

MAJOR TOPICS

- **Pregnancy and Oral Health**
- **Oral Hygiene**
- **Fluoride**
- **Dental Home**
- **Nutrition**
- **Oral Habits**
- **Importance of Baby Teeth**



Time periods to consider

Mother

- Expectant mother
- New mother

Developing child before birth

Infant and young child

- Infant before baby teeth
- Infant and children with baby teeth
- Transition from baby teeth to permanent teeth



ORAL HEALTH

- * Mothers
- * Infants
- * Children



Prenatal Oral Health Care Resources

- Oral Health Care During Pregnancy Expert Workshop 2012. Oral Health Care During Pregnancy: A National Consensus Statement. Washington, DC: National Maternal and Child Oral Health Resource Center.
- National Maternal and Child Oral Health Resource Center. 2015. Promoting Oral Health During Pregnancy: Update on Activities – February 2015. Washington, DC.



Changes to oral health of mother during pregnancy

Hormonal changes

- Pregnancy gingivitis
 - Most common oral disease during pregnancy
 - Gums more sensitive to dental plaque, which can cause swelling and bleeding
- Salivary changes – excess saliva or dry mouth
- Pregnancy tumors of the gingiva – growth that subsides after pregnancy
- Metallic or sour taste
- Mobile teeth not related to periodontal disease



Changes to oral health of mother during pregnancy

Nausea and vomiting

- Nausea may cause increased intake of antacids that contain sugar and add to the risk of dental caries.
- Vomiting can produce erosion of teeth, if one brushes too soon after vomiting.

Dietary changes

- Odd cravings may lead to increased consumption of foods with carbohydrates and sugars, adding to the risk of caries.



Changes to oral health of mother during pregnancy

Dental Caries

- Pregnancy does not weaken teeth or necessarily predispose women to tooth decay.
- Pregnancy does not cause minerals to be removed from teeth.
- However, changes in dietary habits, frequent acid challenges and hormonal changes may add to the risk of dental caries during pregnancy.



Dental caries, periodontal disease and pregnancy outcomes

- Tooth decay and gum disease are bacterial and/or inflammatory diseases.
- Any infection or inflammation during pregnancy can be a concern for the health and safety of the mother and her unborn child.



Dental caries and pregnancy outcomes

Tooth decay during pregnancy **may influence** pregnancy outcomes via inflammation pathways and has been *associated* with:

- Pre-term birth;
- Low birth weight babies; and
- Pre-eclampsia.

Madhu, Wagle et. al., Dental Caries and Pre-term Birth: A Systemic Review and Meta-Analysis. *BMJ Open* 2018; 8: e018556.



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Periodontal disease and pregnancy outcomes

Gum disease during pregnancy may influence pregnancy outcomes via inflammation pathways and has been *associated* with:

- Pre-term birth;
- Low birth weight babies; and
- Pre-eclampsia.

Vivares – Builes, Annie et. al., Gaps in Knowledge about the Association between Maternal Periodontal Status and Adverse Obstetric outcomes. An umbrella Review. *J Evid Base Dent Pract* 2018: 1-27.



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Pregnancy Outcomes - Caveats

- Associations may be merely a statistical finding and do not necessarily indicate a cause and effect relationship between a purported risk factor and a disease.
- There is still a lot of uncertainty about whether dental caries and/or periodontal disease actually causes adverse pregnancy outcomes.



A more certain relationship

Keeping your mouth healthy is important for
your baby to have a healthy mouth.



CAMPAIGN FOR
DENTAL HEALTH
life is better **WITH TEETH**

American Academy
of Pediatrics



DEDICATED TO THE HEALTH OF ALL CHILDREN*

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Poor oral hygiene during pregnancy can adversely effect teeth of newborn

