A new addition to the family - a newborn baby enriches and changes family life in many ways. Happiness, but also concern over the child and his health and welfare affect the future of everyday family life.

Healthy teeth are a very important requirement for a child to grow up happy. Healthy, happy children are self-confident, communicative and radiant. Caries affect the child's general health and quality of life. Children suffer from toothaches, eating and speaking difficulties as well as malpositioning and an increased risk of caries in their permanent teeth. Early childhood caries is one of the most common ailments in babies and pre-school aged children worldwide. About one fifth of children aged two to three suffer from tooth decay. These are typically children from families with lower education and income levels, migratory families and children of single parents (8, 13, 14, 21, 23, 24, 25, 28, 31, 37).

Early childhood caries is a particularly serious form of tooth decay which affects infants shortly after the eruption of their first teeth and can cause complete dental decay. Early Childhood Caries is also known as Nursing Bottle Syndrome, Baby Bottle Tooth Decay, Breast Milk Tooth Decay and Infant Tooth Decay (3, 40). One of the main causes for decay in baby teeth is the constant, unmonitored use of a bottle with sweetened or acidic drinks and the prolonged contact of these drinks with the teeth throughout the day and especially at night (5, 6, 11, 13, 20, 21, 25, 28). The
disease is also caused by long term night-time breastfeeding and when parents neglect or completely ignore oral hygiene (12, 29, 34, 41, 45, 46). Medicine containing sugar and acids such as cough syrup, liquid antibiotics and certain asthma medications that are administered over long periods of time or cause dry mouth can also accelerate the process (5, 30, 36, 48).

**Clinical indication of early childhood caries**
The symptoms of early childhood caries are often not recognised and noticed late as they start as white flecks on the inner sides of the upper incisors before gradually destroying the entire crown (Ill. 1, 2). The lower teeth are initially protected by the overlying tongue and saliva production, while the upper teeth are constantly bathed by the drinking solution and are attacked first.

**Consequences for dental and general health**
The adverse effects resulting from rapid caries development show themselves in the quality of life, the teeth and general health of the child. Affected children suffer from toothaches, eating and speech problems as well as improper tooth positioning and an increased risk of caries in their permanent teeth (1, 5). Teeth affected by deep caries are a common cause of dentogenic abscesses, fever and a generally reduced well-being of the child (1, 17, 18). Antibiotics and hospitalisation due to the topographical relationship between the vital head and neck organs is not uncommon (1).

Continual, and in particular night-time, drinking leads to an early habit in infants of increased caloric intake through high calorie drinks and an unnatural metabolic stimulation during the night. This leads to the development of poor eating habits which increases the child’s risk of being overweight or obese (1). Health problems impair the physical and mental development and behaviour of the child.

The treatment of small children with early childhood caries is difficult, time and cost intensive and, due to psychological development, often only possible using general anaesthesia (18, 39). Interdisciplinary caries prevention should be a priority. The prevention of oral diseases in children in Germany is based on legally determined groups and individual prophylaxis (SGB V, § 21 and § 22 par. 2). However, infants
have not been included in the dental care structure to date. Midwives and paediatricians are usually the first contact for young parents and play an important role for early promotion of health and welfare. Many women see a midwife at the beginning of pregnancy. Midwives take on a great responsibility for the health and well being of mother and child. They frequently work with families over a longer period of time and have an influence on healthy behaviour.

**Early practices - for mother and child.**

The baby's teeth are formed during the sixth week of pregnancy. The changes though, are not only in the womb. The hormonal changes also affect the mother's oral health. It can cause dry-mouth and also lead to an inflammation of the gums known as pregnancy gingivitis. If these remain untreated, the periodontium may be weakened. Periodontitis - or gum disease as it is commonly called- is a risk to both mother and child and can cause hypertension in the mother and increase the chances of premature delivery and low birth weight. Because of this, proper oral hygiene is very important now: Brush after morning and evening meals with fluoride toothpaste and soft brush. Chewing dental care gum or using a stannous fluoride mouthwash (e.g. Meridol®) after between-meal snacks or after a bout of morning sickness is recommended. This remineralises the tooth enamel and fights bacteria. An appointment for a dental check-up should be made at the beginning of and towards the end of pregnancy.

The first baby teeth begin to appear between the child's 6th and 8th month. This is the ideal time for the first visit to the dentist and starting oral hygiene. The dentist checks for proper tooth and jaw development of the child and advises the parents regarding nutrition, oral hygiene, fluoride intake and germ transmission. For the initial occurrence of carious lesions, the dentist applies a local fluoride varnish (4, 9, 47).

Since healthy teeth are an important requirement for chewing, speaking, facial expressions and appearance, brushing should start with the first baby tooth. Newly erupted teeth are especially prone to caries because the tooth enamel has yet to mature. Paediatricians recommend using a children's fluoridated toothpaste. Babies should have their teeth cleaned once a day after the evening meal and young children twice a day after eating in the morning and evening with a toothpaste especially for baby teeth having a lower fluoride content (500ppm). Children's
toothpaste should be unflavoured if possible as this could otherwise lead to unwanted consumption. For babies, a "hint" (smear layer) of children's toothpaste on the coloured dosing area of the brush is recommended and for small children, a pea-sized amount. This dosage prevents excessive swallowing of tooth paste during the first years of life. For the longest possible fluoride contact with the tooth, it should only be spit out after brushing and not rinsed with water. Parents should do a follow up brushing for children up to the age of 8 due to their lack of fine motor skills.

