Important Notice

This is one of a series of ethical dilemmas published in the *Texas Dental Journal* between 1993 and 2005. The lead author of these dilemmas, Dr. Thomas K. Hasegawa, died tragically in 2005. The dilemmas remain an important legacy for dentistry.

Format

Each ethical dilemma was originally introduced in one issue of the *Texas Dental Journal* with the question, “What would you do?” The more expansive analysis of the dilemma was presented in a subsequent issue. The second page of this file depicts the cover of the issue containing the analysis of the dilemma, not the issue containing the briefer introduction to the dilemma. The ethical dilemmas were compiled for digital use by the American College of Dentists in 2008.

Purpose

This ethical dilemma and the other dilemmas in the series are only meant to further your knowledge and understanding of dental ethics by presenting, discussing, and analyzing hypothetical ethical dilemmas that may occur in dental settings. The dilemmas are not intended to: a) provide legal advice; b) provide advice or assistance in the diagnosis or treatment of dental diseases or conditions; or c) provide advice or assistance in the management of dental patients, practices, or personnel.

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Support

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What Would You Do?

Ethical Dilemma #44

Dr. Matt Hilton is a general dentist who practices in a Texas metropolex and has been at the same location now for 18 years. He has kept pace with the changes in the profession since graduation and really enjoys endodontics because of the many improvements in cleaning and shaping procedures, including rotary instrumentation. In fact, three of the dentists in his group practice of six generalists refer cases to him now.

Jeannette Slauson was referred by a dentist in the group for non-surgical root canal treatment (NSRCT) on her maxillary right second premolar. Jeannette is a 29-year-old female who is in good general and oral health and is being seen primarily for routine check-ups. Dr. Hilton learns after meeting Jeannette that she is a “mild dental phobic” because of some of the poor experiences she has had as a child. Her tooth was traumatized 2 years ago in a snow boarding accident; it was immediately painful but gradually improved. The tooth is now discolored and has a distinctly grey appearance compared to the adjacent teeth. Radiographically it appears that there is an occlusal amalgam restoration over base material and 50 percent narrowing of the canal due to secondary dentin formation. There is a 4mm periapical lesion surrounding the apex of the premolar. The tooth is tender to palpation on the buccal and during chewing. The diagnosis is pulpal necrosis with acute periradicular periodontitis.

Dr. Hilton had difficulty with obtaining sound anesthesia; it was apparent that this will not be an easy case. Jeannette did not like the rubber dam and appears fearful although Dr. Hilton carefully explained what to expect along with having her sign an informed consent form specifically for the NSRCT. She said that her previous dentist “hit a nerve” when she was a child and she “never got over it.” Dr. Hilton removed the amalgam and the base material which was hard like dental cement. The canal orifices were constricted but accessible and both canals appeared to be dry and necrotic. Dr. Hilton was using one of the new NiTi rotary instrumentation systems, one that he has used with good success for over 200 cases. Dr. Hilton disposes of files as they begin to show signs of wear.

Dr. Hilton places a #15 K-type hand file to length and the procedure seems to be going well. The length looks good based upon the radiograph. Dr. Hilton decides to increase the size using a #20 NiTi rotary file and as he reenters the buccal orifice Jeannette jumps and the file separates in the apical 1/3. Dr. Hilton is unable to retrieve or bypass the instrument and decides to seal the access opening and refer the patient to an endodontist. Dr. Hilton explains the broken instrument to Jeannette and she looks upset. As he removes the rubber dam, her first words are, “I am not going to pay twice for the root canal. It’s hard enough for me this first time.” Although she signed a consent form that indicated that there were no guarantees, there is a risk for file breakage and the possible need for specialty care, she still insists that she will not pay twice for the root canal. “It is not my fault that the file broke,” she said.

