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Laser dentistry practice management

Gerald P. Weiner, DDS

Rancho San Diego Dental Care, 2648 Jamacha Road 3166, El Cajon, California, 92019, USA

Why would practice management and business principles used in dentistry be any different for laser dentistry? Sound practice management principles should drive every dental practice with guidelines that the dentist, the hygienist, and business teams follow. Laser dental practices may require additional management consideration for successful integration of this technology into the practice model. Although for the most part dentistry can be practiced successfully without lasers, lasers improve dentistry. Lasers enable dentists to perform certain procedures better than how they have been performed conventionally [1]. For these reason and because many clinicians involve themselves in the quest to constantly continue their postgraduate education, lasers have found their way into the mainstream of dentistry. If there was one new development in the new millennium that captured the imagination of our patients in medicine and dentistry, it would be the laser. Since the first lasers were introduced over 40 years ago, many medical and dental specialists have made the daily use of lasers widely accepted by the public. Dermatology, oncology, obstetrics/gynecology, ophthalmology, and otolaryngology routinely use lasers. The public, our ultimate health care consumer, has come to expect modern medicine (and now dentistry) to offer these instruments. We are a society that believes that our health care has reached the most superior level of technology. The public holds modern technology in a high regard. Dentists who invest in high technology are perceived as being on the cutting edge and at the forefront of providing the best care possible [2]. Laser is a buzzword for the consumer of health services. The word laser has a magic hold on society and is perceived to be modern, high tech, and better. The public will seek doctors who use lasers and thus will erase the line between ''need'' and ''want'' in health care.

E-mail address: drillndie@hotmail.com

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Creating value for laser dentistry

Dentistry can be practiced without lasers, so why should dental consumers value lasers and their use in dentistry? Perhaps the initial uses of lasers in dentistry over a decade ago were limited, but lasers are now being used in virtually every aspect of modern dental care [2–4]. Lasers have grown in the scope of treatment and number of dental professionals using them. No longer are lasers limited to treating soft tissue conditions of periodontics or oral surgery [2,4,5]. Some applications are controversial, and the prudent laser dentist must be careful to evaluate case selection, wavelength specificity, tissue interaction, safety parameters, and patient tolerances as they explore "outside the box" thinking. Many modern medical and dental discoveries were byproducts of innovative minds thinking "outside the box." Laser dentistry is exciting in this respect; yet, good scientific principles require that caution and sound judgment be used in developing new laser applications for treating patients [6,7].

The public's positive view on lasers and the dental profession's use of lasers create value for laser dentistry that drives modern laser practice management. Lasers can be used to treat patients in the following aspects [2,8]:

- Reduced anxiety or fear of the drill
- Reduced noise from the drill
- Needle-free or "no anesthesia" dentistry
- Restorative dentistry without the numbness or "fat lip" from the shot
- Desensitization of teeth
- Less chair time for many procedures
- Faster and better treatment of gum disease
- Reduced need for sutures
- New approaches for dental infections, requiring less antibiotics and pain medications
- Regenerative techniques enabling fewer extractions
- Faster and more comfortable healing
- Less pain associated with laser dentistry compared with more traditional treatments
- Less bleeding
- Less discomfort

Each of these points is discussed in the articles on clinical procedures throughout this issue. This list is not complete and is presented only to touch upon the public perception of the use of lasers in dentistry.

One of the most widely known advantages of laser use is in cosmetic dentistry [2]. Many "appearance enhancement" procedures have emerged, and many consumers want dentistry that makes smiles whiter and more youthful. Recent reality television has featured "extreme makeovers" showing high-speed dental whitening and laser bonding to improve how people look. This is an important mainstream acceptance of lasers, and the

public wants dentists who have these capabilities. Premium importance is being placed on the patient's smile. More than ever, people are concerned with health and a youthful appearance. The public spends millions of dollars every year to make themselves look the best they can [9]. Television, magazines, and radio commercials constantly bombard the public with esthetic services. Lasers are widely accepted among the state-of-the-art equipment necessary to confidently perform these esthetic procedures.

Patients feel more confidence that their dentist is up to date with the latest and best technology when lasers are present in the dental office. Many people who are reluctant to accept conventional dental treatments readily accept laser dentistry. It often means the difference between accepting or rejecting proposed treatment. People see dentists who use lasers as able to perform high-tech, state-of-the-art procedures that will result in a more comfortable, more predictable, and better result. It is the confidence in the modern, further educated, more highly equipped dentist that leads to an increased value for laser dentistry. When the public perceives lasers to offer advanced dental care they will value it more and be willing to pay out of pocket dollars to obtain this care [2,4].

The modern office in the new millennium

As hi-tech procedures become more commonplace, there are economic pressures to consider. A tug of war is going on between providing dentistry at the highest level possible and insurance companies wanting to spend as few dollars on the patient's behalf as possible. It does not seem like the two concepts can coexist [10]. It is for this reason that every dental team must have a clear objective on who they are and what they will provide. Whether insurance restrictions such as managed care or preferred provider organizations are involved in office dynamics is a question every dentist must answer for himself.

