



Pediatric Restorative Dentistry Consensus Conference

April 15-16, 2002 - San Antonio, Texas

The purpose of the Pediatric Restorative Dentistry Consensus Conference was: (1) to obtain expert literature reviews of topics specifically pertaining to pediatric restorative dentistry, and (2) based on the scientific data, to prepare position papers recommending appropriate restorative dental care for children.

The individual papers prepared for the conference present information available at this time and describe recommendations. The conference participants agreed that prevention of disease is a critical component of comprehensive oral health care. Furthermore, it was recognized that appropriate management of dental caries in children includes fostering remineralization of noncavitated demineralized areas. When remineralization is not successful over time, as demonstrated by the progression of lesions, restoration is indicated. Great efforts are being made to provide preventive dentistry services, including populations that have difficulty accessing dental care. School-based sealant programs are an example. Although these programs can offer benefits, participants at the conference identified the importance to strive for all children to have a dental home where comprehensive dental care can be provided.

It is hoped that consensus statements will be interpreted in the spirit in which they were prepared. Each child must be evaluated and treated on an individualized basis. The recommendations must, therefore, be interpreted in the same manner. For instance, Class IV resin-based composite restorations are not typical in the primary dentition. Due to additional retention, strip crowns are usually recommended over Class IV restorations for primary anterior teeth. However, the consensus statements include Class IV in the primary dentition for those rare circumstances that a majority of the tooth remains and retention is not a major concern. Likewise, although amalgam demonstrates success,

preventive resin restorations are preferably recommended as restorations for primary and permanent teeth, as it helps preserve healthy tooth structure. Moreover, the recommendations for conservative 2-surface Class II restorations in the primary dentition might be expanded to involve more tooth structure for teeth that will exfoliate over the next 1 to 2 years. The consensus statements were intended to be applicable in "most circumstances," rather than be interpreted to have no exceptions.

When discussing dental amalgam, participants believed it was important to note that the literature overwhelmingly supports the safety of amalgam, and they encourage review of the American Dental Association Web site concerning this subject.

Finally, it is important to note the lack of clinical data available, particularly for the primary anterior dentition. Well-controlled, long-term clinical trials should be performed so that valuable information can be obtained and recommendations may be made accordingly. Even retrospective data has value, and this information should be assessed and reported, noting the inherent disadvantages of retrospective data. Funding is scarce for these studies, and support for prospective studies is encouraged.

I want to express my sincere thanks to all conference participants, both personally and on behalf of the American Academy of Pediatric Dentistry and American Society of Dentistry for Children. All documents, including this one, must be modified as more research and clinical data become available. Progress is an ongoing ordeal and it is essential that evidence-based recommendations be reviewed and revised on a regular basis. After all, the true benefit is for children.

Kevin Donly, DDS, MS
Conference Coordinator

Consensus statements

Epidemiology, risk assessment and clinical decision making

The dental literature supports:

1. The goal of caries risk assessment is to deliver patient-specific diagnostic, preventive, and restorative services based on an individual patient's needs.
2. The following caries risk factors need to be considered: present and past caries activity; socioeconomic status; sealant status; mutans streptococci levels; fluoride exposure; sugar consumption; special needs; and parent/sibling caries activity.
3. Dental caries management includes individualized prevention and restorative therapy.

Sealants

The dental literature supports:

1. Bonded resin sealants, placed by appropriately trained dental personnel, are safe, effective, and underused in preventing pit and fissure caries on at-risk surfaces. Effectiveness is increased with good technique, appropriate follow-up and resealing as necessary.
2. Sealant benefit is increased by placement on surfaces judged to be at high risk or surfaces that already exhibit incipient carious lesions. Placing sealant over minimal enamel caries has been shown to be effective at inhibiting lesion progression. Appropriate follow-up care, as with all dental treatment, is recommended.
3. Presently, the best evaluation of risk is done by an experienced clinician using indicators of tooth morphology, clinical diagnostics, past caries history, past fluoride history and present oral hygiene.
4. Caries risk and, therefore, potential sealant benefit, may exist in any tooth with a pit or fissure at any age, including primary teeth of children and permanent teeth of children and adults.
5. Sealant placement methods should include careful cleaning of the pits and fissures without removal of any appreciable enamel. Some circumstances may indicate use of a minimal enameloplasty technique.
6. A low-viscosity, hydrophilic material bonding layer as part of or under the actual sealant has been shown to enhance the long-term retention and effectiveness.
7. Glass ionomer materials have not been shown to be effective as pit and fissure sealants, but could be used as transitional sealants.
8. The profession must be alert to new preventive methods effective against pit and fissure caries. These may include changes in dental materials or technology.

