Anticipatory Guidance in Pediatric Oral Health
K Shetty, B Acharya, M Higgins

Citation

Abstract
The aim of this article is to address the need for anticipatory guidance for prevention and interception of pediatric health problems with special emphasis on oral health. This article provides guidelines for health care professionals, dentists and parents or caregivers who are responsible for the overall health care of children from birth to about 5 years of age. Dental care of children in this group is not universally well provided therefore; this article addresses the importance of advising parents on early dental care for their children and also the difficulties associated with dental treatment for the pediatric population. Thus this article discusses childhood dental problems, their prevention and treatment, advantages of prevention and treatment and the implementation of anticipatory guidance for oral health care and the role of the pediatrician.

INTRODUCTION
To ensure a smooth transition from one stage in the growth and development of a child to the next, parents and care givers can take specific action. The health care in the first few years of a child's life, the formative years, is very essential to the long-term health of that child. Health professionals can educate and train parents to monitor the overall health of the child and can guide them through these critical years. Oral health is a vital part of overall infant health. All individuals with whom a child interacts play an important role in the overall health and development of the child, including the child's family, dentists, pediatricians, and other health professionals. These providers can work together toward a common goal of improving the child's oral health and, in turn, general health. To achieve this goal health professionals should provide to parents, anticipatory guidance, which would help them better care for their children's health because anticipatory guidance, much as the name implies, anticipates oral issues and diseases and incorporates a preventive regimen into the child's health care. To achieve effective anticipatory guidance, providers must have guidelines on which to base prevention and early treatment strategies. The oral health of children in developed and developing countries has significantly improved over the years, but high-risk groups into which prevention and intervention strategies have not been extended still exist, including families with low-income or without health insurance, minority groups, and children with special health care needs, because of a lack of pediatric dentists in some areas, no access to affordable dental care, and a lack of the parent's knowledge about when and why to see a dental professional.

The American Association of Pediatric Dentistry (AAPD) puts special emphasis on anticipatory guidance in pediatric oral health. The risk-benefit ratios and cost-effectiveness of preventive procedures in developing countries indicate that anticipating and preventing health problems are more economical for both the individual and the government. Countries other than the United States that have guidelines similar to those of the AAPD have reduced the prevalence of many oral diseases, especially dental caries (1). This reduction very important because even in a developed country like the US dental caries is the most common childhood disease and 5 times more common than asthma (2).

ANTICIPATORY GUIDANCE FOR THE HEALTH PROFESSIONAL
The AAPD and the American Dental Association (ADA) recommend that a child should first visit the dentist within six months of eruption of the first tooth and no later than 12 months of age (3). After that, a child should visit a dentist every 6 months or according to the individual need of the child. The reason for the first-year dental visit is for the parent to receive oral anticipatory guidance and to establish a “dental home”, which identifies a child with a dentist in a familiar and safe health-supervision relationship and is similar to that of a “medical home” (4). The medical home is where a child's parent receives prevention instructions,
counseling and anticipatory guidance, and where a child receives medical care such as immunizations. A medical home can also provide an oral health exam and referral to a dentist which can result in a dental home for the child at an early age, a practice that the AAPD recommends (3). A dental home can provide oro-dental anticipatory guidance for parents of a child as young as the age of 1 and provide access to preventive and emergency services.

The concept of dental home is new and though no empirical data have been gathered Table 1 shows the ideal characteristics of a dental home (5). In addition scientific evidence supports the reasons for the child's first visit within the first year. For example, streptococcus mutans has been detected as early as 6 months of age in predentate children; the mother was the source of the infection (6). This first visit is therefore an opportunity for the dentist to instruct the parent on oral health practices for the child. Such a home could be a foundation on which a lifetime of preventive dental education and care can be built.

