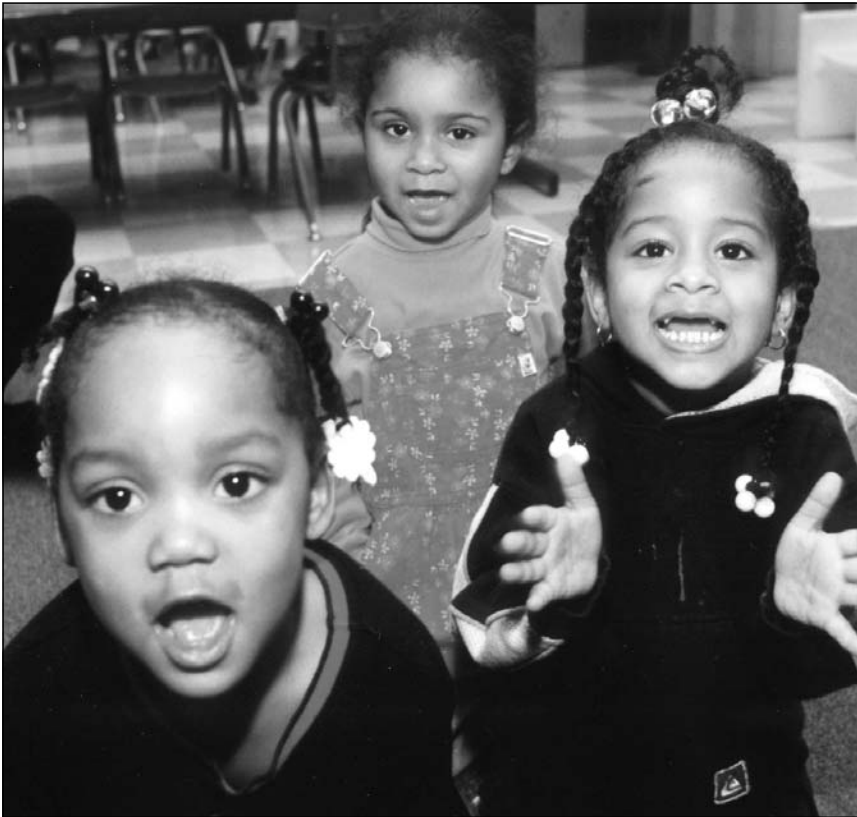


# Promoting Children's Oral Health



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California Childcare Health Program  
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### California Childcare Health Program

The mission of the California Childcare Health Program is to improve the quality of child care by initiating and strengthening linkages between the health, safety and child care communities and the families they serve.

Portions of this curriculum were adapted from the training modules of the National Training Institute for Child Care Health Consultants, North Carolina Department of Maternal and Child Health, The University of North Carolina at Chapel Hill; 2004-2005.

Funded by First 5 California with additional support from the California Department of Education Child Development Division and Federal Maternal and Child Health Bureau.

## **LEARNING OBJECTIVES**

To describe the major oral health problems among children in early care and education (ECE) programs.

To implement prevention strategies which can decrease the prevalence of serious oral health problems.

To describe three ways a Child Care Health Consultant (CCHC) can assist and support ECE programs in meeting the oral health needs of the young children they serve.

To identify the oral health resources available to assist and support ECE providers and families.

## **WHY IS ORAL HEALTH IMPORTANT?**

Good oral health in children is essential to meeting their general health needs. Tooth decay and gum disease are the most common and least treated of childhood diseases. For many children, dental disease interferes with eating, sleeping, speaking, playing, learning and smiling. It is also responsible for children missing millions of school hours each year, especially low-income children and children of color, who have poor access to preventive dental care and are thus more vulnerable. In California, untreated decay in children is twice as common as it is in the rest of the United States. Access to oral health services is poor for all California children, but it is even worse for children of color. While 16 percent of Caucasian preschoolers need oral health care, approximately 40 percent of preschoolers of color need dental care. This gap continues into elementary school, where approximately 65 percent of elementary school children of color need dental care compared to 40 percent of Caucasian children of the same age (Dental Health Foundation, 2000).

# WHAT THE CCHC NEEDS TO KNOW

## Why Young Children Are at Risk

- Young children are dependent upon adults to provide adequate oral care.
- Young children do not have the motor skills to brush or floss independently (see *Handout: Fact Sheets for Families: Toothbrushing Is Important*).
- Primary (also referred to as “baby” or “milk”) teeth are continuously exposed to food and drink but frequently are not cleaned or exposed to fluoride, making them more prone to cavities.
- Some families believe that “baby teeth are going to fall out anyway” so hygiene is not all that important.
- Some families are not aware that letting a baby go to sleep with a bottle of formula, milk or juice can lead to baby bottle tooth decay (BBTD), also known as Early Childhood Caries (ECC).
- Some families wait much longer than the recommended age of 1 year to wean their child from a bottle. In some cultures, a bottle is used as a pacifier.
- Some parents are not aware of the value of fluoridated water and fluoride products such as toothpaste, rinses, varnish, and supplements.
- Many parents tend to offer their children sweet and/or sticky foods, which promote cavities (see *Handout: Fact Sheets for Families: Good Nutrition and Healthy Smiles*).
- Parents and caregivers may unknowingly spread decay-causing bacteria to their children through saliva exchange if they share toothbrushes or utensils with the child, use saliva instead of water to clean pacifiers, etc.
- Financial, language and transportation barriers prevent many children from visiting a dentist for preventive care. Due to financial challenges, many children do not visit a dentist until they need treatment for cavities, thus missing opportunities for preventive care and education.

## Challenges for Children and Families in ECE Programs

### Financial Hardship

More than 25 percent of California’s preschool and elementary school children have no dental insurance (Dental Health Foundation, 2000).

### Access

Some families live in areas with few dental health professionals, especially those who are trained in pediatric care.

### Cultural Beliefs

Some cultures view oral disease differently and place oral health as a lower priority than the mainstream culture.

### Poor Nutritional Choices

Some ECE providers and parents choose to serve pre-packaged foods that tend to be high in sugar, fat and sodium, rather than serving healthier foods that may have to be washed, peeled, and/or cut up, such as fruits, vegetables, and cheese.

### Low Reimbursement Rates

The low reimbursement rates for Denti-Cal and other low-income insurance programs limit the availability of dental care providers who will work with low-income families.

## What the Research Tells Us

### Infectious Disease

- Certain bacteria, specifically *Streptococcus mutans* and *Lactobacillus species*, in a mother’s or caregiver’s mouth may cause the infant to develop dental caries through saliva exchange via shared utensils, shared toothbrushes, pacifiers that are “cleaned” with saliva instead of water, etc. (Featherstone, 2000).

- Mothers should receive dental care during pregnancy to reduce the amount of decay-causing bacteria present, thereby decreasing the chance of spreading bacteria to the baby (Ramos-Gomez, Jue, & Bonta, 2002). See *Handout: Fact Sheets for Families: Oral Health and Pregnancy*.

### Fluoride

- Community water fluoridation has been proven to be the most effective and efficient method for the prevention of dental caries (Dental Health Foundation, 2000). See *Handout: Fact Sheets for Families: Dental Caries*.
- Fluoridation levels can vary widely within a county. The local water department is a reliable source for information regarding the fluoridation status of a specific household's tap water. (Telephone communication with Miguel Martinez, Community Relations Director, Dental Health Foundation, on July 21, 2003.)
- If tap water is fluoridated, children should drink tap water via formula, diluted juices, cooked food, and as a beverage.
- Besides community water fluoridation, fluoride can be delivered to children in other ways: topically applied to the teeth (varnish), or prescribed in tablet form by a medical or dental provider (supplements). A varnish is a fluoride solution that can be painted onto teeth as an adjunctive treatment for caries prevention, fluoride varnish is a quick and easy way to protect children's teeth (University of California, San Francisco et al., 2003, chap. 5). Fluoride supplements for children age 6 months or older may be appropriate if the community water is not fluoridated; parents should consult their medical or dental provider to inquire about fluoride supplementation.