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Dr. Hilton is now faced with an ethical dilemma. Check the following course(s) of action he should take in this case and mail, fax this page, email, or send a note indicating your recommendations. What would you do if you were Dr. Hilton? Some options (check one or write your own) include:

___ 1. Dr. Hilton should refer Jeanette to an endodontist and charge her for the entire root canal treatment;
___ 2. Dr. Hilton should refer Jeanette to an endodontist and not charge her for the root canal treatment;
___ 3. Dr. Hilton should refer Jeanette to an endodontist and charge for the time used during the procedure;
___ 4. Other alternative (please describe):

SEND YOUR RESPONSE BY June 1, 2003 ATTENTION: Dr. Thomas K. Hasegawa, Jr., Associate Dean for Clinical Services Baylor College of Dentistry, P.O. Box 660677 Dallas, TX 75266-0677. Fax to (214) 828-8958 or E-mail to thasegawa@tmbcd.edu.

Texas Dental Journal ★ April 2003 ★ 368
Ethical Dilemma


When the File Breaks
Response to Ethical Dilemma #44

Dr. Matt Hilton is a general dentist who practices in a Texas metropole and has been at the same location now for 18 years. He has kept pace with the changes in the profession since graduation and really enjoys endodontics because of the many improvements in cleaning and shaping procedures, including rotary instrumentation. In fact, three of the dentists in his group practice of six generalists refer cases to him now.

Jeannette Slauson was referred by a dentist in the group for non-surgical root canal treatment (NSRCT) on her maxillary right second premolar. Jeannette is a 29-year-old female who is in good general and oral health and is being seen primarily for routine check-ups. Dr. Hilton learns after meeting Jeannette that she is a "mild dental phobic" because of some of the poor experiences she has had as a child. Her tooth was traumatized 2 years ago in a snow boarding accident; it was immediately painful but gradually improved. The tooth is now discolored and has a distinctly grey appearance compared to the adjacent teeth. Radiographically it appears that there is an occlusal amalgam restoration over base material and 50 percent narrowing of the canal due to secondary dentin formation. There is a 4 mm periradicular lesion surrounding the apex of the premolar. The tooth is tender to palpation on the buccal and during chewing. The diagnosis is pulpal necrosis with acute periradicular periodontitis.

Dr. Hilton had difficulty with obtaining sound anesthesia; it was apparent that this will not be an easy case. Jeannette did not like the rubber dam and appears fearful although Dr. Hilton carefully explained what to expect along with having her sign an informed consent form specifically for the NSRCT. She said that her previous dentist "hit a nerve" when she was a child and she "never got over it." Dr. Hilton removed the amalgam and the base material which was hard like dental cement. The canal orifices were constricted but accessible and both canals appeared to be dry and necrotic. Dr. Hilton was using one of the new NiTi rotary instrumentation systems, one that he has used with good success for over 200 cases. Dr. Hilton disposes of files as they begin to show signs of wear.

As Dr. Hilton places a #15 K-type hand file to length and the procedure seems to be going well. The length looks good based upon the radiograph. Dr. Hilton decides to increase the size using a #20 NiTi rotary file and as he reenters the buccal orifice Jeannette jumps and the file separates in the apical 1/3. Dr. Hilton is unable to retrieve or bypass the instrument and decides to seal the access opening and refer the patient to an endodontist. Dr. Hilton explains the broken instrument to Jeannette and she looks upset. As he removes the rubber dam, her first words are, "I am not going to pay twice for the root canal." "It's hard enough for me this first time." Although she signed a consent form that indicated that there were no guarantees, there is a risk for file breakage and the possible need for specialty care, she still insists that she will not pay twice for the root canal. "It is not my fault that the file broke," she said.

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Dentists who responded to the case selected only one of the three stated alternatives and offered their own suggestions. Almost all of the respondents chose to refer Jeanette to an endodontist and not charge her for the root canal treatment. Neither of the remaining alternatives was selected: 1) Dr. Hilton should refer Jeanette to an endodontist and charge her for
the entire root canal, or 2) Dr. Hilton should refer Jeanette to an endodontist and charge for the time used during the procedure.

