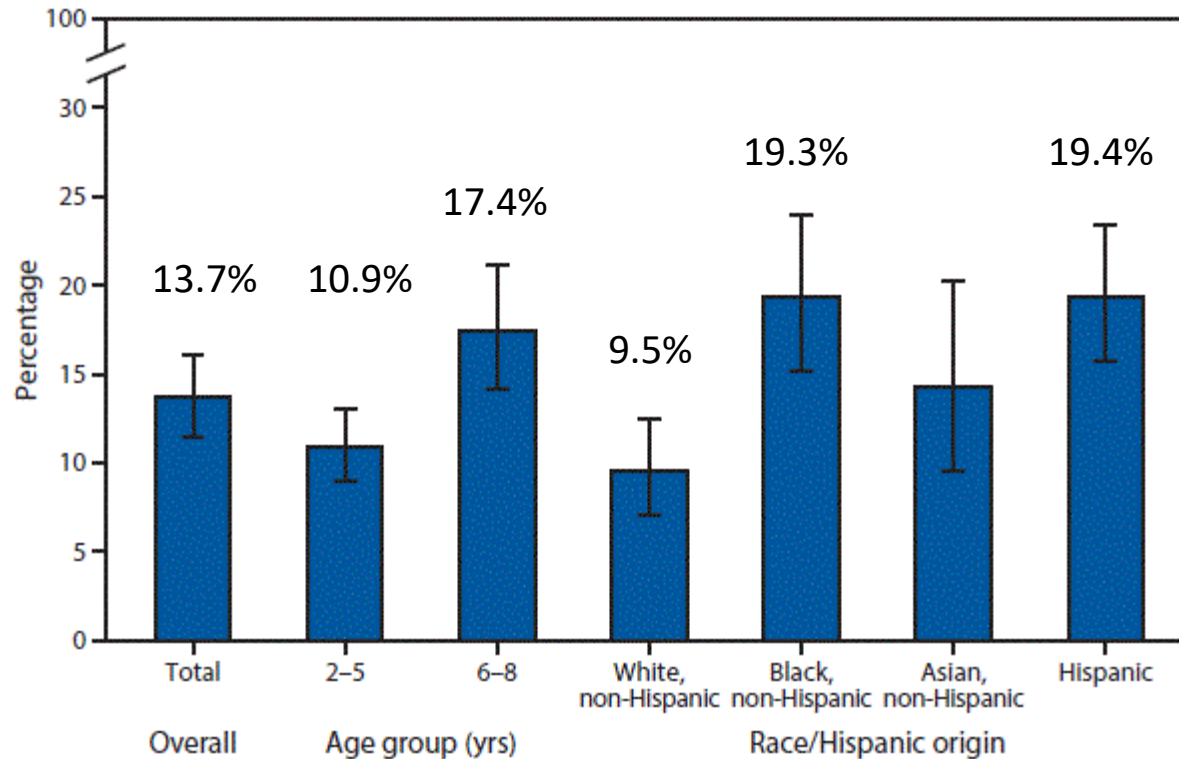
Stephanie Severe, BSN

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## **Learner objectives**

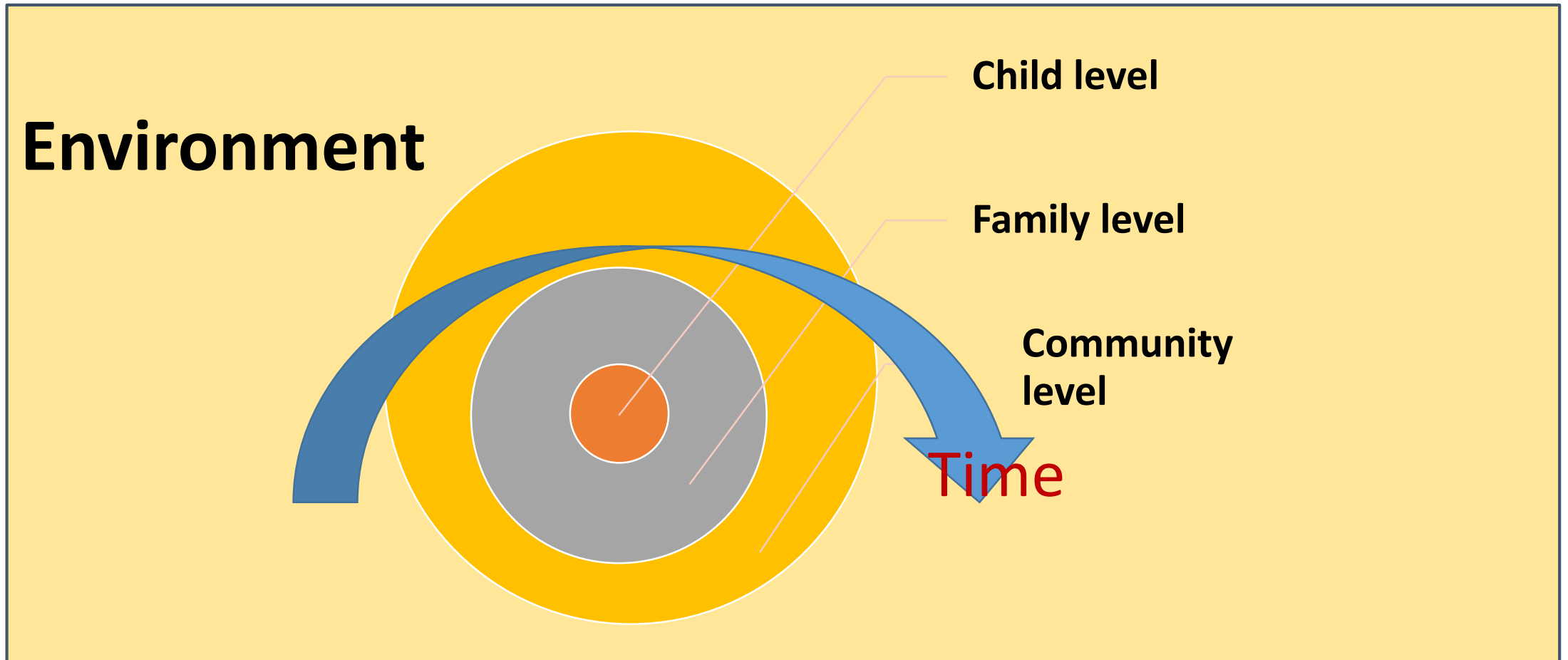
- Identify epidemiology of dental caries in children
- Describe influences on children's oral health and multilevel strategies to address risk
- Describe program where nursing students assessed oral health risk and applied fluoride varnish to preschool children
- Discuss parent reports of children's oral health behaviors and nursing students' assessments as predictors of oral health status

# epidemiology



**Source:** CDC/NCHS. National Health and Nutrition Examination Survey Data. Hyattsville, MD: US Department of Health and Human Services, CDC, National Center for Health Statistics; 2011–2014.

# Domains of determinants of oral health according to level of influence (Fisher-Owens et al., 2007)



# Child Level

- Breastfed
- Going to sleep with a bottle containing a sweet liquid
- Bottle use duration
- Insufficient tooth brushing
- Excessive carbohydrate consumption
- Deficient fluoride intake
- Tobacco use
- Dental insurance
- Use of dental services

# Family Level

- Family composition
- Family function
  - Frequent residential moves
  - Immigration
- Socioeconomic status
  - Low birthweight
- Health behaviors and practices of family
  - Satisfaction and trust in dental services+
  - Periconceptual consumption of folic acid +
  - Presence of dental decay-
  - Prechewing food-
  - Sharing utensils-
  - Sucking pacifiers clean-

# Community Level

- Social environment – income inequality
- Physical safety
- Environment
  - Transportation, healthy food options, housing quality
- Dental care system
  - Diversity, participation in Medicaid
- Health care system
  - Available primary care
- Culture
  - Tooth-brushing habits, diet, perceived seriousness of tooth decay

# Student Nurse Clinical Experience



Caries Risk Assessment Fluoride Varnish and Counseling module  
Smiles for Life<sup>®</sup>