### Sealants

Sealants are thin, plastic coatings placed on the biting surfaces of molars to create a barrier to food, acid and bacteria. School-based sealant programs can help to decrease tooth decay by as much as 60 percent (Task Force on Community Preventive Services, 2002).

## Issues That Arise in ECE Programs

- Historically, monitoring and supporting oral health activities is not common in ECE programs. Furthermore, turnover of staff and children may lead to lapses in oral health care and procedures.
- Infants are completely dependent upon parents and other caregivers to provide oral health care.
- Wiping infants' mouths after each feeding may create concerns regarding cross-contamination and the practice of universal precautions.
- Toddlers and preschoolers are limited in their ability to brush or floss independently.
- Due to time constraints, ECE providers may have difficulty providing oral care to each child even once a day. Flossing is especially difficult to provide in a group care setting.
- It is difficult assuring hygienic conditions for storage of toothbrushes and other dental supplies, and making sure each child uses only his/her toothbrush.
- Childrearing practices differ on timelines for weaning from a bottle or breast to a cup.
- Childrearing practices differ on timelines for weaning from a sippy cup.
- If juice is used as a fruit substitute, diluted juices would interfere with the serving guidelines as required by the Child Care Food Program in ECE programs. The American Academy of Pediatrics discourages fruit juice to infants younger than 6 months.
- Some parents may complain about juices being diluted.
- Many ECE programs have mixed age groups requiring appropriately tailored care and education to meet the needs of different age groups.
- It maybe difficult to promote a "dental home by age 1 policy" for families with limited financial resources, multiple children, single parents, and those without dental insurance.

- Finding a dental home may be difficult in areas that lack an adequate number of providers.
- Children with disabilities and special needs may require extra staff support to maintain an effective oral hygiene program (see *Handout: Health and Safety Notes: Oral Health for Children with Disabilities and Special Needs*).

## WHAT THE CCHC NEEDS TO DO

### Observe Programs and Assess Current Practices

Observe oral health practices over time and in multiple situations: feeding of infants; tooth brushing—if done—by toddlers and preschoolers; whether fluoridated toothpaste is used; whether children are assisted with brushing; what meals/snacks are provided; when weaning is encouraged; whether oral injury prevention practices, such as those that prevent falls, are enforced.

### Review Safety Policies and Procedures

Determine whether the program has policies regarding oral health, and if so, whether there are procedures related to those policies. If procedures exist, are staff implementing them, and if not, why not? Ensure that toothbrush storage and dispensing of toothpaste are done in a hygienic manner, that emergency contact numbers are kept current, that falls are prevented, and that staff is trained regarding dental emergencies, such as a broken tooth. Look for ways to involve staff in understanding and formulating priorities.

### Educate Staff About Oral Health

Start by informing staff regarding the prevalence and severity of oral diseases in young children, and the cost of treatment versus prevention. Then, ask staff how they perceive oral health issues for themselves,

as well as the children. Acknowledge the barriers of implementing effective oral health practices at once in a group setting. Inform staff of the most effective practices and ask them to think of “tiers” of effective practices, such as those identified in the *Early Childhood Environment Rating Scale* (Harms, Clifford, & Cryer, 1998). Emphasize the importance of using fluoridated water, avoiding or limiting sugary and/or sticky foods, providing healthy meals/snacks and brushing/rinsing the mouth after meals/snacks using fluoridated product(s). Provide training and ask how effective practices could be implemented in their programs, such as working with parents who do not agree with the recommended oral health practices, properly storing toothbrushes and toothpaste, helping with tooth brushing when there are many children to assist, providing infant oral health care, etc.

### Provide Educational Materials

- Offer eye-catching, interesting posters for children and parents about effective practices such as preventing baby bottle tooth decay, wiping infants’ mouths, tooth brushing, and preparing healthy meals/snacks, and encourage ECE providers to display them in multiple and prominent locations. See *Handout: Healthy Teeth Begin at Birth*.
- Inform ECE providers about National Dental Health Month (February) and the types of activities that could be implemented, including providing parents with handouts, resource lists, and other educational resources.
- Provide a list of books, videotapes, Web sites, etc. to help educate staff, parents and children about oral health.
- Invite dental care providers in the community to participate in “circle time” as a guest visitor.
- Frame advice in positive ways. Rather than “Don’t let babies go to sleep with a bottle,” try saying “You can let babies go to sleep with a bottle if you fill them with plain water.” Rather than “Don’t give too much juice,” say “If you wish to give juice, wait until your baby is at least 6 months old, dilute it with water to help prevent cavities, and put it in a regular or sippy cup.”

## **Link Programs with Health Departments and Other Resources**

Assist programs in linking with the local health department, local dental clinics, dental schools, dental societies, and sources of low-cost health insurance by providing a list of local resources, telephone numbers, and Web sites.

## **Advocate for Inclusion of Oral Health in All Educational Venues for ECE Providers**

Propose workshops at local educational institutions that provide training/workshops for ECE providers and administrators. Present at these workshops. Work with other community trainers to include oral health in their curriculum. Facilitate the process by providing appropriate training materials and handouts.

## **Work with Dental Professionals**

Encourage dental professionals to become more involved in ECE issues and promote oral health in out-of-home care settings by providing guidance to families, health consultation to programs, and advocacy for quality ECE programs.

## **WAYS TO WORK WITH CCHAs**

Child Care Health Advocates (CCHAs) appreciate having child and parent education materials at appropriate reading levels and in languages relevant to the families they serve. Seek feedback about the materials to assure relevancy. Monitor the quality and accuracy of information being conveyed by CCHAs to parents and staff. Help the CCHA design a way to monitor the changes in attitudes and behavior on the part of staff and families.





## ACTIVITY 1: DISPLAY AND DEMONSTRATION OF EDUCATIONAL ACTIVITIES FOR ECE PROVIDERS AND PARENTS

Directions: Complete questions 1 and 2 individually. Divide into groups of three to five. Each group will do questions 3 and 4 together. Each small group will report back to the larger group to describe their plan for a parent workshop and share ways of addressing barriers to an effective educational strategy.

1. Write down five key messages for parents and ECE providers:

- (1) \_\_\_\_\_
- (2) \_\_\_\_\_
- (3) \_\_\_\_\_
- (4) \_\_\_\_\_
- (5) \_\_\_\_\_

2. Brainstorm strategies for conveying these messages.

3. Prepare a plan for a parent workshop, including selecting and inviting a speaker.

4. Discuss barriers to at least three educational strategies and ways of addressing barriers.

Strategy	Barriers	Ways of addressing barriers
Example: Selecting educational materials	Some materials are only in English but parents do not speak/read English  Some parents are semi-literate or illiterate	Select at least one item in needed language(s)  Select materials that are well-illustrated and educate through pictures

## ACTIVITY 2: INTEGRATING ORAL HEALTH EDUCATION INTO ECE PROGRAMS

Answer the following questions to complete the table below.

1. What oral health education needs do you think the CCHC should address? Please answer this question for the five audiences listed (children, parents, ECE providers, health care providers, and community).
2. What oral health education resources (agencies, speakers, and materials) are available in your community to address these needs?

Health Education Needs	Community Resources
Children: 1.  2.  3.	
Parents: 1.  2.  3.	
ECE Providers: 1.  2.  3.	
Health Care Providers: 1.  2.  3.	
Community: 1.  2.  3.	
Source: National Training Institute for Child Care Health Consultants Staff. Caring for children's oral health version 2.5. Chapel Hill (NC): National Training Institute for Child Care Health Consultants, Department of Maternal and Child Health, The University of North Carolina at Chapel Hill; 2004.	