When an endodontic file breaks what are the obligations of the clinician to the patient? Is a broken file a legal or practice management problem? Should dentists guarantee their endodontic cases and only charge if they are successful? These questions ask us to review the ethics of: 1) endodontic technique alternatives; 2) when clinical armamentaria fail, and 3) balancing justice and practice management.

Endodontic Technique Alternatives

The introduction of nickel-titanium (NiTi) rotary instrumentation has made endodontics more predictable than traditional methods of instrumentation, resulting in relatively consistent root canal shaping. The rotary technique is less fatiguing for the practitioner, most likely due to a combination of file design and a crown-down modality. Rotary instrumentation, however, is not the panacea for every case. There is a steep learning curve and the practitioner must understand that rotary NiTi files function as “reamers,” or canal enlargers, rather than drills.

Although nickel-titanium files are quite flexible (5x more flexible than stainless steel), just like any metal they can fail when rotated in a canal or when undue pressure is placed upon them (1). Strict monitoring of instrument usage should be maintained so that NiTi files can be periodically disposed of before failure. Additionally, it should be noted that when NiTi files are stressed, the metal undergoes a crystalline or microscopic phase transformation and can become structurally weaker. However, since there is usually no visible or macroscopic indication that the metal has fatigued; a NiTi file may break without warning, especially if improperly used (2). The potential for file breakage can be reduced by understanding respective system usage and limitations, using consistent and constant revolutions per minute (RPM), and passively using files to resistance rather than forcing them (3). Many clinicians today are using NiTi files as single use instruments or, at the very minimum, are limiting them to only a few cases before disposing of them.

While air turbine motors can achieve the goal of using NiTi files at a consistent and constant RPM, there has been a noticeable shift to electric engines. Electric engines generally offer a more consistent RPM, are smoother than air turbines and are noticeably quieter. Practitioners can now operate files with torque-control electric engines. The advantage of a torque-control engine is that when a file is stressed beyond a certain preset limit, the file will automatically reverse and, in certain cases, back itself out of the canal. This is a decided safety factor and obviously beneficial for the practitioner.

Historically, there have been two major techniques to clean and shape root canals: step-back and crown-down. The step-back preparation results in a conservative apical preparation with coronal flaring. Research has shown that step-back can give predictable results, but it can be time-consuming as well as frustrating since a number of procedural errors can readily occur with this technique. In turn, the crown-down method is increasing in popularity among general practitioners and specialists. The method initiates shaping from the coronal third first; the apical preparation is completed last. The crown-down preparation is beneficial because it allows for early removal of coronal dentin, often the major restrictor to achieving and maintaining working length throughout any cleaning and shaping procedure. In turn, the crown-down method allows for a more efficient mechanism to shape canals, irrespective of whether stainless steel or NiTi files are used, hand or rotary. However, due to the absolute necessity to limit stress in NiTi files, crown-down is an essential principle of all NiTi rotary techniques.

Dr. Hilton has had good success using NiTi rotary instrumentation systems and disposes of files as they show signs of wear. But when a NiTi file breaks, is this bad work or is it simply an unfortunate situation for the patient?

When Clinical Armamentaria Fails

Clinicians must deal with the reality of the limitations of their armamentaria. Dental burs, scalers and endodontic files are fine instruments that may fracture or separate in the hands of the most competent clinician. There are, however, few instruments in all of health care as fine as a #8 endodontic file.

One way to measure improvements across a profession is to see how new armamentaria can improve the quality of care. For example, the torque-control electric engine has a safety edge over the air turbine motor by providing constant revolutions per minute when using the rotary modality and may even automatically reverse when overstressed. We also understand that there is an increase in popularity of the rotary driven NiTi files using a crown-down approach over the manual stainless steel files using the step-back technique.