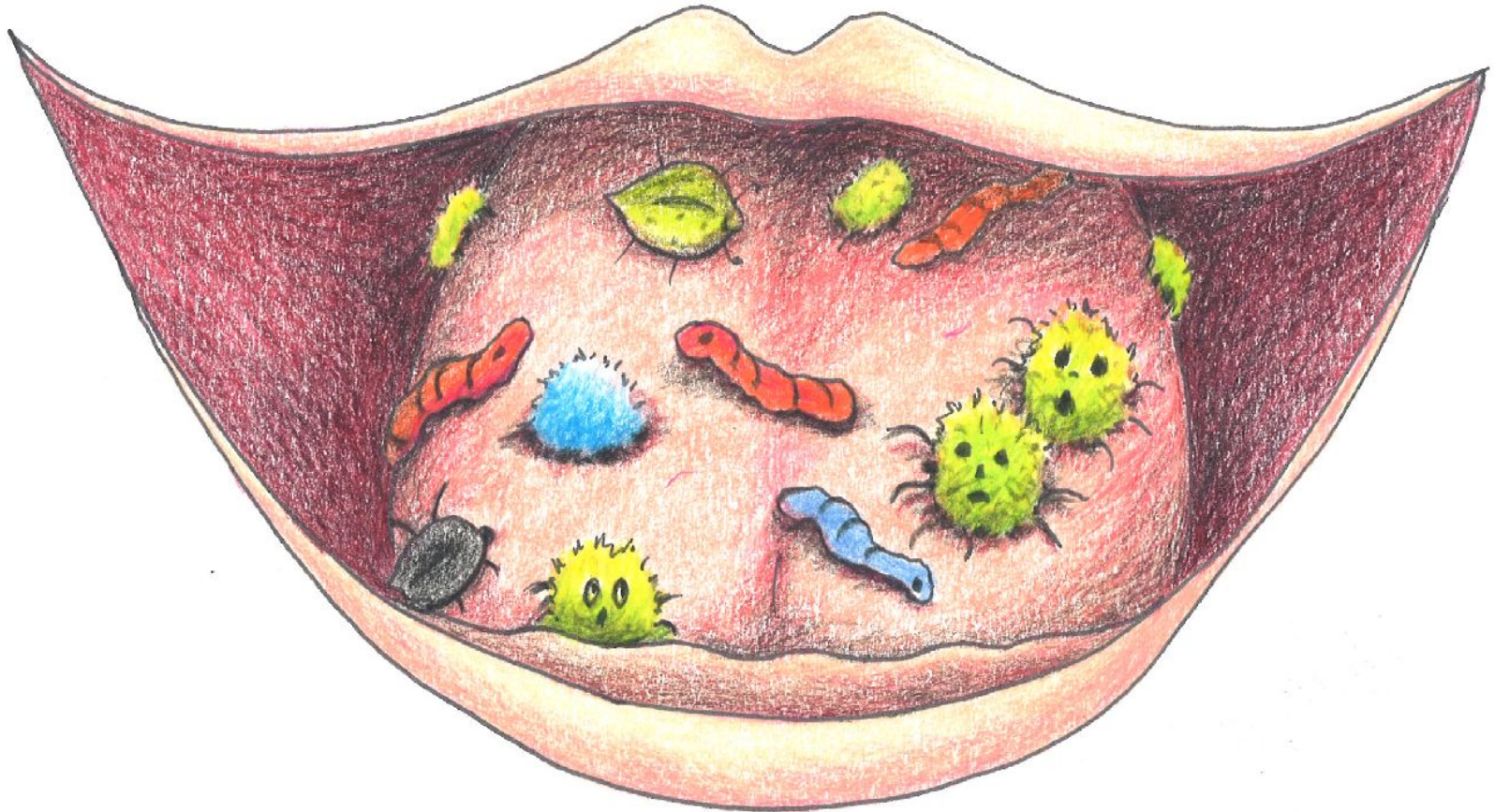
- If an expectant mother has poor oral hygiene, then decay-causing bacteria can multiply.
- When a baby is born, the mother can pass these bacteria from her mouth to the infant, adding to the risk of the infant developing tooth decay.
- Note: If a new mother has help from a caregiver, poor oral hygiene in that caregiver can also put an infant at risk of tooth decay.

Smith, Daniel. Caries vaccines for the 21st Century. *Journal of Dental Education* 67(10): 1130-1139.