## NATIONAL STANDARDS

From *Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs, Second Edition*

- 1.027 Topics Covered in First Aid Training
- 1.041 Knowledge and Skills of Child Care Health Consultants
- 1.045 Pre-Employment and Group Adult Health Appraisals
- 2.061 Health Education Topics
- 2.064 Health Education Topics for Staff
- 3.010 Routine Oral Health Hygiene Activities
- 3.011 Oral Health Education
- 4.014 Techniques for Bottle Feeding
- 5.095 Toothbrushes and Toothpaste
- 5.151 Storage and Labeling of Personal Articles
- 8.022 Written Plan and Training for Handling Urgent Medical Care
- 8.048 Contents of Child's Health Report

In addition to these standards, there are others that touch upon safety but do not specifically address oral health.

## CALIFORNIA REGULATIONS

From *Manual of Policies and Procedures for Community Care Licensing Division*

California Community Care Licensing regulations Title 22: Code 101221 requires that early care and education providers retain records related to "...an illness or injury that requires treatment by a physician or dentist, and for which the center provided assistance to the child in meeting his/her necessary medical or dental needs." There is currently no other regulation that specifically addresses oral health, but the following refer to general safety and nutrition:

- 101223.1 Postural Supports/Protective Devices
- 101225 Transportation
- 101227 Food Service

# RESOURCES

<b>Organizations and Resource</b>	
<b>Organization and Contact Information</b>	<b>Description of Resources</b>
<p>American Academy of Pediatric Dentistry (312) 337-2169 www.aapd.org</p>	<p>Professional association represents the specialty of pediatric dentistry. Brochures for parents on Web site. On-line catalog for infant oral health assessment kit, videos, slides, etc.</p> <p>Informational brochures for parents: www.aapd.org/pediatricinformation/brochurelist.asp</p> <p>Emergency Care www.aapd.org/publications/brochures/ecare/asp</p>
<p>American Academy of Pediatrics (847) 434-4000 www.aap.org</p>	<p>Professional association of pediatricians dedicates its efforts and resources to attain optimal physical, mental and social health and well-being for all infants, children, adolescents and young adults. Information about oral health available for parents on Web site, including <i>Thumbs, Fingers and Pacifiers: How to Help Your Child Stop</i>. The <i>Caries-risk Assessment Tool (CAT)</i> is also available on the Web site.</p>
<p>American Dental Association ADA Kids' Corner (312) 440-2500 publicinfo@ada.org www.ada.org</p>	<p>Professional association of dentists leads a unified profession through initiatives in advocacy, education, research and the development of standards. Brochures for parents, items for children on Web site. www.ada.org/public/topics/kids/index.html</p> <p>A Message to Parents: www.ada.org/public/topics/parents/tips.html</p>
<p>California Childcare Health Program (510) 281-7913 phone (800) 333-3212 Healthline cchp@ucsfchildcarehealth.org www.ucsfchildcarehealth.org</p>	<p>Program of the University of California, San Francisco, provides staff training, parent educational materials, telephone and on-line support to California child care providers. Practical, research-based materials for anyone in the childcare field. Most educational items are available in Spanish.</p>
<p>California Dental Association Foundation (916) 443-3382 ext. 8051 foundationinfo@cda.org www.cdafoundation.org</p>	<p>Nonprofit state-wide organization promotes oral health by producing programs that increase access to care, advancing health policy research and building a sustainable oral health workforce. <i>Thumb Sucking: It Could Mean Big Bucks Later</i> at www.cda.org/articles/thumb.htm.</p>

Organization and Contact Information	Description of Resources
<p>Centers for Disease Control and Prevention (CDC)—            “Brush up on healthy teeth campaign”            (770) 488-5509  <a href="http://www.cdc.gov/communication/campaigns/brushup.htm">www.cdc.gov/communication/campaigns/brushup.htm</a></p>	<p>National governmental organization provides balanced public health approach. “Brush Up on Healthy Teeth Campaign” (Spanish available), initiated in 2002, focuses on four practical messages.</p>
<p>Dental Health Foundation            Oral Health Resource Directory for California’s Children (PDF)            (510) 663-3727  <a href="mailto:tdhf@pacbell.net">tdhf@pacbell.net</a>  <a href="http://www.dentalhealthfoundation.org/topics/children">www.dentalhealthfoundation.org/topics/children</a></p>	<p>Not-for-profit organization works through community partnerships to promote oral health for all by providing leadership in advocacy, education and public policy development and promoting community-based strategies.</p>
<p>Florida Dental Association            Concise information about how to handle common childhood emergencies  <a href="mailto:fda@floridadental.org">fda@floridadental.org</a>  <a href="http://www.floridadental.org/patients/firstaid.html">www.floridadental.org/patients/firstaid.html</a></p>	<p>Professional organization representing Florida dentists, advances public health through professional education, public advocacy, high practice standards and improving the professional practice environment.</p>
<p>Nemours Foundation—Kids Health  <a href="mailto:izenberg@KidsHealth.org">izenberg@KidsHealth.org</a>  <a href="http://www.kidshealth.org/parent/general/teeth/healthy">www.kidshealth.org/parent/general/teeth/healthy</a></p>	<p>Created in 1995 by The Nemours Foundation’s Center for Children’s Health Media, this site provides parents, children, and teens with up-to-date and jargon-free information.</p>

## Publication

California Childcare Health Program. (2005). *Health & Safety in the Child Care Setting: Promoting Children’s Oral Health*. Oakland, CA: Author.

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# HANDOUTS FOR PROMOTING CHILDREN’S ORAL HEALTH MODULE

## Handouts from California Childcare Health Program (CCHP), Oakland, CA

Page	Handout Title
15	<i>Fact Sheets for Families: Tooth and Mouth Care</i>
16	<i>Fact Sheets for Families: Teething</i>
17	<i>Health and Safety Notes: Thumb, Finger or Pacifier Sucking</i>
19	<i>Fact Sheets for Families: Tooth Decay in Young Children</i>
21	<i>Caries-risk Assessment Tool (CAT) (Modified for CCHCs)</i>
22	<i>Notice to Parents About CAT Assessment Findings and Recommendation</i>
23	<i>Health and Safety Notes: Oral Health for Children with Disabilities and Special Needs</i>
25	<i>Fact Sheets for Families: Toothbrushing Is Important</i>
26	<i>Fact Sheets for Families: Oral Health and Pregnancy</i>
27	<i>Fact Sheets for Families: Good Nutrition and Healthy Smiles</i>
28	<i>Fact Sheets for Families: Dental Caries</i>

## Handout from First 5 California Oral Health Education & Training Project

29	<i>Optimally Fluoridated Areas by Zip Code</i> <i>Healthy Teeth Begin at Birth</i>
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# Tooth and Mouth Care

Tooth decay and gum disease are the two major oral health problems. They are the most common and least treated of childhood diseases. For many children, dental disease interferes with eating, sleeping, speaking, playing, learning and smiling. It is also responsible for children missing millions of school hours each year, especially low-income children and children of color, who have poor access to preventive dental care and are thus more vulnerable.

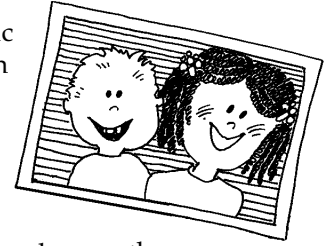
## Keeping your child's teeth healthy

The good news is that oral diseases are almost entirely preventable. Here are some tips for preventing oral disease and infections:

- Children, like adults, should brush their teeth with fluoride toothpaste twice a day—after breakfast and before bedtime at night. Remember that until age 8, children need adult help to brush thoroughly.
- Good nutrition, which is good for the body, is also good for the mouth. The most harmful foods are those containing sugar.
- Encourage children to drink plenty of water
- Take your children for regular dental visits so you can catch and correct oral/dental problems early.
- Using fluoride reduces cavities. Toothpaste and drinking water may have fluoride. Additional fluoride (supplements or varnish) is recommended for children who live in non-fluoridated areas. Discuss fluoride use with your dentist to make sure children are getting enough but not too much.



