



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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Cosmetic Dentistry

What Would You Do?

Ethical Dilemma #41

Dr. Kyle Langly practices in a rural community of 13,000 and is troubled by his first emergency patient of the day. Mondays are always hectic, as he can count on at least one or two walk-ins almost year round. Dr. Langly is a general dentist who retired from the military 2 years ago and enjoys a growing practice.

Margaret Meyer is a 38-year-old patient in her first trimester of pregnancy. She visited her obstetrician, who recommended that she see a dentist because of a concern over the appearance of several cavities and the fear that they may cause complications during her pregnancy. Margaret is in good general health with stable vital signs and has had good prenatal care. When asked about her chief complaint, Margaret explains the urgent need to treat cavities in several teeth to prevent complications during pregnancy. Her concern, however, is that she has had three miscarriages and is extremely worried about the possible effects x-rays might have on this pregnancy. In an effort to minimize her exposure to x-rays, she brought a full mouth series made by her previous dentist. However, these x-rays were made over 2 years ago.

Margaret pleads with Dr. Langly to use the radiographs as she is worried about additional exposures and the risks of miscarriage. Dr. Langly carefully explains the science of x-rays and the low risk, particularly when using F-speed film and a leaded apron. He also tries to impress on her the fact that successful treatment is based in part on an accurate diagnosis, which in turn requires current radiographs. Margaret asserts again, "I am willing to take the risks, let's roll with my old x-rays."

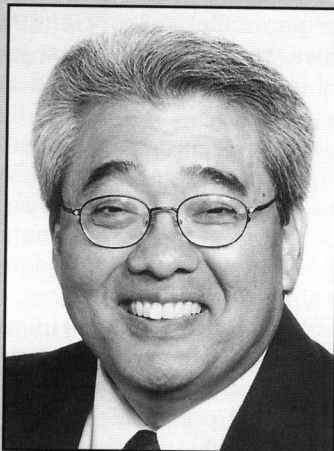
Dr. Langly is now faced with an ethical dilemma. Check the following course(s) of action he should take in this case and mail, fax this page, e-mail, or send a note indicating your recommendation. What would you do if you were Dr. Langly? Some options (check one or write your own) include:

- ☐ Use the previous x-rays and provide the care;
- ☐ Use the previous x-rays and have the patient sign a release protecting you from litigation regarding dental care you provide and possible miscarriage;
- ☐ Do not use the previous x-rays and refer the patient to another dentist;
- ☐ Other alternative (please describe):

SEND YOUR RESPONSE BY August 1, 2002 ATTENTION: Dr. Thomas K. Hasegawa, Jr.
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Ethical Dilemma

By Thomas K. Hasegawa, Jr., D.D.S., M.A., Merrill Matthews, Jr. Ph.D.,
and Neil Frederiksen, D.D.S., Ph.D. Dr. Frederiksen is a Professor in the Department of
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Hasegawa

Pregnancy, X-rays and Risks — The Radiology Dilemma

*Response to Ethical
Dilemma #41*

Dr. Kyle Langly practices in a rural community of 13,000 and is troubled by his first emergency patient of the day. Mondays are always hectic, as he can count on at least one or two walk-ins almost year round. Dr. Langly is a general dentist who retired from the military 2 years ago and enjoys a growing practice.

Margaret Meyer is a 38-year-old patient in her first trimester of pregnancy. She visited her obstetrician, who recommended that she see a dentist because of a concern over the appearance of several cavities and the fear that they may cause complications during her pregnancy. Margaret is in good general health with stable vital signs and has had good prenatal care. When asked about her chief complaint, Margaret explains the urgent need to treat cavities in several teeth to prevent complications during pregnancy. Her concern, however, is that she has had three miscarriages and is extremely worried about the possible effects x-rays might have on this pregnancy. In an effort to avoid new exposure to radiation, she brought a full-mouth series made by her previous dentist. However, these x-rays were made over 2 years ago.

Margaret pleads with Dr. Langly to use the radiographs

because she is worried about additional exposures and the risks of miscarriage. Dr. Langly carefully explains the science of x-rays and the low risk, particularly when using F-speed film and a leaded apron. He also tries to impress on her the fact that successful treatment is based in part on an accurate diagnosis, which in turn requires current radiographs. Margaret asserts again, "I am willing to take the risks, let's roll with my old x-rays."

Dentists who responded to the case chose all three alternatives including: 1) use the previous x-rays and provide the care; 2) use the previous x-rays and have the patient sign a release protecting the dentist from litigation relating to the dental care and possible miscarriage; and 3) do not use the previous x-ray and refer the patient to another dentist. These respondents also offered other alternatives some of which will be cited in this review. Ethical issues in this case include: 1) the unique aspects of radiology in dental practice; and 2) prioritizing core values and decision-making.

Unique Aspects of Radiology in Dental Practice

In 1987, the Food and Drug Administration's (FDA) Center for Devices and Radiological Health formed the Dental Patient Selection Criteria Panel, a committee whose responsibility was to develop guidelines for prescribing oral radiographs. Using available literature relevant to the efficacy of dental examinations, this committee recommended which

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radiographs would be appropriate for the evaluation of children, adolescents and dentulous or edentulous adults who present for treatment as either new or recall patients. These guidelines also described circumstances, called "selection criteria," that would indicate the need for radiographs to complete the patient's diagnosis and treatment plan. Selection criteria are clinical or historical findings that identify patients for whom there is a high probability that the radiographic examination will provide information that will affect their treatment. These guidelines support the philosophy that the prescription of radiographs should be based on the needs of the individual patient and for the benefit of the patient's total health.

