Pediatric Clinical Cases
The following summaries of clinical cases presented by your colleagues provide tips on how they use 3M pediatric solutions to enhance their clinical success ... and keep patients happy.
Preventive

Enhancing pediatric care with the tell-show-do communication method

Dr. Margaret Moore

Care for pediatric patients requires a certain amount of tact and understanding for the way children and adolescents view the world. To enhance treatment acceptance and ensure the best possible compliance with prescribed home care, our practice is a strong advocate for the “tell-show-do” communication method, developed as a means of helping children who are anxious about receiving dental care. A combination of verbal and nonverbal communication skills and positive reinforcement, we use this method to teach the patient about the dental visit, familiarize them with the dental setting, and help shape his/her response to procedures through desensitization and well-described expectations.

We have found that the tell-show-do communication method is especially effective when we’re administering common pediatric sealant cases, as we can demonstrate the application on the patient’s finger to acclimate the child with the dental procedure and instruments and establish trust between the dentist or hygienist and the patient. The engaging give-and-take approach helps us to achieve our goals of patient education, comfort and compliance.

Sealant applications with 3M™ Clinpro™ Sealant are especially interesting to demonstrate with children because of the product’s unique color-changing formula. The Clinpro Sealant gel applies pink on teeth and cures to natural white under the 3M™ Elipar™ S10 LED Curing Light. As kids watch the color transformation, we explain how the sealant works to protect and strengthen their teeth. With girls in particular, we liken the pink application process to finger nail polish; the sealant protects their teeth and beautifies their smile just as polish does with their nails and hands. Plus, the LED curing light emits a radiance we compare to nail salon drying lamps to make it more relatable.

When our pediatric patients ask what a dental sealant actually does, we describe that Clinpro Sealant converts their tooth’s chewing surface from that of a bumpy mountain range to a smoother ice skating rink, to provide a flatter surface that’s easier to clean and brush food debris from. This gives us a good segue into discussing the importance of consistent at-home oral care.

Parents respond well to our preventive care approach and appreciate the attentiveness given to their children. Active and reflective listening with patients helps establish rapport and trust. With tell-show-do, our dentists guide and shape the patients’ behavior to assess their comfort and pain level and deliver quality dental treatment safety.

Case Presentation

The 12-year-old female patient presented with deep pits that were picking up stains and food. As a preventive measure, we sealed her premolars and linguals #10 and #12.

To best prepare premolars for restoration, we first thoroughly clean them to remove plaque and debris from the enamel surfaces and fissures (Fig. 1). We then isolate the area with cotton rolls before etching the tooth surface (Fig. 2).
Fighting childhood caries with dental sealants

Dr. Katie Peterson

Worldwide, approximately 2.43 billion people have dental caries in their permanent teeth. In primary teeth, it affects as many as 620 million children, or 9 percent of the population. Knowing how pervasive this issue can be, the use of dental sealants in combination with other preventive measures becomes an increasingly important (and increasingly accepted) part of treatment planning. Engaging in conversations with pediatric patients and their parents helps us stress the critical importance of brushing and flossing from an early age, but that’s only part of the solution for at-risk patients. We know from clinical studies that dental sealants help play a significant role in reducing pediatric dental decay, even in high caries risk patients. In order to communicate the importance of dental sealant application, we stress to parents how common it is for caries to develop in the pits and fissures of the teeth. When it comes to our younger patients, we liken it to a “tooth paint” that helps make the teeth stronger.

Our practice relies on 3M™ Clinpro™ Sealant for long-lasting protection against caries. For us, it’s important that the sealant be easy to apply, and Clinpro Sealant offers a unique color-changing formula and low viscosity for easy flow into pits and fissures. Clinpro Sealant goes on pink for easy-to-use application and cures to a natural white under the 3M™ Paradigm™ DeepCure LED Curing Light. The unique color-changing technology helps us with accuracy and material placement and impresses children during our treatment discussion or demonstration. Applied with an ultrafine syringe tip, the sealant is able to get into tight grooves without flowing over the entire tooth. And, as the material changes color under the curing light, we can check it with an explorer to ensure proper bonding.

Conclusion

Thorough and consistent communication with children is key to providing the best pediatric dental care. With its unique color-changing technology, Clinpro Sealant accommodates easy application and material placement for the dentist or hygienist, plus amusement for the child. Using vivid descriptions and analogies, we “tell” about the procedure in an interesting way. We “show” an example of the sealant application first on their finger, and “do” the procedure when the patient “shows” an example of the sealant application first on their finger, and “do” the procedure when the patient

Acknowledgements

Dr. Margaret has received honorarium from 3M Oral Care.

Reference

Case presentation
This 9-year-old male patient presented with deep grooves to be sealed on his newly erupted molars, teeth #5 and #25. The patient had a history of cavities on all remaining primary molars; we previously had sealed or filled his six-year molars. He also had generalized gingivitis.