- Use of sealants (plastic coatings applied to teeth by a dentist) will help prevent tooth decay by creating a physical barrier between the teeth and plaque and food. Since permanent molars are the most at risk for decay, the six-year and twelve-year molars need sealants.
- Using mouth protectors prevents oral/dental injuries among children involved in recreational activities such as soccer, hockey, football and even bicycling and rollerblading. Stock mouth protectors are available in stores, and a better-fitting variety can be custom fitted by your dentist.
- Prevent baby bottle tooth decay—don't leave your child sleeping with a bottle that contains anything but water. Baby bottle tooth decay occurs when a child is frequently exposed to sugary liquids such as milk, including breast milk, fruit juice and other sweet liquids, and those liquids pool in the mouth behind the teeth, causing serious decay. Help your baby learn to drink from a cup; try to discontinue the use of bottles after 12-14 months.



## Dental Insurance Resources

A large number of California preschool, elementary school children and some high school students have no dental insurance. Even some of those who have medical insurance have no dental insurance. The following resources could help cover the expense of children's dental care:

- Medi-Cal: (888) 747-1222
- Transitional Medi-Cal: (888) 747-1222
- Healthy Families: (800) 880-5305
- CHDP: (510) 604-4636
- California Kids: (888) 335-8227

In addition, community-sponsored programs have programs as well. Some clinics, dental societies, nonprofit organizations, churches, dental schools and private practitioners have services that provide free or lower-cost care to families in need.



Provided by California Childcare Health Program  
For more information, please contact:  
Healthline 1-800-333-3212

Distributed by:

# Teething

The time when a baby's first few teeth begin to erupt is called teething. The process by which teeth break through the surface of the gums is associated with symptoms that can be very difficult for infants and confusing for parents.

## Teeth development

When a baby is born, the first set of teeth is almost completely formed inside the jaws and under the gums. Teething usually starts between 5 and 9 months. Most children have all 20 of their primary teeth by their third birthday. Generally the two bottom front teeth will appear first, followed about 4 to 8 weeks later by the four upper teeth.

## Baby's teeth are important

Teeth not only help in chewing food, but also give your child a nice appearance, nice smile, and help in talking. The first set of teeth is also important in saving space for permanent teeth.



## Signs and symptoms of teething

Often the gums around the new teeth will swell and become tender. Teething may cause restlessness, irritability, crying, low-grade temperature, excessive drooling, disruption of eating and sleeping habits, and a desire to bite something hard or rub on the gums. The drooling that accompanies teething can cause a rash on baby's face, neck or chest. Teething does not cause serious health problems. Some parents have incorrectly blamed high fever, vomiting and diarrhea on teething, delaying proper medical attention. These are not symptoms of teething.

## Tips for easing symptoms of teething

- Gently rub or massage the gums with one of your fingers to help your baby's discomfort.
- Natural means that soothe the inflammation such as ice cubes wrapped in cloth or cold food items are also helpful.
- Teething rings are useful, but avoid the ones with liquid inside. If they break, the liquid may not be safe, or they get too hard when you freeze them, and may cause more harm than good.
- Never tie a teething ring around baby's neck. It may cause strangulation.
- Try to keep the child's face dry. Wipe it often with a cloth to remove the drool.
- If you choose over-the-counter medication, be aware that products containing benzocaine (a local anesthetic) can interfere with the gag reflex and cause your infant to choke.
- Pain relievers and medications you rub on the gums are not necessary or useful, since they wash out of the baby's mouth within minutes.
- Do not use any medications that contain alcohol, as they can be toxic.
- If symptoms continue to worsen, with interruption of sleep or feeding, your health care provider may recommend infant pain reliever like acetaminophen (Tylenol). Follow the directions. Do not give a baby child aspirin or place aspirin tablets on the gums.


## When to call for help

1. If the symptoms continue to worsen.
2. If the baby has significant bleeding of the gums.
3. If signs of gum infection such as pain, pus and excessive swelling occur.
4. If your baby seems miserable, or has a fever higher than 100 degrees, diarrhea or vomiting.
5. If the baby has high fever, diarrhea or serious sleep problems. Teething does not cause them.
6. If your child refuses to breastfeed or eat.
7. If no teeth have erupted by two years of age.

For additional information about teething and dental health contact:  
American Academy of Pediatric Dentistry at [www.aapd.org](http://www.aapd.org)  
American Academy of Pediatrics at [www.aap.org](http://www.aap.org)

by A. Rahman Zamani, MD, MPH

Revised 11/05

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# Thumb, Finger or Pacifier Sucking

All healthy newborns start life and sustain it with an urge to suck. Embryos have been observed sucking their thumbs while in the womb. Sucking is one of a baby's inherent reflexes that is an essential ability for basic survival—if it were not present, the infant would not seek food or nourishment.

For many infants, the sucking instinct is not satisfied by feedings alone. Non-nutritive sucking, that is sucking thumbs, fingers, pacifiers and other objects, is a healthy normal behavior and offers young children a feeling of security, comfort, pleasure and relaxation during the first few years of life. This habit helps children to cope with different situations and emotions. Virtually all young children at one time or another place their fingers, fist, pacifier, thumb, or other objects in their mouth to suck. As children grow and develop, most naturally discontinue this habit.

## Thumb and Finger Sucking

Thumb and finger sucking is a natural, normal behavior for infants. Most young children suck their thumbs or fingers at some time, and it is an appropriate and useful behavior that allows them to soothe and entertain themselves. Children usually turn to their thumb or finger when they are tired, stressed, upset or bored. And it is not unusual for a thumb or finger sucker to simultaneously engage in other self-comforting behaviors like pulling at a strand of hair, touching the ear, or holding on to a favorite blanket or toy. Even when the habit lingers past infancy, thumb or finger sucking is rarely something to be concerned about. The majority of children give up such habits on their own by age 2. If children do not stop on their own, the habit should be discouraged after age 4.

## Pacifiers

Some children prefer sucking a pacifier to a thumb or finger. Pacifier use elicits strong responses from

parents and caregivers. Some oppose it because of the way it looks. Some feel that it's "pacifying" a child with an object. And others believe that using the pacifier can harm the child. But pacifiers do not cause any medical or psychological problems, and like thumb or finger sucking, using a pacifier during the early years of development generally does not permanently alter the position of the teeth or jaw. If a child wants to suck beyond what nursing or bottle-feeding provides, a pacifier will satisfy that need.

## Tips for Safe Use of Pacifiers

- Pacifiers should not be used to replace or delay meals; they should only be offered after meals or between feedings. It may be tempting to offer a pacifier to a child when it's easy for you. However, it is best to let the child decide whether and when to use it.
- Pacifiers should be of one-piece construction made with a firm nontoxic material that can be sterilized. They should have a soft nipple, air holes for ventilation, and have a shield that is wider than the child's mouth.
- *Never* tie a pacifier to a child's crib, or hang pacifiers around their neck or hands. This is very dangerous and could cause strangulation.
- *Never* dip a pacifier into honey or anything sweet before giving to a child.
- *Never* put a pacifier in your mouth to clean it before giving to a child. It spreads germs that can cause cavities.
- Do not let children share each other's pacifiers.
- Frequently check the pacifier, especially the nipple end, to make sure it has not become brittle and to see whether the rubber has changed color or is torn; discard if the nipple has become sticky, swollen, or cracked.

- Never substitute a bottle nipple for a pacifier.
- Pacifiers have a tendency to fall on the ground and children's hands are often dirty, so make sure to wash pacifiers and children's hands often with mild soap and rinse with water to limit exposure to germs.

## Thumb or Finger Sucking Versus a Pacifier

There are definitely conflicting views on this. Some feel that the pacifier may cause more dental problems, is more unsanitary, and may hinder successful breastfeeding, while others feel that breaking the pacifier habit is easier than with the thumb or finger because a pacifier can be taken away. Studies have shown that children who suck their thumbs or fingers generally have a greater difficulty breaking their habit than do children who use pacifiers.