Modern dentists have much technology to choose from. Digital radiography, computers, paperless records, intra-oral cameras, computer-driven anesthesia devices, CAD-CAM restorative machines, laser caries detection instruments, electric hand-pieces, electronic root apex locators, automated endodontics, digital photographic records, micro-air abrasion, and sedation equipment are available. Lasers are instruments that must also be considered in today's practice of dentistry. Decisions as to what equipment to have must be made on several levels. First, what is the philosophy of the individual office? Second, which of these modern tools would most dramatically affect the practice of dentistry under the practice management model of the dentist (ie, fee for service, managed care, or the hybrid practice)? Marketing to dentists is constant and relentless. Journals and continuing education courses challenge the doctor to make difficult purchasing decisions. The dentist must decide which of the new technologic

advances are ''must haves'' and which purchases can be postponed. Because most of this new technology is expensive, how do clinicians best assure themselves that they have adequate time to evaluate the equipment [11]? Are annual conventions where manufacturers have displays adequate to answer these questions? Will the manufacturer allow trial evaluations in the dental office? Are money-back guarantees given, and, if so, are they valid and honored? Each dentist must do their own due diligence before purchases are made. Testimonials from peers who already have and use these new technologies may be invaluable. Many of the postgraduate institutes that abound privately and through dental schools could also be good sources of information.

These investments of expensive technology should be made to meet the goals of the office, the type of dentistry, and type of practice image the dentist wishes to project [1]. Logistical space requirements must be factored in because some pieces of equipment are large and must not impede safe patient and staff movement.

The word ''laser'' can attract people to the practices that have them. Furthermore, lasers seem to give the dentist a high-tech image and credibility that can increase treatment acceptance. This can lead to positive financial results that allow the dentist to practice more within the desired scope of care, with greater independence from managed care minimal treatment standards. Lasers are one of the first equipment purchases that the modern dental practice should make, if only for the income potential and the high-tech recognition they bring.

Team dynamics

Once lasers are brought into a dental practice, one of the first and most important items to be considered is the staff's involvement. Time needs to be devoted to training. Training the team in what the laser can do and why the laser is used over other techniques and the team's attitude toward the laser are important [1]. If possible, the team (business and clinical) should be included in the doctor's laser training. The team needs to know what kind of laser the practice has. What is it safely able to do? What additional services will be provided that were previously referred out? How will the practice inform the patients that they offer laser dentistry? Laser safety protocols are important. Worldwide safety guidelines and standards are available from most manufacturers' procedure manuals, and additional information is available from organizations such as the Academy of Laser Dentistry.

The staff's attitude is one of the most important aspects affecting a patient's acceptance of treatment. Treating the dental team with the laser will go further toward establishing the value of the laser than almost anything the dentist can say. Whether the dentist performs a painless frenectomy or uses the laser to improve a team member's periodontal

condition, performs a cosmetic gingival recontouring, or treats an aphthous ulcer, it is important to instill in the dental team the belief that there are benefits to laser dentistry. Laser whitening is effective in its dramatic and rapid improvement in appearance [12]. Someone on the staff will welcome the offer to do this. It has long been felt that treating the staff adds credibility when patients ask the staff questions about dentistry. Performing restorative dentistry without anesthesia comfortably on the staff is an invaluable resource when patients ask questions about what the laser can do. Cosmetic dentists for years have treated the smiles of their own staff. This offers the dentist a constant example of his own work, which is more valuable than any photograph. The personal testimonial the staff can give the patient who questions the laser's benefit is invaluable.

Marketing

Marketing means "selling." It has a vital role in our lives: It has been estimated that the average American is marketed to between 1100 and 1800 times a day. Between radio, television, billboards, magazines, newspapers, and individual discussions we have with salespeople, there is no escape from marketing. Dental school curricula have not put much emphasis on dental marketing. To the modern dentist, marketing is critical and can make the difference between barely surviving and having a thriving, successful practice. Marketing can be as simple as in-office communication about what dentistry is and how dentistry can benefit people. Why people should select one dentist over another is where marketing can have a profound effect, especially where lasers are concerned [2,13]. Marketing laser dentistry is even more sophisticated than marketing dentistry. It is estimated that only 50% of people in the United States seek the services of a dentist. Those who visit regularly are an even smaller number. Marketing can be divided between internal and external marketing. Internal marketing is communication that is done within the office to the existing patient population. External marketing is vastly more extensive and can involve a sizable investment in direct mail, radio, or newspaper ads, web sites, professional marketing companies, personal practice publicists, and promoters. Because your existing patients are familiar with you and your staff, there is already a relationship of trust. Internal marketing, therefore, is the best place to begin the process of communication about lasers.

Marketing laser dentistry is first and best accomplished within the office. This is where proper staff training is critical. Office meetings should be set up to discuss the laser and how the dentist plans on using it. Goals should be set with realistic time frames to incorporate the laser into the practice. Within the practice, there is nothing as powerful as the team's enthusiasm for the benefits the laser provides to the office. Any and all ways to develop and promote this enthusiasm and positive attitude should be discussed and explored. Some offices send out announcements to their existing patients

when they first bring a laser into the office. A team meeting is a good place to develop such a letter. The public wants to know what the benefits are, not what the technology is. It has been said "sell the sizzle, not the steak"—in other words, sell the benefits, not the features. Most people just want to know what the laser can provide for them.