Women are justly concerned about possible radiation exposure of their unborn child. Research has documented that certain levels of radiation exposure to the fetus can result in birth defects and an increased risk for childhood malignancy, but those doses are very high when compared to those delivered as a result of oral radiography.

Birth defects result from the killing of cells. Cell destruction in the brain of a fetus may lead to malformations that could result in mental retardation (1). Scientific studies indicate that this response has a threshold dose of 100–200 mGy. There is very little chance that radiation doses below 100 mGy would have any effect. Studies also have reported that a panoramic film results in a 0.03 mGy radiation dose, and a complete mouth survey of intraoral films is 0.02–0.15 mGy, depending on the speed of film used and the number of radiographs made.

These dose ranges for adult patients are up to 10,000 times less than the threshold dose that can lead to fetal brain malformations. The quantity of dose actually delivered to the fetus is small because of the location of the fetus relative to the x-ray beam. And even that quantity, which is already extremely low, may be reduced by 98 percent with the use of a leaded apron! Malignancy. Analysis of epidemiological data indicates that the average person may experience a 5 percent increase in fatal cancer after a whole body dose of 1.0 Gy. In populations exposed to doses of less than 0.05 Gy there has been no observed increase in the incidence of malignancy. In spite of the fact that the risk in fetal life may be 2–3 times that in adult life, the chance of cancer induction by a dose thousands of times less than 1.0 Gy would be virtually nonexistent.

Thus, the FDA has concluded that standard precautions and guidelines for dental radiography are sufficient and need not be altered because of pregnancy. The dentist's awareness of this information and the use of current technology, including the fastest film speed available or even digital imaging, may serve to alleviate the patient's fear.

Prioritizing Core Values and Decision-Making

The dentist's day is filled with decision-making from the concerns and needs of the first dental emergency to that last recall patient. Because of the many choices that are ever present for

health care professionals, clinicians must make value judgments every day. How do clinicians make these choices? Are they balancing risks and benefits, considering standards or parameters of care, the ADA Code of Ethics, reviewing the latest journal or searching through the state dental rules and regulations?

The philosopher David Ozar offers a hierarchy of central values for clinicians that includes: 1) life and general health; 2) appropriate and pain-free oral function; and 3) patient autonomy (2). Philosophers do not typically prioritize values as a way of understanding ethical problems in practice. Rather, they identify competing principles or values and may suggest ways to navigate the ethical minefields. Let's look at three important values in this case.

The value of the patient's life and general health is central to our concerns for providing proper dental care. For example, it is unethical for a dentist to knowingly operate with contaminated instruments, not simply because it violates accepted standards of care but because it threatens a patient's general health. Providing care congruent with promoting the patient's life and general health includes practicing competent radiographic technique. Dr. Langly would be expected to use properly maintained and calibrated x-ray equipment and to use a leaded apron to protect Ms. Meyer during the exposures. He would also be expected to make the minimum number of radiographs necessary to make a diagnosis, to employ good technique to minimize the need for retakes and to use the highest film speed or even digital equipment to minimize exposure. It would be unethical and inappropriate care to do otherwise. Likewise, recommendations for treating the pregnant patient includes deferring dental care to the second trimester or in the case of the patient with a history of miscarriages, postponing as much treatment as possible until after parturition. A concern here is that premature labor or even miscarriage may be ascribed to dental treatment without justification (3).

Dilemma

The second important value is appropriate and pain-free oral function. It is unethical to disregard the standard of care in order to treat a patient's dental needs, even if that is what the patient requests. In this case, for example, Ms. Meyer is asking Dr. Langly to treat her cavities without proper radiographs and therefore perform below the standard of care. One clinician wrote that he or she would use the previous x-rays and "just do the minimal amount of dentistry to get her out of pain then take the full mouth series following delivery to finish further treatment."

While Ms. Meyer may believe the x-rays would be a threat to her pregnancy and therefore her general health, the science and standards do not support her fears. Maintaining appropriate and pain-free oral function requires the proper diagnosis of carious lesions. This in turn involves the making of appropriate radiographs. Clinicians wrote that bitewings would probably be sufficient in this case, and one concluded, "If you cannot get her to understand this, I am not sure you want to treat her."

If a dentist facing this situation concludes (and some dentists might) that the radiographs are not a matter of life and general health, there remains the tension between patient autonomy and the need to provide the appropriate care for a pregnant patient.

Respect for patient autonomy is a core aspect of informed consent and supported by the ADA Code, which states that the dentist has a "duty to respect the patient's right to self-determination and confidentiality" (4). The tension in this case, however, is between the patient's refusal to have radiographs and her urgent request to have treatment soon. A dentist can respect patient autonomy and still inform Ms. Meyer that, while he understands her fears about x-ray exposures, those fears are unfounded. In fact, the clinician would be obligated to explain to the patient that, considering the circumstances, performing any treatment without current x-rays would be

treating her improperly and may cause more harm than good. The ADA Code affirms this in the statement "professionals have a duty to treat the patient according to the patient's desires, within the bounds of accepted treatment, and to protect the patient's confidentiality (3)." The real concern is whether any treatment needs to be done at all, and that decision can only be made if there are proper x-rays.

Conclusion

The philosopher David Ozar offers clinicians a hierarchy of central values to help them frame the complexities of ethical problems in practice. Because of dentistry's respect for autonomy, the dentist is obligated to educate Ms. Meyer about her unfounded fears of x-rays while also informing her of the potential risks to her general health if he proceeds without radiographs. The dentist is ethically justified to discontinue treatment if the patient continues to demand treatment without radiographs. Hopefully, the patient will agree to minimal radiation exposures during the first or second trimesters to allow the dentist to make the proper diagnosis and treatment recommendations that will protect both the patient and the child during her pregnancy.

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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.