**Figure 1**

Table 1: Ideal Characteristics and Practical Advantages of a dental home

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>DESCRIPTION</th>
<th>PRACTICAL ADVANTAGES</th>
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<tbody>
<tr>
<td>Accessible</td>
<td>&gt; Care provided in child’s community &gt; All insurance accepted and changes in coverage accommodated</td>
<td>&gt; Source of care is close to home and accessible to family &gt; Minimal hassle encountered with payment &gt; Office needs for treatment in emergency situations &gt; Office non-biased in dealing with children with special health care needs &gt; Dental hygiene: community needs and resources (like fluoride in water)</td>
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<tr>
<td>Family Centered</td>
<td>&gt; Recognition of confidentiality of family &gt; Utilization of information shared on an ongoing basis</td>
<td>&gt; Low parent child anxiety improves care &gt; Communication protocols are comparable to family behavior management &gt; Appropriate role of parents in home care is established</td>
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<tr>
<td>Comprehensive</td>
<td>&gt; Health care available 24 hours a day, 7 days a week &gt; Preventive, primary and specialty care provided</td>
<td>&gt; Appropriate recall intervals are based on child’s needs &gt; Continuity of care is better using the recall system &gt; Coordination of complex dental treatment is possible (trumatic injury) &gt; Liaison with medical providers for CPAP or sleep apnea (performental healt disease)</td>
</tr>
<tr>
<td>Coordinated</td>
<td>&gt; Families linked to support education and community services &gt; Information centralized</td>
<td>&gt; Records centralized &gt; School, worship, therapy linkages established and known (soft palate care)</td>
</tr>
<tr>
<td>Compassionate</td>
<td>&gt; Expressions of concern and demonstrated concern for child</td>
<td>&gt; Dental child relationship is established &gt; Family relationship is established &gt; Children feel safe and confident in their sanitility</td>
</tr>
<tr>
<td>Culturally Competent</td>
<td>&gt; Cultural background recognized, valued, and respected</td>
<td>&gt; Mechanisms is established for communication of ongoing care &gt; Specialized resources are known and prority if needed &gt; Staff may speak different languages and know dental terminology</td>
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In the United States 66% of children ages 2-4 years old from families with annual incomes of less than $10,000 had not had a dental visit the preceding year (4). The AAPD suggests that if pediatricians learned about and promoted oral health of infants and children pediatricians could educate parents and children and work in partnership with oral health professionals. As part of routine oral-supervision visits pediatricians can incorporate interview questions, risk assessment, screening and anticipatory guidance (5). These interview questions address dietary practices, fluoride exposure, oral hygiene, utilization of dental services, number and location of mother’s fillings and other dental work. The pediatrician can then provide to the dentist a good baseline on the risk of oral disease in the child and help the dentist better educate the parents in the dental home.

The pediatrician should begin a dental risk assessment by the age of 6 months though all children are not at equal risk of developing dental problems. Table 2 shows the risk factors and protective factors for four common diseases of childhood i.e., dental caries, periodontal disease, malocclusion, and injury and these could be a guide on which prevention strategies can be based (4). Oral screenings and examinations will reveal if tooth eruption and loss are on schedule. Although variations in tooth eruption and loss can be normal, these variations may also indicate oral health problems. For example, delayed tooth eruption can be due to certain syndromes, developmental defects of teeth, cysts, or tumors. Screening also assesses tooth irregularities and alignment of teeth and will help find problems early and prevent any further harm to the dentition. In addition, the pediatrician can assess the parent’s administration of oral hygiene practices and demonstrate proper practices to the parent, such as the correct plaque removal technique with an appropriate-sized toothbrush. This visit can also address tooth decay, malocclusions, oral injuries, and other risk factors for each child.
The pediatrician can screen a child and refer the child to a dentist, who can establish a dental home for the child. An oral examination by a dentist includes a complete clinical oral assessment and appropriate diagnostic testing to assess oral growth and development and/or pathology. During the exam the dentist will also assess the child's exposure to topical and systemic fluoride, counsel parents about fluoride, and prescribe systemic fluoride supplements, if indicated. In this visit the dentist will also assess the appropriateness of feeding practices and provide anticipatory guidance. If stains or deposits are present, the dentist or dental hygienist may remove them and schedule another appointment if the child needs further treatment. The first visit will also help familiarize the child to a dental office and can make the child more receptive to dental care (4).
RECOMMENDATIONS

Anticipatory guidance can identify and prevent problems because dentists can treat many oral diseases and conditions if they are identified early in their development. The AAPD recommends that all primary health care professionals who serve mothers and infants should provide parent/caregiver education on the etiology and prevention of early childhood caries (ECC). Oral health counseling is especially important for the mother. Therefore, materials on the infectious and transmissible nature of bacteria that cause ECC and methods of oral health risk assessment, anticipatory guidance, and early intervention should be in the curriculum of all medical, nursing, and allied health professional programs.