Brochures and fliers are available to promote and explain laser dental benefits. They can be distributed to patients when the dentist or hygienist recognizes a condition best treated with the laser. They also can be placed in the reception area and strategically displayed around the office in view of the patients. These brochures are available from laser manufacturers, professional dental marketing companies, and from the Academy of Laser Dentistry.

As patients leave the office after a laser procedure, they should be congratulated for choosing that treatment [14]. The staff's enthusiasm will go a long way to making the patient feel good about their choice of laser treatment. The staff also can reinforce the dentist's commitment to high-quality, high-tech dental care. Other internal marketing strategies include branding the practice as a laser dental office. Phrases such as "laser dentistry" or "laser-assisted comprehensive care" should be considered [15]. These terms indicating that your practice has state-of-the-art laser technology can be implemented into your business card, office stationery, printed material, web site, newsletters, and practice introduction letters. Another idea many dentists have used successfully is to include laser information in a telephone on-hold message service.

After internal marketing has been successfully implemented, the dentist should consider external marketing. Many manufacturers provide a press release when a laser is purchased. This can be customized for each office. The press release can be faxed or e-mailed to the health or science editor of the local newspaper or radio station. Sometimes these press releases can generate a small local story about the dentist and what the laser can do. This is valuable free advertising and should not be overlooked [16]. Printed ads, such as yellow pages, newspaper, and direct mailing, can be developed to promote the high-tech laser image. The public perception of lasers is generally positive. The dentist who wants to use external marketing to promote that positive theme needs only to compare what lasers have meant to medicine to the same benefits they have in dentistry. You must present the fact that your practice is the one to come to for laser care.

Direct mailings and newsletters are other sources of external marketing. These avenues have been effective in marketing dental practices and can have a positive effect on promoting lasers in your practice. First-class mailings and short statements about how laser dentistry will benefit your patient are more effective than trying to explain how lasers work or what unique features your particular laser has. Professional companies help with providing mailing lists that target geographic and income brackets of households to whom you want to promote your practice.

One of the most effective means of marketing laser dentistry is your web site. Most modern practices have web sites where existing and prospective patients can learn about your practice and services. Some dentists have spent thousands on their web site, whereas other practices have basic sites. Regardless of what kind of web site you have, laser services should be boldly featured. Photos and diagrams can help patients differentiate your service from other practices. Web links are valuable to enable patients who want more information. Once you decide what service you want to provide, explore other dentists' web sites to get ideas of what they have done [17]. When naming your web site, try to procure a geographic title, such as "San Diego Laser Dentistry." A simple search on one of the more popular search engines like Google, Yahoo, or Ask Jeeves can produce great results. If a name is not taken, you can procure it and link your practice site to it. This is effective marketing that can drive pre-informed patients to your practice.

A laser's effect on office dynamics

Space logistics

Some thought must be given to how lasers will fit into the existing office space. Some lasers sit on countertops, whereas others are large and free standing. Will the laser be stationary or will it be moved from operatory to operatory? Due to the cost of these machines, most practices start with one laser and make sure its use is maximized, which usually means moving the laser. This must be discussed and done carefully because some components may be expensive and delicate. Carts may be purchased to make movement of the laser safer. Larger, hard-tissue lasers are moveable, but many dentists have dedicated laser rooms. Patients are scheduled for that room, and patient coordinators can be trained in the best office flow patterns for the laser treatment room. Remember that these lasers have power supplies, electrical cords, and delivery systems. The dentist should give thought to how and where the laser will be positioned. Dental assistant trainings prove invaluable to make sure the laser and the patient are ready when the dentist wants to use it.

Special supplies

Lasers are specialized pieces of equipment that require special supplies. Soft-tissue lasers have fiber optics that are fragile, and it is wise to have an extra fiber present. If a chair or cabinet rolls over a fiber, it can break. This can cause down time until an additional fiber is purchased. If your state allows hygienists to use lasers, scheduling conflicts can occur when a laser is shared between operators. Depending on the successful implementation of laser use, practices may quickly see the need for an additional laser. Hard-tissue lasers have tips that are used up like handpiece burs and

diamonds. It is wise to carefully plan how your laser supplies will be inventoried, used, and sterilized. Offices also need to have adequate supplies of laser safety glasses. Patients, assistants, doctors, and sometimes companions (parents or siblings) will need proper optical protection. Doctors who use magnification will find regular safety glasses inconvenient or inadequate. Special optical clip-ons are available to fit most loupes.

Logistics

Creating smooth transitions from one operatory to another takes time and practice. Because lasers use different wavelengths to achieve certain tissue interactions, the modern office may have several lasers. Diagnostic caries-detecting lasers are useful and can quickly provide a return on the investment [4,18]. Soft-tissue lasers can be used for a variety of purposes, from periodontics to crown and bridge. How these lasers are used in the busy modern practice should be a planned event to avoid clinicians waiting for the laser and to make for a smooth transition. Lately, manufacturers have produced combination lasers that can be used on hard and soft tissues [19]. These machines are typically larger than the soft-tissue countertop lasers. Often, dedicated laser areas work well for these machines, but moving them is possible.

