Pediatric Dentistry

1. Principles Pertinent to the Evaluation Criteria

The entire pediatric dentistry should be characterized by such a quality that beforehand mostly good to very good outcomes can be expected. However, both the patient and the parents have to be informed that the success of a treatment cannot be guaranteed in every case.

The introduction of quality criteria in the dental treatment of children is only a piece of the quality assurance. Various institutions also have to be involved in it, such as the school dental services as well as the children's and adolescent dental care (based on their legal obligations), dental educational institutions, general dental practices, pediatric practices, children's hospitals, kindergartens and schools, and, of course, not forgetting the parents.

Caries, periodontal and other oral problems which are not treated can impair childhood development. A child suffering from toothaches, tooth and oral mucosal infections, or deficient dental function is a "dentally handicapped patient" who certainly needs a dental therapy followed by subsequent prophylactic care and educational nutrition guidance. If in the course of the necessary dental treatment many teeth have to be extracted, an adequate nutrition is of prime importance for the child in order that, on the one hand, its energy needs are covered and thus its growth is ensured, and, on the other hand, its physical and mental development does not fall behind. This in turn would entail restrictions in the learning, work, and communication area in adulthood. From these findings it emerges that caries- and infection-related emergency situations are to be limited to a minimum. The child as an emergency patient for some dentists constitutes a "special challenge", mostly in negative respects. *Emergency cases due to trauma are exempted from this, since they occur unexpectedly.*

In pediatric dentistry, first of all in caries management, prevention is by far the most important objective.

In its broadest definition, pediatric dentistry involves all aspects of dentistry, including the treatment of specific problems such as surgical issues or the treatment of patients suffering from particular medical problems. However, the pedodontist only looks after the patient during a part of their life, namely up to adolescence.

Caries certainly is the biggest problem in the dental care of infants, children, and adolescents. However, the transition from the mixed to the permanent dentition implicates a drastic change in occlusion, and concomitant with the attainment of the permanent dentition, an intensified precaution for the periodontium begins as well.

For these reasons, pediatric/adolescent dentistry sets the course for lifelong dental health and during these approximately 16 years rests on six pillars:

1. **Prophylaxis and caries management**
2. **Trauma management**
3. **Periodontal management**
4. **Occlusal management**
5. **Patient management**
6. **Recall management**

All six kinds of management pursue one objective: to release into adult life well motivated, caries-free or rehabilitated, periodontally healthy patients whose dentitions have not suffered traumatic damage – or, if so, only with as slight long-term effects as possible.

2. Evaluation Criteria for the Quality Levels A+ to C

	PROPHYLAXIS AND CARIES MANAGEMENT	TRAUMA MANAGEMENT
A+	▪ Commitment in institutionalized prenatal counseling ▪ Good dental and gingival conditions in primarily ill-motivated children and parents owing to very good information and instruction, but also through very good motivation of the child and the parents in individually customized recall sessions ▪ Best fulfillment of the professional criteria regarding dental hard substances, the pulp, and the gingiva	▪ History of sportive activities and specific information about the prevention of sports injuries in the facial area ▪ Personal commitment in the organization of a children-oriented 24-hour emergency service
A	▪ Early prevention through information and instruction of the parents-to-be ▪ Care arranged with the parents (upon early prevention) beginning at the eruption of the first primary molars ▪ Good oral hygiene of the child owing to good information and instruction of the child and the parents ▪ Good dental and gingival conditions despite non-sustainable motivation of the child and the parents through good information and instruction and owing to the offer of individually customized recall intervals ▪ Development and implementation of (individual) specific prevention programs in known risk groups ▪ Fulfillment of the professional criteria regarding dental hard substances, the pulp, and the gingiva, if necessary making a compromise concerning cooperation, costs, and parental wish	▪ Information of the parents/children about the correct behavior after tooth accidents ▪ Immediate clinical and radiographic diagnostics and therapy of dentoalveolar and soft tissue injuries (inclusion of foreign bodies) ▪ Diagnosis of jaw fractures and as appropriate referral to the specialist clinic ▪ Adequate follow-up checks and information about the prognosis, possible complications, and actuarial aspects
B	▪ Prevention only after the first emergency treatment ▪ Insufficient oral hygiene of the child due to incomplete information, instruction, and motivation efforts ▪ No good dental and gingival conditions in the long run despite basically good motivation of the child and the parents ▪ Caries treatment of the primary teeth by means of mere pulp trepanation or extraction ▪ Further emergency treatments are foreseeable. ▪ Missed opportunity to reduce the therapeutic effort by means of an early intervention (suitable for the child and cooperation as well as regarding costs)	▪ Delayed clinical and radiographic diagnostics and therapy of dentoalveolar and soft tissue injuries (inclusion of foreign bodies), as a result impaired prognosis ▪ Incomplete diagnostics of jaw fractures ▪ Refusal of accident treatments, though with organized referral, as a result further delay of the treatment and impairment of the prognosis ▪ No follow-up checks and information about the prognosis, possible complications, and actuarial aspects
C	▪ No prevention, not even after the first emergency treatment ▪ Desolate dental and gingival conditions due to missing information, instruction, and motivation ▪ Functional impairment of the child ▪ Only symptomatic treatment ▪ Later treatment becomes more elaborate.	▪ Late and insufficient clinical and radiographic diagnostics of dentoalveolar and soft tissue injuries (inclusion of foreign bodies), as a result seriously impaired prognosis ▪ No diagnostics of jaw fractures ▪ Refusal of accident treatments without the arrangement of a treatment date in another practice