By six months of age every infant should receive an oral health risk assessment from a dentist or pediatrician. This risk assessment should include the use of the Caries Assessment Tool (CAT), shown in Table 3, to determine the patient’s risk of developing ECC, education on infant oral health, and should evaluate and optimize fluoride exposure. This should all be part of establishing a dental home for the child, and the dentist can use this information to determine a timetable for future appointments for the child.

The pediatrician should advise parents or caregivers to establish a dental home for infants by 12 months of age (4) in this visit the dentist should record thorough dental and medical histories of mothers/caregivers and infants and perform a thorough oral exam.

Besides doing the risk assessment the pediatrician can also work with the child’s dentist and help plan comprehensive care and appropriate interventions as necessary. For example, if the pediatrician notices a lot of decay in a child he can make the necessary referral for restoration and also provide a background on the child’s medical health to help dentist plan treatment accordingly.

ANTICIPATORY GUIDANCE AND PEDIATRICIANS AND DENTISTS

The AAPD has recommendations for pediatricians and dentists on educating parents on the oral developmental changes of their children and parental care for them at every stage. Included here are recommendations for expectant mothers, parents of infants and young children, which can be in a dental home environment (Table 4).

Figure 7

Table 4: AAPD Recommended Anticipatory Guidance for Parents

<table>
<thead>
<tr>
<th>1) Pregnant Women, New Mothers or Intimate Care Givers:</th>
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<tbody>
<tr>
<td>Brush teeth twice a day with fluoridated toothpaste and floss daily</td>
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<tr>
<td>Spit excess toothpaste after brushing and do not rinse</td>
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<tr>
<td>Rinse every night with alcohol free OTC fluoride mouth rinse</td>
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<tr>
<td>Have a dental visit for an exam and restoration of all active decay ASAP</td>
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<tr>
<td>Educate mother about hormonal changes during pregnancy that can increase a woman’s risk for gingivitis</td>
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<th>2) Parents of Infants:</th>
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<tr>
<td>Make an appointment for the infant’s first dental visit within 6 months of eruption of the first tooth and no later than 12 months of age</td>
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<tr>
<td>After initial dental visit make future appointments based on the schedule suggested by the dentist, based on the infant’s individual needs</td>
</tr>
<tr>
<td>Clean infant’s gums with a clean damp cloth or an infant tooth brush with a small head using plain water after each feeding</td>
</tr>
<tr>
<td>Brush infant’s teeth as soon as the first tooth erupts usually at the age of 6-10 months twice a day using a soft bristled tooth brush designed for infants</td>
</tr>
<tr>
<td>Give infant nothing to eat or drink after brushing at night, except water</td>
</tr>
<tr>
<td>For infants at increased risk of tooth decay consult a dentist or physician about brushing with fluoridated toothpaste</td>
</tr>
<tr>
<td>Become familiar with the normal appearance of the infant’s teeth and gums so problems can be identified if they occur (check once a month)</td>
</tr>
<tr>
<td>Give the infant 6 months or older fluoride supplements but only as recommended by a dentist or physician (based on water fluoride level)</td>
</tr>
<tr>
<td>In case infant has some gums caused by tooth eruption give infant a clean teething ring, cool spoon or cold wet wash cloth or even rub his gums with a clean finger</td>
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<tr>
<th>3) Parents of Young Children:</th>
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<tr>
<td>If the child has not yet been for a dental visit make an appointment for the first dental visit</td>
</tr>
<tr>
<td>After initial dental visit make future appointments based on the schedule suggested by the dentist, based on the infant’s individual needs</td>
</tr>
<tr>
<td>For children under age 2 brush the teeth with plain water twice a day</td>
</tr>
<tr>
<td>For children with increased risk of tooth decay consult a dentist or physician about brushing teeth with a fluoridated toothpaste</td>
</tr>
<tr>
<td>For children ages 2 and above brush twice a day with no more than a pea-sized amount of fluoridated toothpaste and rinse him spit but not rinse</td>
</tr>
<tr>
<td>Young children cannot clean teeth with parental help so they need to be helped as brushing requires fine motor skills around 7-8 years</td>
</tr>
<tr>
<td>Become familiar with the normal appearance of the infant’s teeth and gums so problems can be identified if they occur (check once a month)</td>
</tr>
<tr>
<td>Give infant fluoride supplements but only as recommended by a dentist or physician based on the level of risk and that of fluoride in the drinking water</td>
</tr>
<tr>
<td>Discuss with a dentist or other qualified health professional the need to apply fluoride topically</td>
</tr>
<tr>
<td>Discuss with a dentist or other qualified health professional the need to apply dental sealants</td>
</tr>
<tr>
<td>In case infant has some gums caused by tooth eruption give infant a clean teething ring, cool spoon or cold wet wash cloth or even rub his gums with a clean finger</td>
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PREGNANT WOMEN, NEW MOTHERS OR INTIMATE CARE GIVERS