Return on investment

Lasers are among the more expensive pieces of equipment dentists invest in. Lasers can range from $10,000 to over $50,000 [2,20]. Before a laser purchase, return on investment needs to be considered. Lasers have been around in dentistry long enough that the question of how a laser will pay for itself is easily answered. Organizations exist that are filled with experienced laser dentists who have already dealt with this issue. These groups are willing to share their information and experiences. The manufacturer's representative can also be a good source of information, but remember that they are salespeople who want you to buy their laser. The Academy of Laser Dentistry is an excellent source of information. Internet user groups such as GenR8TNext, Dentaltown, IDF (Internet Dental Forum), Las Vegas Institute Forum (one must be a graduate to be eligible for this one), and the Crown Council have experienced dentists who are willing to answer questions and help—but beware! Some laser companies compensate dentists to hype their products on these sites.

Each office must decide how to design a proper compensation model. Should each fee simply include the laser's use? Should fees be raised when laser dentistry is provided? Is the case fee model best where cases are presented and no itemization is shown to the patient? These are questions that each office must answer. Some offices are content to provide laser services at the same fee. Many offices will find ways to use the laser to

perform dentistry that they previously referred out; this alone can provide a return on investment.

Patients will have questions about whether laser procedures are covered by their insurance. The dental team must anticipate and prepare their response to these questions to avoid inconsistent and awkward answers from the dental staff. Insurance benefits are designed around procedures and codes. How and what the dentist uses to provide care has never been of concern to third-party carriers. Insurance companies are no more concerned with how a procedure is done than they are with how long it takes [21]. Therefore, each office should be forthright in explaining that the procedure may be covered by a third party, but the lasers use is not. As long as patients perceive value in the lasers use, they will be willing to pay out of pocket for laser dentistry [2,22]. The public cannot expect the insurance industry to reimburse modern high-tech procedures, technologies, or equipment used on their behalf. Insurance is a limited benefit to supplement some expenses, not to pay in total for providing optimal health care. Most offices using lasers are insurance independent or take a position whereby the patient is financially responsible, even if they attempt to maximize insurance benefits for the patient. It is not recommended to diagnose or present treatment based on the insurance companies' benefit levels. Well-presented financial arrangements are essential before treatment is rendered. Consent and disclaimer forms have proved successful during treatment estimates. These forms should clearly state that fees are presented for providing optimal dental care. Most importantly, the patient signs an agreement that states that they are financially responsible whether their dental insurance pays for the laser fee or not. Have the patient sign all treatment proposals with a similar disclaimer whenever the laser is used. This has proved successful in preventing insurance carriers from informing patients that they need not pay certain fees when they receive their copies of the Estimate of Benefits. The patient is always financially responsible for the total cost of dental treatment [23].

The separate laser fee has been one model used by dentists. It sets a fee for laser use. A fee of $110 to $125 (for example) can be added to quadrants of root planning and scaling. A separate laser fee can be added to each restorative procedure. Some offices have seen the separate laser fee produce more dentistry per patient visit. For example, if a mother brings in a child with several cavities, an advantage of using the laser would be that all treatment could be done in one visit. The treatment is done in the most modern high-tech fashion—with a laser. Now add in the advantage of maximizing the laser's use financially, and you have a "win-win" situation. You could add on a laser fee per restoration, or per quadrant of restorations performed. This allows the dentist to be more productive and work more efficiently because the patient is already seated, the supplies are available, and the room is set up. This type of fee urges the patient to do more restorations at once. The patient is pleased because of fewer visits needed to complete the treatment. This means less time off from work or school.

Because the patient is not numb, he or she can leave the office and not adjust their plans for lunch or dinner. There is almost no chance of a return visit to adjust any occlusal problems. When an office decides to include the laser and raise the procedure fee, this works for compensating the doctor but may not work for the patient. For example, if a $200 fee is raised to $300 with no real explanation of the increase, there is no increased value perception for the laser. A separate laser fee makes obvious to the patient that a higher value is assigned to laser dentistry. Many offices report better treatment acceptance based on using a separate laser fee rather than fee increases that include the use of the laser.

Continuing education

The doctor

Proper training in using the laser to perform dental procedures is one of the most important considerations the dentist must deal with. Many times trainings are included in the purchase of a laser, but how thorough the training is can be varied and inconsistent. Numerous courses are provided at meetings, conventions, and by private clinicians that can help doctors master laser techniques. Attending continuing education courses provided throughout the country can shorten the learning curve for laser dentistry. Attending a dedicated laser user group meeting such as the Academy of Laser Dentistry's annual session or the World Clinical Laser Institute meetings is invaluable. Lectures on clinical uses, case studies, workshops, and social interaction with other doctors using lasers are a few of the examples of the benefits of the attending such meetings.

