

OPEN WIDE

Oral Health Training for
Health Professionals

- Training for health and early childhood professionals
- Designed to promote oral health for infants, children, and their families



Credits

- These slides are based on the curriculum *Open Wide: Oral Health Training for Health Professionals* prepared by Katrina Holt and Ruth Barzel, National Maternal and Child Oral Health Resource Center, Georgetown University.
- The curriculum is available at <http://www.mchoralhealth.org/OpenWide/index.htm>.
- Development of the curriculum was supported by a grant from the Maternal and Child Health Bureau, Health Resources and Services Administration.

Introduction

Modules:

- Tooth Decay
- Risk Factors for Tooth Decay
- Prevention of Tooth Decay
- Oral Health in Community Settings



Tooth Decay

Overview

- Process of tooth decay.
- *Streptococcus mutans* (*S. mutans*)
- Bacterial transmission.
- Food interactions with *S. mutans*
- Problems with tooth decay
- Primary teeth



Process of Tooth Decay

- Tooth decay is an active process of tooth destruction resulting from interactions between teeth, food, and bacteria.
- Bacteria adhere to tooth surfaces in a sticky film, called dental plaque.
- When sugar and cooked starches are consumed, bacteria produce acids that attack the enamel of the teeth and cause mineral loss from teeth.

Process of Tooth Decay

- At first decay is limited to the subsurface of the enamel.
- If decay is caught early the tooth can restore itself.
- If left untreated, the cavity continues to grow, finally infecting the living pulp tissues within the tooth.
- The bacterial infection can then spread through the tissue spaces and blood vessels to other parts of the face and body.

FACT: Data from the third National Health and Nutrition Survey indicate that 8 percent of 2-year-olds have at least one decayed or filled tooth and that 40 percent of children are affected by age 5.

[What is Tooth Decay?](#)

Streptococcus Mutans

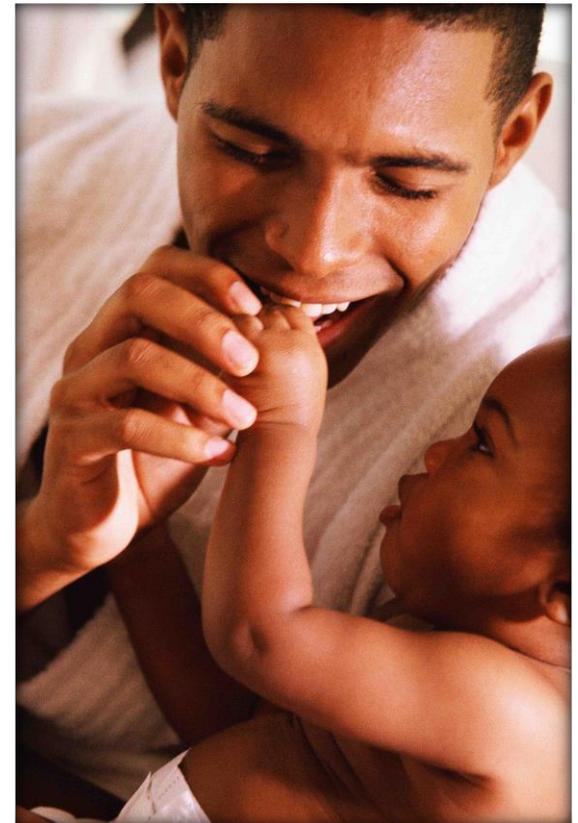
- Bacteria is main contributor to tooth decay.
- Found mostly on tooth surfaces.
- Concentrated mainly in pits and fissures on chewing surfaces of back teeth.



FACT: The quantity of *S. mutans* in the mouth during infancy may be an excellent predictor of tooth decay in early childhood.

Bacterial Transmission

- Adults transmit bacteria to a child via saliva.
- Usually mother or other primary caregiver.
- Transmission occurs through
 - Child puts fingers in adult's mouth.
 - Adult tests bottle temperature with mouth.
 - Adult shares utensils with child.
 - Adult cleans pacifier with her mouth.



Bacterial Transmission



- It is important that parents and other primary caregivers practice good oral hygiene and avoid behaviors that could transmit *S. mutans* to a child.

Food Interactions with *S. Mutans*

Foods containing sugar and cooked starches interact with *S. mutans* to produce acids that can cause mineral loss from teeth.

