



The Stainless-Steel Crown for Primary Molars

Overuse? No, I say underuse.

by Joel Berg, DDS, MS

Second opinions are common in health care, whether a doctor is sorting out a difficult case or a patient is not sure what to do next. In the context of our magazine, the first opinion will always belong to the reader. This feature will allow fellow dental professionals to share their opinions on various topics, providing you with a "second opinion." Perhaps some of these observations will change your mind, while others will solidify your position. In the end, our goal is to create discussion and debate to enrich our profession.

– Thomas Giacobbi, DDS, FAGD, Editorial Director, *Dentaltown Magazine*

The stainless-steel crown is an important restorative tool in caring for the oral health of children. Although our focus in providing the best oral health care for children is clearly on prevention, unfortunately there are many children who do not seek or obtain oral health preventive care at an early enough age to prevent what can be devastating disease at an early stage of their lives. All who care for children's oral health see many cases of early childhood caries present at the first visit to a dentist. Children as young as 18 months present to pediatric dental centers all over the country each day with severe early childhood caries in need of treatment to avert progression of significant infection. Further, some children initially present with disease only after the infection has spread beyond the teeth causing facial swelling and a potentially life-threatening condition. These children often need to be hospitalized, placed on intravenous antibiotics and must have an incision and drainage performed, along with extraction of the offending tooth, to avoid a dangerous situation.

Of course I support medicinal therapeutic methods (these are rapidly evolving but not all fully tested) of halting disease progression and treating the infection. Though, most commonly, presentation is at too late of a stage and the literature supports restorative treatment to eliminate the decayed tooth structure and to preserve the health of the teeth in these very young children.

Most children with early childhood caries do initially present (although late after the initiation of caries disease) early enough to manage their disease progression via restorative techniques. Given the pre-cooperative state of these very young children and the lack of cognitive skills to cooperate for a restorative procedure, we must be carefully astute in planning the right care for the child, providing the best care which will be definitive and avert progression of disease. We want any restorative treatment performed on a

child to last the life of the primary tooth, to sustain the health of the tooth in the mouth and to provide the appropriate maintenance of space to allow the natural transition into the permanent dentition several years later.

Based upon the anatomy of primary molars, with the convergence of the buccal and lingual surfaces toward the occlusal surface (from the proximal perspective), and therefore having a small occlusal table, it becomes challenging to place an intra-coronal restoration when the decay has spread even a small amount beyond ideal size in the proximal aspect of the tooth. Therefore, restorations placed with amalgam, composite or glass ionomer must be of ideal size, or perhaps slightly larger, to be retained properly and last the life of the tooth. The scientific literature has shown the strong support for the placement of stainless-steel crowns in the event that restorative materials would extend beyond the ideal size, not allowing retention of the restoration, to avoid leakage after the placement of the restoration and subsequent infection. A stainless-steel crown is easy to place once trained to do so, fits well in a primary molar and provides halting progression of caries to allow the tooth to be retained in the mouth until natural exfoliation, and in a healthy state.

Unfortunately, we often see placement of large intra-coronal restorations in primary molars, which should have had stainless-steel crowns. Large intra-coronal restorations can break, causing leakage and subsequent infection. If not placed properly, there is immediate leakage and subsequent infection, which can be very dangerous for the child's overall health. Stainless-steel crowns require proper local anesthesia, rubber dam isolation and adequate tooth preparation followed by adequate fitting of the crown, which comes in six stock sizes. After fitting, the crown snaps over the buccal bulge of the molar and is retained mechanically along with the adhesive glass

ionomer cement. Glass ionomer cement creates a seal between the tooth to which it is bonded chemically, and to the stainless-steel crown to which it is bonded mechanically. This tight seal, along with a well-fitting adapted stainless-steel crown, will allow the natural contours, occlusion and fit to restore the tooth adequately and retain its presence in the mouth in a healthy state. We often see very large restorations that break down quickly, causing subsequent infection and requiring extraction of teeth or subsequent restoration, subjecting the child to further treatments that would not have been necessary had a stainless-steel crown been placed in the first instance. Therefore it is clear that there is an underutilization of stainless-steel crowns.

We often see in the press where a child has gone to a provider who was inadequately trained to care for children and certainly for their restorative treatment. There must be proper training for the provider in terms of managing the behavior of the child, in the proper venue, in order to provide the best quality care, and to allay anxiety that might otherwise ensue. Often, treatment of a very young child needs to be performed under sedation – or more likely general anesthesia – in order to provide the best conditions of safety, quality of care and attenuation of anxiety, and to allow the proper treatment to be performed in one appointment. After completion of restorative care, focus on preventive care can be presented to the caregivers and child to avoid further decay and affected caries.

When we see in the press that a child came out of a dental office with “eight stainless-steel crowns,” the perception is often that the crowns were unnecessarily placed. This is an unfortunate perception in situations where the crowns were necessary, which is often the case in severe early childhood caries. This must be differentiated from situations where stainless-steel crowns are placed when

there is no decay. To be clear, a stainless-steel crown is not a preventive employment. It is a restorative material (after having removed the decayed substance from the tooth) to allow the tooth to be retained in the mouth until its natural exfoliation. If a stainless-steel crown is placed on the tooth because it is suspected the tooth will become decayed, when it is not (yet) decayed, this is indeed inappropriate. This must be distinguished from the clear need for stainless-steel crowns on many primary molars with early childhood caries.

Given the inappropriate use of large intra-coronal restorations in primary molars by practitioners who have not had the adequate training to more appropriately place stainless-steel crowns, it is clear there is a need to provide additional training for the general practitioner who intends to see children so he or she can be properly treated with the restorations that will last the life of the tooth, and where the tooth will be retained in a healthy state until its natural exfoliation. If it is not within the skillset of the general dentist, as with any other specialty-focused procedures in dentistry, the child should be referred to a pediatric dentist who has both the training and the access to provide care for children in appropriate venues.

I want to be clear that there is more of an underutilization of stainless-steel crowns (regarding preferred use over the large intra-coronal restorations which very often break down quickly) as opposed to an overuse of stainless-steel crowns.

Regardless, there is a need for additional training to make sure the care given to children is definitive, provides reduction of anxiety, makes the child and family focused on preventive care and allows for removal of infection and retention of restorations until the natural exfoliation of the teeth in a healthy state. ■

Author's Bio

Dr. Joel Berg became Dean of the University of Washington School of Dentistry in August 2012. Prior to that, he was the chair of pediatric dentistry, dental director for Seattle Children's and associate dean for Hospital Affairs at the School of Dentistry. Dean Berg obtained his DDS, a certificate in pediatric dentistry and an MS in oral biology from the University of Iowa. Before joining the UW, he also served on dental faculty at the University of Pennsylvania and the University of Texas. He is currently president of the American Academy of Pediatric Dentistry and was recently chosen to be a national spokesman for a public service advertising campaign to promote dental health.

Berg has authored or co-authored more than 100 abstracts, articles and chapters, and is co-editor of a textbook on early childhood oral health. His current research includes innovative new technologies for early detection of caries, one of his principal research and academic interests. He is a fellow of the American College of Dentists and International College of Dentists, as well as a board director of the American Academy of Esthetic Dentistry. In 2011, he was named the eighth Washington Dental Service Foundation Distinguished Professor for Dentistry.