Pregnancy is a good stage for physicians to instill appropriate oral hygiene practices in expectant mothers. Physicians should advise them to brush their teeth thoroughly twice a day with fluoridated toothpaste and spit out the excess after brushing and to floss daily. The residual toothpaste helps prevent tooth decay. Expectant mothers should rinse every night with an alcohol-free over-the-counter fluoridated mouth rinse. They should have a dental visit for an exam and restoration of all active decay as soon as feasible. The physician should also educate the mother about hormonal changes during pregnancy, which can increase a woman's risk for gingivitis.

PARENTS OF INFANTS

Table 4 lists recommendations for pediatricians to give to parents of infants. The pediatrician should educate parents about making an appointment for the infant's first dental visit within 6 months of eruption of the first tooth and no later than 12 months of age. The dentist then develops a schedule for future appointments based on the infant's individual needs and susceptibility to disease. Visits might be more frequent for special needs patients. Parents should clean the infant's gums with a clean damp cloth or an infant toothbrush with a small head using plain water after each feeding. They should brush infant's teeth twice a day as soon as the first tooth erupts, usually at the age of 6-10 months, using a soft bristled toothbrush designed for infants. An infant should be given nothing to eat or drink after brushing at night, except water, and parents should consult a dentist about brushing with fluoridated toothpaste for an infant who at increased risk for tooth decay. But parents should be warned not to let the child ingest the toothpaste as this may become an unintentional source of systemic fluoride leading to overdose toxicities. A dentist in a dental home can instill this information in parents; it can go a long way toward good oral health and health practices of the child. Parents should be familiar with the normal appearance of the infant's teeth and gums so they can identify problems if they occur. The dentist can teach the parent through pictures and example, the appearance of the normal versus diseased teeth and gums and should advise parents to assess the infant's oral tissue about once a month. Giving the infant 6 months or older fluoride supplements based on the level of risk and amount of fluoride in the child's drinking water, the physician or dentist may recommend fluoride supplements for the infant who is six months or older. If the infant has sore gums caused by tooth eruption, parents may give infant a clean teething ring, cool spoon, or cold wet washcloth or can even rub infant's gums with a clean finger.