- **Sucrose:** Highly concentrated sugar contained in candy, cookies, cake, and sweetened beverages.
- **Fructose:** Naturally occurring sugar contained in fruit; contributes to tooth decay, although fruit is more nutritious than foods with sucrose.
- **Lactose:** Sugar contained in milk; contributes to tooth decay, although milk is more nutritious than foods with sucrose.
- **Starch** in processed foods such as bread, crackers, pasta, potato chips, pretzels, sweetened cereal, and French fries breaks down into simpler sugars.

Food Interactions with *S. Mutans*

- Frequent consumption of foods and drinks high in sugar (e.g., candy, cookies, cake, sweetened beverages, and fruit juice) increases the risk for tooth decay.
- Even very small amounts of these foods consumed frequently over the course of a day will create an acid environment lasting many hours.
- Snacking is important for children; because their stomachs are small, they need to eat small amounts frequently to meet their nutritional requirements.



Tooth Decay Leads to Other Problems

Tooth decay can spread, be extremely painful, and lead to

- Destruction of teeth.
- Difficulty chewing.
- Poor nutrition.
- Impaired physical development.
- Speech problems.
- Impaired performance in school.



Tooth Decay Leads to Other Problems

- Psychological problems such as low self-esteem and poor social interaction.
- Severe infections that can even result in death on rare occasions.

FACT: Children with severe tooth decay may weigh significantly less than children who do not have severe tooth decay. If children with tooth decay receive comprehensive oral health care, significant “catch-up” growth can occur.

Importance of Primary Teeth

Primary teeth are important to a child's overall development. They ensure



- Proper chewing, which promotes proper nutrition.
- Proper speech development.
- Space in the dental arch until the permanent teeth erupt.
- Development of the facial structure.

Primary Teeth and Tooth Decay

- Children with tooth decay in their primary teeth are at higher risk for tooth decay in their permanent teeth than children without tooth decay.
- Even if everyone in a family has tooth decay, it can still be prevented or reduced.
- Saving primary teeth promotes healthy development and reduces or eliminates the pain associated with tooth decay.



Tooth Decay: Key Points

- Tooth decay is an active process of tooth destruction resulting from interactions between teeth, food, and bacteria.
- The bacterium *S. mutans* is the main contributor to tooth decay.
- Bacteria can be transmitted from a parent or other intimate caregiver to an infant or child via saliva.
- Foods containing sugars and cooked starches interact with *S. mutans* and produce acids that cause mineral loss from teeth.

At-Risk Populations

- Each time such foods are consumed, the acid attacks the enamel of the teeth.
- Tooth decay can spread and be extremely painful.
- Tooth decay in primary teeth most often means that there will be tooth decay in permanent teeth.



Risk Factors For Tooth Decay



Overview

- At-risk populations.
- Other risk factors.
- Impact of parents' behavior.
- Impact of diet and feeding practices.
- Breastfeeding.

At-Risk Populations

Children are at increased risk for tooth decay if they

- Live in communities without fluoridated water.
- Are from families with low incomes.
- Are from certain racial and ethnic minority groups.
- Have limited or no dental insurance.
- Are from families whose parents have less than a high school education.
- Have special health care needs (e.g., developmental disabilities, Down syndrome, cleft lip/palate).

Populations at Risk for Tooth Decay

FACT: Children ages 2 to 5 from families with low incomes are five times more likely to have untreated tooth decay than their more affluent counterparts.



Conditions that Increase Risk

Children with the following conditions are at greater risk for tooth decay:

- Preterm birth or low birthweight.
- Enamel defects.
- Deep pits and fissures in chewing surfaces of back teeth.
- Special health care needs.
- White spots or obvious plaque on the teeth.
- Fillings completed within the past 2 years.
- Gums that bleed easily.
- Presence of dental appliances (e.g., space maintainers).
- High concentrations of *S. mutans* in the mouth.