Prior to treatment, we set up our tray with the instruments and products to be used for typical sealant cases, including 3M™ Clinpro™ Sealant, 3M™ Paradigm™ Deep Cure LED Curing Light and etchant (Fig. 1). In preparing the teeth, we first thoroughly clean the enamel to remove plaque and debris from the surfaces and fissures (Fig. 2); then we rinse well with water. We isolate and dry the teeth with a cotton roll (Fig. 3) before etching the enamel surfaces to be sealed, so the sealant can bond well to the enamel. Weetch for 15–60 seconds, extending beyond the anticipated margin of sealant (Fig. 4). After rinsing the teeth to remove the etchant, we thoroughly dry all etched surfaces and ensure that no surface is contaminated. Using the syringe needle tip, we apply the pink sealant into the pits and fissures (Fig. 5). After curing the sealant for 10–20 seconds with the Paradigm Curing Light, we inspect the sealant for (Fig. 6). After curing the sealant for 10–20 seconds with the Paradigm Curing Light, we inspect the sealant for (Fig. 6).

Conclusion
Our team has consistently used sealants in preventive pediatric practice with accurate placement and control, good retention rates and high esthetics. Nearly all of our patients—children and adults—appreciate the painless process, pleasant taste and powerful, long-lasting protection against caries. Combined with tailored communication about the science behind the product, our patients like to see the pink application process to better visualize and understand the procedure. We appreciate the direct delivery system that easily flows into pits and fissures for accurate coverage. Dental sealants are quick, easy and relatively cost-effective for preventing cavities. They’re quickly becoming the go-to treatment for kids who need extra dental care, and we rely on the trusted 3M brand to deliver comprehensive preventive products that offer the best solutions for our patients.

About the author
Dr. Katie Peterson (“Dr. Katie”) is a graduate of DePauw University and the Indiana University School of Dentistry. She is a member of the American Dental Association, Indiana Dental Association, and an affiliate of the American Academy of Pediatric Dentistry. With more than a decade of experience, Dr. Katie became enchanted with the pediatric patient population early in her career and has focused on the care and treatment of young patients ever since. She has worked at the westside office since 2005, as an associate then lead dentist, before acquiring both practices. This has allowed her to sharpen her leadership skills and create a staff that shares her vision of “patient first.”

Dr. Katie has received honorarium from 3M Oral Care.

References
2. American Dental Association, 2005 (Fluoridation Facts)
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5. The American Dental Association (ADA) and Caries Management by Risk Assessment (CAMBRA) recommend sealants as an aid to prevent caries.

Clinpro™ Sealant, Vanish™ 5% Sodium Fluoride White Varnish, and Clinpro™ Tooth Crème (3M) as a Preventive Clinical Strategy
Sabiba S. Bunek, D.D.S.
Enspire Dental, Ann Arbor, Michigan

Introduction
Pit and fissure sealants have been known to be effective in caries prevention, especially in posterior teeth. While the use of pit and fissure sealants is a common procedure in many offices, the placement itself can be problematic, especially on pediatric patients. Sealant materials are typically tooth colored, making it challenging to see during application and leading to more necessary adjustment and longer appointment times.

Description
Clinpro™ Sealant (3M) is a low-viscosity sealant material which is pink during placement and changes to a natural white shade after curing. The sealant flows easily into pits and fissures, contains and releases fluoride, and bonds to enamel. A smart color-change feature provides the clinician visual feedback so they can be confident in their placement. The ability to see where the sealant material is flowing not only saves time during application, but also eliminates the need for occlusal adjustment making this an ideal product for pediatric appointments where patient management can be difficult. Scotchbond™ Universal Etchant (3M) is slightly viscous allowing for controlled placement and reducing the chances of contact with soft tissues, and the Elipar™ DeepCure-5 Curing Light (3M) offers speed and confidence with its faster and deeper cure also lending itself to use in pediatric appointments.

Clinical Case
An 11-year-old patient presented for a routine oral examination during a prophylaxis appointment. During the clinical exam, non-curious, deep pit and fissures were noted in the first molars (Figure 1). Pit and fissure sealants were recommended as the choice of treatment and the parents requested the treatment be completed that day, and all materials were available (Figure 2). The patient is in the early stages of orthodontic treatment, and will require a preventive in-office and at-home regimen.
Clinical Procedure

Follow-up Care

Summary

Follow-up treatment for this patient was application of Vanish™ 5% Sodium Fluoride White Varnish every six months due to pending orthodontic treatment. The patient was given Clinpro™ Tooth Crème (3M) to be used twice per day in place of his usual toothpaste. Clinpro Tooth Crème is an excellent choice for children who do not need a prescription-strength fluoride. In this case, the patient will have future bracket placement and Clinpro Tooth Crème will assist in the prevention of white spots. Six-month recall was recommended until bracket placement, at which time oral hygiene and home care strategies can be reassessed.

