

How to perform laser dentistry safely and effectively, while also following the rules. A Q&A with the Academy of Laser Dentistry's (ALD) Regulatory Affairs Committee.

Audience:

State regulatory boards and those individuals who work with or for the dental boards

*American Association of Dental Boards
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Richard Hetke, Executive Director*

*Podcast Title:
Lasers in Dentistry – A Panel Discussion
(90 minutes)*

*Panelists:
Keith Brewster, DDS, Dallas, TX
Gail Siminovsky, CAE, Executive Director, ALD
Angie Wallace, RDH, Tulsa, OK (Moderator)*

*Description:
Today's podcast panel discussion will focus on an overview of laser use in dentistry. We will touch upon the following topics:*

- *Laser Safety*
- *Basic Concepts of Lasers, Tissue Interaction, Procedures, Documentation*
- *Whether or not lasers should be considered differently than other dental instruments dentists and hygienists use to treat patients*
- *What special or added training and education should be considered, if any?*
- *An overview of what some state regulatory boards are doing*
- *How ALD is responding to the numerous regulatory questions received*
- *How we might work together to fulfill our respective roles in dentistry*

We have been asked to help you understand what lasers can be used for and how important safety is in using lasers.

Wallace: There are two things that should be considered. Safety glasses should be used for the clinician, assistant, patient and anyone else in the laser safety zone. We also must make sure there is high volume suction to remove plume, which contains several toxins.

Siminovsky: The American National Standards Institute (ANSI) guidelines indicate there must be a designated laser safety officer in the facility. It can be the dentist, hygienist, assistant or anyone else in the dental office. The Laser Institute of America (LIA) is the secretariat for the ANSI guidelines including specifics for medical and dental facilities.

Dr. Brewster: Each laser wavelength has specific optical density requirements. Learning this information is part of the educational process. By ANSI guidelines for lasers used for dentistry, everyone in the safety zone must wear safety glasses.

Why is tissue interaction important?

Dr. Brewster: Understanding tissue interaction (chromophores) is at the basis of understanding lasers. Different lasers have different wavelengths, like the visible spectrum, and each wavelength has different attractions to chromophores, just as visible light gives a reflection.

For example, as leaves in the summer reflect green color from the chlorophyll, in the fall, the leaves reflect red and yellow. This is an example of how the wavelength is interacting with different mediums. The wavelength can be used to target specific mediums or the specific tissue we want the laser to interact with. Power settings and frequency can be fine-tuned to make the laser tissue interaction even more specific. Healthy tissue is unaffected when the laser is set-up and used correctly.

What different types of procedures can lasers be used for?

Dr. Brewster: There is a wide spectrum of procedures that can be performed safely with dental lasers, from hard tissue procedures on teeth and bone, to soft tissue in treating non-invasive herpetic lesions, to releasing tongue-tie on infants to provide

This wasn't a scientific podcast, but one that offered plenty of guidance and the opportunity for audience members to learn a bit about dental lasers and also help the ALD gather and distribute information pertaining to state laser regulations.

Here is an edited version of the podcast, which covers diodes, Nd:YAG, CO₂ and Erbium lasers.

Successfully incorporating lasers into a dental practice involves so much more than simply investing in the technology. Dentists must understand how lasers work, what procedures they're best suited for and, probably most importantly, how to use them safely—which includes receiving the proper training and keeping up-to-date on the latest state regulations.

The Academy of Laser Dentistry's (ALD) Regulatory Affairs Committee recently held a panel discussion for the American Association of Dental Boards to address these topics and others. The podcast, recorded in a Q&A format, includes advice from moderator Angie Wallace, RDH, Dr. Keith Brewster and ALD Executive Director Gail Siminovsky.

immediate relief to mother and child. Biopsy procedures for pathology reports are bloodless, often without sutures, and heal much faster than when sutures are used. Treating peri-implantitis shows real promise with specific wavelengths, to the point that the peri-implantitis topic is now an important subject for the AAID (American Academy of Implant Dentistry) and at several universities.