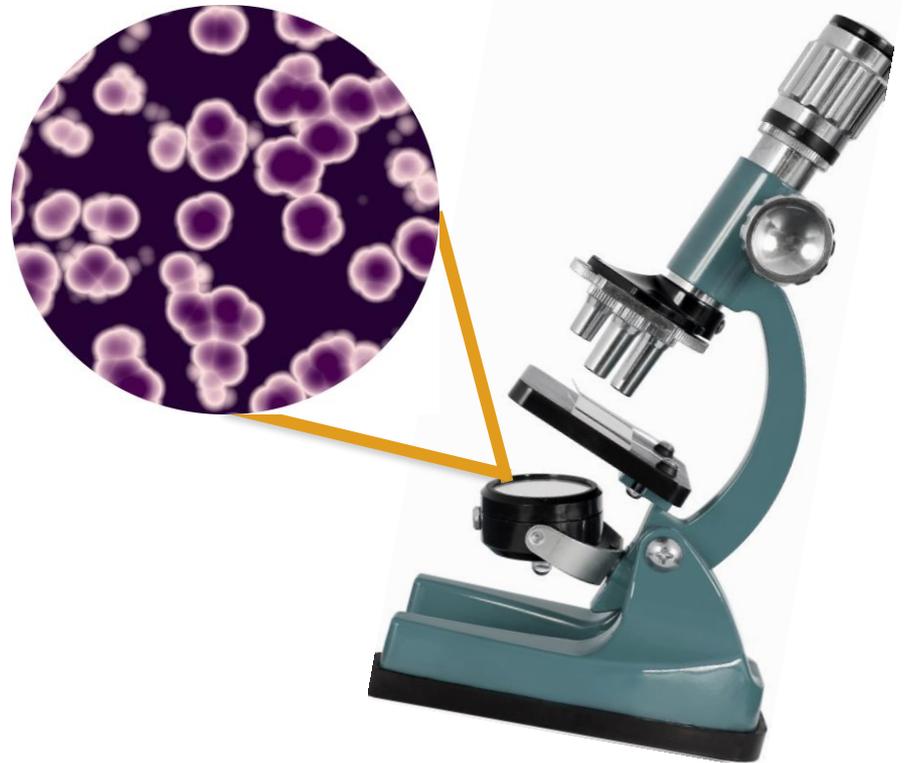
Other Risk Factors



- Poor oral hygiene.
- Inadequate exposure to fluoride.
- Putting the child to sleep with a bottle or sippy cup.
- Frequent consumption of foods high in sugar.
- Coating pacifiers with sweeteners like sugar or honey.
- Having a mother or other primary caregiver or a sibling who has had active tooth decay in the past 12 months.

Other Risk Factors

FACT: The quantity of *S. mutans* in the mouth during infancy may be an excellent predictor of tooth decay in early childhood, and determining the level of *S. mutans* in an infant's mouth could enable early and effective risk management and disease prevention.



Influence of Parents' Behavior on Risk

- Some parents view the bottle as a good way to keep a child quiet and occupied during difficult times.
- Oral health is not a high priority
 - Less likely to take their child to the dentist.
 - May not engage in regular toothbrushing.
 - May be more likely to snack frequently on foods high in sugar.
- Some parents believe it is cruel to deny a child a bottle or snacks.

Impact of Diet and Feeding Practices

Children have limited stomach capacity and need to snack to meet their nutritional requirements.

- Frequent consumption of foods high in sugar increases the risk for tooth decay, even if the amount eaten is small.
- Offer snacks at regular times between meals
- Limit snacking on foods and beverages that are high in sugar



Impact of Breastfeeding

- Low risk of developing tooth decay compared with bottle feeding.
- Breastmilk does contain sugar.
- Children who breastfeed for long periods throughout the day or night may develop tooth decay.
- To reduce sugary fluids from pooling around the teeth, remove child from the breast when he finishes feeding.



Risk Factors: Key Points

- Children who are at higher risk for tooth decay
 - live in communities without fluoridated water.
 - are from families with low incomes.
 - are from certain racial and ethnic minority groups.
 - have limited or no dental insurance.
 - have parents with less than a high school education.
 - have special health care needs.



Risk Factors: Key Points



- Frequent consumption of foods high in sugar increases the risk for tooth decay.
- Small amounts of foods consumed over the course of a day will create an acid environment lasting many hours.

Prevention of Tooth Decay

Overview

- First dental visit.
- Oral hygiene practices.
- Feeding and eating practices.
- Fluoride.
- Tools for prevention.



Child's First Dental Visit

- The American Academy of Pediatrics and the American Academy of Pediatric Dentistry recommend first dental visit by age 1.
- Dental visit goals
 - Assess risk for tooth decay.
 - Provide anticipatory guidance.
 - Answer parents' questions.
 - Initiate prevention practices.



Benefits of Age 1 Dental Visit



- Parents learn what to expect with their child's oral health and development.
- Parents learn how to care for their child's teeth.
- Early identification of potential problems with tooth and jaw development.

Oral Hygiene Practices—Ages ≤ 2

- Clean a child's gums with a damp cloth after feedings even before the teeth erupt.
- Clean teeth as soon as the first tooth erupts. Use a soft infant toothbrush that is small enough to fit in the child's mouth. Use a smear of fluoridated toothpaste.
- Brush a child's teeth two to three times a day. Brushing before bed is most important. Don't give the child anything to eat or drink (except water) after brushing at night.
- There are many different positions to use for brushing a child's teeth. Lift the lips to brush the fronts and backs of the teeth and at the gum line.