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Poor oral hygiene by the expectant mother can increase the number of dental caries causing bacteria



Poor oral hygiene during pregnancy can adversely effect teeth of newborn

- Babies are not born with cavity causing oral bacteria.
- However, if the mother or primary caregiver has high levels of cavity causing bacteria, these can be passed to the baby.
- The higher the level of these bacteria in the mother's or primary caregiver's mouth, the more likely her baby will develop dental decay.

Smith, Daniel. Caries vaccines for the 21st Century. *Journal of Dental Education* 67(10): 1130-1139.



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Poor oral hygiene during pregnancy can adversely effect teeth of newborn

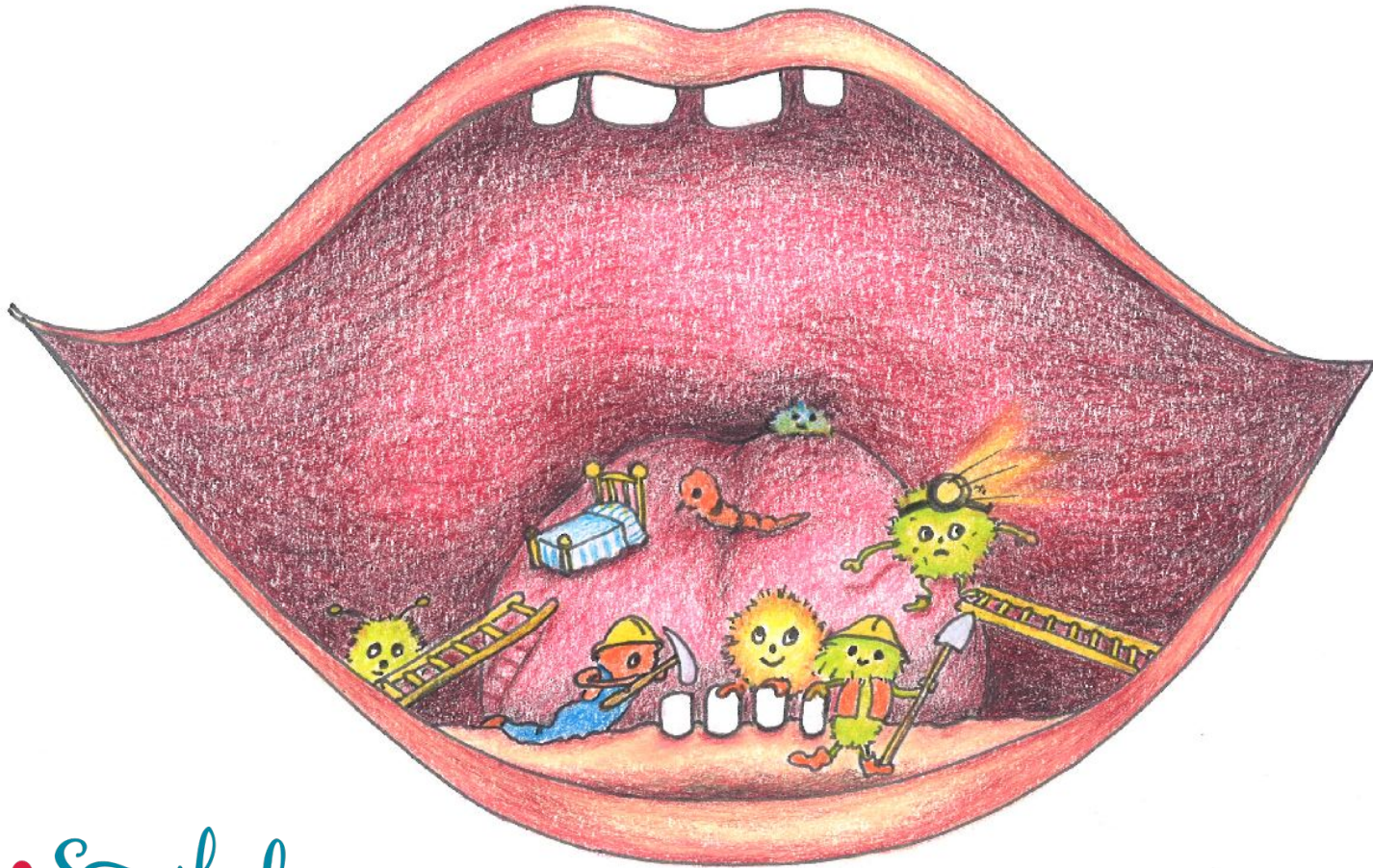
- If high levels of cavity causing bacteria are passed to the baby, then once the baby teeth erupt they are susceptible to decay.
- If the level of these bacteria is high enough the baby teeth can start to develop caries immediately.
- Caries can progress very quickly to dental decay and cavities; some parents comment that the decay seemed to appear overnight.