There are articles published in monthly journals about laser use. Reading and making a collection of these articles has proved to be helpful to the beginning laser user. The Internet has numerous dental sites where doctors can post interesting cases with photographic attachments or can ask questions of more experienced clinicians. Through e-mail, dentists can rapidly interact with other clinicians. The dentist who continues to learn and stay active in the area of continuing education will exude a confidence in laser dentistry that the patient and his staff will appreciate [1].

Staff

Involving the staff or dental team in continuing education is nearly as important as attendance by the doctor. The team will gain an independent knowledge of what laser dentistry is and how your practice can benefit from it. Many of the meetings have separate breakout sessions specifically designed for clinical and business team members. During office meetings, the doctor or hygienist can share articles with the rest of the team. This keeps the entire office informed.

The hygiene department

Each state's dental practice acts are different, so each doctor needs to check what their hygienist is permitted to do. States where hygienists are not allowed to treat their patients with lasers will offer their hygienists a different role. It has been said that the hygiene appointment is the single best marketing opportunity the dental practice has because it is 1 hour of one-on-one time [9]. During this appointment, the hygienist can interact socially and informatively with the patient. Excitement about lasers in the practice and how the hygiene patient can benefit from laser dentistry is a powerful education and marketing tool. The dentist can meet with the hygienist and discuss how the hygiene appointment can be useful for patient education.

States that allow laser use by the hygienist present exciting advances in soft-tissue management programs. Proper training of the dental hygienist has the same importance as the doctor because the hygienist will be using the laser to treat patients. Improved periodontal health is a common goal shared by patients and hygienist.

Programs exist whereby hygienists can receive the necessary training in laser use. I do not recommend that the dentist take on the laser training of the hygienist. There are too many complexities to expect the doctor to fully train a hygienist. Having the hygienist attend a dedicated hygiene laser workshop or hiring a hygiene laser educator to come into your office for training is a wise decision. A list of recognized dental educators and programs can be accessed through the Academy of Laser Dentistry's web site (www.laserdentistry.org).

Once the hygienist is properly educated in laser periodontal care, adjustments to the hygiene schedule can be made to allow for the additional time required to use the laser. Entire nonsurgical laser periodontal protocols will need to be developed. Lasers can have a profound effect on the health of your patients. Numerous appointments are often necessary to accomplish initial phase I therapy. Laser use has re-ignited excitement and relief from hygiene boredom among many hygienists. Dedication and commitment to the process of continuing education can keep this excitement alive and can improve the overall periodontal health of your practice.

Professional affiliations

There are several professional groups that laser users will find beneficial to affiliate with. The Academy of Laser Dentistry is a nonprofit organization worthy of membership. This organization can provide a standard certification of proficiency for the doctor and the hygienist. There are advanced level certificates possible for those who want to take their abilities to higher levels. As of this writing, the Academy of Laser Dentistry has the only certification program whose curriculum guidelines and certification process has the approval of a college of dentistry; their certification process has been fully approved by the University of California at San Francisco School of

Dentistry. Hundreds of other dental schools and dental organizations all over the world have adopted the stringent standards of this nonprofit academy, an academy that is not tied financially to any particular laser company.

Presenting treatment involving laser procedures

Philosophy of laser dentistry

The incorporation of laser dentistry into a practice must begin with an office philosophy. Just as doctors are told in practice management courses to develop specific goals and visions for their offices, laser dentists must do the same. Doctors using laser have made the commitment to their patients to provide the most advanced cutting-edge dental care at the highest level. The education and training they receive enables lasers to be used to provide technically advanced dentistry.

This starts with diagnosis and treatment planning. The personal care and attention each office offers their patients can be a mix between traditional methods and cutting-edge laser techniques. Patients are impressed when the initial examination they receive is a uniquely different experience using advanced technology. Replacing the sharp scary explorer with a modern caries diagnostic laser (Kavo's Diagnodent) along with magnified television images from a pen-like intra-oral cameral is impresses patients [18,20].

Full periodontal measurements can now be done with more comfortable and accurate computer probes. This leads patients to more readily accept soft-tissue management treatment recommendations using the soft-tissue laser. Restorative techniques involving direct-bonded restorations without anesthesia done with the hard-tissue laser at one visit offers patients definite benefits.

Individual restorations like crowns, inlays, and onlays can now be treatment planned and performed in one session. Lasers are also useful for tissue management to enable the scanning devices to properly image and read the margins. Each office should take the time to re-invent itself in this modern high-tech era. Office meetings to discuss what laser services you will offer, how you will adjust, and how you will inform and educate your patients is an important task. Mock examinations on team members along with role-playing will help make this a smooth transition.

Ethics and responsibilities

Every team member is a valuable asset, with individual personalities, verbal skills, and clinical abilities. It should be part of every office's mission statement to provide dentistry at the highest level possible. Dentists and their teams should make personal and office commitments to the lifelong process of continued education. Laser dentists have cutting-edge practices that recognize what superior dental care involves [24].