The use of Clinpro Sealant is a great option for dental sealants on pediatric patients, especially when time is of the essence. With this system, the smart color-change technology allows the clinician to visualize placement, saving time and making patient management less challenging. The viscosity of Scotchbond Universal Etchant is ideal as it allows the material to penetrate deep into the pits and fissures, ensuring good bond strength. Additionally, the sealant material flows easily into grooves and contains and releases fluoride.
Effective use of glass ionomer restorative in pediatric dentistry

Dr. Jacqueline Esch

While there has been a great deal of progress made in the reduction of tooth decay through an increased focus on caries risk assessment and preventive protocols, dental caries continue to be a significant problem—especially for pediatric patients. A dynamic disease process, the development of caries is a balancing act between protective factors like saliva, calcium, phosphate and fluoride, and pathological factors in the mouth like bacteria and sugar. Periods of demineralization of the hard dental tissue alternate with periods of remineralization, and as primary teeth exhibit thinner enamel than permanent dentition, they remain particularly susceptible to carious lesions. Early white spot lesions can often be reversed with home hygiene and fluoride varnish treatment, but once a primary tooth has been cavitated, restorative treatment is necessary to gain control of the bacterial infection. There are multiple options available to clinicians, but for minimally invasive caries control on primary teeth, treatment with a glass ionomer restorative offers a quick and simple solution that means less time in the chair. Although some initial glass ionomer materials were difficult to handle, exhibited poor wear resistance and were brittle, advancements in glass ionomer formulation have led to better properties, and this class of material now shows improvement in handling characteristics, decreased setting time, increased strength and improved wear resistance. In addition to being some of the most caries-prone patients in an office, pediatric patients can also be the most restless, and at times, the least cooperative. 3M™ Ketac™ Universal Aplicap™ Glass Ionomer Restorative offers an example of an improved glass ionomer formulation with low stickiness for easy handling and one-step placement without the need for conditioning, coating or light curing—eliminating steps that can slow the procedure down. Tests have exhibited that Ketac Universal restorative continues to deliver compressive strength and surface hardness that are higher than several competitive glass ionomers that require coatings, meaning that this restorative material is strong enough for stress-bearing indications.

Case Presentation
The patient was a 5-year-old female who presented with carious lesions in the primary first and second molar (Fig. 1). Minimally invasive cavity preparation is completed to remove all decay (Fig. 2). A Tofflemire matrix is placed to restore anatomic proximal contours and contact areas (Fig. 3) before bulk placement of 3M™ Ketac™ Universal Aplicap™ Glass Ionomer Restorative into cavity (Fig. 4). This material exhibits medium viscosity, enabling the extrusion of the mixed paste through a tapered nozzle for better access to the cavity. Because the material is also less sticky, Ketac Universal Aplicap restorative resists sticking to dental instruments while filling, but at the same time remains sticky enough to stay in the prepared cavity. After filling the cavity, the material is allowed to self-cure before finishing the occlusal surface with a fine diamond bur (Fig. 5). The final result is esthetic and strong (Fig. 6).

Conclusion
Using a glass ionomer to restore primary teeth is an effective and quick way to control caries in pediatric patients, and the optimized properties of new materials on the market provide efficiency without compromising strength. It’s important to note that the caries prevention process should be reviewed at each pediatric appointment. The patient should be recalled in three to six months depending on his/her caries risk level, and at-home oral hygiene or prescription dentrifices should be discussed thoroughly to ensure that the parents and caregivers of pediatric patients are aware of dietary risks and proper hygiene practices.

About the author
Dr. Jacqueline Esch attended the University of Regensburg in Germany and graduated in 1990. Upon graduation, she worked at the university as an assistant professor and assistant dentist before joining a private pediatric dentistry practice in Munich in 1997. As part-owner of the practice since 1999, her primary research interests are in the areas of pediatric and adolescent dentistry. Dr. Esch has received international recognition from the Pierre Fauchard Academy, and she has published extensively in the area of pediatric dentistry. Dr. Esch continues to grow her pediatric practice with over 20 years of professional experience. www.kinderzahnarzte.com

Dr. Esch has received honorarium from 3M Oral Care.
Advantages of bulk fill composite for treating multi-surface pediatric caries

Dr. Joshua Wren

Efficiency is an especially important consideration when working with children, as pediatric dentists know just how quickly a treatment can go from routine to unpleasant when a procedure drags on or attention spans reach their limit. Pediatric treatments ideally proceed as fast as possible while providing results that will last as long as necessary to prevent retreatment. Accuracy and comfort also greatly influence the pediatric experience, extending to the dentist’s own choice of materials and treatment procedures. Providing a comfortable and welcoming environment for the child can help to avoid any potentially unpleasant dental experiences. And properly treating the oral situation the first time means your patients are less likely to end up back in the chair for retreatment. It’s estimated that between 50–70 percent of all dental treatments are due actually to retreatment, so for this reason (among others), pediatric dentists place high priority on selecting products and treatments that deliver fast, reliable and predictable results.

Dental caries present as one of the most common cases seen by pediatric dentists, and each of the treatment plans available for pediatric patients have their pros and cons. Stainless steel crowns and amalgam continue to be viable options, but for many families, esthetics are of high importance, even for primary teeth. To maintain optimal esthetics, composite restorative materials are becoming increasingly popular.

When administering a composite restorative, our office prefers to use the bulk fill technique, specifically with 3M™ Filtek™ Bulk Fill Posterior Restorative. It’s a fast and easy option that blends in well with the surrounding teeth. Plus, it offers better wear resistance than other products on the market. Choosing a composite material that has excellent wear resistance is important, especially with patients who might grind or wear their teeth. Utilizing a composite also offers the opportunity to be more conservative in tooth preparation, avoiding unnecessary removal of healthy tooth structure.

Case Presentation

The patient was an 8-year-old girl who presented after an existing restoration placed by another practitioner had debonded. The previous restoration, on tooth K, was likely a glass ionomer; the caries in the tooth had previously been excavated and the tooth was as seen in Figure 1. In addition to the lost restoration, tooth B was abscessed.