## Should You Be Concerned?

A primary concern is to avoid dental problems that may occur if a child continues thumb, finger or pacifier sucking during the emergence of the adult (permanent) teeth, around age 5. After permanent teeth come in, thumb, finger and pacifier sucking may cause problems with the proper growth of the mouth and alignment of the teeth. According to the American Academy of Pediatric Dentistry, extensive sucking of thumbs, fingers or pacifiers has a tendency to put pressure against and push the front teeth out of alignment causing teeth to protrude. This pressure is likely to cause changes to the roof of the mouth, an open bite (vertical gap between upper and lower front teeth), or overbite (horizontal gap between upper and lower front teeth). It is possible that these conditions will self-correct, especially if the habit ceases before the eruption of the adult teeth.

Conclusively, experts agree that prolonged sucking of thumbs, fingers or pacifiers during and after the eruption of the permanent teeth can hinder proper growth and development of the teeth and gums. Sucking of the thumb or finger or use of a pacifier beyond 6 to 7 years of age can affect the shape of a child's mouth or teeth, resulting in reparative orthodontia later on. If you notice changes in the roof of the child's mouth (palate) or in the way the teeth are

lining up, then encourage the child's family to talk with their pediatrician or pediatric dentist.

## How to Help a Child Stop the Habit

Children generally forego non-nutritive sucking long before any permanent damage is done. However, some children need to be helped to stop the habit before it will cease. Attempts to steer children away from the habit can backfire if they are not tempered with positive support and guidance. Refrain from harsh words, nagging, teasing, belittling, pulling the finger or pacifier out of a child's mouth, or punishing the child to stop the behavior. These methods may upset the child, increase anxiety and stress, and worsen the habit.

- Parents and caregivers can assist children with strong emotional support through a variety of methods. Start by gradually weaning children from the habit over time. Explain that they must stop the habit in order for their teeth to come in straight.
- Children often suck their thumbs when feeling insecure or needing comfort. Focus on correcting the cause of the anxiety and provide comfort to the child.
- Have a special place for the pacifier that's out of sight, so that children must ask for it.
- Praise and reward children when they don't suck their thumb or use the pacifier. Look for times when the children do not have the thumb, finger or pacifier in their mouth, and provide words of encouragement, a pat or hug. Let them know that you are aware of the effort they are making to change the habit and that you appreciate it.
- Star charts, daily rewards and gentle reminders, especially during the daytime hours, are also very helpful.

*by Mardi Lucich, MA Revised Nov 2005*

## Reference

*American Academy of Pediatric Dentistry Fast Facts at [www.aapd.org/pdf/FastFacts02-03.pdf](http://www.aapd.org/pdf/FastFacts02-03.pdf).*

# Tooth Decay in Young Children

Dental caries (cavities or holes in teeth caused by decay) is the most common chronic childhood disease and occurs five times more often than the next most widespread disease, asthma (CDC, 2000). Early Childhood Caries, also called baby bottle tooth decay, is the term used for dental disease in infants, toddlers and preschool-age children, and may happen in children as young as 6 to 12 months.

## What causes tooth decay?

Caused by *Streptococcus mutans* and *Lactobacillus* species that are able to produce lactic acid, dental caries can spread from one person to another. Children are not born with these bacteria, but are infected some time in their early life. Usually the bacteria is passed from the mother or caregiver to the child via saliva through shared toothbrushes, utensils, cups, or pacifiers that have been “cleaned” with saliva.

## How does dental caries develop?

Four factors play roles in the development of caries: a vulnerable tooth; acid-producing bacteria; fermentable carbohydrates (sweet liquids, juice, milk, formula); and time (how long or how often teeth are exposed to sugar). Together these factors create an environment for the bacteria to multiply rapidly, and produce acids that slowly dissolve the minerals in teeth, causing tooth decay. Young children are especially at risk because they depend on adults to provide adequate oral care.

## How can you recognize dental caries?

The appearance depends on how advanced the dental caries is.

- A dull white band along the gumline is the first sign of demineralization (reduced calcium in the tooth.)
- A yellow, brown or black collar around the neck of the teeth indicates that the demineralization has progressed to cavities.
- Teeth that look like brownish black stumps indicate that the child has advanced cavities.

## Why be concerned about baby teeth?

Healthy baby teeth guide permanent teeth into place. For many children, tooth decay can be severe and painful, can interfere with eating, sleeping, speaking, learning and playing, and may cause low self-esteem. Treatment can be expensive and require general anesthesia.

## How can tooth decay be prevented?

As a bacterial infection caused by specific bacteria, caries is preventable. You and your child care provider can play an important role in reducing the risk of early childhood caries, protecting your child’s smile and health.

### Reduce bacterial transmission to children

- Minimize the bacteria in your mouth by brushing and flossing your teeth and visiting your dentist regularly, especially when pregnant.
- Avoid saliva-to-saliva contact with your child by not sharing spoons, chewing food for your baby, or putting pacifiers in your mouth.

### Start cleaning teeth early

- As soon as your infant’s first tooth erupts, wipe it daily with a clean damp cloth. Switch to a small soft toothbrush as more teeth come in.
- Brush children’s teeth twice a day until they can brush alone (around age 4 or 5), then closely supervise to ensure proper brushing and use of toothpaste.
- Encourage swishing the mouth with water after meals to dislodge food particles from teeth.
- Take infants for a dental exam by the age of 1 year or as the first teeth emerge.

### Use care if bottle feeding

- Breastfeed your baby—it is the healthiest option and breastfed babies have a reduced risk of dental caries. If bottle feeding is necessary, take the bottle away when the child has had enough.
- Never allow the child to fall asleep with a bottle of milk, formula, fruit juice, or sweetened liquids.
- Introduce a feeding cup between age 6 to 8 months. Wean from the bottle by the first birthday.
- Encourage children to drink water rather than fruit juices or sweet drinks when thirsty.

by A. Rahman Zamani, MD, MPH

### References and Resources

*Oral Health in America: A report of the Surgeon General*, 2000. [www.surgeongeneral.gov/library/oralhealth](http://www.surgeongeneral.gov/library/oralhealth).

*The Oral Health of California’s Children: Halting a Neglected Epidemic*, The Dental Health Foundation, 2002.

*Early Childhood Caries*, California Dental Association. [www.cda.org/articles/babybottle.htm](http://www.cda.org/articles/babybottle.htm).

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# CARIES-RISK ASSESSMENT TOOL (CAT) (MODIFIED FOR CCHCS)

To help identify children’s level of risk for cavities and other oral problems.

The American Academy of Pediatric Dentistry, the developer of this tool (AAPD, 2002), “...encourages both dental and nondental health care providers to use CAT in the care of infants, children, and adolescents.”

- The child’s classification is determined by the HIGHEST risk category, which means that the presence of even one risk indicator in the high-risk category is sufficient to classify the child as being high-risk. Therefore, a child designated as low-risk would not have ANY moderate-risk or high-risk indicators.
- The CAT should be applied periodically as a child’s risk status may change over time.
- CAT does not render a diagnosis. It is a tool to help the CCHC make recommendations to parents.

## Glossary:

CCHC: Child Care Health Consultant

CCHA: Child Care Health Advocate

CCF: Child Care Facility

Pro-cavity snacks: foods thought to promote cavities, e.g., containing a higher proportion of simple sugars

Indicator	Low risk	Moderate risk	High risk
Clinical conditions	No cavities in past 24 months  No white spot lesions (enamel demineralization)  No visible plaque, gums not swollen	Cavities in past 24 months  1 white spot  Gums swollen (gingivitis)	Cavities in past 12 months  More than 1 white spot  Visible plaque on front teeth  Pits on enamel surface
Environmental characteristics	Tap water is fluoridated  Pro-cavity snacks are eaten mostly at mealtimes at Child Care Facility (CCF)  Parent/caregiver has middle-to-high Socio-Economic Status (SES)  If child is 1 year old or older, has a “dental home” (and receives regular check-ups)	Tap water is not fluoridated but child gets fluoridated products at CCF  Pro-cavity snacks eaten 1-2 times in CCF outside of mealtimes  Parent has moderate SES, e.g., child qualifies for reduced or free school lunch  No dental home	Tap water not fluoridated, child doesn’t use fluoridated products at a CCF  Pro-cavity snacks eaten 3 or more times in CCF  Parent has low SES, e.g., child qualifies for Medi-Cal  No dental home
General health conditions			Child has special health care need <sup>1</sup>  Child produces excessive or deficient saliva

<sup>1</sup>Examples of special health care need include chronic physical, developmental, behavioral or emotional conditions that require health and related services beyond that required by a generally healthy child.