PARENTS OF YOUNG CHILDREN

Just like parents of infants, parents of young children should have made the initial dental appointment for their child and should make future appointments based on the schedule the dentist suggested, according to the infant's individual needs and susceptibility to disease. Visits might be more frequent for special needs patients. For children under age 2 the parent should brush their teeth with plain water twice a day after breakfast and before bed, and for those with increased risk of tooth decay, the parent should consult a dentist or a physician about brushing teeth with a small pea-sized amount of fluoridated toothpaste. Brushing after breakfast and before bed removes food debris that may remain on teeth after meals and contribute to tooth decay. Parents can brush teeth of children more than 2 years of age twice a day with no more than a pea-sized amount of fluoridated toothpaste and make them spit without rinsing as described earlier. Parents should understand that brushing requires good fine motor skill and that young children cannot clean teeth without parental help. After children acquire these fine motor skills, typically at ages of 7-8 yrs (an age at which they can tie their own shoe laces), they can clean their own teeth with parental supervision. Again parents should be familiar with the normal appearance of the teeth and gums and should perform home oral exams about once a month. The physician should inform parents that they should ask the dentist about the need for fluoride supplements for their child, which the dentist can prescribe based on level of risk and amount of fluoride in the drinking water. In addition, parents of young children can discuss with a dentist the need to apply fluoride topically (like varnishes, gels, foams), which renews the high levels of fluoride in the outer layer of tooth enamel. Topical applications may be especially effective in children with a high risk of tooth decay such as those who have a history of tooth decay, who are not exposed to fluoridated water, who snack frequently on foods containing sugar, or who have medical problems that decrease their resistance to tooth decay. Also, in a dental home, the parents can discuss with a dentist or other qualified health professional the need to apply dental sealants (thin plastic coatings that are applied to pits and fissures on chewing surfaces of teeth). Sealants create a physical barrier against dental plaque, and this barrier prevents tooth decay. Dental sealants should be applied shortly after the posterior teeth erupt. The pediatrician can
also instruct the parent on treatment of sore gums from tooth eruption: give the child a clean teething ring, cool spoon, or cold wet washcloth or rub the gums with a clean finger.

Figure 8
Table 5: AAPD Recommended Anticipatory Guidance for Parents on Good Nutrition

1. Pregnant Women, New Mothers or Intimate Caregivers:
- Eat healthy foods during planned meals and snacks and avoid snacking in between
- Include fruits, vegetables, grains and dairy products
- Foods containing sugar should be eaten at mealtimes only and in limited amounts
- Choose fruit rather than fruit juice for recommended caloric intake
- Avoid carbonated beverages during pregnancy and at least for the first 30 months after delivery
- Drink of fluoridated water
- Once infant is born avoid transmission of bacteria that cause tooth decay from the parent, like avoid sharing utensils or cleaning pacifier or bottle with saliva

2. Parents of Infants:
- Breast feed the infant for approximately the first 6 months of life can be continued for 12 months
- Prevent transmission of bacteria that cause tooth decay via saliva, avoid sharing utensils, brushing the temperature of the mouth with the mouth or cleaning a pacifier or bottle nipple with saliva
- Do not put infant to sleep with bottle or sippy cup or allow frequent or prolonged feeds with glucose high in sugar
- Hold infant while feeding, never prop the bottle using pillows or other objects to hold the bottle
- Never add cereal to a bottle this will cause sugary feeds to pool around teeth
- Introduce a solid cup when the infant can sit up without support
- Wash the infant from the bottle when he starts to eat more solid foods and drink from a cup
- Do not introduce juice into an infant's diet before age 6 months and limit to 4-6 oz per day
- For infants 6 months and older, serve age appropriate healthy foods and avoid snacking between meals
- Serve foods containing sugar or mealtimes only and limit amount

3. Parents of Young Children:
- To avoid transmission of bacteria that cause tooth decay from parent via saliva to child avoid sharing utensils, or cleaning a pacifier or bottle nipple with saliva
- Continue to encourage a child to drink from a cup even if bottle at 12-14 months
- Do not put infant to sleep with a bottle or sippy cup or allow frequent or prolonged feeds
- Allow age appropriate healthy planned foods and avoid snacking in between
- Serve fruits, vegetables, grains and dairy products
- Encourage child to eat fruit rather than fruit juice
- Serve the child juice in a cup and limit to 4-6 oz per day
- If child drinks beverages between meals encourage drinking water and milk rather than juices and sodas
- Drink fluoridated water

Advantages of Anticipatory Guidance in Specific Dental Conditions

DENTAL CARIES

A transmissible oral infection, dental caries is the most common childhood disease and is five times more common than asthma (2). Cariogenic bacteria in the mouth produce acids to breakdown food debris on the teeth. These acids cause tooth mineral loss. Prolonged attack that exceeds the individual's capacity of healing can cause irreversible decay.
and eventual tooth loss.