To replace the missing restoration, a stainless steel crown was an option, but given that the area had already been treated with a direct restoration and the patient was slightly older and more cooperative, it was determined that treatment with a composite would be both efficient and more aesthetic. Consent was also given for the extraction of the abscessed tooth B.

The area was anesthetized and refinements were made to the old tooth preparation to ensure full caries excavation and beveled margins (Fig. 2). The final preparation was a depth that would have required multiple layers of traditional, non-bulk fill composite and was very broad buccal-lingually, almost approaching a cusp replacement. A distal-occlusal preparation was considered, but it was determined that occlusal preparation alone would be adequate for this particular case, especially given that it was on a primary tooth.

An Isolite was placed for isolation and the preparation was thoroughly cleaned. An selective etch was performed on the enamel, followed by use of 3M™ Scotchbond™ Universal Adhesive. The adhesive was scrubbed into the preparation for 20 seconds, briefly air dried for five seconds, and then light cured for 10 seconds. This particular adhesive offers a consistent bond strength and virtually no post-operative sensitivity. It’s also moisture tolerant, allowing us to work better in a wet environment, which can be particularly beneficial with pediatric patients. The material is quick and simple to use, with no mixing—one step, one coat.

3M™ Filtek™ Bulk Fill Posterior Restorative was then dispensed into the restoration, beginning at the deepest portion and with the capsule tip withdrawn slowly as the cavity was filled (Fig. 3). To help prevent voids, it is important to not lift the tip out of the dispensed material while dispensing. Once dispensing was complete, the capsule tip was dragged against the cavity wall while it was withdrawn from the field. A bulk fill composite was chosen, as opposed to a sandwich technique with a glass ionomer followed by composite, because speed of the procedure coupled with one high-quality material is very important when treating a child with multi-surface restorations. Glass ionomers can offer the benefit of fluoride release, but for me, the most important activity for the long-term success of a restoration is proper isolation, attention to detail and effective home care.

Shaping was then performed with composite instruments, and the area was cured with the 3M™ Elipar™ 510 LED Curing Light for 20 seconds on the occlusal surface. With the chosen composite material, full-depth light curing can be achieved at a depth of up to 5 mm for a Class II restoration or 4 mm for a Class I restoration by using a high-intensity curing light, such as the one mentioned here.

Occlusion was then checked and a brief finishing and polishing procedure was performed (Fig. 4). Because the restoration was placed on a primary posterior tooth, a limited amount of time was devoted to finishing and polishing, but, as seen in the images, the material finishes very nicely even with minimal time spent on this step. In order to achieve the maximum result, I used the 3M™ Sof-Lex™ Diamond Polishing System, which imparts a paste-like gloss in the convenience of a rubberized capsule tip was dragged against the cavity wall while it was withdrawn from the field. A bulk fill composite was chosen, as opposed to a sandwich technique with a glass ionomer followed by composite, because speed of the procedure coupled with one high-quality material is very important when treating a child with multi-surface restorations. Glass ionomers can offer the benefit of fluoride release, but for me, the most important activity for the long-term success of a restoration is proper isolation, attention to detail and effective home care.

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Following the restoration, the abscessed tooth was then extracted in the same appointment. The patient did remarkably well with both procedures.

Conclusion

The quick treatment time achieved in this procedure is typical for a bulk fill case and exemplifies the advantages of the material, particularly for pediatric treatments. When dealing with children, it is key that the procedure is easy and works fast. Using restorative materials such as Filtek™ Bulk Fill posterior restorative helps to ensure that the treatment will be finished in a timely manner. Preparing young patients for a lifetime of good oral health is one of the main goals of all pediatric dentists; by treating caries with efficient and reliable tools, this important goal will be achieved.

About the author

Dr. Joshua Wren received his undergraduate B.A. degree in biology from the University of Mississippi and his Doctor of Dental Medicine degree from the University of Mississippi Medical Center School of Dentistry. He then completed the Pediatric Dentistry residency program at the University of Kentucky College of Dentistry, where he obtained his Specialty Certificate in Pediatric Dentistry. His passion is providing the most positive dental experience for your child. He is a board-certified pediatric dentist who also enjoys educating other dental professionals in all topics of pediatric dentistry. Dr. Wren is a speaker for the world-renowned online dental community, DentalTown. His specific interests include preventive dentistry and early orthodontic treatment. Dr. Wren has over 200 hours of continuing education in orthodontics. Dr. Wren is married to Lexie Wren, and they have two children, Emory and Elliot.

Dr. Wren has received honorarium from 3M Oral Care.
Pediatric Clinical Case with Filtek™ Bulk Fill Posterior Restorative (3M)

Enspire Dental, Ann Arbor, Michigan

Introduction

When providing restorative treatment, it is always desirable to proceed efficiently while using materials that will contribute to long-term success. This is especially true when treating children, as we strive to keep the appointment as short as possible and create a positive experience for our youngest patients. This case report describes the use of Filtek Bulk Fill Posterior Restorative by 3M in a pediatric restorative procedure.