Dental offices should practice within the scope of acceptable standards. There are certain ethics that laser dentists have come to realize. The use of lasers must comply with the manufacturers' recommendations. Dentists should use lasers only when the advantages to the patient are the primary reason for their use [14]. Experimentation and new techniques should not be done on patients without scientific due diligence. New restorative techniques should be practiced on extracted teeth, and surgical simulations should be done on bovine tissues or other suitable biologic tissues or inanimate objects. "Do no harm" is a phrase that must never be ignored. Using lasers responsibly and within the scope of acceptable practice standards is most important.

Over-promising a result is not a good idea. Whether or not restorative dentistry can be done without anesthesia is an individual decision. Not every dentist has the same technique or will get the same results. Each patient is different and has different tolerances. When treatment planning, consider the above statements before absolute promises are made. The same should be obvious when treatment planning nonsurgical periodontal phase I therapy. Although many patients respond positively with an improvement in their condition, there should never be absolute promises made. Knowing when to refer a patient to a specialist is an important part of dental care [25].

Knowing your patients and having a good relationship with them is perhaps one of the most important aspects of successful practice management. It is often better to under-promise and over-deliver than to disappoint a patient. One of the best examples of this is the in-office laser whitening procedure. Some people are satisfied, and others are disappointed. Every dentist has probably had some experience dealing with patient expectations.

Informed consent

Informed consent is a must not only in laser-delivered dental treatment, but also in all dental care. Doctors must discuss risks, options, and alternative treatments with patients. Written informed consents are important. There are many examples of informed consents available from many sources. The more user friendly the language of a written informed consent is, the better. Legal experts have for years advised against overly technical consent forms because people sign them but do not understand them. No signed form will replace a good relationship between the dentist and the patient. This subject is far too vast to fully cover here; it is mentioned only to bring the laser dentist's attention and awareness of its importance to mind.

Photography

Although every dental office uses x-rays, dental photography is still an underused resource [26]. It has been said that an x-ray shows the 40% of the mouth that cannot be seen, whereas the photograph shows the 60% that can. Laser dentists can use photography to develop before and after cases to be placed into presentation albums. This can help patients decide whether

laser procedures are of value to them. If you develop a before and after album, avoid the surgical photos. Show only the before and fully healed after views. For example, in cosmetic gingival recontouring, a patient might not have the same appreciation of the immediate post-op photograph as would a dental professional. The same could be said for the laser bleaching photographs. There would be little gained by showing a patient a photograph in which the gingival barrier was in place with bite blocks and sunscreen applied to the lips. Much more acceptable would be the smile view with a pre-op shade tab showing as the before photograph and the post-op shade smile photograph showing the results.

Documentation is perhaps one of the best uses of dental photography. Whether a photo is taken with an intra-oral camera, a 35-mm dental camera, or one of the newer digital dental setups, photography provides some of the best-case documentation possible [26]. Now considered equal to the written chart entry, pre-existing, immediate treatment, and post-operative photographs are invaluable, and there are many ways to store and catalog these images. Case presentations are easier when photographs are used. Although patients generally have a positive attitude about lasers, they may be unfamiliar with many of their benefits in dental care. ''A picture is worth a thousand words.''

The legal advantages of photographs are obvious. Photographic evidence can make a huge difference to the dentist that needs to defend his or her treatment in the legal arena. With the storage ability of digital cameras, it is easy to take many photographs. The doctor, an assistant, or someone from the front office can do this. Clinical photographs can also be helpful with Internet user groups. Participation in one of the many Internet dental forum groups is an enhanced experience when clinical photographic attachments are used [20,26]. Clinicians from all over the world interact through the computer, giving their opinions about a case, a treatment outcome, or the prognosis of a successful result through the use of dental photography [26].

The biopsy

The practice management aspect of the biopsy merits some mention. Whether during the initial examination or during the re-care hygiene appointment, if a suspicious lesion is noted, there are verbal skills that come into play. Questioning the patient about their knowledge of a suspicious area in their mouth is part of taking a complete history. If a lesion is asymptomatic and if the dentist says that it should be removed, some patients fail to see the advantage of the additional discomfort and expense. This is where verbal skills and the public's positive attitude about lasers can interact. The difference between telling a patient that a lesion should be removed and telling them that you want to do a laser biopsy is emotionally enormous. How you present doing a biopsy with a laser to a patient can make the difference between getting the patient's permission or

the patient not being interested. Just as the public considers the word "laser" to be powerful, the word "biopsy" also evokes an emotional response. The laser biopsy is another example of how an office can offer an additional procedure that would previously have been a referral situation. It is an added service to the patient who is already in your office and trusts your opinion. The Academy of Laser Dentistry features a program on laser biopsy every few years.

The management of periodontal disease

Phase I (nonsurgical)

Lasers have been used successfully for years along with traditional root planning and scaling to treat periodontal disease [27]. Whether delegated to a trained hygienist or performed by the dentist, improvements in periodontal tissues using lasers are well documented. Programs vary as to style, laser wavelengths, sequence, frequency of visits, and overall protocols. Choosing which program your office adopts is an exciting choice. Providing laser periodontal therapy is another example of added services made possible with lasers.