# NOTICE TO PARENTS ABOUT CAT ASSESSMENT FINDINGS AND RECOMMENDATION

## Help your child have a healthy mouth!

Dear Parent/Caregiver,

Your child's teeth and mouth were checked by \_\_\_\_\_, using the Caries-Risk Assessment Tool (CAT)\* adapted for child care settings. The CAT was developed by the American Academy of Pediatric Dentistry to help identify children who are at risk of dental problems. According to the CAT findings, your child is:

- Low risk: your child seems to have healthy teeth and gums. Keep up the good work!
- Moderate risk: your child needs dental care soon. Please ask your child's medical doctor if you need help finding a dentist.
- High risk: your child needs to visit a dentist very soon! Please ask your child's medical doctor if you need help finding a dentist. Make an appointment as soon as possible.

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## ¡Ayude a su hijo a tener una boca sana!

Querido padre/proveedor de cuidados infantiles:

Los dientes y la boca de su hijo(a) se examinaron el \_\_\_\_\_ utilizando un Instrumento para la Evaluación de Riesgo de Caries\* (Caries-risk Assessment Tool, CAT, por sus siglas en inglés) adaptado para centros de cuidados infantiles. La Academia Americana de Odontología Pediátrica desarrolló CAT como una ayuda para identificar a aquellos niños que corren el riesgo de tener problemas dentales. Según los resultados del examen con CAT, su hijo(a) corre un riesgo:

- Bajo: su hijo(a) tiene los dientes y las encías sanas. ¡Buen trabajo!
- Moderado: su hijo(a) necesitará cuidado dental pronto. Si necesita ayuda para encontrar un dentista, por favor, pregunte al médico de su hijo(a).
- Alto: su hijo(a) necesita ver a un dentista ¡muy pronto! Si necesita ayuda para encontrar un dentista, por favor, pregunte al médico de su hijo(a). Haga una cita tan pronto como sea posible.





# Oral Health for Children with Disabilities and Special Needs



Children with disabilities and special needs are at greater risk for health problems, require extra help and rely on others to achieve and maintain good health. Oral health is no exception. A clean mouth is one of their most important health needs for life and will be influenced by your ability to provide necessary support.

## Who are children with special needs?

Children with special needs are those who have or are at increased risk for a chronic physical, developmental, behavioral or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.

## Why are they at higher risk?

Common oral problems, such as tooth decay or gum disease, affect all children. But children with disabilities and other special needs have more oral health problems than the general population. For example, children with disabilities may have impaired cognitive abilities, behavioral problems, impaired mobility, neuromuscular problems (drooling, gagging and swallowing problems), uncontrolled body movements, gastroesophageal reflux, or seizures. These complications can be barriers to adequate oral care and put them at higher risk for developing oral health problems.

## What causes oral health problems in children with disabilities?

Some contributing factors to poor oral health in children with disabilities and other special needs are:

- **Oral Conditions.** Some genetic disorders in young children can cause defects in tooth enamel, missing teeth and teeth that do not align

properly. Children with Down syndrome often suffer from gum disease.

- **Physical limitations.** Children who cannot chew or move their tongues properly do not benefit from the natural cleaning action of the tongue, cheek, and lip muscles.
- **Difficulty brushing and flossing.** Children with poor motor coordination such as spinal cord injuries, muscular dystrophy, or cerebral palsy may not be able to clean their own teeth or use the usual brushing and flossing methods.
- **Reduced saliva flow.** Children who need help drinking may drink less fluid than other children, and may not have enough saliva in their mouth to help wash away food particles.
- **Medications.** Children using sweetened medications for a long time can get tooth decay. Some anti-seizure medications may cause swelling or bleeding in the gums.
- **Restricted diets.** Children who have difficulty chewing and swallowing may often eat pureed food which may stick to their teeth.

## Which children may require special oral health care?

Children may need special oral health care if they have any of the following conditions: Down syndrome, epileptic or seizure disorders, cleft lip or cleft palate, other structural anomalies of the head, face, and/or mouth, cerebral palsy, learning or developmental disabilities, vision or hearing impairments, or HIV infection.

## When should oral health problems be suspected?

A child with special needs may exhibit any of the following signs when there is an oral health problem: grinding teeth, food refusal or a preference for

softer foods, changes in behavior such as touching in or around the mouth, teeth, jaws and cheeks, foul smelling breath, or discolored teeth.

## Which oral health problems are common?

- Tooth eruption depends on genetic factors, growth of the jaw, muscular action and medications. It may be delayed, accelerated or inconsistent. Some children may not get their first primary tooth until they are 2 years old.
- Dental caries is common in children with developmental disabilities. In addition to problems with diet and oral hygiene, prolonged bottle feeding and the adverse side effects of certain medications contribute to dental caries.
- Periodontal disease occurs more often and at a younger age in children with developmental disabilities. Overgrowth of gums caused by medications used to treat seizures, high blood pressure and weak immune systems also increase the risk for periodontal disease.
- Malocclusion (a poor fit between the upper and lower teeth and crowding of teeth) occurs in many children with developmental disabilities. It may be associated with muscular abnormalities, delayed tooth eruption, or underdevelopment of the jaw. Teeth that do not align properly can make chewing and speaking difficult and increase the risk of periodontal disease, dental caries, and oral trauma.
- Damaging oral habits can be a problem for children with disabilities and special needs. Some of the most common of these habits are grinding or clenching, food pouching, mouth breathing, tongue thrusting, picking at the gums or biting the lips.
- Tooth anomalies affect many children with disabilities. They may present with variations in the number, size and shape of teeth.
- Trauma and injury to the face and mouth from falls or accidents occur more frequently in children who have mental retardation, seizures, cerebral palsy, abnormal protective reflexes or lack of muscular coordination.

## Are special skills needed to provide appropriate oral care?

Child care providers who care for children with spe-

cial needs are also responsible to take care of their mouth. Providers need to develop a special care plan and may need to seek professional guidance or obtain appropriate training in order to care for children with disabilities and special needs. The skills needed to promote oral health are just slightly different from those required to meet the oral care needs of other young children in child care.

## Tips to remember

- Adults can spread the germs that cause cavities. Do not put anything in a child's mouth if it has been in your mouth.
- Remember that children, particularly those with disabilities and special needs, require adult help to brush their teeth thoroughly.
- If the child has a problem grasping the toothbrush, make the toothbrush easier to hold by building up the handle with tape. There are also specially shaped brushes.
- Good nutrition, which is good for the body, is also good for the mouth. Soda, sweet drinks, candy and other sweets or foods containing sugar can cause cavities.
- Using fluoride reduces cavities, so brush teeth using a pea-sized dab of fluoridated toothpaste.
- Regular dental visits are important.
- Prevent baby bottle tooth decay—don't leave a child sleeping with a bottle that contains anything but water.

For additional tips and resources on the oral health needs of young children, call the Healthline at (800) 333-3212.

## References and Resources

National Institute for Dental and Craniofacial Research at [www.nidcr.nih.gov](http://www.nidcr.nih.gov).

American Academy of Pediatrics (AAP) [www.aap.org](http://www.aap.org).

About Smiles at [www.aboutsmiles.org](http://www.aboutsmiles.org).

First 5 California at [www.first5oralhealth.org](http://www.first5oralhealth.org).

By *A. Rahman Zamani, MD, MPH (rev. 10/06)*

# Toothbrushing Is Important

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Good oral hygiene is important and recommended for children of all ages and from the time their first teeth erupt. Brushing teeth removes plaque, keeps the mouth clean and healthy, and improves a child's breath and sense of taste. In addition, using toothpaste with fluoride helps fight caries (cavities) while strengthening the tooth. Recent research also shows that regular brushing may help protect your heart from bacterial infection.