Description

Filtek Bulk Fill Posterior Restorative is a single-step composite that can be placed in 5mm increments. This bulk fill composite is supplied in capsules that fit into a traditional dispenser, providing a simple and familiar workflow. Its monomers act to lower polymerization stress and enables bulk placement without sacrificing strength or wear resistance. Curing time with the Elipar™ DeepCure-S LED Curing Light is 20 seconds for Class I and 10 seconds from occlusal, buccal and lingual for Class II restorations. Filtek Bulk Fill Posterior Restorative is available in capsule or syringe delivery in five shades: A1, A2, A3, B1 and C2.

Clinical Case

A 9-year-old girl presented restoration of a carious lesion on the upper left primary second molar, tooth #J. An existing occlusal restoration was present, along with decay on the mesial and distal surfaces (Figure 1). The patient and parents were counseled on diet and caries prevention, and she was reappointed for restorative treatment.

Procedure

Products optimized for efficiency in each step of the procedure were selected and prepared for use (Figure 2). The area was anesthetized with 2% lidocaine with 1:100,000 epinephrine. Caries removal was performed with high- and low-speed handpieces; stained dentin was observed under the pre-existing occlusal restoration (Figure 3).

A matrix band was placed around the prepared tooth, and it was rinsed and dried. Scotchbond Universal (3M) was scrubbed into the enamel and dentin surfaces, utilizing the self-etching feature (Figure 4). After air-drying the adhesive, it was light cured for 10 seconds. Filtek Bulk Fill Restorative was placed in a single layer (Figure 5) and light cured for 10 seconds (Figure 6). After removal of the matrix band, the restoration was light cured from the buccal and lingual aspects for an additional 10 seconds each. The occlusion was adjusted and the restoration was finished with fine diamonds. A smooth surface was quickly achieved by polishing with the 3M Sof-Lex Diamond Polishing System (Figure 7). The finished restoration was produced quickly, resulting in a short appointment time and a happy patient and parents (Figure 8).

Discussion

Dental treatment for pediatric patients needs to be accomplished as efficiently as possible. Simplification in this case involved choosing a universal adhesive that avoided separate etching and rinsing, use of a bulk fill composite placed in a single layer, and curing with a high-power light. Optimizing efficiency at each step of the procedure enhances efficiency and results in a shorter treatment time.

Credits

Our practice is designed to appeal to children of all ages with a warm, welcoming atmosphere, and our successful kids-only concept has a proven track record of getting children to love their dentist—we have over 49,000 happy patients. We provide excellent advanced, specialty-level care for infants, children, adolescents and patients with special health care needs, and this often includes restoration of primary molars and incisors.

While natural-looking restorations are not always as important in primary teeth, it has been beneficial to our practice to offer restorative options that provide a strong esthetic result. In fact, severely discolored primary incisors (often the result of bottle or pacifier use—"bottle mouth caries") are regularly the reason parents initially seek restorative treatment for their children. Often seen in pre-school children, bottle mouth caries result from drinking sweet liquids from a bottle or feeder cup, or sucking on a bottle or pacifier throughout the night when there is reduced salivary flow.

3M™ Strip Crown Forms facilitate the natural esthetic restorations that parents seek for cavitated primary incisors. They are appropriate in combination with chemical or photo curing composites, but we are loyal to 3M restorative materials for their beautiful esthetics, strength, wear properties and handling benefits.

Strip crown forms simplify composite work for pediatric anterior restorations. Trimmed and filled with restorative materials, they automatically contour the restorative material to match natural dentition and strip off easily, leaving a smooth surface. Fast, effective and child-friendly, strip crown forms reveal a natural-looking composite restoration, and the composite repairs and protects the remaining tooth structure. The thin coping of the strip crown allows for the clinician to complete the restoration even when facing tight contacts.

Case Presentation

Our young male patient presented with a carious primary upper incisor. I prescribe treatment of decayed primary incisors depending upon the stage of decay, as well as the age and cooperation of the child. In addition to determining the best course for restorative treatment, we speak with the parents to put a preventive program in place to prevent further decay—consisting of dietary counseling and the use of topical fluorides, take-home dentrifice or dental sealants where appropriate.

For the esthetic restoration of primary incisors, we use the strip crown form technique with a 3M™ Strip Crown Kit, which provides a range of sizes and crowns specifically designed and made for upper primary incisors.

When performing a strip crown form pediatric procedure, we first remove caries and perform pulp therapy if indicated (Fig. 1). Then we select and trim the strip crown form (Fig. 2). A tip we follow for size selection is to place the incisal edge of the crown form between the proximal surface of the adjacent tooth and then use a pair of fine, curved scissors for trimming. We try to keep a dedicated pair of scissors specifically for this task to keep them sharp.

Vents are then placed on mesial and distal corners of the incisal edge in order to allow for overflow of excess restorative material (Fig. 3). We try in the strip crown form and etch with 3M™ Scotchbond™ Universal Etchant (Fig. 4), offering consistency, ease of use, color for visibility and the ability to control placement. Then we bond to the enamel with 3M™ Scotchbond™ Universal Adhesive and light cure with the 3M™ Elipar™ S10 LED Curing Light (Fig. 5).
We utilize this particular adhesive because it can tolerate moist environments (often an issue with pediatric patients) and because it is quick and simple, with no mixing required, allowing us to maintain an efficient pace.