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Questions for Parent/Guardian				
		Yes	No	Referral recommendations
1	Do you brush your child's teeth at least once a day using toothpaste with fluoride?	<input type="checkbox"/>	<input type="checkbox"/>	If 3 or more risk factors (shaded boxes) are marked, refer to a dentist.
2	Does your child drink fluoridated water?	<input type="checkbox"/>	<input type="checkbox"/>	
3	Does your child drink juice or sweetened drinks between meals or eat sugary snacks?	<input type="checkbox"/>	<input type="checkbox"/>	
4	Have you or anyone in your immediate family had dental problems?	<input type="checkbox"/>	<input type="checkbox"/>	
5	Does your child sleep with a bottle filled with milk or drinks other than water?	<input type="checkbox"/>	<input type="checkbox"/>	
6	Is your child being seen by a dentist?	<input type="checkbox"/>	<input type="checkbox"/>	
If yes, Name of dentist _____		Date of last appointment _____		
Questions for Provider Based on Clinical Assessment				
		Yes	No	If yes, Refer to a:
1	Does the child have any special healthcare needs?	<input type="checkbox"/>	<input type="checkbox"/>	
2	Does the child have tooth decays? Fillings?	<input type="checkbox"/>	<input type="checkbox"/>	Dentist
3	Does the child have visible plaque on the teeth?	<input type="checkbox"/>	<input type="checkbox"/>	
4	Does the child have enamel defects?	<input type="checkbox"/>	<input type="checkbox"/>	Dentist
5	Does the child have white spot lesions?	<input type="checkbox"/>	<input type="checkbox"/>	Dentist
6	Does the child have other oral health conditions or concerns?	<input type="checkbox"/>	<input type="checkbox"/>	Dentist
Please check procedure performed today		Oral evaluation <input type="checkbox"/> Fluoride Varnish <input type="checkbox"/> Parent Education <input type="checkbox"/>		
Tooth Decay Risk Assessment		Low <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/>		
Was the child referred to a dentist?		<input type="checkbox"/>	<input type="checkbox"/>	If yes, Name of Dentist _____