## What is dental plaque?

Dental plaque is a clear, thin and sticky film composed of bacteria, food debris and salivary components. Plaque accumulates on teeth and is linked with both dental caries and gum disease. Mechanical removal of plaque by brushing is the most effective method of cleaning teeth and preventing gum disease.

## Start cleaning teeth early

**Infants.** Wipe their gums and teeth with a clean moist cloth after meals and again before bed.

**Toddlers and Preschoolers.** Start teaching them to use a toothbrush when they are about 2 years old. Young children want to hold the toothbrush and participate in toothbrushing. Since they do not have enough fine motor control, they need your help.

**School-Age Children.** Supervise and help them until age of 8—the age most children acquire fine motor skills such as the ability to tie their shoelaces or completely dress themselves.

## Brushing technique

Instruction and supervision are important to establish effective toothbrushing habits in children. Children, like adults, should brush their teeth at least twice

a day, preferably after breakfast and before bed at night.

Start by brushing their teeth for them. Place them in your lap with both of you facing the same direction, so that you can see their mouth and they feel secure. Cup their chin in your hand with their head resting against your body, and clean their teeth as you would your own. Try to clean all tooth surfaces—brush at the gum line and then behind the teeth.

Supervise children as they get older. Teach and encourage them to brush their own teeth, but keep in mind that you will need to help them for a few years. Due to their limited fine motor skills, children should scrub their teeth using small circular motions. Teach children to brush lightly (to avoid hurting their gums) and spit out the toothpaste.

## Use the right toothbrush and toothpaste

The toothbrush should be soft and child size. For infants, use a brush that is easy for the parent to hold and small enough to fit in the infant's mouth. For young children, use an appropriate-size toothbrush with a wide handle. For children with special needs and disabilities, a variety of special handles are available to make grasping easier.

Every child should have his or her own toothbrush. Use a tiny smear (pea-size amount) of fluoride toothpaste. Children usually like the taste and may eat the toothpaste, but swallowing too much fluoride can lead to the development of white spots on the teeth (dental fluorosis). Teach children to spit toothpaste out.

## When to replace toothbrushes


Replace toothbrushes every three months or more frequently if they show signs of wear, become contaminated through contact with another brush or child, or after a child has an infection. Toothbrushes should be rinsed after each use and air dried. If multiple brushes are stored in the same holder, do not allow them to touch each other.

*by A. Rahman Zamani, MD, MPH*

## Resources

First 5 Oral Health at [www.first5oralhealth.org](http://www.first5oralhealth.org).

California Childcare Health Program at [www.ucsfchildcarehealth.org](http://www.ucsfchildcarehealth.org).



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# Oral Health and Pregnancy

As a woman you have special needs at different points of your life. Your oral health is no exception, and can be affected by hormonal changes during puberty, menstruation, pregnancy and menopause. While good oral health, which includes care of the teeth, gums and mouth, is important in any stage of your life, it is very important during pregnancy.

## What are some common dental problems during pregnancy?

Pregnant women are at higher risk for developing tooth decay. They are also particularly vulnerable to gum disease (gingivitis) and a chronic bacterial disease that affects the gums, attachment fibers and bone supporting the teeth (periodontal disease or periodontitis). These risks increase in women who smoke, experience nutritional deficiencies, or have less frequent visits to the dentist. Gingivitis is often caused by inadequate oral hygiene and is reversible with professional treatment and good oral care. Untreated gingivitis can advance to periodontitis.

## How does pregnancy affect teeth and gums?

- Pregnant women and those who take some oral contraceptives experience high levels of the hormone progesterone. Elevated levels of this hormone increase gum sensitivity to the bacteria found in plaque and may cause gingivitis (red, puffy or tender gums that easily bleed when brushing).
- Increased need and desire for food and snacking, especially on sticky foods that stay on teeth longer, may cause tooth decay.
- Morning sickness (nausea and vomiting) during pregnancy can also increase the incidence of dental health problems. Frequent vomiting can leave stomach acids in the mouth. If this acid is not cleared away quickly, it can damage surfaces of teeth and cause tooth decay.

- Pregnant women sometimes get very busy and may run out of time and energy to care for themselves and their dental health.
- In addition, pregnant women may not experience symptoms until they reach advanced disease stages.

## Could gum disease affect your baby's health?

Anything that damages a mother's health can also affect her baby. Emerging evidence and new research have shown a relationship between pre-term, low birth weight babies and gingivitis. The excessive bacteria which cause gingivitis can enter the bloodstream through the gums and travel to the uterus, triggering the production of chemicals called "prostaglandins," which are suspected to induce premature labor.

## Are x-rays safe?

If you are pregnant, you can postpone dental x-rays until after your baby is born. If your dentist recommends dental x-rays, the dental office will provide a leaded apron to shield you and your baby from the low dose of radiation used.

## Ways of keeping your teeth healthy

**Chew sugar-free gum with xylitol** in it right after eating to prevent the spread of germs to your children.

**Practice good dental hygiene.** To help prevent tooth decay and gum disease, keep your mouth clean, brush your teeth thoroughly and remove plaque. Clean between teeth daily with floss or inter-dental cleaners.

**Visit the dentist regularly.** Regular dental cleanings and check-ups before, during and after your pregnancy are important. Let your dentist know that you are pregnant.

**Eat healthy, nutritious food.** Your baby's teeth begin to develop between the third and sixth month of pregnancy. Eating a balanced diet (based on new dietary guidelines) is not only necessary for your health, but what you eat during pregnancy also affects the development of your unborn child—including teeth. Avoid foods that are sticky or contain a lot of sugar. These foods can cause tooth decay.

## References and Sources

American Dental Association at [www.ada.org](http://www.ada.org).  
American Academy of Periodontology at [www.perio.org](http://www.perio.org).



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# Good Nutrition and Healthy Smiles

Good nutrition is not only necessary for general health, it also plays a key role in the development and protection of good oral health.

## Being healthy means good oral health

Oral health is essential to general health and means more than healthy teeth and the absence of disease—it means that the teeth, gums and mouth are healthy, comfortable and functional. Oral health facilitates good nutrition as well. We need healthy teeth and gums to effectively chew and swallow our food and absorb nutrients essential for the body's general health. In turn, good nutrition and healthy eating promote good oral health.

## The importance of healthy eating

Development of primary teeth starts during the second month of embryonic life, and these teeth begin to calcify before birth. Permanent teeth start to calcify just before birth and by age 8 years the crowns of all permanent teeth, except the third molar, are formed. What we eat and drink not only plays an important role in the development and protection of these teeth and gums—in fact, two of the most common diseases (tooth decay or cavities and gum disease) can be prevented by simply improving the diet. Gum disease affects the soft tissues that help support the teeth and is the leading cause of tooth loss in adults.

The following nutrients are important for good oral health:

- **Protein** is important for the formation of teeth. Malnutrition causes significant delay in eruption of primary teeth and studies suggest a relationship between early malnutrition and dental caries (under-developed teeth and under-calcified teeth are vulnerable to cavities).
- **Calcium, vitamin D, and fluoride** are needed to build strong teeth through the process called tooth

calcification. Vitamin D deficiency during childhood causes delay in appearance of the baby and permanent teeth, and creates problems in the order in which the teeth come in. Fluoride reduces dental decay by making it harder for the tooth enamel to break down, reducing the ability of bacteria to produce acid, and promoting mineral replacement.

- **Vitamins C and K** play an important role in keeping gums healthy. Vitamin C helps keep gum tissue strong and vitamin K helps control bleeding. Vitamin C deficiency affects gums and soft tissues that help support the teeth.
- **Vitamin A** deficiency during tooth formation is reported to interfere with tooth calcification and result in the incomplete development or underdevelopment of the enamel.
- **Riboflavin** deficiency results in inflammation of the tongue, and inflammation and cracking of the lips.

## Eating habits that affect oral hygiene

### Inappropriate use of a bottle

In many cases, early childhood caries is caused by children using a bottle or sippy cup with juice or other sugary drinks rather than water. This can happen when children are put to bed with a bottle, or when they drink through a bottle or sippy cup frequently during the day.