More than 6% of 1 year olds, 22% of 2 year olds, 35% of 3 year olds, 49% of 4 year olds in a Head start program in Arizona had clinical tooth decay (1). The third National Health and Nutrition Examination Survey (NHANES), 1988-1994, indicates that 8% of 2 year olds in the United States had at least 1 decayed or filled tooth and by age five 40% of children did. Children as young as 1 experience untreated tooth decay, and among children ages 6 to 8, 72% of American Indian/ Alaskan Native, 50% Hispanic and 34% African-American children experienced untreated tooth decay (1). This vast number with tooth decay clearly indicates the need for preventive action and a need for more aggressive measures in a country like India where access to health care and the dentist-to-population ratio is very low.

Early childhood caries (ECC) may occur in infants or children with prolonged exposure to beverages high in sugar like soda, fruit juices, milk, or formula from a bottle or a cup, prolonged breast-feeding, frequent snacking on foods high in sugar, and pacifiers coated with sweeteners. Volume and composition of saliva and blockage of salivary flow also affects ECC. The younger the age at which decay begins the greater will be the risk of future decay. ECC can affect a lot of teeth and cause severe loss of function and harm to the child's dentition. Good oral hygiene, use of fluorides and dental sealants, good dietary habits, and chemical and physical reduction of plaque can all be achieved with early intervention to prevent ECC.

CARIES PREVENTION THROUGH ANTICIPATORY GUIDANCE

PREGNANT WOMEN, NEW MOTHERS OR OTHER INTIMATE CARE GIVERS

The AAPD has recommendations for dietary practices in pregnant or new mothers, infants and children (3). The recommendations suggest that the pediatrician educate the parents about the diet for their children and themselves and that the dentist reinforce these healthy practices. The pediatrician and dentist should advice these women to eat healthy foods and to avoid snacking in between. Healthy meals should include fruits, vegetables, grain products, and dairy products. The foods containing sugar should be eaten at mealtimes only and in limited amounts. This education will help parents develop good oral health practices, which they will pass on to their children.

Physicians should advice pregnant women to choose fruit rather than fruit juice for their recommended daily fruit intake and avoid carbonated beverages during pregnancy and at least for the first 30 months after delivery. Pediatricians should encourage these women to drink fluoridated water, and should inform them about the transmission of bacteria that cause tooth decay from the parent to child and that parents should not share utensils or clean the pacifier or bottle with saliva.

PARENTS OF INFANTS

The pediatrician should advice mothers to breast feed the infant for approximately the first 6 to 12 months of life (1). To prevent the transmission of bacteria that cause tooth decay via saliva from mother to child, parents should not share utensils with the child, test the temperature of the bottle with the mouth, or clean a pacifier or bottle nipple with saliva, practices many parents adopt that are not hygienic. The infant should never be put to sleep with a bottle or sippy cup in the mouth, and never allowed frequent or prolonged feeds with beverages high in sugar. These practices are the primary cause of early tooth decay because parents use them to pacify and to induce sleep in the infant. Pediatricians should tell parents to hold infant while feeding and never to prop the bottle using pillows or other objects to hold the bottle. This propping can injure the unattended infant and prolonged propping and feeding can cause ECC. Some parents also add cereal to a bottle of the infant but pediatricians and dentists should discourage this practice because it will cause sugary foods to pool around teeth increasing the risk for decay. Parents can introduce a small cup when the infant can sit up without support, and the infant should be weaned from the bottle when he starts to eat more solid foods and made to drink from a cup. Parents should not introduce juice into an infant's diet before age 6 months and limit it to 4-6 oz per day. Infants 6 months and older should receive age-appropriate healthy foods as recommended by their pediatrician and avoid snacking between meals. Foods containing sugar should be served to infants at mealtimes only and in limited amounts (3). Pediatricians should have the knowledge or be able to do the required referral for good nutrition and dietary counseling to support oral and general health of the child.