Lasers can be used in daily practice for improved patient comfort and precision. Lasers reduce the need for injectable anesthetics, and lasers eliminate bleeding because they can coagulate as they work, providing a cleaner more visible field for the dentist—especially when taking impressions or scans for digital dentistry.

We can reduce power settings and increase time between active lasing and follow periodontal needs, such as allowing for fresh bleeding to assist periodontal attachment. We use lasers for treating soft tissue applications such as aphthous ulcers, periodontal procedures, cosmetic procedures, and frenectomy to name a few. Dentists can use lasers for treating hard tissue applications like cavity preparation. Cavity preparation often eliminates the need for anesthetic and the drill. Not always, but a majority of the time. This is becoming more well-received by pediatric dentists, especially.

Wallace: In hygiene, lasers can be used for several things, depending on the State Practice Act. A few that several states allow include:

-Laser Bacterial Reduction, or reducing the bacteria around the normal healthy sulcus to prevent toxins from entering as aerosols.

-Periodontal Therapy, known as Laser Assisted Periodontal Therapy, is used in conjunction with scaling and root planing to aid in the reduction of deeper periodontal pockets by creating an environment that allows healthy tissue to form.

-Using the laser to activate a bleaching solution, herpetic lesions and/or aphthous ulcers; this is an exciting application to help lower the pain often associated with these lesions.

-The newest addition is to use lasers that are considered for Photobiomodulation. You may have heard this called Biostimulation. All of the lasers mentioned have applications that can be used in hygiene. We have seen some wonderful advancement with lasers in hygiene and are excited for our patients and the treatments we can potentially provide. [NOTE: These uses are considered investigational in the USA. Investigational refers to: Any product or device that has not yet received approval or clearance for general use by the U.S. Food and Drug Administration.]

Siminovsky: There are different wavelengths: Diodes, Nd:YAG, CO₂ and Erbium lasers. Specific to the different types of lasers that are available, the U.S. Food and Drug Administration (U.S. FDA) clears devices for marketing, noting indications for use for each device. ALD provides an orientation compilation of U.S. FDA marketing clearances by indications for use and by wavelength, including a checklist for evaluating lasers that we update each year and present during the ALD annual meeting.

What settings should we use for procedures?

Dr. Brewster: Lasers with different wavelengths are better suited for different procedures. The CO₂, for example, may be better suited for oral surgeons or general surgeons because of its precise and clean incisions. CO₂ lasers are also used for thoracic surgery.

Er:YAG wavelength lasers are used in dentistry and are used in ophthalmology for Lasik eye surgery, providing precise improvement to the radial keratotomy surgery. Lasers are used in heart surgery for the precise abatement of the Purkinje fibers in the heart to help control an erratic heartbeat. The surgery is precisely controlled through settings and power, which is why this technology can be used for such a wide spectrum.

Laser settings for hygiene applications are very low and therefore highly selective for the interaction. Hygiene settings leave healthy tissue unaffected because the target is interacting with bacteria and unhealthy tissue.

A Question for You to Consider

If lasers are indicated for use, do they require a level of education that each state considers a requirement to ensure public safety?

What can we say about insurance codes?

Wallace: There aren't any specific codes for lasers. We indicate that a laser may be used as an adjunctive tool in the treatment. The best part is to make our job more precise and often easier. You bill for the procedure that is completed, not the tool used.

Dr. Brewster: The main benefit is an improved procedure, a better healing experience and healthy overall outcome when lasers are used properly and for the right indications.

Siminovsky: Lasers are simply another tool or instrument for use in daily patient care. It's the procedure that is being performed that should be billed, not the apparatus used.

How important is documentation of lasers in patient charts?

Wallace: Correct documentation must be placed into charts and include laser settings, time the laser was used, and post-operative instructions.

Dr. Brewster: Your dental office software should have templates to help accomplish this.