### Food that is high in sugar or starch

While children and adolescents need diets that provide them with lots of energy, this doesn't mean that they should consume soft drinks and high sugar snacks throughout the day. Food that is high in sugar or starch (especially sticky foods), hard candies, soft drinks, fruit juices, cookies, pies, cakes and potato chips are linked to higher levels of cavity-causing bacteria. They can lead to cavities because they react with bacteria on the teeth to produce acids that eat away tooth enamel.

### Frequency of eating

Besides good oral hygiene, frequency of eating is the most important factor related to dental caries. The more frequent the food intake, the greater the risk for caries, because a high frequency of eating encourages the growth of bacteria in the mouth that, in turn, leads to increased acidity in the oral cavity.

### Reference

American Academy of Pediatrics. (2004). *Pediatric Nutrition Handbook, Fifth Edition*.

Revised 11/05



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# Fact Sheets for Families

## Dental Caries

Dental caries (tooth decay) is one of the most common diseases of childhood. It is an infectious disease, caused by bacteria (germs), but many factors are involved in the process.

### How is tooth decay formed?

Tooth decay is a spot on a tooth where minerals have melted away and a hole has formed. This process, called demineralization, is caused by acids that are created by certain types of bacteria living in our mouths.

### Factors that can affect your child's risk for developing tooth decay

#### Family history of caries

- *History of previous caries, cavities or fillings* in children under the age of 5 places a child at high risk for future decay.
- *Areas of demineralization, bleeding gums or visible plaque on teeth* means bacteria that can cause cavities or infection of the gums are not being removed regularly.
- *Mother and family members with cavities* means that dietary practices or preventive habits need to be improved.

#### Weaning and other dietary habits

- *Feeding bottles containing something other than milk or water* (e.g., soda, juices) increase your child's risk for tooth decay.
- *High frequency of sugar containing foods* (candy, sugary foods, beverages with sugar), can increase acid production and contribute to mineral loss and tooth decay.

#### Oral hygiene and adequate fluoride

- *Poor oral hygiene* helps build up of acid producing bacteria as plaque in your child's mouth.

- *Helping your child to brush* their own teeth will ensure proper removal of plaque and development of healthy habits.
- *Fluoride toothpaste* can help prevent tooth decay by reducing the loss of minerals and reversing the demineralization process at the early stages of decay.
- *Drinking water that contains proper amount of fluoride* is an easy, safe and effective way to reduce tooth decay.

#### Special health care needs

- *Special health care needs or disabilities and medical conditions* may make it difficult for some children and their caretakers to clean their child's teeth.
- *Medicines that produce a "dry mouth" or contain high levels of sugar* put these children at higher risk for tooth decay.
- *Braces, retainers or other orthodontic appliances* often trap plaque and make it difficult to remove acid-producing bacteria.

#### Dental home and access to dental/health care

- *Regular dental check-ups* can help find decay in its early stages.
- *Fluoride treatments* by health professionals can provide protection against cavities and help repair of damaged teeth.
- *Dental sealants* are usually placed on the biting surfaces of the "back teeth" to keep plaque out and help prevent decay.
- *Caries removal/treatment* can help keep oral health in best possible condition.
- *Poverty, social deprivation and low education of parents* are examples of circumstances that may indicate barriers to accessing dental care and increased caries risk.

It is important to make sure your child's teeth stay healthy. visit [www.ucsfchildcarehealth.org](http://www.ucsfchildcarehealth.org) or call the Healthline at (800) 333-3212.

by **A. Rahman Zamani, MD, MPH**

#### References and Resources:

American Academy of Pediatrics Policy statement, Oral Health Risk Assessment Timing and Establishment of the Dental Home. PEDI-ATRICS Vol. 111 No. 5 May 2003, pp. 1113-1116. Online at <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;111/5/1113.pdf>

California First Smile online at <http://first5oralhealth.org>

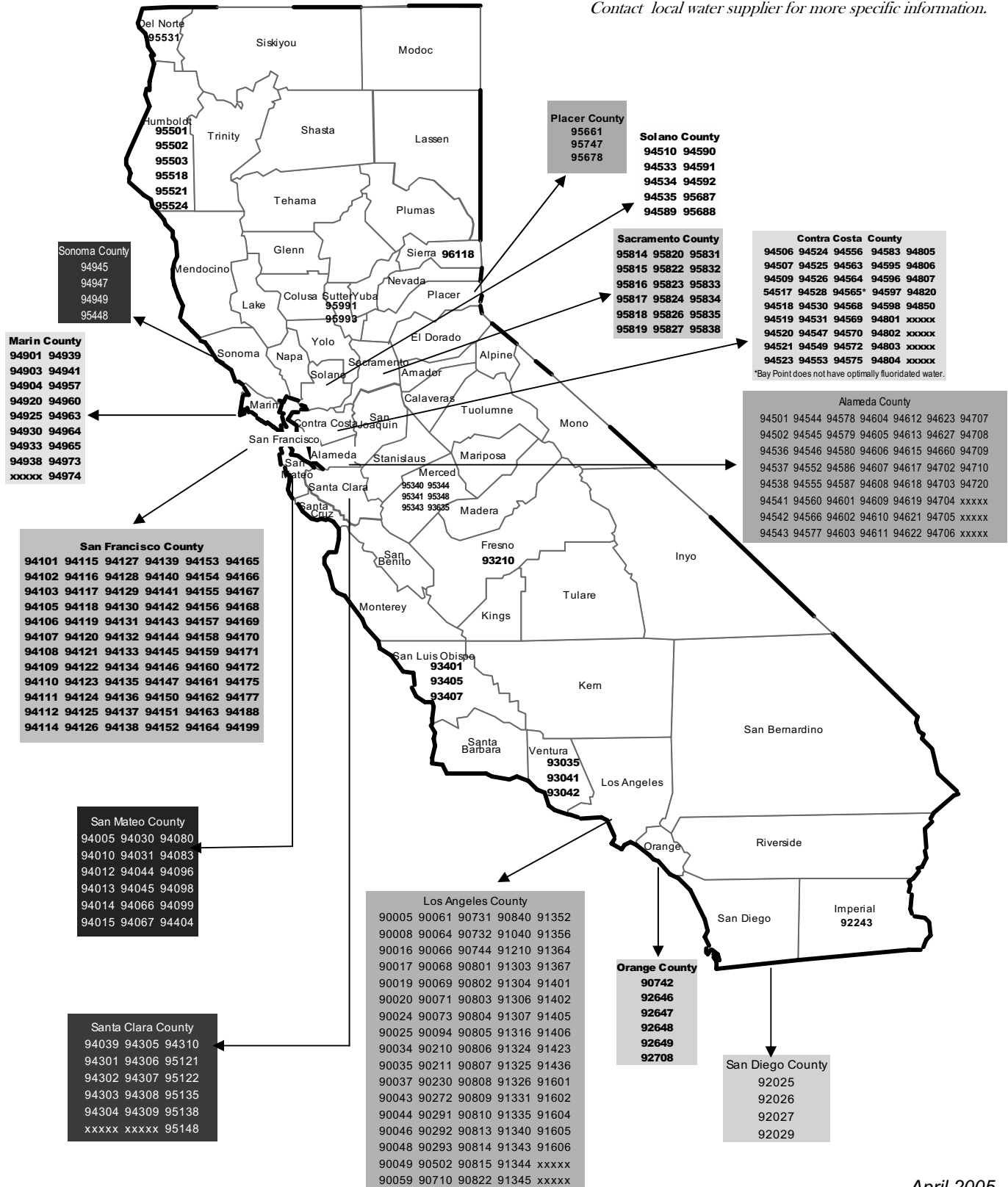


Provided by California Childcare Health Program  
For more information, please contact:  
Healthline 1-800-333-3212

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# Optimally Fluoridated Areas by Zip Code

*This is a general guide, and does not include naturally fluoridated areas. Contact local water supplier for more specific information.*



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