Smith, Daniel. Caries vaccines for the 21st Century. *Journal of Dental Education* 67(10): 1130-1139.



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Cavity causing bacteria passed to infant by mother can put baby's teeth at risk of decay



Pregnancy Outcomes

- The good news is that good oral hygiene, other preventive steps and normal dental care can reduce or even eliminate the risk of passing these bacteria to an infant.
- Furthermore, normal oral hygiene activities and other preventive steps, as well as routine dental care are considered **safe during pregnancy**.



Good oral hygiene during pregnancy can positively effect teeth of newborn

If a mom takes good care of her oral health during pregnancy, she has less decay-causing bacteria to pass to her newborn, which **reduces the risk** of the infant developing tooth decay.



Important Messages

- If an expectant mother practices good oral health care during her pregnancy, she can improve her oral health and improve the chances of her new baby having good oral health.
- Once the baby is born, it is important that the mother continues her own oral health care and institutes appropriate oral health care for her new baby.



Basics of Prevention

Oral Hygiene

- Brushing
- Flossing

Fluoride

- Community water with fluoride
- Toothpaste
- Fluoride varnish
- Fluoride supplementation

Dental Home

- During and after pregnancy
- Finding a dental home



Prenatal Oral Health Care for Expectant Mom

Oral Hygiene

- **Brush teeth with fluoridated toothpaste twice a day.**
 - If toothpaste causes nausea, a different flavor and/or reduced amount of toothpaste may be used.
 - If toothpaste cannot be tolerated, it can be eliminated; but, brushing should be continued without the toothpaste.
 - The toothbrush should be replaced every 3 or 4 months, or more often if the bristles are frayed.
 - The toothbrush should not be shared with an infant or anyone else.
- **Clean between teeth daily with floss or an interdental cleaner.**
- **Rinse every night with an over-the-counter fluoridated alcohol-free mouth rinse.**



Prenatal Oral Health Care for Expectant Mom

Oral Hygiene

- **After eating, the expectant mom can use a xylitol product to enhance oral hygiene by:**
 - Chewing a xylitol-containing gum; or
 - Using other xylitol-containing products, such as mints, which can help reduce bacteria that can cause tooth decay.
- **If the expectant mother has morning sickness and vomiting:**
 - The mom can rinse her mouth with a teaspoon of baking soda in a cup of water to stop acid from attacking her teeth;
 - She can then brush her teeth once the acid has been neutralized.



Prenatal Oral Health Care for Expectant Mom

Prevention with systemic fluoride

- **Community Water Fluoridation**
 - The optimal level of **fluoride** maintained in **community water systems** is considered safe for both the expectant mother and developing child.
 - When an expectant mother drinks fluoridated water it will help prevent her from getting dental decay.
 - However, current thinking is that consumption of community fluoridated water by an expectant mom does not *directly* prevent decay in a newborn.

Takahashi R, Ota E, Hoshi K, Naito T, Toyoshima Y, Yuasa H, Mori R, Nango E. Fluoride supplementation (with tablets, drops, lozenges or chewing gum) in pregnant women for preventing dental caries in the primary teeth of their children. Cochrane Database of Systematic Reviews 2017, Issue 10. Art. No.: CD011850. DOI: 10.1002/14651858.CD011850.pub2.