Oral Hygiene Practices—Age > 2

- Brush teeth with a pea-sized amount of fluoridated toothpaste.
- Make sure the child spits toothpaste out after brushing.
- Don't have the child rinse with water. The small amount of remaining fluoridated toothpaste helps build strong, healthy teeth.
- Young children do not have the fine motor skills to brush their teeth well. Parents should brush teeth again after the child is finished.
- By the time a child is able to tie her own shoelaces (age 7 to 8), she can clean her teeth well on her own but should be supervised.

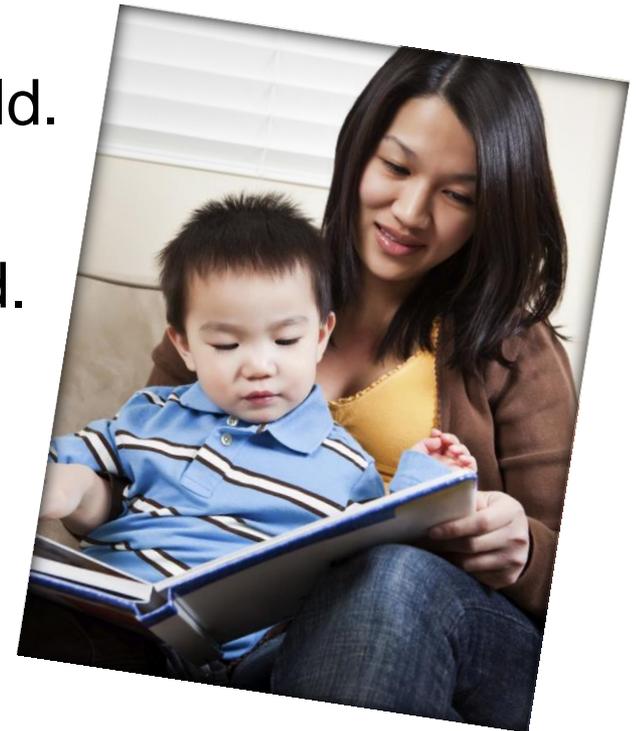
Feeding and Eating Practices

- Do not put the child to sleep with a bottle or sippy cup containing anything other than water.
- Do not allow frequent and prolonged bottle feedings or use of a sippy cup containing beverages high in sugar (e.g., fruit drinks, soda, or fruit juice), milk, or formula during the day or at night.



Feeding and Eating Practices

- Do not use a bottle to calm a child or to put a child to bed. Instead of a bottle try
 - Giving the child a favorite blanket or toy.
 - Offering the child a clean pacifier.
 - Holding, patting, or rocking the child.
 - Reading to the child.
 - Softly talking or singing to the child.



Feeding and Eating Practices

- If a child is accustomed to being put to bed with a bottle, offer a bottle filled with plain water.
- Hold the child while feeding. Never prop a bottle on pillows or any other objects to hold it in the child's mouth.
- Never add cereal to a bottle. This causes sugary fluids to pool around the teeth and can also cause choking.
- Always feed children solid foods with a spoon or fork, or, if the child is coordinated enough, encourage self-feeding.

Feeding and Eating Practices

- Introduce a small cup when the child can sit up without support.
- Gradually wean the child from the bottle when he begins to eat more solid foods and drinks from a cup; at about 9 to 10 months.
- By 12 to 14 months, most children can drink from a cup.
- Do not dip pacifiers in sweetened foods like sugar or honey.

Feeding and Eating Practices



- Offer snacks at regular times between meals only.
- Make sure the child drinks plenty of water throughout the day, especially between meals and snacks.
- Don't offer food in return for good behavior. This teaches children that foods are rewards and can lead to the development of unhealthy habits.

Fluoride

- Fluoride is a mineral that enhances tooth and bone health.
- Fluoride increases tooth resistance to tooth decay.
- Fluoride occurs naturally in groundwater.
- Fluoride is also found in foods such as breads and beverages that are made using fluoridated water and in many public fluoridated water supplies.
- Tooth decay can be reduced by 50 to 70 percent with exposure to the proper amounts of fluoride.

Water Fluoridation



- Water fluoridation is one of the best examples of a public health preventive intervention at the community level.
- All children who drink fluoridated water benefit by incorporating fluoride into their developing teeth.
- Most bottled water has the fluoride filtered out!