Jeanette is concerned about fee issues after learning about the broken NiTi file. According to the case, Dr. Hilton “carefully explained what to expect along with having her sign an informed consent form specifically for the NSRCT.” He even indicated the possibility of a file breakage and the need for referral to a specialist. Informed consent is a core element of this case and the foundation for consent is the principle of patient autonomy: we should respect the patient’s right to self-determination and encourage partici-
pation in decision-making (4). It seems that while Dr. Hilton involved Jeannette in decision-making before initiating treatment, she was still concerned about fees when the file broke.

One of the real challenges for consent is deciding how much information to include in order that the patient can make a reasonable decision. Is it reasonable to include in a consent form, “sudden head movements may cause an instrument fracture”? Should Dr. Hilton also discuss costs that may be incurred in the event of adverse outcomes like file breakage?

None of the respondents chose to charge Jeannette for the time used during the procedure. Should dentists only charge patients for treatment that has a successful outcome?

**Balancing Justice and Practice Management**

One dentist observed that Dr. Hilton is having a “communication” rather than an “ethical problem,” that this was more a “patient/dentist rapport” concern and the loss of a fee was a smaller matter. After all, another dentist wrote, “Why create resentment and a possible lawsuit and the possible loss of referrals by charging the patient?”

According the ADA Code, Dr. Hilton, it seems, did practice ethically by informing Jeannette of the proposed treatment and involving her in the treatment decision, fulfilling her right to self-determination and affirming her autonomy (4,5). She was informed of the risk of breakage and possible need for specialty referral. Dr. Hilton chose to refer Jeannette’s case to an endodontist, acknowledging the need for special skills, knowledge and experience consistent with the principle of non-maleficence (i.e., to refrain from harming the patient) (4,5).

But while Dr. Hilton acted ethically, did he act proactively? He knew that the patient had a fear of treatment and might react negatively to it. Knowing the delicate nature of the procedure, he might have discussed with the patient any costs associated with an unsuccessful procedure. The experienced clinician should be able to see the bumps in the road and plan for them ahead of time.

And what can we say about Jeannette’s concern about paying twice for the same root canal? To put it in context, we might ask if other health care providers forego their fees if they are not successful? Do medical doctors still send a bill even when a patient dies? In most cases, yes.

However, some patients may have different expectations from dentists. The only way to address those different expectations is for dentists to discuss these issues with their patients before treatment.

In this case, it may not be fair to charge Jeannette for a service that she did not receive — the cost of a completed NSRCT. But the question remains, should Dr. Hilton charge for the services he did perform if he did not review them with her before initiating treatment?

Perhaps the best way to address this issue, at least for future cases, is for Dr. Hilton to revisit the consent process and include in the dialogue, and perhaps even in his consent form an overview of the fees that may be charged, even if the case needs to be referred to another clinician. Preventive ethics asks us to consider ways to anticipate problems in practice when possible.

**Conclusion**

Clinical armamentaria may fail even in the hands of the most competent clinician. Jeannette received competent care from Dr. Hilton to the point when she jumped and the NiTi file broke. Dr. Hilton is not justified in charging Jeannette for a NSRCT: a service he did not complete. Dr. Hilton is justified in charging fees associated with alleviating her pain that may include a limited oral evaluation, radiographs, and pulpal debridement. To practice preventive ethics Dr. Hilton may want to review his endodontic consent form and include a statement describing charges such as those related to pain relief even when the NSRCT is unsuccessful.

**References**


**EDITOR’S COMMENT:**

Responses to the ethical dilemmas are views of the contributors and consultants and not Baylor College of Dentistry, the Institute for Policy Innovation, or the Texas Dental Association. This is not to be taken as legal advice. If you have legal questions, seek competent legal counsel. Address your comments to Dr. Thomas K. Hasegawa, Jr., Office of Clinical Services, Baylor College of Dentistry. P.O. Box 660677, Dallas, TX 75266-0677, Fax to (214) 828-8958, or E-mail to thasegawa@tambcd.edu.

**NOTE:** Readers are invited to submit topics to be considered in the Ethical Dilemma column. Contact the editor with suggestions or for further information.