EDITORIAL

How Do We Learn?

Do we learn through trial and error? In implant dentistry, trial may be fine but error is unacceptable. Since clinicians work on humans, we have a responsibility to perform procedures only after demonstrating a level of competency to do so, which means we often begin with simulations and progress to live treatment only after that competency is demonstrated. Do we learn through mentorship where an experienced clinician assists less experienced colleagues? Clearly this is where dentistry began in the days of Pierre Fauchard, but modern dental education lacks the volume of mentors needed to consistently achieve higher levels of knowledge.

The question takes on great relevancy when we consider the complexity of modern dental procedures. A half-century ago dental materials were relatively easy to use and were less subject to errors associated with minor variations from the recommended techniques. In contrast, the materials in use today perform very well if handled appropriately but experience rapid degradation if guidelines for their use are not strictly followed. Dental surgery at that same time was primarily devoted to dental alveolar procedures. The procedures that are available today in the arena of oral maxillofacial surgery and periodontology are appreciably more difficult. Similarly, the provision of dental prostheses can no longer be accomplished through close adaptation of acrylic resin to oral mucosa, but now encompasses knowledge of materials, techniques, and biomechanical factors that were barely discussed 50 years ago.

One wonders how education is provided in such a way as to disseminate far more information while training to an ever increasing level of technical complexity. There is the expectation that dentists have a fundamental scientific knowledge that will ensure safe and effective treatment of patients presenting with dental disease. Add to this the knowledge that in an aging population medical conditions are more complex and the likelihood that patients will present with a litany of medications is high. The description of the dentist as the physician of the oral cavity has never been truer.

Although the catchphrase of education appears to be that programs are "evidence-based," it is fairly obvious that the evidence upon which we base many of our techniques continues to rely upon the subjective experiences of the expert teacher rather than scientific documentation of effective therapy. Indeed, this situation is changing, but the change, although relentless, is not rapid.

Ultimately, our schools are charged with the task of providing basic knowledge and skills to dental students. Educational standards call for students to be trained to a level that allows them to practice independently within the dental community. Although there may be some exceptions, dental education does not train students to become proficient in any of the dental disciplines. The tools toward proficiency are offered, but the expectation of that level of achievement is not universal. This means that dentists must gain knowledge from sources outside of the traditional dental school environment. The opportunities for this education may demand self-study through the evaluation of instructional textbooks, hands-on continuing education training, distance training through electronic means, simulation training, and other less common methods.

Most continuing education is predicated upon an entering skill set that may be quite extensive. Without the requisite skills, continuing education courses provide little benefit to the novice attendee. Furthermore, it is exceedingly rare to see any continuing education course brochures that indicate a mandated level of incoming knowledge. Continuing education is in contrast with traditional graduate education, which requires that students progress from simple to complex skills only after the first-level skills have been mastered.

The future of implant dentistry depends upon a supply of knowledgeable and skilled clinicians. If continuing education does not provide stepwise training, beginning with straightforward methods and advancing to more complex procedures as knowledge and skills are gained, then other methods of training must be developed.

The great hope is that the Internet will offer this promise, but most sites currently fail to deliver this information. Today the basic information still comes from more traditional paths. Organizations such as the Academy of Osseointegration (AO) and the International Team for Implantology (ITI) have attempted to address these concerns through publications. AO has provided a set of guidelines for the provision of dental implant treatment[1] that was published in this journal (revision of these guidelines is scheduled for the next issue). ITI has created a series of treatment guides[2–4] and a classification system[5] that would be useful for simple, advanced, and complex treatments. At this point this sort of information is very welcome in the implant community, as it can be used to establish the baseline that we all seek.

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