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Prenatal Oral Health Care for Expectant Mom

Prevention with systemic fluoride

- **Fluoride Supplementation** – adding fluoride to water to bring the fluoride level to an optimum level
 - If the fluoride level in the mother's water is low, fluoride supplementation may improve her oral health, which as we have seen can help prevent decay in a newborn.
 - However, current thinking is that consumption of fluoride supplemented water by an expectant mom does not *directly* prevent decay in a newborn.
 -

Takahashi R, Ota E, Hoshi K, Naito T, Toyoshima Y, Yuasa H, Mori R, Nango E. Fluoride supplementation (with tablets, drops, lozenges or chewing gum) in pregnant women for preventing dental caries in the primary teeth of their children. Cochrane Database of Systematic Reviews 2017, Issue 10. Art. No.: CD011850. DOI: 10.1002/14651858.CD011850.pub2.



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Community Water Fluoridation

- The **Indiana State Department of Health Water Fluoridation Program** thinks there is strong evidence to support the fluoridation of water in a community water system to help prevent decay in the population served by that system.
- The ISDH encourages communities to seriously consider the benefits of maintaining the recommended level of fluoridation in a community water system to help prevent tooth decay.



Community Water Fluoridation

- The decision concerning whether a community fluoridates its water to help prevent dental decay is made by local officials in Indiana.
- If a community decides to fluoridate its water, then the Division of Environmental Public Health from the Indiana State Department of Health will provide staff that monitors and inspects the amount of fluoride added to the water and the maintenance of the equipment used to add the fluoride.



Indiana State Department of Health Water Fluoridation Program

Information pertaining to water fluoridation can be found at the following websites:

- <https://www.in.gov/isdh/23287.htm>
- <https://www.in.gov/isdh/24524.htm>



Prenatal Oral Health Care for Expectant Mom

Prevention with topical fluoride

- **Toothpaste**
 - As mentioned previously, an expectant mom should brush her teeth, at a minimum, twice a day with fluoridated toothpaste.
- **Fluoride Varnish** – Consult a dentist
 - Fluoride varnish may also be used during pregnancy in expectant moms at high risk for dental caries.
 - It can also be use to prevent enamel erosion due to frequent bouts of vomiting.

Giglio JA, Lanni SM, Laskin DM, Giglio NW. Oral health care for the pregnant patient. *J Can Dent Assoc* 2009;75(1):43-8.



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Prenatal Oral Health Care for Expectant Mom

The American College of Obstetrics and Gynecologists states,

...to potentiate general health and well-being, women should routinely be counseled about the maintenance of good oral health habits throughout their lives as well as the safety and importance of oral health care during pregnancy.

Committee on Health Care For Underserved Women: Oral Health Care During Pregnancy and Through the Lifespan



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Prenatal Oral Health Care for Expectant Mom

Dental Home

An expectant mom can:

- Call and verify that her dentist provides care during pregnancy;
- Let the dental office know how far along she is and inform office if she is considered a high risk pregnancy;
- Get a clearance form from her OB for dental treatment; some OB's provide this at first visit; and
- Ask for a referral to a dentist who can provide this care.



Preparing for New Baby

Dental Home

The American Academy of Pediatric Dentistry (AAPD) and the American Academy of Pediatrics (AAP) recommend that,

- Children have their 1st dental visit when the 1st baby tooth erupts, but no later than the 1st birthday.

Tips for finding a dentist for a newborn

- Many general and family dentists do not see infants and young children.
- If so, a general or family dentist may be able to provide the expectant mother a referral to a pediatric dentist for the baby.
- To find a pediatric dentist for a newborn, an expectant mom can also visit aapd.org.



Preparing for New Baby

Dental Home

To find a pediatric dentist for a new baby, an expectant mom can find a listing of pediatric dentists at: **aapd.org**, and then do the following:

- Call several pediatric dentists and ask if they are taking new patients;
- Ask the office policy concerning dental insurance and if they accept your insurance; and
- Ask for a office tour to meet the dentist and staff.