Another risk factor for the development of caries is the early infection of young children with caries-causing bacteria by their closest caregivers (mother, father) through saliva transmitted from practices such as licking off a dropped soother or sharing a spoon when eating (2, 5, 10, 14, 20, 21, 28, 31, 37, 44). *Streptococcus mutans* and lactobacilli are among the microorganisms mainly responsible for tooth decay (5, 33). Children with *streptococcus mutans* early in life are at a higher risk of developing caries (2, 31, 32, 37, 43).

**Fluoride**

Optimal fluoride intake is important for all teething babies and children in order to support postnatal maturing of the tooth enamel (19, 38). Following the eruption of the first tooth, fluoride should be used directly on the tooth surface through regular brushing to establish a demineralisation inhibiting and remineralisation promoting film and to develop an antibacterial effect (38). Brushing with toothpaste removes deposits and increases the fluoride content in saliva, plaque and tooth surfaces (42). Tooth enamel rich in fluoride is more resistant to the effects of acids from food and bacterial microbial metabolic products. Fluoride reduces the solubility of tooth enamel by building a calcium fluoride surface layer and fluorapatite. Internationally recognized professional societies such as the American Academy of Paediatric Dentistry (AAPD) and the European Society for Paediatric Dentistry (EAPD) recommend brushing the teeth with fluoridated toothpaste beginning with the eruption of the first tooth.

The D-A-CH Paediatric Association recommends using fluoride tablets during the first three years since a part of the fluoridated toothpaste is swallowed. (7, 15).
Tablets make an age and weight based dosage possible for optimal fluoride intake. For effective caries prevention, regular, daily intake and sucking on the tablets are essential to achieve a local effect. Paediatricians generally prescribe a combination of vitamin-D and fluoride. When using fluoride tablets, brushing should be done only with fluoride-free toothpaste.

All occupational groups that are involved in child care should, for the children's sake, advise the parents at an early stage on the significance of early childhood caries and prevention and raise awareness of early dental care.
Appendix

Recommendations for growing healthy teeth

- Arrange an appointment for an initial dental examination during the child's first year
- Use a fluoridated children's toothpaste starting with the first tooth
- Avoid transmitting caries-causing bacteria (do not lick off dropped soothers; use a separate spoon for tasting while preparing food).
- No continual unsupervised bottle use with sweetened or acidic drinks. Best to offer only at meal times.
- Early drinking from a cup
- Thirst quencher: water, unsweetened tea

Illustrations

III. 1 Early childhood caries in the primary teeth of a 2 year old child – Front view: Decay of the upper incisors, carious lesions on the upper and lower canines and molars, beginning of a purulent inflammation in the upper jaw.

III. 2 Early childhood caries in the still incomplete upper primary teeth of a 1 1/2 year old child: Complete decay of the upper incisors, lesions on the canines and 1st molars while the 2nd molars have not yet erupted.
Bibliography


Info-box:
"Vorsorge vor der Sorge" (Prevention is everything): An prevention project of the Jena University Clinic for Preventive Dentistry and Children's Dentistry has been promoting interdisciplinary collaboration between professional groups for the health and well being of children. Paediatricians, dentists and dental students collaborate with midwives since they are important contacts for parents during their baby's first months. They work with families during this time and their health practices can have a lasting influence on the health of the child.

Implementation:
Together with a children's dentist, dental students advise on the prevention of early childhood caries in prenatal and postnatal classes, baby gymnastic and baby massage courses. They also organise child oral health courses at the children's clinic.

In a cooperative effort started in 2009, the staff of the city of Jena Erstbesuchsdienst (first visit service) receives training by children's dentist Dr. Yvonne Wagner. All parents will be invited to an initial preventive checkup during baby hour at University Clinic for Preventive Dentistry and Children's Dentistry.

Tooth brushing from the first tooth with a fluoridated children's toothpaste, tooth friendly diet and the importance of the first visit to the dentist: Parents will be taught theoretical background knowledge and current preventive recommendations during the course. There will be practical training in proper tooth cleaning with small children.

MAM Babyartikel supports the prevention project. The Austrian manufacturer provides the project with its innovative dental care products and informational materials.

Results:

- Dr. Yvonne Wagner: "Thanks to the involvement of the midwives in the ECC prevention program, parents will be more aware of the importance of dental and overall health and early dental care from the first tooth."
- Training was provided for 256 families in 2009: 76 percent of the parents rated it as "very good", 22 percent as "good", 2% gave no rating.
Outlook:

- 2010: Continuing education for paediatricians in cooperation with the Thüringen State Medical Association
- 2011: Continuing education for midwives in cooperation with the Thüringen State Midwives Association.