Laser users want to understand what they can or cannot do with lasers. How are lasers different from electrourge or scalpels?

Wallace: Many times doctors think they can do the same procedures with a scalpel or electrourge. The scalpel will not allow the hemostasis to occur and the electrourge causes damage to the tissue, making patient discomfort high.

Dr. Brewster: When using lasers, the collateral damage to adjacent tissue is greatly reduced. Healing is quicker and less painful when the wavelength and settings used are best suited for the procedure.

Should lasers be considered different than any other tool a dental hygienist can use?

Wallace: There used to be a procedure called curettage that is no longer an accepted dental hygiene procedure in periodontal literature. This is because we had no way of knowing if we were "cutting" healthy tissue or leaving diseased tissue behind in the periodontal pocket. This is where the laser is ideal for affecting the diseased tissue while leaving the healthy tissue unaffected.

Dr. Brewster: Let's refer to the wavelength and settings for the procedure and how you can optimize the laser to take advantage of its properties to get the

outcome desired. All lasers are not the same and your knowledge and experience will enhance outcomes. The manuals provided with each laser are a good starting point. Manufacturer training is a good thing. You should not just start using a laser without an understanding of the science and properties of tissue interaction to get the most desired outcomes.

Is special training needed?

Wallace: The Academy of Laser Dentistry doesn't sell lasers, but we do provide education. This is to help dentists and hygienists better understand what they are doing with the lasers so the patient and dental teams are safe.

Dr. Brewster: Manufacturers provide operational guidelines and owner manuals for basic knowledge. The science and knowledge of the wavelengths are taught by the ALD.

Siminovsky: The ALD is committed to oral health through laser technology. That's our mission. When the ALD was formed by researchers, academicians and clinical dentists almost 25 years ago, one defined need was to develop and offer continuing education and certification courses where dental professionals could voluntarily demonstrate their knowledge. The founders felt an understanding through an independent program based in sound science is what dentistry needed. They knew it would take a long time for this technology to be fully embraced by the profession.

ALD developed a dental laser certification program following the *Curriculum Guidelines and Standards for Dental Laser Education*. ALD provides for scientific discussion, presentation and debate at our annual session. Some state regulatory boards cite ALD's program in their regulations, some don't. Regardless, we find additional education, beyond what most manufacturers might provide, is necessary to be a safe laser user. Whether a level of education should be regulated and mandatory is your task to debate.

Dr. Brewster: When I joined the ALD 10 years ago, I found a group that was passionate and willing to mentor new users, sharing knowledge and experience openly. They did not endorse a laser manufacturer; rather they helped me understand the laser I had by teaching me the benefits and limitations for each wavelength. Through what I learned attending ALD sessions, I had a better understanding of tissue interaction for each laser. I have 6 wavelengths including the Velscope, which helps differentiate possible cancerous cells through fluorescence.

What are states doing with hygiene use of lasers?

Wallace: Each state has the opportunity to regulate their own State Practice Act (SPA) and Scope of Practice, deciding about laser use by doctors and hygienists using lasers under their license. The main concern is that lasers are not just picked up and used without some knowledge of the tool.

Siminovsky: Several state dental boards have asked the ALD to help them better understand lasers prior to setting up regulations that would help their constituents to ensure public safety. Our association is ready to assist any regulator that has questions and seeks to better understand laser technology and its uses in dentistry.

Dr. Brewster: ALD is an unbiased, scientific organization and does not endorse one company over another. Our goals are to promote education and to share experience and knowledge amongst our profession.

Is regulation needed for dentists and hygienists?

Wallace: It is up to each state to determine what their Practice Act consists of and what is necessary to ensure safety. ALD stands ready to assist as needed. States like Nevada, Arizona and Wisconsin have regulations stipulating CE requirements for re-licensure. Some state regulations don't address this topic, while others do with sometimes inaccurate information about safe laser use.