	PERIODONTAL MANAGEMENT	OCCLUSAL MANAGEMENT
A+	–	–
A	▪ Instruction of oral hygiene including re-motivation of the parents and the child ▪ Recognition and treatment of gingival/periodontal problems ▪ Recognition of perioral and oral evidence for general medical causes ▪ Recognition and, as appropriate, removal of periodontally harmful factors ▪ Timely referral	▪ Age-appropriate clinical detection and recognition of dentoalveolar and/or occlusal abnormal development, developmental and eruption disorders including the initiation of the necessary therapy or referral ▪ Time-wise adequate radiographic monitoring of tooth eruption ▪ Adjustment of occlusal disturbing factors ▪ Good dental planning and treatment considering the occlusal development ▪ Space maintainers following extractions of primary teeth, where indicated
B	▪ Only emergency treatment, thereafter instruction of hygiene until healing ▪ No recognition of local periodontally harmful factors or perioral and oral evidence for general medical causes ▪ Missing reference to the possible course of development ▪ Too late referral	▪ No regular monitoring and thus no timely recognition of dentoalveolar and/or occlusal abnormal development, developmental and eruption disorders ▪ Too late referral ▪ No time-wise adequate radiographic monitoring of tooth eruption ▪ Restorative treatment lacking consideration for the occlusal development ▪ No space maintainer following extractions of primary teeth, not even if indicated
C	▪ Only emergency treatment ▪ No instruction of oral hygiene, no information ▪ No referral	▪ No monitoring and thus no recognition of abnormal development, developmental and eruption disorders, since only pain (emergency) treatment is carried out; thus no a time-wise adequate radiographic monitoring of tooth eruption ▪ No referral ▪ Only symptomatic and hence unplanned extraction therapy

	PATIENT MANAGEMENT	RECALL MANAGEMENT
A+	▪ Highly subtle introduction of the child into the dental environment and thus striving for a normal treatment even in difficult patients ▪ Practice organization tailored to the child	▪ The practice/clinic has a recall system individually customized to every patient ▪ Summoning to individual recall appointments by the practice/clinic organization corresponding to the determined risk factors and in consultation with the parents, considering the dental and gingival as well as the familial conditions
A	▪ Careful preparation of the child and the parents for every therapeutic step ▪ Child-friendly practice team ▪ Information about risk and possible side effects of treatments and dental materials ▪ Information about consequences of omitted treatments ▪ Recognition of developmental disorders or diseases of a general medical origin, possibly also of signs of abuse ▪ Perfect pain management through the use of local anesthesia, laughing gas sedation, or other means for calming of the patient and for a pain-free treatment ▪ Specific referral of problematic children for a treatment in general anesthesia ▪ The dentist controls themselves in extreme situations.	▪ Timed appointments arranged with the parents corresponding to the determined risk factors and considering the dental and gingival as well as the familial conditions ▪ Adequate radiographic monitoring
B	▪ Incomplete forensic elucidation ▪ Inadequate preparation of the child and the parents for the impending therapy ▪ Deficient pain management ▪ The dentist arrives at the treatment goal by wielding authority, thus creating already possible traumatization of the child and annoyance of the parents. ▪ The dentist does not always control themselves in extreme situations.	▪ Incomplete forensic elucidation ▪ Inadequate preparation of the child and the parents for the impending therapy ▪ Deficient pain management ▪ The dentist arrives at the treatment goal by wielding authority, thus creating already possible traumatization of the child and annoyance of the parents. ▪ The dentist does not always control themselves in extreme situations.
C	▪ No forensic elucidation ▪ No preparation of the child and the parents for the impending therapy ▪ Therapy with brute force resulting in severe traumatization of the child ▪ The dentist does no longer control themselves in extreme situations. ▪ Refusal of emergency treatments	▪ No recommendation regarding regular checks ▪ Only emergency treatments

3. Explanatory Notes on the Evaluation Criteria

Prophylaxis and Caries Management

Caries management starts with birth and first of all involves the parents who are responsible for the dental health of their child and through their behavior can prevent an intervention or at least make sure that its extent can be minimized. It is important that – depending on the age and maturity of the child – the emphasis of the relationship shifts from parents/dentist to child/dentist.