Postnatal Oral Health Care for New Mom

- After delivery of the new baby, a new mom should continue brushing with fluoride toothpaste twice daily and flossing daily.
- This is still a critical time for optimal oral health.
- Good oral hygiene in the mom helps prevent the growth of cavity-forming bacteria in her mouth and diminishes any such bacteria she might pass to her new baby.



Oral Health Care for Infant Before Baby Teeth

- The time before baby teeth erupt is a critical time.
- Oral hygiene for the baby, before teeth erupt, will help prevent bacteria from colonizing early in the mouth.
- This will help reduce the risk of dental decay developing once the teeth erupt.
- Wiping a baby's mouth out daily helps to get baby and parent used to cleansing the oral cavity.
- In addition to routine cleaning, cleaning should also be done after each feeding.
- Also, clean the pacifier.



Oral Health Care for Infant With Baby Teeth

Oral hygiene for a baby with baby teeth

With the eruption of the 1st baby tooth:

- A mom should switch from wiping the baby's mouth out with an infant washcloth to using a toothbrush for oral hygiene;
- Brush teeth, gums, cheeks and tongue;
- Routine brushing is twice a day – morning and last thing before bed; and
- Also, should try to brush after each feeding.



Oral Health Care for Infant With Baby Teeth

Oral hygiene for a baby with baby teeth

- A parent should brush a child's teeth while the child is gaining the manual dexterity to brush on his/her own teeth.
- Children frequently start trying to brush their own teeth at about the same time they start trying to cut their food with a knife and fork.
- Regardless of how soon a child appears to be brushing well, a parent should continue to brush the child's teeth with fluoridated toothpaste until age 6-7 years.



Oral Health Care for Infant With Baby Teeth

Systemic fluoride for a baby with baby teeth

- **Community water fluoridation**
- **Fluoride supplements**
 - A dentist can determine if supplementation is necessary.
 - Supplementation may continue until the child is aged 16 years and the 3rd molars are finished forming within the bone and gums.



Oral Health Care for Infant With Baby Teeth

Topical fluoride for a baby with baby teeth

Toothpaste

- A smear/rice-size amount of fluoride toothpaste should be used twice a day with brushing. (AAPD)
- This amount of toothpaste will contain enough fluoride to work while not harming the baby when swallowed.

Fluoride varnish

- The child's dentist can talk to the mom about the possible use of fluoride varnish for the child, depending on child's risk for dental caries.



Oral Health Care for Infant With Baby Teeth

Dental Home for a baby with baby teeth

When and how often should the baby be taken to the dentist?

- Visit the dentist at the eruption of the **1st baby tooth** or the **1st birthday**, *whichever occurs first.*
- Appointments should be every six months, unless the dentist recommends a different schedule.



Transition to Permanent Teeth

A very common misconception of many parents and caregivers is that:

- *“Baby teeth fall out so we aren’t worried about keeping them healthy. Once there are permanent teeth we will focus on these adult teeth...”*

However, keeping baby teeth healthy is important for many reasons, including:

- Dental caries is a multifactorial infectious bacterial disease and children are more likely to have decay in permanent teeth if they had decay in their baby teeth.
- The permanent teeth erupt into the same environment as the baby teeth – nothing magically changes.
- A good diet and oral hygiene habits developed during early childhood will carry over into childhood and adolescence.



Transition to Permanent Teeth

Oral Hygiene

- Newly erupted teeth may be at higher risk of developing caries, especially when there is a high caries risk. (AAPD)
- When the first permanent tooth erupts (between ages 5-7 years, on average) parents should still be brushing for their child, especially at night, with fluoridated toothpaste.

Visits to a dentist allows the dentist to:

- Evaluate the risk for dental caries;
- Evaluate the need for fluoride varnish;
- Evaluate the need for fluoride supplements;
- Apply dental sealants; and
- Perform a growth and development analysis of the teeth and face.



Nutrition: Breastfeeding

Benefits:

- Reduces cavity formation up to age 12 months;
- Protects against malocclusion in primary dentition.

Risks:

- Nocturnal breastfeeding puts an infant at elevated risk of dental caries;
- Prolonged breastfeeding, longer than 12 to 24 months, puts a child at an elevated risk of dental caries.