## Free Dental Screening Permission Form

On \_\_\_\_\_ your child can get a dental screening and fluoride treatment to help prevent cavities. If needed, your child's school can also help you to find a dentist for your child.

Your child's school will be helping to keep your child's teeth healthy by:

- Checking teeth for cavities and other problems
- Putting fluoride varnish on teeth to keep them strong (a natural vitamin for teeth)

### HEALTHY TEETH HELP CHILDREN

- Do better in school
- Stay healthier and have less sick days
- Have shiny smiles, which make friends

### Questions?

Contact the school at: \_\_\_\_\_



If your child gets their teeth cleaned at least once a year at a dentist office this program is not intended for them.

Keep seeing your regular dentist!

Fill out the permission form below and return to your child's teacher.

**Yes!** My child has permission to receive two dental screenings with fluoride applications at school.

Please tell us about your child's tooth care habits

- My child usually brushes teeth twice a day
- My child usually brushes teeth once a day
- My child does not usually brush their teeth

When your child drinks water, is it usually tap water? (from the sink or fridge door)

- Yes
- No (usually drinks bottled water)
- No (my child doesn't usually drink water)

Child's Name: \_\_\_\_\_ Grade: \_\_\_\_\_

School: \_\_\_\_\_ Teacher: \_\_\_\_\_

Parent/Legal Guardian: \_\_\_\_\_ Telephone: \_\_\_\_\_

Signature of Parent/Legal Guardian: \_\_\_\_\_ Date: \_\_\_\_\_

Return form by: \_\_\_\_\_

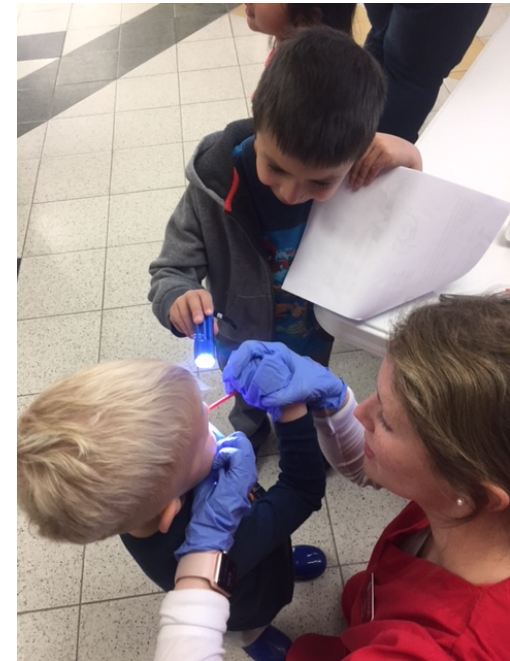
# The aim of our study

- to evaluate the relationship among parent-reported children's oral health status, an oral health assessment conducted at a school-based dental program, and a tooth decay risk score.



# Results

- **456** three and four year old children were assessed
- **436** had fluoride applied
- **90** (21%) were referred to the dentist for further evaluation and treatment



# Parent reports

Child brushes teeth at least once a day using fluoride	92%
Child drinks fluoridated water	60%
Child drinks juice or sweetened drinks between meals or eats sugary snacks	77%
Sleeps with a bottle filled with milk or drinks other than water	8%
Child is being seen by a dentist	71%