Successful caries management comprises:

1. Early prevention;
2. Non-invasive prophylaxis;
3. Semi-invasive prophylaxis;
4. Invasive treatment.

Early prevention

Early prevention actually starts already before birth with the information and instruction of the prospective parents and six months after the eruption of the first primary tooth is continued regularly. With the parents it is arranged at what intervals of time the child comes for checking purposes.

The risks that can result in dental and oral diseases are made clear and analyzed as required; their prevention is explained and justified, and habits already present are discussed. The dentist is trained to offer the parents a recommendation for a dentally healthy nutrition, which is derived from the information about the dietary behavior of the family.

Non-invasive prophylaxis

Plaque removal by means of good oral hygiene starts out on all prophylactic measures.

The effects of fluorides regarding, on the one hand, the prevention of caries and, on the other hand, the re-mineralization of enamel caries are undisputed.

The dentist knows and follows the scientifically sound guidelines for fluoridation.

In case of fluoride deficiency and a severe caries risk the dentist employs fluoride supplements.

Semi-invasive prophylaxis

Sealing is a part of preventive dentistry.

The dentist observes the indications for sealing: patient selection, tooth selection, and clinical preconditions as well as the technical procedure.

Invasive treatment

The decision whether a carious lesion in a child has to be treated depends on its extent, its localization, and the caries activity as well as on the age and cooperation of the child.

Enamel lesions for extended periods are kept stationary using preventive means, including fissure and pit sealing. Regular checks are necessary.

Dentin caries has to be treated.

Trauma Management

The sporting activities of the child should be brought up during the regular dental check. Play, sports, and traffic accidents in childhood and adolescence sometimes have serious consequences for the entire dentition. Therefore, the prevention of the tooth accident is an important area of pediatric dentistry.

Based on the history of the sporting activities of the child and adolescent, the dentist decides on the extent of information and the specific enlightenment of the parents about the prevention of sports injuries in the facial area.

The dentist knows that time constitutes a decisive factor for the prognosis of an accident in the tooth, jaw, and facial area. They provide this information early to the parents and at the same time enlightens them about the behavior in case of such injuries. They master the fastest possible clinical and radiographic diagnostics and the resulting proper therapy; if not, an immediate referral to a specialist clinic or practice with advance notification by phone is necessary.

The dentist knows the posttraumatic complications, the frequency and time interval of their appearance and informs the parents accordingly. They keep the accident-damaged tooth under regular control and supervise the accident reporting to the health insurance by the parents.

Periodontal Management

In the child, periodontal management is relatively simple and largely identical with caries management. However, already in the adolescents periodontal management is of prime importance, since it allows establishing the basis for later periodontal health. A specific periodontal examination is a component of a regular dental check in adolescents.

The parents are instructed about the oral hygiene customized to the age of the child; it is demonstrated in the child so that it can be properly applied at home.

Adolescents are instructed about the oral hygiene corresponding to their manual skills.

In adolescents wearing fixed orthodontic appliances, the dentist instructs additional measures.

They recognize gingival and periodontal problems and apply the appropriate therapy; if not, a timely referral to a specialist clinic or practice is necessary.

The dentist diagnoses gingivitis due to illness or medication based on perioral and oral manifestations. They inform about harmful factors such as for example piercing, smoking, and others.

Occlusal Management

Monitoring of tooth eruption and the development of the primary and permanent dentition is a significant part of pediatric dentistry. The objective of occlusal management is a functionally proper and esthetically good occlusion in the permanent dentition.

An impending abnormal development in the dentoalveolar and/or occlusal area is recognized at an early stage and adequately treated. If this treatment cannot be carried out, a specialist clinic or practice is contacted on time.

The dentist prevents a malocclusion owing to careful planning of the conservative and/or surgical measures.

A prerequisite is the monitoring of the particular eruption cycles including the registration of the respective dental status in the patient chart.

Patient Management

Communication

An ideal prerequisite for a good dental cooperation of the child is the very early contact with the dental practice. Already after the eruption of the first primary molar the regular examination starts. The attention of the infant is gained and the influence of the parents is utilized as positively as possible. Negative influences are repressed and thus anxiety is relieved as well.

The dentist utilizes verbal and non-verbal communication.

Pain management

Every dentist is aware that anxiety elicits pain and vice versa. If a relationship of trust between the dentist and the child has already emerged as a result of the communication, pain management becomes easier.

The dentist knows the possibilities of patient calming, the self-control, the anesthetization, and the suppression of consciousness, their advantages and disadvantages, and their specific indications and contraindications as well as the specialist clinics and practices which offer these possibilities of pain management.

Recall Management

The dental practice undertakes the task of summoning the children and adolescents at firmly arranged intervals. The statutorily regulated examinations within the scope of the school dental service are regarded as a minimum.

The dentist sets these intervals in due consideration of the entire oral situation as well as of the familial conditions.

4. References

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