Topical Fluoride

Topical fluoride may be especially effective for children at high risk for tooth decay because they may



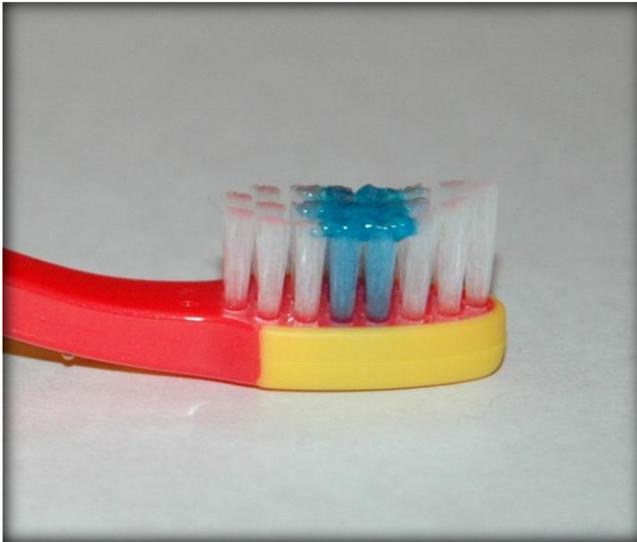
- Lack access to fluoridated water.
- Have a history of tooth decay.
- Snack frequently on foods high in sugar.
- Have a medical condition that makes them susceptible to tooth decay.

Types of Topical Fluoride

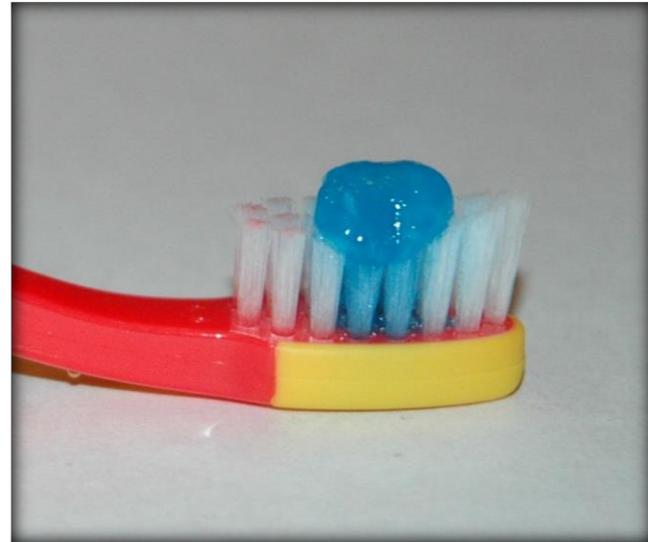
- Toothpaste
 - Almost all toothpaste manufactured in the United States provides topical fluoride.
- Professionally applied fluoride
 - Gels, foams, and varnish applied by oral health professionals renews the high levels of fluoride in enamel.
 - Varnish is being applied by some pediatric medical care providers.



Toothpaste Amounts



“Smear”
Ages 2 and Under



“Pea Size”
Over Age 2

Tools for Prevention

Fluoride Varnish

- A topical fluoride-containing lacquer that is easily “painted” onto the surfaces of a child’s teeth.
- Professionally applied fluoride varnish is the preferred source of topical fluoride for young children because it is better tolerated and less likely to be swallowed than other topical fluorides.



Tools for Prevention

Xylitol

- Low-calorie sugar substitute used in certain chewing gums and other food products.
- Can reduce new cases of tooth decay in mothers and children.
- Short-term exposure to xylitol decreases *S. mutans* levels in saliva and plaque.
- In addition to decreasing new cases of tooth decay, xylitol may also decrease the transmission of *S. mutans* from mothers or other caregivers to children.

Key Points: Prevention

- Children should visit a dentist no later than age 12 months.
- Parents should begin cleaning a child's teeth as soon as the first tooth erupts, usually around age 6 to 10 months.
- Tooth decay can be reduced by 50 to 70 percent with exposure to proper amounts of fluoride.
- All children who drink fluoridated water benefit by incorporating fluoride into their developing teeth.