Chi-Square Results					
		n(%)	Tooth decay present n (%)	$\chi^2$	<i>p</i>
<i>Total sample</i>		459	172 (37.5)		
When your child drinks water, is it usually tap water?	yes	186 (44.6)	70 (44.9)	1.630	.443
Usually drinks bottled water	no	224 (53.7)	85 (54.5)		
My child doesn't drink water	no	7 (1.7)	1 (.6)		
My child usually brushes teeth twice a day		214 (51)	82 (51.9)	.124	.940
My child usually brushes teeth once a day		200 (47.6)	74 (46.8)		
My child does not usually brush their teeth		6 (1.4)	2 (1.3)		
Do you brush your child's teeth at least once a day using toothpaste with fluoride?	yes	422 (92.1)	151 (35.8)	5.543	.019*
	no	36 (7.9)	20 (55.6)		
Does your child drink fluoridated water?	yes	275 (64)	93 (58.1)	3.755	.053
	no	155 (36)	67 (41.9)		
Does your child drink juice or sweetened drinks between meals or eat sugary snacks?	yes	356 (78.6)	131 (36.8)	.639	.424
	no	97 (21.4)	40 (41.2)		
Have you or anyone in your family had dental problems?	yes	108 (23.8)	47 (43.5)	2.515	.113
	no	345 (76.2)	121 (35.1)		
Does your child sleep with a bottle filled with milk or drinks other than water?	Yes	38 (8.3)	21 (55.3)	5.636	.018*
	No	419 (91.7)	150 (35.8)		
Is your child being seen by a dentist?	Yes	327 (72.7)	122 (37.3)	.000	.986
	no	123 (27.3)	46 (37.4)		
*Significant at the .05 level					

# Multivariate Results

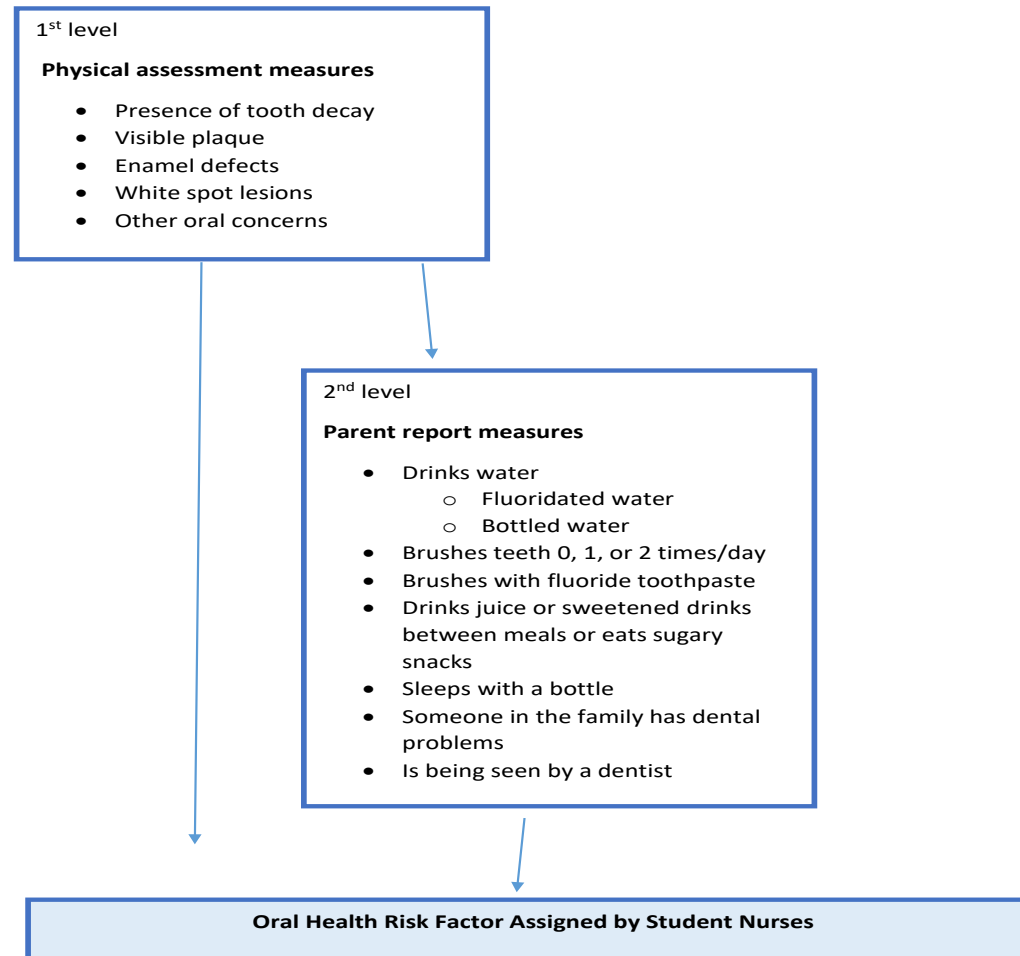
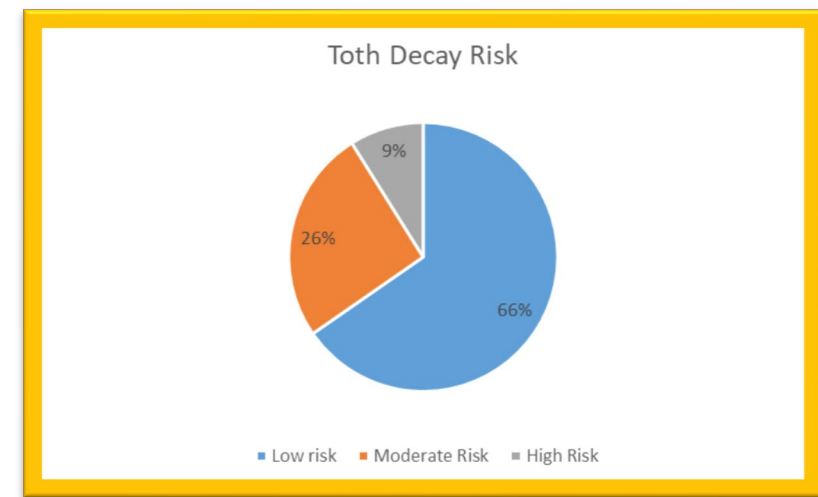


