Endodontics: Increasing Predictability and Profitability

by Drs. Kenneth Koch and Dennis Brave

The key to endodontic profitability is predictability. Consistently good results make endodontics more enjoyable for you, the practitioner. Endodontic procedures that are predictable are both enjoyable and profitable.

There are numerous techniques that can lead to more predictable endodontic outcomes, such as a fully tapered .04 rotary preparation that is synchronized with a matching master cone. However, in this article, we would like to concentrate on three factors that are frequently overlooked: emergency treatment, case selection and continuing education. Proper case selection can help practitioners avoid "endodontic nightmare" scenarios, while constructive continuing-education courses can take your predictability and enjoyment to entirely new levels. But, let's begin with emergency treatment.

Emergency Treatment

If you have proper anesthesia, and know how to consistently achieve it, you can handle most emergencies. Seeing emergency patients and treating them properly (and in an expeditious manner) can be a huge help in establishing your practice. Furthermore, the key to emergency treatment is your ability to differentiate between vital and non-vital teeth. Therefore, before we begin emergency treatment we must determine whether the tooth is vital or not.

First, a few definitions are in order:

Pulpotomy: removal of all the coronal pulp tissue from the chamber of the tooth.

Pulpectomy: total removal of all pulp tissue and debris in the root canal system.

It has been a general rule in endodontics for years that vital teeth can be handled in an emergency situation with a pulpotomy while non-vital teeth require a total removal of all tissue and debris (pulpectomy). However, let's take a more specific look at the differences between vital and non-vital teeth in emergency situations.

Vital teeth: A pulpotomy will work. However, with molars we also recommend removing all the inflamed tissue from the largest canal. But the absolute key in handling vital teeth is to not put any files down into a canal, unless you plan on removing all of the tissue from that specific canal. This is the problem many dentists make. (Just so you know, we've been watching!) You open up the tooth and then you see what looks like the mesial buccal canal and consequently, you take a file down into it to confirm its existence. "Oh, if that's the mesial buccal, then this must be the mesial lingual" ... and you proceed to place a file into that canal. This is a mistake! Don't go placing any files into canals (on vital teeth) unless you plan on removing all of the tissue. If you place files indiscriminately into canals, these are the emergency patients who go home and, once the anesthesia wears off, are in more pain than when they entered your office. Simply do a pulpotomy, and then place a medicated cotton pellet (or a plain cotton pellet) and temporary dressing. The final step is a light occlusal adjustment.

Non-vital teeth: For non-vital teeth we cannot get by with just a pulpotomy. In these cases, we need to remove all of the pulp tissue and debris. This is where rotary instrumentation is a big help. Any of the circumferential rotary systems will do a good job of pulling the pulp tissue and debris out of the canal. This technique, when combined with a good irrigation protocol, will result in dramatically less post operative sensitivity.

Non-vital teeth, when done in multiple visits, require an intra-canal medicament and the medicament of choice is calcium hydroxide. We prefer any of the pre-mixed calcium hydroxide pastes, rather than the cones. Calcium hydroxide can be placed into the root canal system in a number of ways but we prefer to taking it down with a hand file and then lightly condensing it. A cotton pellet/temporary dressing, along with adjusting the occlusion, completes the clinical emergency treatment.

Avoiding an "endodontic nightmare" requires proper case selection. Practitioners must honestly determine whether they can properly treat certain cases. There's no shame in deciding that a case is beyond your expertise and then referring it to a specialist – in fact, it is smart dentistry!

Case selection isn't just about complex dental anatomy; medical history and patient management factor in as well. If the patient is anxious (and most are), take the time to fully explain the procedure before you begin.

Patients also are far more tolerant when they understand what you are trying to accomplish jointly. Let your patients know that they do have some control. For example, agree in advance that if a procedure becomes painful, they can raise their hand, and you will stop. Working with the patient allows treatment to progress much more smoothly.

The American Association of Endodontists (AAE) has also addressed the problem of case selection through the publication

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of a difficulty assessment form. Using a numbering system, this form can help you determine the difficulty of a potential case. Some of the specific situations that this form addresses are: restricted pupil space, aberrant root morphology, severely ledged canals, resorption defects, retreatment and difficult patients. We recommend that every dentist who performs root canals obtain a copy and use it as a reference tool. You can obtain this document by contacting the AAE at 800-872-3636, or through its Web site at www.aae.org.

Nightmare cases are frustrating. The time they absorb usually erodes any profit. Let's examine some specific instances where a decision to treat a tooth could lead to a less than profitable result.

Specific Challenging Cases

Calcified cases: The "graying" of America means we are treating more geriatric patients. This is a good thing. However, many of these teeth are heavily calcified and are very difficult to treat. If you cannot see a canal on the X-ray, then consider referring the case. In fact, we call these "associate cases" because somehow they are delegated to the new associate (who is, by the way, usually the least experienced in such matters). In addition to being difficult technically, these cases are generally unprofitable, as they usually involve extra time and multiple visits. Also, be especially aware of calcified canals underneath pulp caps and paste fills.

Dilacerated or bifurcated roots: These are the most difficult cases to treat endodontically. Bifurcated lower bicuspids are particularly problematic. These cases are quite common with certain ethnic groups. Asian patients have a greater incidence of bifurcated premolars. A good radiograph is very important and the telltale sign of a bifurcated root is when you see the canal suddenly stop on the X-ray (a canal break). Extra ligaments are another indicator. If you have a tooth with a deep bifurcation, do yourself a favor and send it out for treatment.