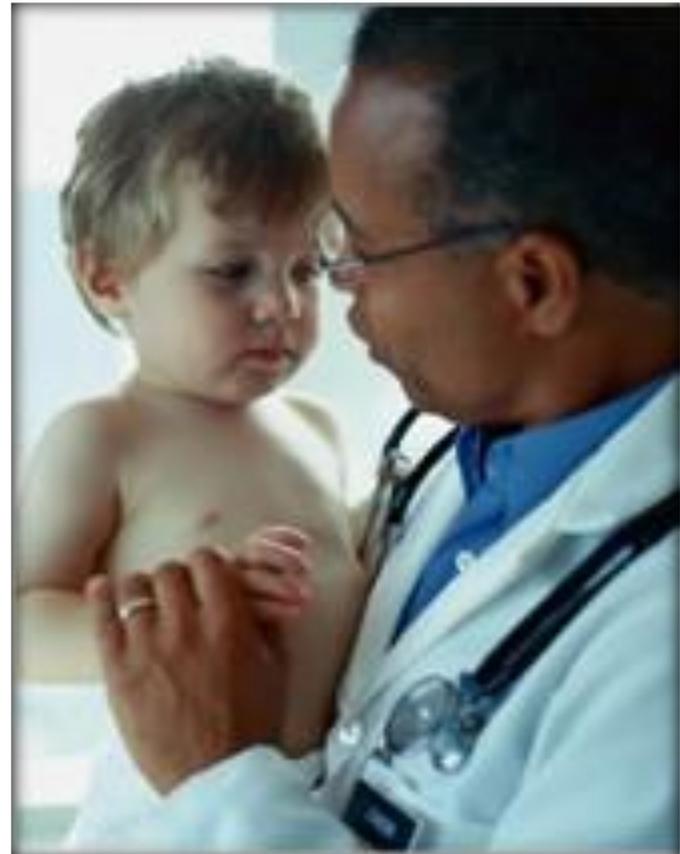
Key Points: Prevention

- Topical fluoride is probably the most important method for preventing tooth decay.
- Fluoride varnish is a topical fluoride-containing lacquer that can be easily “painted” onto the susceptible surfaces of a child’s teeth.
- Xylitol, a low-calorie sugar substitute used in certain chewing gums and other food products, may reduce the incidence of tooth decay in mothers and children.

Oral Health in Community Settings

Overview

- Role of professionals in preventing or reducing risk for tooth decay.
- Oral health risk assessment and screening.
- Referral.
- Anticipatory guidance.

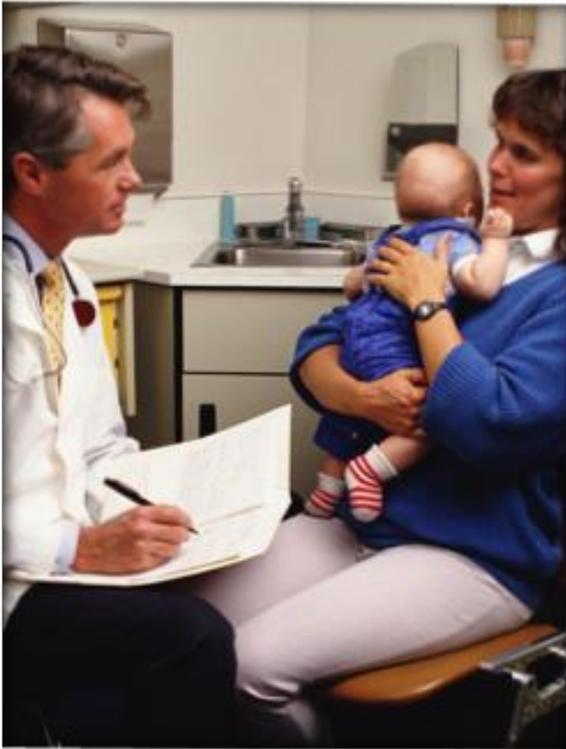


Settings for Oral Health Promotion

- Community-based programs.
 - WIC.
 - Head Start.
- Primary care sites.
 - Medical practices.
- Early childhood programs.



Role of Early Head Start Staff



- Perform an oral health risk assessment in EHS.
- Conduct a basic oral health screening: “Lift The Lip”
- Demonstrate “Lift The Lip” to parents.
- Record oral health information twice a year.
- Refer to a dentist.
- Provide anticipatory guidance.

Oral Health Risk Assessment

- An approach to identifying risk and/or protective factors that may impact an infant or toddlers oral health (EHS).
- All preschool Head Start children are required to see a dentist.