After the adhesive step, we apply the 3M™ Filtek™ Supreme Ultra Flowable Restorative (shade A1 is shown) to fill the undercut, and we light cure it (Fig. 6). We then fill the strip crown form with a universal restorative using light pressure to avoid air bubbles (Fig. 7).

We gently press the strip crown form onto the tooth abutment, avoiding too much pressure to prevent splitting (Fig. 8). The excess composite material is removed and the strip crown form is light cured while still in place (Fig. 9). When the restoration is fully cured, the strip crown form is removed with a pointed probe (Fig. 10), and we finish the margins with a fine diamond bur or superfine 3M™ Sof-Lex™ Disc. We polish using a silicone cup or the 3M™ Sof-Lex™ Diamond Polishing System (Fig. 11) to complete the anterior restoration (Fig. 12).

Conclusion

The strip crown technique is a quick, simple and effective method for the restoration of primary incisors. Severe decay in anterior teeth can be concerning for both children and their parents, and we find that the esthetic outcome offered by this procedure can help to restore confidence.

When using high-performance products to complete a strip crown procedure, we realize efficiency and benefit from procedural simplicity. The patient benefits from optimal results, a fast procedure and clinical efficacy.

Stainless steel crowns for restoration of primary teeth: a minimally invasive, time-saving technique

Dr. Katie Peterson

Highly reliable, prefabricated 3M™ Stainless Steel Crowns have delivered consistent performance for over 40 years. Manufactured with a life-like height, contour and occlusal surface, they accurately duplicate the anatomy of primary and first permanent molars in a selection of sizes—and they are pre-crimped at the cervical margin to give good retention and a “snap” fit.

Prefabricated 3M Stainless Steel Crowns are ideal for a number of cases, including those in which the prognosis for long-term success of traditional restorations like composite or amalgam is reduced by a high possibility of restorative fracture or recurrent caries. For young children with primary molars, prefabricated crowns are our treatment of choice, especially for multi-surface lesions in primary molars. The age of the patient, overall hygiene, the extent of caries and the number of teeth affected are always components of treatment planning. For high-risk caries patients, stainless steel crowns have been proven superior to multi-surface amalgam restorations with respect to both lifespan and replacement rates, and placement time is also fast compared to other techniques.

3M Stainless Steel Crowns are designed to provide long-term coverage of primary molar teeth and long-term provisional coverage of permanent molar teeth. They are a viable method of single-unit temporization for both short- and long-term coverage, with proven fit and performance backed by long-term clinical history. The realistic anatomical shape of a 3M Stainless Steel Crown for primary molars means that minimal adjustment is necessary to obtain good retention. There is good conformity with the patient’s occlusion, and the smooth stainless steel alloy surface helps maintain gingival health and patient comfort.

Reliable and consistent, stainless steel crown treatments are also efficient, cost-effective and minimally invasive. They provide excellent long-term strength without compromising affordability.

Case Presentation

This 4-year-old female patient presented with six cavitated lesions and one incipient lesion. We treated the right side, interproximal caries #A, #B and #S, with stainless steel crowns.

All of the patient’s posterior teeth were either planned for full coverage or had already been filled—and her six-year molars had not yet erupted—so a sealant application was not necessary for this restoration. However, we typically place 3M™ Clinpro™ Sealant and 3M™ Vanish™ 5% Sodium Fluoride White Varnish with Tri-Calcium-Phosphate when treating primary and permanent molars with deep grooves. The sealant negates the need to pumice the teeth a second time, while the varnish delivers a sustained dose of fluoride.

In preparation for our crown restorations, we lay out the 3M Stainless Steel Crowns, including several sizes of each tooth number crown, for easy access (Figs. 1 and 2). We also prepare our instruments (Fig. 3), selecting a crown pusher to ensure the crown is fully seated and a spoon instrument to help remove the crown once it’s placed, to ensure the fit before it’s cemented.

About the author

Dr. Jacqueline Esch attended the University of Regensburg in Germany and graduated in 1990. Upon graduation, she worked at the university as an assistant professor and assistant dentist before joining a private pediatric dentistry practice in Munich in 1997. As part-owner of the practice since 1999, her primary research interests are in the areas of pediatric and adolescent dentistry. Dr. Esch has received international recognition from the Pierre Fauchard Academy, and she has published extensively in the area of pediatric dentistry. Dr. Esch continues to grow her pediatric practice with over 20 years of professional experience. www.kinderzahnarzte.de

Dr. Esch has received honorarium from 3M Oral Care.

1. International Practice for Pediatric Dentistry ad Orthodontics, Dr. J Esch, Munich, Germany
Pediatric stainless steel crowns for long-term caries management

Dr. Margaret Moore

As pediatric dentists, we know that our communication methods when discussing procedures, especially more in-depth restorative procedures that may be a first-time experience for our younger patients, must be tailored to the patient’s age and retention level. Through simplified narration, treatment demonstrations and descriptions, we connect with our pediatric patients to help make their visits as quick, easy, comfortable and carefree as possible.