Nutrition for Infant Before Baby Teeth

Feeding with Breast Milk or Formula

- The AAP recommends that for the first 6 six months, the baby should be fed only breast milk and formula.
- The baby's mouth should be wiped out with a infant washcloth after each feeding.



Nutrition for Infant Before Baby Teeth

Bottle feeding

- The mother should avoid bottle propping or putting the baby in bed with a bottle.
- Only breastmilk or formula should be used in the bottle, unless other liquids are prescribed by the physician.
- Wipe out baby's mouth daily with an infant washcloth and after each bottle feeding.



Nutrition for Infants and Young Children

Bottle feeding

American Academy of Pediatrics (AAP) guidelines for phasing out the bottle state that,

- Bottles should be phased out between 12 and 24 months of age.



Nutrition for Infants and Young Children

Sippy cups

- Babies are encouraged to **drink from a cup** starting at 6 months of age, according to the AAP.
- Practice with only water – do not get baby used to sweetened beverages in a cup.
- **Juice is not recommended** for babies younger than 1 year of age, unless specifically instructed by pediatrician.



Nutrition for Infants and Young Children

Sippy cups

- A toddler only needs to drink when thirsty or with meals.
- If a toddler holds on to a cup most of the day like a security blanket, they may end up overdrinking (and need more frequent diaper changes).
- Sippy cups are for transition from bottle feeding to drinking out of regular cups.



Nutrition for Infants and Young Children

Sippy cups (continued)

- Frequently drinking milk, juices or sodas, which contain sugars, can lead to tooth decay because teeth are continually being bathed in sugary liquids that help bacteria grow.
- The child should not go to bed with a bottle or sippy cup
- **Good rule:** In between meals, a sippy cup should only contain water. The child should be offered the daily suggested servings of milk and juice at mealtime.
- The mom should keep track of sippy cup use.



Nutrition for Infants and Young Children

Solid Foods

American Academy of Pediatrics (AAP) guidelines for bottle feeding include to:

- Introduce solid foods around 6 months of age;
- Expose baby to a wide variety of healthy foods; and
- Offer a variety of food with different textures.

Note: These should be discussed with the pediatrician.



Nutrition for Infants and Young Children

Solid Foods

- **6 months:** Introduce solid foods.
- **9 months:** Introduce 2-3 **healthy** snacks per day.
 - Healthy snacks, such as appropriate portions of fruits, vegetables, and cheeses are much preferred over high-sugar non-nutritive snacks.
 - Even with good parenting, a child will often be exposed to unhealthy snacks by others and start to want these.
 - However, parents should be reminded that frequent consumption of snacks consisting of sugar rich simple carbohydrates is a high caries risk behavior.



Nutrition for Infants and Young Children

Liquids

- **Good rule –**
 - The child should be offered the daily suggested servings of milk/formula and juice at mealtimes only.
- **Caution –**
 - Soda often has sugar and/or caffeine.
 - Gatorade has sugar.
 - Note: Only liquids without sugar and without caffeine are hydrating.



WIC guidelines follow these recommendations ...

AMERICAN ACADEMY OF PEDIATRICS **DAILY JUICE** **RECOMMENDATIONS**



Fruit juice offers no nutritional benefits over whole fruits. Whole fruits also provide fiber and other nutrients.

Age:	Recommendation:
Younger than 12 months	Do not routinely give fruit juice to infants younger than 12 months since it offers no nutrition benefit at this age.*
1 to 3 years	Limit fruit juice to a maximum of 4 ounces per day ($\frac{1}{2}$ cup). Do not allow your child to carry a cup or box of juice throughout the day.
4 to 6 years	Limit fruit juice to a maximum of 4 to 6 ounces per day ($\frac{1}{2}$ cup to $\frac{3}{4}$ cup). Do not allow your child to carry a cup or box of juice throughout the day.
7 to 18 years	Limit juice to 8 ounces per day (1 cup).

ORAL HABITS

Drinking and eating are essential activities for the development of a child.

However, **eating** and **drinking** unhealthy foods can become a habit, which can pose a risk to the child.