West Central Minnesota Communities Action, Inc.
EARLY HEAD START
 Dental Decay Risk Scoring Tool

Family Name: _____ Date: _____
 Child's Name: _____ Child's Birthdate: _____
 Date of Home Visit: _____ Person Completing Form: _____

Dental Risk Indicators

Clinical Observations

Risk Indicators	Low Risk	Moderate Risk	High Risk
Decay	No Decay	Decay in the Past	Decay Now
White Spots	-----	-----	White spots or lines on front teeth
Gums	-----	-----	Red and swollen gums
Cleaning	-----	-----	Dirty teeth (plaque or food)

Environment

Risk Indicators	Low Risk	Moderate Risk	High Risk
Brushing	Regular Brushing	Brushing Sometimes	No Brushing
Snacks	Snacks per day (food or drinks) 0 - 1	Snacks per day (food or drinks) 1 - 2	Snacks per day (food or drinks) 3 or more
Gums	-----	-----	Red and swollen gums
Cleaning	-----	-----	Dirty teeth (plaque or food)

Observations: _____

American Academy of Pediatric Dentistry Risk Assessment Tool

	High Risk Factors	Moderate Risk Factors	Protective Factors
Biological Factors			
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 care needs		Yes	
Child is a recent immigrant		Yes	
Protective Factors			
Child receives optimally-fluoride 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 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	

Oral Health Screening

- Conducted by health and other appropriately trained professionals.
- Screening to identify oral disease and to provide guidance for preventing and managing oral disease
- Findings are not considered a diagnosis.
- Involves observing the following structures: lips, tongue, teeth, gums, inside of cheek, and roof of mouth.

Materials Needed to Conduct an Oral Health Screening

- Disposable gloves (preferably non-latex).
- Light source (e.g., flashlight, portable gooseneck lamp, examination light, headlamp).
- Tongue depressor (optional).
- Disposable mouth mirror (optional).



Positioning Children Under Age 3

- Position the child in the parent's lap so that the child is facing the parent.
- Sit opposite the parent so that your knees are touching the parent's.
- Lower the child's head onto your lap.
- If necessary, have the parent hold the child's arms.

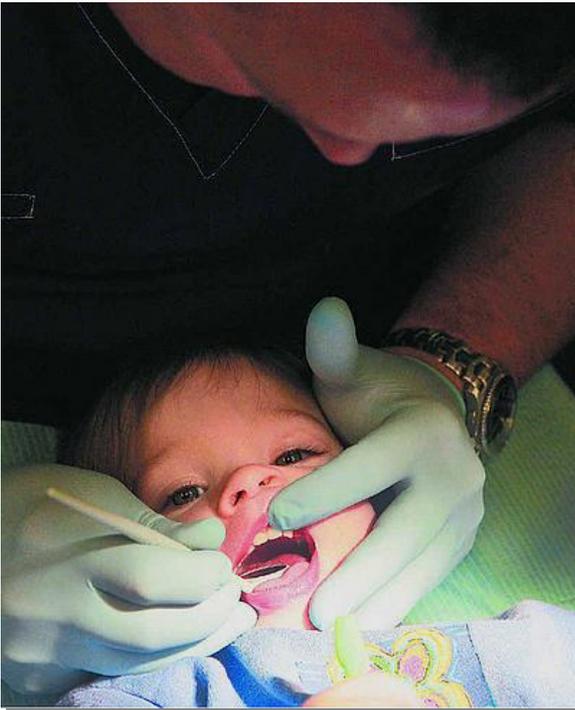


Positioning Children Ages 3 and Older



- Lay the child on the examination table on his or her back.
- Ask the parent to hold the child's hands.
- Approach the child from behind the head to ensure a clear view into the oral cavity.

Conducting an Oral Health Screening



- Lift the lip and look for
 - Eruption of primary teeth.
 - Plaque.
 - White spots along the gum line of the upper front teeth.
 - Tooth decay.
 - Abscesses in the gums.
 - Enamel defects.
 - Dental trauma.
- Show the parent any problems, and provide education on oral hygiene and diet.