Retreatment: We believe general dentists can effectively retreat some cases. However, common sense must again prevail. Many retreatment cases are best referred to a specialist. For example, foreign paste cases can be especially difficult. Previous cases involving Russian pastefills (especially the cream-colored ones) are almost impossible to effectively retreat. These present difficulties for even the most experienced endodontists. Again, please use some common sense before you tackle retreatment. Getting in over your head with some of these challenging cases is going to be very stressful and will certainly not be profitable.

In addition, carrier-based obturation cases typically present a retreatment challenge to even the most experienced endodontists. If you are performing carrier-based obturation and a case does need to be retreated, this is another instance where you might consider referring this to your specialist.

Severely ledged canals: Ledges can be man-made (iatrogenic), but they also occur naturally. They can be extremely difficult to treat, even for endodontists, and often require surgical intervention. Ask yourself, "Do I feel lucky? Do I really want to treat this case?" If you do decide that you are indeed up to the challenge, be prepared for multiple visits that will likely impact profitability.

Chronically left-open teeth: A chronically left-open tooth is so difficult to treat in a predictable fashion, that we have given it a specific name – the Hostile Endodontic Tooth. These teeth are very challenging and their refractory nature is a result of continuous contamination. The Hostile Endodontic Tooth requires multiple visits, with calcium hydroxide being used as an intra canal medicament. Even after you think you have the tooth under control, you may fill it and it often blows up. Not fun for anyone and certainly not profitable.

Difficult patients: Let's face it, some patients are high maintenance by nature. The combination of a difficult endodontic case with a demanding and anxious patient can quickly deteriorate into a time-consuming nightmare. The old adage, "Bad things happen to bad patients" certainly still rings true today. For example, pulpal floor perforations generally occur on two types of patients: geriatric patients and difficult people. Practitioners must determine for themselves whether the challenge and satisfaction of completing a specific endodontic case is worth the extra time spent in patient management. This is your decision.

We believe the AAE has performed a real service for the general practitioner. As previously mentioned, this is the creation of a difficulty assessment form. If this form is completed for each case, it can offer a defense should the ultimate endodontic nightmare – litigation – occur. If an attorney asks why you felt capable of performing a particular case, you can rely on the case difficulty assessment form to support your decision.

Continuing Education

The wise use of continuing dental education courses is another means to create predictability within your endodontic cases. Don't attend a CE course merely to punch in your CE cred-

Continuing Education Lectures

Another change in continuing dental education, which the authors feel strongly about, is the concept of **FREE CE.** In the past, the idea of free CE was usually met with skepticism. But times have changed. Dentistry needs to be more like the medical model where CE is a value added concept. Accordingly, Real World Endo has decided to present 25 free CE courses in 2010 throughout the country (www.realworldendo.com).

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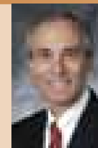
its – make the course work for you! The key is deciding which course fits your needs. Make the course profitable for you.

We are strong proponents of CE courses that have a hands-on component. It's indisputable that before you apply any new technology clinically, you should experience the technique at a hands-on session. Single day courses can meet the basic requirements of learning if they are designed to teach a technique that is straightforward and easy to reproduce in a consistent manner. On the other hand, attending a CE course that promotes a complicated, or technique sensitive, method doesn't do much for most people. Courses have to work for you and ultimately your patients.

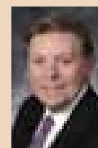
New advanced material science products, and less convoluted techniques, make this an exciting time for endodontics. However, the key to making endodontics profitable is predictability. Predictability in endodontic outcomes emanates from both knowledge and experience. Being confident in one's ability to deliver emergency treatment as well as being smart about which cases to refer goes a long way in establishing predictability in your endodontics.

Knowledge is the foundation of predictability and the correct continuing education course will facilitate the acquisition of such knowledge. The time has come when continuing dental education needs to be perceived as a value added service (true education) rather than an economic commodity. ■

Authors' Bios



Dr. Dennis Brave is a diplomate of the American Board of Endodontics, and a member of the College of Diplomates, Dr. Brave received his DDS degree from the Baltimore College of Dental Surgery, University of Maryland and his certificate in Endodontics from the University of Pennsylvania. He is an Omicron Kappa Upsilon Scholastic Award Winner and a Gorgas Odontologic Honor Society Member. In endodontic practice for more than 25 years, he has lectured extensively throughout the world and holds multiple patents, including the VisiFrame. Formerly an associate clinical professor at the University of Pennsylvania, Dr. Brave currently holds a staff position at The Johns Hopkins Hospital. Along with having authored numerous articles on Endodontics, Dr. Brave is a co-founder of Real World Endo.



Dr. Kenneth Koch received both his DMD and Certificate in Endodontics from the University of Pennsylvania School of Dental Medicine. He is the founder and past Director of the New Program in Postdoctoral Endodontics at the Harvard School of Dental Medicine. Prior to his Endodontic career, Dr. Koch spent 10 years in the Air Force and held, among various positions, that of Chief of Prosthodontics at Osan AFB and Chief of Prosthodontics at McGuire AFB. In addition to having maintained a private practice, limited to Endodontics, Dr. Koch has lectured extensively in both the United States and abroad. He is also the author of numerous articles on Endodontics. Dr. Koch is a cofounder of Real World Endo.

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