Amalgam

The dental literature supports the safety and efficacy of dental amalgam in all segments of the population. Furthermore, the dental literature supports the use of dental amalgam in the following situations:

1. Class I restorations in primary and permanent teeth;
2. two-surface Class II restorations in primary molars where the preparation does not extend beyond the proximal line angles;
3. Class II restorations in permanent molars and premolars;
4. Class V restorations in primary and permanent posterior teeth.

Tooth-bonding adhesives

The dental literature supports:

1. Tooth-bonding adhesives, when used according to the manufacturer's instructions unique for each product, are effective in primary and permanent teeth to enhance retention, minimize microleakage and reduce sensitivity.

Glass ionomer materials

The dental literature supports the use of glass ionomer cement systems in the following situations:

1. Luting cement:
 - a. stainless steel crowns,
 - b. orthodontic band,
 - c. orthodontic brackets (limited).
2. Cavity base/liner.
3. Class I restorations in primary teeth.
4. Class II restorations in primary teeth.
5. Class III restorations in primary teeth.
6. Class III restorations in permanent teeth in high-risk patients or teeth that cannot be isolated.
7. Class V restorations in primary teeth.
8. Class V restorations in permanent teeth in high-risk patients or teeth that cannot be isolated.
9. Caries control:
 - a. high-risk patients,
 - b. restoration repair,
 - c. atraumatic restorative treatment.

Resin-based composite

For all resin-based composite restorations, teeth must be adequately isolated to prevent saliva contamination. The dental literature supports the use of highly filled resin-based composites in the following situations:

1. small pit and fissure caries where conservative preventive resin restorations are indicated in both the primary and permanent dentition;
2. occlusal surface caries extending into dentin;
3. Class II restorations in primary teeth that do not extend beyond the proximal line angles;
4. Class II restorations in permanent teeth that extend approximately one-third to one-half the buccolingual intercusp width of the tooth;
5. Class V restorations in primary and permanent teeth;
6. Class III restorations in primary and permanent teeth;
7. Class IV restorations in primary and permanent teeth;
8. strip crowns in the primary and permanent dentitions.

Stainless steel crowns

The dental literature supports the use of stainless steel crowns in the following situations:

1. Children at high risk exhibiting anterior tooth decay and/or molar caries may be treated with stainless steel crowns to protect the remaining at-risk tooth surfaces.
2. Children with extensive decay, large lesions or multiple surface lesions in primary molars should be treated with stainless steel crowns.
3. Strong consideration should be given to the use of stainless steel crowns in children who require general anesthesia.

Anterior restorations

The dental literature supports the following recommendations for anterior restorations:

1. Resin-based composites may be used for:
 - a. Class III restorations in the primary and permanent dentitions;
 - b. Class V restorations in the primary and permanent dentitions;
 - c. Strip crowns in the primary anterior dentition;
 - d. Class IV restorations in the primary and permanent dentition.
2. Although minimal clinical data is available, glass ionomer cement or resin-modified glass ionomer cement may be used for Class III and V restorations for primary teeth that cannot be isolated.
3. Full-coverage crowns for primary anterior teeth may be recommended for teeth with:
 - a. multiple carious surfaces,
 - b. incisal edge involvement,
 - c. extensive cervical decalcification,
 - d. pulpal therapy,
 - e. hypoplasia,
 - f. poor moisture or hemorrhage control.

Consensus conference attendees

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Joel H. Berg, Snoqualmie, Wash
John O. Burgess, New Orleans, La
Theodore P. Croll, Doyleston, Pa
Kevin J. Donly, San Antonio, Tex
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Franklin Garcia-Godoy, Fort Lauderdale, Fla
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