Many patients respond to the suggestion that they require more thorough hygiene care with denial and noncompliance. Although it seems logical and obvious to the clinical team that soft-tissue management is necessary, many patients perceive this as painful, expensive, and unnecessary. When properly presented, "laser assisted nonsurgical" periodontal procedures receive greater patient acceptance of treatment. Verbal skills in presenting these laser services are important, and information can be delivered with greater confidence with some practice and role-playing. Regardless of which laser periodontal protocol your office selects, the rewards your patients receive will be overwhelming, and there will be greater financial compensation for your office.

Phase II (surgical)

Lasers are valuable in the surgical phase of periodontal treatment. Each dental office must continually explore which services will be offered in-house and which will be referred out. Although some periodontists consider the use of lasers controversial [28,29], the American Academy of Periodontology issued a favorable Blue-Ribbon report on lasers in periodontology in the October 2002 issue of the *Journal of Periodontology*.

Before a patient is referred to a periodontist for advanced care, the laser dentist should be aware of the periodontist's view on lasers. This knowledge can go a long way in avoiding situations in which the patient is made to feel that they received laser dentistry that had questionable or minimal value. The last thing any dentist wants is a patient who questions the care they received and paid for. This situation is easily avoided when the specialist is fully informed of what pre-treatment conditions existed and what laser therapy was rendered and with what results. The better the relationship

between the specialist and the referring doctor, the better the chance that the patient will receive the treatment they require and maintain a high regard for the laser's role in the cleanup effort. Every effort should be made to choose periodontists who are open to initial therapy performed with lasers. The number of periodontists in this group is growing, as evidenced by the number of periodontists who own lasers and by their increased membership in organizations such as the Academy of Laser Dentistry.

Practice management for restorative dentistry

The Erbium family of hard-tissue lasers has made it possible to apply many of the benefits of lasers to restorative dentistry, including:

- No pain and no shots
- High tech procedures
- Less invasive (minimally invasive) procedures
- Stronger fillings (better adaptations to margins and improved bond strengths)
- Sterilized cavity preps (most patients have concerns with sterilization)
- Faster and more comfortable procedures
- Better longevity and stability

All these reasons add up to more advance and better dentistry. The fillings are natural appearing, tooth-colored bonded restorations. With conventional phosphoric acid etching and enamel and dentin bonding agents or the family of self-etching primers and adhesives, comfortable, long-lasting fillings can rapidly be placed in all quadrants of the mouth at the same time. Less anesthetic usually means that the occlusion is more accurate, and fewer return visits are necessary to adjust or modify the bite.

Larger restorations made in the laboratory can be laser etched, enhancing the bond strength of the indirect restorations. Dentists using chair-side optical scanning units to construct or mill the restoration while the patient waits also can use lasers to enhance bond strengths. These dentists also report tremendous help with control of bleeding and the ability to view the critical subgingival marginal area when soft-tissue lasers are used for hemostatis and coagulation. While the patient waits, the restoration is milled, prepared, and bonded into place using a curing LED laser. The patient is able to leave the office, usually not numb, with a more cosmetically pleasing restoration. In addition, the patient is able to chew or function with their new restoration as soon as they leave. This treatment is performed start to finish with less chair time than ever before.

The laser and implants

From initial placement to second-stage exposure, lasers are becoming more prevalent in implant dentistry [30]. Hard-tissue/soft-tissue combina-

tion lasers are being used to help dentists initially place implants. Several months after successful integration, soft-tissue laser applications help uncover the implant and form the proper gingival architecture. From preparation of the site for the abutment placement, to contouring gingival tissue before placing the gingival healing collar, to the final impression, dentists are using lasers to get excellent results.

Oral surgeons, periodontists, and general dentists involved in implant dentistry are impressed with what lasers can do. Laser applications can achieve excellent results in implant dentistry in a comfortable manner, an area of dentistry previously unexplored by lasers. When dentists are able to perform procedures more predictably and more comfortably than with conventional techniques, they gain the confidence to bring up-to-date laser technology into their offices.

Summary

Laser dental care is possible in all of the disciplines of dentistry. The public has an expectation that their dentist should be up to date and wants the most modern, advanced care possible. The future of lasers in dentistry is promising, and new applications and procedures are being developed. The public is made aware of this by various media, and the word ''laser'' has power because patients want and trust the doctors who offer advanced technology. Dentists and their staffs can successfully integrate the use of lasers into the everyday practice of dentistry. Education, training, and marketing laser dentistry takes planning and time. The questions of fees, insurance involvement, and how offices will recoup the investment of lasers should be thoroughly planned and discussed. The dentist who develops a team mission statement that allows for an efficient transition to bring laser technology into the office will be rewarded. The pride and excitement of being on the cutting edge of dentistry and financial incentives make it more possible than ever to implement the use of lasers. ''Clinical competence in any area of dentistry appears to require a combination of education and clinical experience'' [25].