Also, the inappropriate use of **bottles**, **pacifiers** and **sippy cups** can become a habit and also put the child at risk.



ORAL HABITS

Bottle feeding

If a infant/child continues to bottle feed too long, then the toddler may:

- Skip meals if he/she knows the bottle is available;
- Be exposed to nutritional deficiencies; and/or
- Experience childhood obesity, dental caries, as well as less than optimal craniofacial growth.

Thus, it is very important to wean a baby off the bottle.



ORAL HABITS

Bottle feeding

- High frequency consumption of sugars by bottle-feeding, sippy cup use, or between meal consumption of sugars increases the risk of early childhood caries.
- AAP recommends weaning from the bottle between 12-24 months old.
- Prolonged use of a bottle containing anything but water may lead to early childhood caries.
- Prolonged use of a bottle may lead to poor adaptation of solid foods into the diet.



ORAL HABITS

Pacifiers

The American Academy of Pediatric Dentistry has published guidelines on the use of pacifiers and their influence on the developing dentition.

http://www.aapd.org/media/Policies_Guidelines/BP_DevelopDentition.pdf



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ORAL HABITS

Pacifiers

- In general, the use of a pacifier should be discontinued by 36 months of age.
- Extended use of pacifiers may pose a risk to the normal development of teeth and the face and might contribute to:
 - Anterior open bite;
 - Protruded upper permanent front teeth; and
 - Narrow upper dental arch and/or crossbite.



ORAL HABITS

Pacifiers

If an infant sees a dentist early, the dentist can monitor and, if necessary, help modify the use of a pacifier to reduce the risk of any adverse effect from its inappropriate use.



ORAL HABITS

Sippy Cups

High frequency consumption of sugars by bottle-feeding, **sippy cup** use, or between meal consumption of sugars increases the risk of early childhood caries.

– AAPD Reference Manual 2017-2018



ORAL HABITS

Foods

- Avoid processed foods high in sugars and carbohydrates in between meals.
- Fruit snacks, fruit roll-ups, gummy snacks, sticky candies, crackers, chips, pretzels are all high in sugars/carbohydrates.
- Promote healthy snacks such as appropriate servings of fruits, vegetables and cheeses.

Liquids

- Offer sugar-free/caffeine-free liquids (WATER) in between meals.



TOOTH GUIDANCE

Management of the Developing Dentition and Occlusion in Pediatric Dentistry

http://www.aapd.org/media/Policies_Guidelines/BP_DevelopDentition.pdf



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Baby Teeth Guide

Eruption of Permanent Teeth

- The first baby tooth usually appears in the mouth at about six months of age, and all 20 baby teeth have usually erupted by 3 to 6 years of age.
- The shedding of baby teeth is a normal process as the underlying permanent teeth develop and begin to erupt.
- The eruption of permanent teeth and the associated shedding of baby teeth normally occurs between ages 6 and 13 years.

http://www.aapd.org/media/Policies_Guidelines/BP_DevelopmentDentition.pdf



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Early Loss of Baby Teeth

Baby teeth can be lost early for a variety of reasons, among which the most frequent are **dental caries** and **trauma**.



Early Loss of Baby Teeth

- Early loss of baby teeth may cause shifting of the baby teeth, which can produce loss of space for the eruption of the permanent teeth.
- If this loss of space occurs, it can increase the risk of the permanent teeth becoming crowded upon eruption, which may require orthodontic treatment.



Early Loss of Baby Teeth

- If an infant sees a dentist for regular visits, then the dentist can better monitor the loss of baby teeth and the eruption of permanent teeth.
- If an issue arises the dentist can take timely steps to mitigate the issue.



SUMMARY

- Oral health care is important for expectant mothers and is safe.
- Infants need a dental home as soon as the 1st baby tooth erupts or the 1st birthday, whichever occurs first.
- Good nutrition is important for oral health and overall health.
- Oral habits can cause harm and need to be monitored and possibly modified.
- Baby teeth are important to guide the eruption of adult teeth.



RESOURCES

The resources cited in this presentation provide additional information on the topics that were discussed.

Thank You



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