PARENTS OF YOUNG CHILDREN

The pediatrician should reiterate the following guidelines for young children. To avoid transmission of bacteria that cause tooth decay from parent via saliva to child, parents should not share utensils or clean a pacifier or bottle nipple with saliva. Parents should encourage a child to drink from a cup and to wean them form the bottle at 12-14 months and
should not put a child to sleep with a bottle or sippy cup or allow frequent or prolonged feeds for reasons mentioned earlier. Parents should provide age appropriate healthy planned foods and prohibit snacking in between meals. A good healthy meal should contain fruits, vegetables, grains and dairy products. Child should eat fruit rather than drink fruit juice and be served the juice in a cup limiting it to 4-6 oz per day. Beverages between meals should be fluoridated water and milk rather than juices and sodas.

FLUORIDES
The primary factor in reducing the prevalence of cavities among the children in the United States has been the widespread availability of fluoride. According to the CDC, frequent exposure to small amounts of fluoride each day is the best way to reduce the risk of developing tooth decay (s). Systemic fluorides only help during the tooth-forming years (ages 6 months to 19 years) they enhance resistance to later acid demineralization. They can be delivered in the form of fluoridated water or fluoride supplements available as tablets, drops, or liquids and reach the child's teeth through the digestive and circulatory systems. Fluoridated water is the best way to get systemic fluorides to a child. Fluoride supplements are recommended only when a child's ingestion of fluoride is less than optimal. Table 6 shows the recommended doses for fluoride supplements based on age of child and level of fluoride in the drinking water (s). Early referral to a dentist in a dental home can address fluoride issues. The dentist will know the community, and the fluoride content in the water in the community and will be able to prescribe the ideal dosage for the child if necessary (s). Topical fluorides are most important in the prevention of tooth decay because they reach teeth directly and are more effective than the small doses in foods, water and fluoridated toothpastes. In a child's dental home the dentist would know the child and the family and this beneficial relationship would help the dentist treat the individual needs of the child and would also improve compliance in both the parents and the child. The dentist can also professionally apply topical fluorides like varnishes, gels, or foams. These are especially effective in children who are at high risk of dental caries due to lack of fluoridated water, who have a history of caries, who snack frequently on high-sugar foods or have a medical condition. The dentist in a dental home would know all this due to regular appointments, and knowledge of the general health of the family. Pit and fissure sealants are also advantageous in caries prevention especially in newly erupted primary and permanent molars with deep pits and fissures, and can be professionally applied by the dentist.

ANOMALIES IN THE NUMBER OF TEETH
Many tooth-number anomalies, if recognized early, can help the dentist diagnose more serious general health problems. These anomalies can be markers of certain congenital problems and syndromes and may be unrecognized in a medical exam. For example hyperdontia (more than the normal number of teeth) indicated by delayed tooth loss in a radiographic and clinical exam. Extra teeth need to be identified and removed early to facilitate eruption of the underlying normal teeth. Hypodontia (less than the normal number of teeth) or anodontia (the complete absence of teeth) are indicators of syndromes like ectodermal dysplasia, which affects a lot of other systems as well. In these cases, the pediatrician and the dentist in the dental home can work as a team to care for these patients.

ANOMALIES IN THE DEVELOPMENT OF TEETH
Hypoplasia, hypocalcification, fluorosis, amelogenesis, and dentinogenesis imperfecta appear as abnormal whitish-to-grey or even brownish discolourations of teeth. The tooth surfaces appear rough and tend to retain more plaque. Teeth that have not developed normally also tend to break or chip easily and are more susceptible to carious breakdown. These conditions need early dental treatment to avoid further loss of tooth structure, and anticipatory guidance can help parents get these children timely dental treatment.

SOFT TISSUE CONDITIONS
Many soft-tissue conditions need early identification and treatment and include viral, bacterial and fungal infections, some of which could be indications of more serious health conditions. These soft tissue conditions include primary herpetic stomatitis, and candidiases which can be an indication of HIV infection for example. Congenital cysts and tumors should be excised and treated early, but eruption cysts may be due to newly erupting teeth that do not need treatment usually but need to be observed. Other conditions like mucoceles, which are caused by injury to minor salivary glands and result in mucous retention in oral tissues, are typically on the lower lip, and may need early excision. Other lesions that are benign but may need excision include fibromas and papillomas; they can occur anywhere in the mouth. Ankyloglossia also known as tongue-tie, is characterized by an abnormally short lingual frenum. If it interferes with speech, then it may require frenectomy as early as possible so that speech problems don't become permanent. Ulcers sometimes occur in young children, due to trauma from a sharp tooth, for example, or could be due to infections, systemic deficiencies, or immune deficiencies. If
these conditions remain undetected they may result in bigger problems. Regularly scheduled dental visits in a dental home would allow the dentist to recognize and to treat these problems before they become serious health issues. This can best be accomplished if the pediatrician and the dentists work as a team with a common goal of improving the oral and, in turn, the general health of the child.