Tooth Development



Normal healthy teeth



Normal healthy teeth



Developmental defects, deep pits,
and fissures

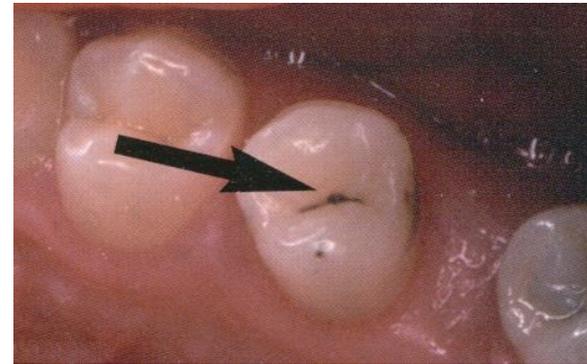


Developmental defects in
tooth enamel

Past History of Tooth Decay



Sound tooth



Small area of decay, no filling



Tooth-colored filling



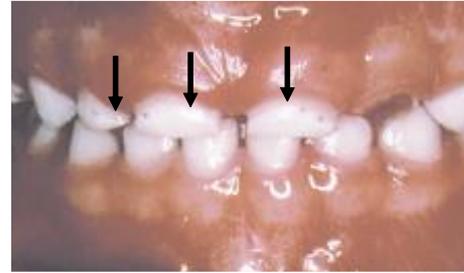
Temporary filling

Silver filling

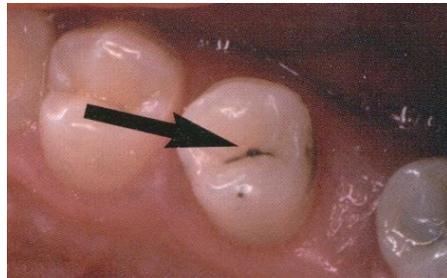
Untreated Tooth Decay



Normal healthy teeth



Early decay, white spots



Early decay, small area



Intermediate decay, brown spots



Advanced decay, molar pattern



Severe advanced decay

Dental Sealants



No sealant



Partial sealant



Sealant



Clear sealant

Oral Health Risk Assessment, Screening, and Follow-Up Form

- Record findings and recommended follow-up.
- Turn in the completed form for entry and upload into Child Plus.

West Central Minnesota Communities Action, Inc.
EARLY HEAD START
Dental Decay Risk Scoring Tool

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Gums	-----	-----	Red and swollen gums
Cleaning	-----	-----	Dirty teeth (plaque or food)

Observations: _____

Referrals

- If physical abuse is suspected, record observations, and contact the local social service agency.
- Refer child who has immediate oral health problems or is at high risk for tooth decay to a local dentist.
- For assistance in locating a dentist refer to the Head Start resource book or contact the Head Start Health Coordinator.

Anticipatory Guidance

- Provide pregnant women and families with information to promote oral health.
- Anticipatory guidance can include
 - oral development.
 - tooth eruption.
 - oral hygiene practices.
 - fluoride use.
 - bottle use.
 - feeding and eating practices.
 - transmission of *S. mutans*.



Anticipatory Guidance to Share with Pregnant Women, New Mothers, and Other Caregivers



- Brush teeth using fluoridated toothpaste twice a day.
- Visit a dentist for an examination and restoration of all active decay
- Eat healthy foods including fruit, vegetables, grains, and dairy products.
- Choose whole fruit instead of juices

Anticipatory Guidance for Parents of Infants (Birth to Age 1)

- Clean the infant's gums with a clean wet cloth before the teeth erupt.
- Once the first tooth erupts, brush the child's teeth with a soft-bristled toothbrush that is designed for infants, and a smear of fluoridated toothpaste.
- Take the child to a dentist for the first dental examination by age 12 months.



Anticipatory Guidance for Parents of Infants (Birth to Age 1)

- Do not put the infant to sleep with a bottle or sippy cup or allow frequent and prolonged feedings with foods and drinks that are high in sugar.
- Do not dip pacifiers in sweetened foods like sugar or honey.
- Do not engage in saliva sharing habits (e.g., sharing utensils, cleaning pacifiers with mouth).
- Serve the child no more than 4–6 ounces of 100 percent fruit juice per day.
- Serve foods containing sugar at mealtimes, and limit the amount.

Anticipatory Guidance for Parents of Children (Ages 1–5)

- Brush the child's teeth twice a day (after breakfast and before bed).
 - For children ages 2 and under, brush the child's teeth with a smear of fluoridated toothpaste.
 - For children over age 2, brush the child's teeth with pea-sized amount of fluoridated toothpaste.
 - Make sure the child spits out the toothpaste after brushing, but do not have the child rinse with water.

Anticipatory Guidance for Parents of Children (Ages 1–5)

- Wean the child from the bottle by age 12–14 months.
- Do not engage in saliva sharing habits (e.g., sharing utensils, cleaning pacifiers with mouth).
- Serve the child no more than 4–6 ounces of 100 percent fruit juice per day.
- Serve foods containing sugar at mealtimes, and limit the amount.
- Offer water or milk if the child is thirsty between meals.

Key Points

- Primary care health professionals and other health and childhood professionals can promote oral health.
- Primary care health professionals or other appropriately trained professionals should perform an oral health screenings.
- Oral health risk assessment results, clinical findings, and recommended follow-up should be recorded in the child's health record.
- Professionals can provide anticipatory guidance to promote oral health to children and families.