Figure 1

Conceptual hierarchical framework for oral health risk: multivariate data analysis

# Results



- Physical assessment measures accounted for a significant amount of the risk variability,  $R^2 = .55$ ,  $F(5, 317) = 76.2$ ,  $p < .001$ .
- A second analysis was conducted to evaluate whether the parent report measures predicted tooth decay risk over and above the assessment,  $R^2$  change = .029,  $F(7, 310) = 3.010$ ,  $p = .005$ .
- The parent reports, although significant, offer little additional predictive power beyond that contributed by the screening when student nurses assigned a risk score.



# Conclusions

- Screening of children's teeth and mouth that enables early detection and referral to the dental team for detailed examination and treatment can be effectively carried out by trained nursing students.
- Oral health education programs are needed. While most of the parents reported brushing their children's teeth at least once a day, the majority reported that their children consumed sugary food and drinks and 40% reported that their child did not drink fluoridated water.
- Emphasize parenting skills and strategies to promote healthy oral hygiene habits in children.

# Implications for Research and Education



- Much of oral health research examines determinants present in the oral cavity and a limited number of individual-level factors
- The Fisher-Owens model presents a more encompassing conceptual model based on population health and social epidemiology
- Application of multivariate statistical methodologies to children's oral health will result in improvements in predictive power
- The study of children's oral health from a multi-level approach should be included in the curriculum for nursing students

## 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.

Patient Name: \_\_\_\_\_ Date of Birth: \_\_\_\_\_ Date: \_\_\_\_\_

Visit:  6 month  9 month  12 month  15 month  18 month  24 month  30 month  3 year  
 4 year  5 year  6 year  Other \_\_\_\_\_

RISK FACTORS	PROTECTIVE FACTORS	CLINICAL FINDINGS
<ul style="list-style-type: none"> <li> Mother or primary caregiver had active decay in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Mother or primary caregiver does not have a dentist <input type="checkbox"/> Yes <input type="checkbox"/> No</li> </ul>	<ul style="list-style-type: none"> <li>Existing dental home <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Drinks fluoridated water or takes fluoride supplements <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Fluoride varnish in the last 6 months <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Has teeth brushed twice daily <input type="checkbox"/> Yes <input type="checkbox"/> No</li> </ul>	<ul style="list-style-type: none"> <li> White spots or visible decalcifications in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li> Obvious decay <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li> Restorations (fillings) present <input type="checkbox"/> Yes <input type="checkbox"/> No</li> </ul>
<ul style="list-style-type: none"> <li>Continual bottle/sippy cup use with fluid other than water <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Frequent snacking <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Special health care needs <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Medicaid eligible <input type="checkbox"/> Yes <input type="checkbox"/> No</li> </ul>		<ul style="list-style-type: none"> <li>Visible plaque accumulation <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Gingivitis (swollen/bleeding gums) <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Teeth present <input type="checkbox"/> Yes <input type="checkbox"/> No</li> <li>Healthy teeth <input type="checkbox"/> Yes <input type="checkbox"/> No</li> </ul>

**ASSESSMENT/PLAN**

**Caries Risk:**  Low  High

**Self Management Goals:**  Regular dental visits  Wipe off bottles  Healthy snacks



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