Treatment of caries in the primary dentition is an integral part of pediatric healthcare, and prefabricated stainless steel crowns provide an effective solution where amalgam could potentially fail. Stainless steel crowns are extremely durable, relatively inexpensive, subject to minimal technique sensitivity during placement, and they offer the advantage of full coronal coverage. Parents often accept this type of restorative treatment when they learn that a stainless steel crown can help maintain space in the mouth for the eruption of permanent teeth, and that this procedure provides a reliable solution for a high-risk or uncooperative child until that tooth is lost at a natural age.

When communicating with our young patients about the stainless steel crown procedure, our hygienists refer to the decay in their primary teeth as “sugar bugs” that need to be removed. The stainless steel crown will act as a shield to protect the area against more harmful bugs. We demonstrate the various steps in the procedure first to show how everything works: we place the rubber dam on a finger to establish its functionality as a “raincoat” in the mouth. Using our hand piece, we show the kids how the “water gun” is used to give “sugar bugs” a shower before we put them to sleep.

Following the hand demonstration, we repeat these descriptions during the intraoral procedure, as we remove the decay and then fit prefabricated stainless steel crowns from 3M, which are designed to accurately duplicate the anatomy of primary and first permanent molars—pre-crimped at the cervical margin to give good retention and a “snap” fit. The stainless steel alloy surface helps maintain gingival health after the restorations are seated, without compromising affordability.

With many patients, we may add a prescription-strength at-home fluoride toothpaste, such as 3M™ Clinpro™ 5000 1.1% Sodium Fluoride Anti-Cavity Toothpaste, depending on the patient’s age and caries risk.

Fast and effective
Spare children from having to hold still any longer than necessary. These crowns are easy to trim, adapt and place. A pre-crimped cervical margin provides good retention and a snap fit. The crown readily duplicates the anatomy of primary molars, and adjustment is quick and easy.

Child friendly
Designed to repair and protect primary or first permanent molars.

The initial stages of tooth preparation are performed under rubber dam isolation (Fig. 4). The first step in tooth preparation is to reduce the occlusal surface while maintaining good contour. The mesial and distal contact points are cleared and a smooth taper from occlusal to gingival should be obtained that is free of ledges or shoulders. All caries are removed and the line angles rounded off (Fig. 5). In my experience, half or more of the tooth preparation is completed simply by caries removal. No preparation is usually needed on the buccal or lingual surfaces of primary molars except where there is a pronounced mesial–buccal convexity as seen on some primary first molars.

The stainless steel crowns are flexible enough to spring over minor contours. However, when multiple crowns are to be placed in the same quadrant, the adjacent proximal surfaces of the teeth being prepared should be reduced slightly more than usual. This will make placement of multiple crowns easier.

The correct-size crown is selected by measuring the mesio-distal width between the contact points of the neighboring teeth with calipers. I find it advisable to choose the smallest crown that will fit. If the crown is too large it can be time-consuming to adjust it to obtain good retention. To seat the crown on a prepared tooth, it is placed lingually and rolled over the preparation to the buccal margin (Fig. 6).

A crown will often make an audible “click” as it secures into place over the gingival undercut area. Firm pressure is usually needed to seat the crown. When the crown is ready to be cemented, we use 3M™ RelyX™ Luting Plus Automix Resin Modified Glass Ionomer Cement (Fig. 7), which we like because it offers a tack cure feature for excess cement may be tack cured and easily removed.

About the author
Dr. Katie Peterson (“Dr. Katie”) is a graduate of DePauw University and the Indiana University School of Dentistry. She is a member of the American Dental Association, Indiana Dental Association, and an affiliate of the American Academy of Pediatric Dentistry. With more than a decade of experience, Dr. Katie became enchanted with the pediatric patient population early in her career and has focused on the care and treatment of young patients ever since. She has worked at the westside office since 2005, as an associate then lead dentist, before acquiring both practices. This has allowed her to sharpen her leadership skills and create a staff that shares her vision of “patient first.”

Dr. Katie has received honorarium from 3M Oral Care.

Reference
Case Presentation
The patient was a 7-year-old male with fair oral hygiene that presented with decay around tooth #L that required a stainless steel crown.

Prior to the procedure, we set up our tray with the stainless steel crown, instruments and 3M™ RelyX™ Luting Plus Resin Modified Glass Ionomer Cement (Fig. 1). The first step in the stainless steel crown treatment is to reduce the occlusal surface while maintaining good contour, achieving approximately 1.5 mm of clearance. Then a rubber dam is placed (Fig. 2). The mesial and distal contact points are cleared and a smooth taper from occlusal to gingival is obtained that is free of ledges or shoulders. All caries are removed and the line angles rounded off, avoiding unnecessary reduction beyond the minimal amount required for caries removal (Fig. 3).

Correct crown size is selected, choosing the smallest crown that will fit and contouring or adapting the crown as needed. Stainless steel crowns from 3M exhibit a lifelike height, contour and occlusal surface and are generally an excellent match for natural dentition without much adjusting. To seat the crown on a prepared tooth, it’s placed lingually and rolled over the preparation to the buccal margin; firm pressure is applied to seat the crown, listening for the “click” created by the snap-fit feature. The marginal gingiva will bunch slightly with a well-fitting crown as it seats, and we find that good retention and a cement seal is created when the margin is located approximately 1 mm subgingivally.