Dr. Brewster: When the Texas State Board of Dental Examiners was discussing this topic, I went to all three public board hearings and spoke on the need for education beyond what most manufacturers provide for clinicians. Some include the education with the laser purchase, as was my experience with my first laser and what got me started with ALD. But not all clinicians take advantage of the manufacturer training, which is difficult to believe, but true from my experience talking with fellow clinicians.

The percentage of participation in free, voluntary, hands-on training is not what it should be. The Texas Board decided to require 8 hours of lecture on science and tissue interaction with 4 hours of hands-on clinical simulation on pig jaws to provide a tactile experience with tissue interaction. During simulation exercises, we demonstrate how power settings and frequency make a difference in results.

ALD gets a lot of questions about state regulations. We understand it's up to each state to decide whether to address this topic. What is ALD doing to answer the questions we receive?

Wallace: Right now questions are sent to ALD's Regulatory Affairs Committee, which Dr. Brewster and I are co-chairs of. Since ALD is fielding many questions primarily by hygienists, we have created a report that links to each state's dental practice licensure regulations. The report notes if lasers are addressed, what the regulations might say about lasers, if anything, and where in their SPA this information can be found. We hope to collaborate with each state to provide this information in an easy and informative way.

Dr. Brewster: It's up to each state to define the scope of practice for dentists and hygienists. We are not here to make regulations; we are here to provide information to help you make your decisions.

Wallace: We at ALD are indeed looking to states to help us provide their interpretation of their rules. This is where we need your help. We'd provide the information we have already gathered to you, perhaps a designated state board member would look over your state's data and email us to let us know if we have interpreted your regulations correctly before we post them on our website.

Some states have information, some don't. If we can work together to provide accurate information, all our members and constituents will be served well. We'd also ask you to put us on your email lists. We would like to be informed about any updates you make to laser regulations. This will help us all keep current.

Siminovsky: ALD's website currently includes links to each state's dental practice act. We know this information is fluid and needs constant updating as new changes occur.

Wallace: Feel free to contact us if you find your board beginning to address these and other laser questions. There's a lot more we can answer.

Are there any closing thoughts?

Siminovsky: Change is hard, change is good, and change makes folks uneasy. Technology is moving faster than we can appreciate and faster than we might like. It's all over our society. I was recently in a lecture about artificial intelligence and learned how Google is making amazing strides in this arena. Look at the way Uber has changed transportation—we will soon have driverless cars taking us places. How do dental lasers fit? For all of us, how we address change is the question. Lasers and dentistry is one aspect of change that's here whether we like it or not. How do we address and embrace change? Change is really the only constant in life. I say let's do it together.

More question for the ALD?

If you have questions about laser dentistry or can help your state board make state regulation updates, don't hesitate to contact the ALD. You can email Gail Siminovsky at siminovsky@laserdentistry.org.

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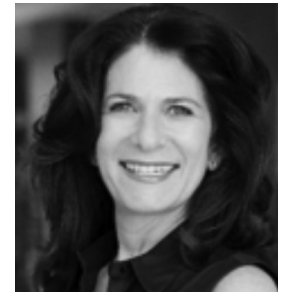
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Angie has been a clinical hygienist for more than 30 years. She is co-chair of the Academy of Laser Dentistry's Regulatory Affairs Committee. You can reach her at Angie@Laserrdh.com.



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Dr. Brewster holds Standard Proficiency certification in both Er:YAG and Nd:YAG laser wavelengths and achieved ALD Fellowship. Dr. Brewster serves on the ALD Board of Directors and as co-chair of Regulatory Affairs, and previously of ALD's Laser Safety Committee. You can reach him at drkbrewster@sbcglobal.net



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Gail is a leadership professional as executive director of the Academy of Laser Dentistry (ALD). Gail serves the ALD Board as an advisor. She has 18 years in leadership and 28 years in marketing, public relations, educational program development and business. You can reach her at siminovsky@laserdentistry.org.