Appendix 1

Team training

I. Entire team training (suggest 5–6 hours time)
   A. Laser physics
      1. What does LASER stand for?
      2. What is a laser?
      3. How does a laser work?
      4. What can our laser do?
   B. Laser/tissue interaction
      1. How does a laser affect tissue?
         a. Soft tissue
         b. Hard tissue
      2. What are the benefits of using a laser?
   C. Laser dentistry—Why is there an advantage?
      1. What procedures are performed with the laser?
      2. Laser advantages over traditional dentistry
   D. Laser safety
      1. Choosing a laser safety officer
         a. Responsibilities
         b. Authority over the laser
         c. Reporting adverse effects: regulatory requirements
      2. Hazards or dangers of laser use
      3. Universal safety precautions
      4. Proper chart documentation
   E. Patient communication
      1. The team's role in patient education
      2. Verbal skills (what is presented, who presents it)
      3. Role play—verbal questions and answers
      4. Literature and supporting brochures on laser use
II. Business and administrative team training
   A. Presenting new laser treatments
      1. Who says what
      2. Everyone on the same page
      3. Role play (practice makes perfect)
   B. How to deal with patient questions
      1. List the most typical patient questions
      2. What will and won't be said
      3. In-office questions
      4. Telephone do's and don'ts
   C. Laser fees
      1. Establishing fees for laser dentistry
      2. Dental insurance reimbursement
      3. Medical reimbursement (eg, biopsy)

D. How to schedule laser procedures
   1. Laser procedure time requirements
   2. Combination procedures where laser and conventional techniques are used (eg, crown and bridge)
   3. Scheduling preferences
   4. Scheduling when lasers are not mobile and procedures involve multiple treatment rooms

E. The team's role in patient communications
   1. Develop introduction of laser dentistry to
      a. Existing patients
      b. New patients
      c. Telephone referrals
   2. The dentist's role
   3. The hygienist's role
   4. The assistant's role
   5. What is said and to whom

III. Clinical staff training (the assistant):

A. Operating the laser
   1. Setting up for laser procedures
   2. Proper operation of the laser
   3. Proper movement of the laser between treatment rooms
   4. Sterilization and care of laser handpieces
   5. Sterilization and care of fibers (if applicable)

B. Laser safety
   1. Laser safety officer
   2. Laser operating area
   3. Danger signs posted
   4. Laser safety eyewear
   5. Laser safety hazards
   6. Laser universal safety precautions

C. The role of patient communications
   1. Develop and review laser applications and benefits
   2. How to document the chart or patient record

3. Post-op instructions
      a. Written (develop what you want the patient to know)
      b. Oral (re-establish useful information)
   4. Patient post-op kits
      a. What will be dispensed for soft tissue procedures?
      b. Pre-make kits to dispense
   1. Vitamin E and applicators
   2. Rinses
   3. Any application applied over treatment area (syringes with hydrogen peroxide)
   5. Prescription medications
   6. Answering patient questions

IV. Training for the dental hygienist
  A. Check individual state dental practice acts
  B. Role the laser will play in nonsurgical laser perio (develop protocols)
  C. Proper hygiene training programs
  D. Benefits of laser certification programs
    1. Standard ALD certification
    2. Category II (advanced)
    3. Category III certification and dental educator status
  E. Role of laser operation
    1. Shared office laser
    2. Dedicated hygiene laser
    3. Operation and settings
    4. Fiber care and maintenance
  F. Laser safety specific to hygiene
    1. Develop teamwork if there is a dedicated hygiene assistant (who does what)
    2. Individual safety requirements when the hygienist is treating a patient alone
      a. Suction
      b. Air-water syringe
      c. Safety hazards
      d. Safety precautions
    3. Hygienist's role in patient communications
      a. Who discusses converting routine re-care to laser perio patient?
      b. Patient compliance in soft tissue programs
    c. Patient questions
    d. Supportive hygiene re-care
  G. Role the hygienist plays in using the laser
    1. Compliance with state guidelines
    2. Education programs
    3. Proper training
    4. Continuing education
    5. Professional organizations to consider joining

Appendix 2
Sample treatment plans

Code	Description	T#	Surface	Fee	You pay
02332	Bonded Rest ant 3 surf	6	MFL	220.00	220.00
04969	Laser Assisted Procedure	6		110.00	110.00
Crown lengthening					
Code	Description	T#	Surface	Fee	You pay
07465	Crown Lengthening	5		560.00	560.00
04999	Laser Assisted Procedure			110.00	110.00
Destruction of lesion					
Code	Description	T#	Surface	Fee	You pay
07465	Destruction of lesion by laser			300.00	300.00
Frenulectomy					
Code	Description	T3	Surface	Fee	You pay
07960	Frenulectomy			290.00	290.00
04999	Laser Assisted Procedure			110.00	110.00
Gingival Recontouring					
Code	Description	T#	Surface	Fee	You pay
04999	Laser Recontouring	6		140.00	140.00
04999	Laser Assisted Procedure			110.00	110.00
Gingivectomy					
Code	Description	T#	Surface	Fee	You pay
04211	Gingivectomy/plasty	6		150.00	150.00
04999	Laser Assisted Procedure			110.00	110.00
Nonsurgical Periodontal Therapy					
Code	Description	T#	Surface	Fee	You pay
04341	Root Planing Quad	UR		222.00	222.00
09630	Subgingival Irrigation	UR		44.00	44.00
04999	Laser Assisted Proced	UR		110.00	110.00

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