RelyX Luting Plus cement is used to cement the crown—sustaining fluoride release from the crown while reducing the chances of recurrent caries. We ensure that the patient is comfortable biting with the crown (Fig. 4). We use a piece of plastic or a small amount of RelyX Luting Plus on the occlusal surface of the crown to prevent the crown from seating too tightly, which can cause pain and discomfort to the patient.

Case Presentation
Prefabricated stainless steel crowns from 3M are an important part of long-term caries management in patients who still have their primary teeth. As pediatric dentists, we often liken crowns to “shields,” demonstrating their excellent strength in the protection against caries and superior longevity compared to composites.

About the author
Dr. Margaret Moore (“Dr. Margaret”) graduated from dental school at the Medical College of Georgia. She completed two additional years of training to become a pediatric dentist and is now a diplomate of the American Board of Pediatric Dentistry. As a parent herself, Dr. Margaret understands parents’ desire to be involved in their children’s dental care decisions. She always encourages parents to ask questions and be present during dental visits. Dr. Margaret resides in Georgia with her husband Cory.

Dr. Margaret has received honorarium from 3M Oral Care.

Clinpro™ 5000
1.1% Sodium Fluoride Anti-Cavity Toothpaste

HIGHLIGHTS OF PRESCRIBING INFORMATION
INDICATIONS AND USAGE
Clinpro™ 5000 Anti-Cavity Toothpaste is indicated for use as part of a professional program for the prevention and control of dental caries.

DOSAGE AND ADMINISTRATION
Use case-daily in place of conventional toothpaste unless instructed otherwise by a physician or dentist.

• Apply a thin (rice-sized) or pea-sized amount of Clinpro 5000 Anti-Cavity Toothpaste using a soft-bristled toothbrush and brush teeth for at least two minutes.

• After brushing, adults should expectorate. Children 6 to 16 years of age should not expectorate.

DOSAGE FORMS AND STRENGTHS
White toothpaste containing 1.1% sodium fluoride.

CONTRAINDICATIONS
Do not use in children under 6 years of age unless recommended by a physician or dentist.

WARNINGS AND PRECAUTIONS
• Do not swallow.
• Keep out of reach of children under 6 years of age.
• Repeated ingestion of high levels of fluoride may cause dental fluorosis.

ADVERSE REACTIONS
Allergic reactions and other idiosyncrasies have been rarely reported.

To report SUSPECTED ADVERSE REACTIONS, contact 3M ESPE Dental Products Division at 1-800-634-2249 or www.3M.com/services, or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

USE IN SPECIFIC POPULATIONS
Pregnancy
Prescribing physicians and dentists should consider total fluoride exposure (dental care plus food, water and other sources) when prescribing the product for use in pregnant women or women who may become pregnant.

Nursing Mothers
Prescribing physicians and dentists should consider total fluoride exposure (dental care plus food, water and other sources) when prescribing the product for use in women who are nursing.

Pediatric Use
The primary adverse effects of fluoride are fluorosis of dental enamel and of the skeleton; these effects occur at exposures below those associated with other adverse health effects. The population most at risk for dental fluorosis is children during the period of crown formation, i.e. from birth to 8 years of age. For this population, the Institute of Medicine (IOM) established Fluoride Upper Limits of intake based on the risk of dental fluorosis.

In populations with permanent dentition, skeletal fluorosis is the greatest risk from excessive fluoride. For this population, the Institute of Medicine established Fluoride Upper Limits based on the risk of skeletal fluorosis.

Population
Clinpro™ 5000 Anti-Cavity Toothpaste has been used in the following populations.

• Infants 6 months old
• Infants 6-11 months old
• Children 1-3 years old
• Children 4-8 years old
• Children > 8 years old

Prescribing physicians and dentists should consider total fluoride exposure (dental care plus food, water and other sources) when prescribing the product for use in children.

Geriatric Use
No studies of Clinpro 5000 Anti-Cavity Toothpaste have been conducted to determine whether subjects aged 65 and over respond differently from younger subjects.

OVERdosAGE
Ingestion of large amounts of fluoride may result in additional symptoms of stomach pain, nausea, vomiting and diarrhea. These symptoms may occur at overdoses of 5 mg/kg of body weight. Fluoride doses of 16 mg/kg have been fatal.

SYMPTOMS OF acute Fluoride Poisoning
• Gastrointestinal: Jacketing, vomiting, abdominal cramps and diarrhea

TREATMENT FOR OVERDOSAGE OF CLINPRO 5000 TOOTHPASTE
• The amount to reach the fluoride dose will be proportionately larger with older children and adults. A thin ribbon or pea-sized amount (approximately 0.3 g) contains approximately 1.5 mg of fluoride ion. An 8 oz. tube contains 304 mg of fluoride ion. 1.5K.

Storage
• Keep out of reach of children.

St. Paul, MN 55144-1000 USA

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3. Fluoride doses of 16 mg/kg have been fatal.

4. Symptoms may occur at overdoses of 5 mg/kg of body weight. Fluoride doses of 16 mg/kg have been fatal.

5. This equals about ¼ teaspoon or 1 tablespoon; or more.

6. This equals about 1 teaspoon or 1 tablespoon; or more.

7. This equals about ½ spoonful or more.

This is a summary of the prescribing information. For complete prescribing information, please visit www.3M.com.
Preventive + Restorative