HABITS

Thumb or digit sucking is a natural reflex for infants. This non-nutritive sucking provides the infant with emotional benefits. Many parents allow a pacifier, and a dentist or a pediatrician can instruct parents in its appropriate use. Until the age of 3, non- nutritive sucking does not cause dental problems, but beyond that it can lead to misalignment of primary teeth. It can cause anterior open bites, movement of the upper front teeth (incisors), and constriction of the maxilla. All of these problems resolve if the sucking habit is discontinued before the permanent teeth erupt. Anticipatory guidance can help parents avoid or curtail this habit in their children. Interventions include talking with the child, using reminder therapy, rewarding the child (positive reinforcement), or, if needed, physically interrupting the habit.

INJURIES

Infants and young children commonly tend to injure themselves around the head, face and mouth. Injuries to primary teeth are common in children 18-30 months of age because they are still unsteady on their feet (♀). These injuries could also be a result of child abuse and neglect.

Parents need to closely supervise infants when they are on chairs, furniture, or any high areas from where they are likely to fall and injure themselves. Locking doors and using safety gates at the top and bottom of stairs are beneficial with an infant in the house. Pediatricians should advise parents that infants and children be placed in appropriate child safety seats in a motor vehicle and not place an infant in a shopping cart, but in a stroller or frontpack or backpack. Parents should not put infants in infant walkers. All of this advice should be a part of follow up visits, given by pediatricians or dentists, based on the age and activities of the child. Interview questions about different stages in the child's development can help the pediatrician to determine which practices the parents are following and to encourage the parents to institute new practices if needed. Children need parental supervision on playgrounds and should play on developmentally appropriate equipment (♀). Children should wear helmets when riding bicycles or tricycles. Before children participate in organized sports, they need to have acquired basic motor skills, which they develop at about 7-8 years of age. It is important to provide the infant's or child's parents with a dentist's emergency phone number and ensure that they are familiar with how to handle oral health emergencies. Trauma in children could also be from abuse or neglect. Health professionals must report suspected child abuse or neglect.

MANAGEMENT OF ORAL INJURIES

Pediatricians and dentists should educate parents in advance on the management of children with injuries. They need to know how critical the time is between injury and getting care for the child, how any delay could result in damage that could become permanent. In case of a tooth avulsion, the parents should be informed that they need to find the tooth, hold it by the crown only, rinse it under cold water, and not to scrub it. The tooth needs to be reinserted in the socket making sure it is placed facing the right way, or, if that is not possible the tooth should be put in cold milk or cold water, and the child should see the dentist immediately. A dental home can help parents in dental emergencies get immediate care for their child and thereby avoid problems like tooth loss and disfigurement.

CHILDREN WITH SPECIAL HEALTH CARE NEEDS

Children with special needs are another important group that deserves mention in this article. Infants and children with special health care needs may be at increased risk for developing oral conditions like delayed tooth eruption, malocclusion, dental anomalies, trauma, infections, and soft-tissue enlargements (gingival enlargements). All of these conditions are attributed to several congenital syndromes, medications, or inherent immune deficiencies and include Down's syndrome, Treacher- Collin's syndrome, and ectodermal dysplasia. Several medications cause gingival enlargements; for example, dilantin and phenobarbital, which are prescribed for epilepsy, can cause gingival hyperplasia. It is very important for a general health professional to be aware of these conditions: children with these conditions may need dental referrals on a regular basis. Like all children, these children should have their first visit within 6 months of eruption of the first tooth or at 12 months of age. However, future visits may have to be more frequent, maybe at 2-3 month intervals. Dental treatments may require additional time to accommodate the child's condition, medications, behavior, and complexity of care. Most
important, these children should receive oral health care from those who have experience with this population.

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