

How To Buy Lasers -

for Medical/Surgical/Aesthetic/Dental/Veterinary/Photobiomodulation applications

Gregory Absten, Bsc Allied Medicine, MBA Management
Executive Director of Professional Medical Education Assn & The Laser Training Institute
May 2021



Hi - I'm Gregory Absten, I've put together this guide to buying lasers to help those that are just entering the field and confused by the diversity of claims and myriad of configurations of Laser and Light Based devices such as IPL's and LED's. I'm not going to tell you which products to buy from which company, because the truth of the matter is that most of them are good. They might operate a little differently but you get used to what you buy. What I want to tell you here is how to think through this process of evaluation of BOTH the devices AND the companies that sell and support them. We'll discuss options on both new and used equipment, some of the support commitments that you should request from the companies, and some federal regulations that require certain information provided to you up front.

I do know a bit about this area of purchasing medical laser systems, so it's helpful to give you a little of my background. My undergraduate degree is in Allied Medicine from the Ohio State University College of Medicine. I worked for a while running a hospital Respiratory Therapy department and specialized in Critical Care. At the same time that I was doing this in the mid 70's I became fascinated with lasers and what could be done with them in medicine. I had already started the nonprofit Professional Medical Education Assn to teach critical care medicine topics around the U.S., but now I started to build lasers at home in my basement to learn about them. I was completing a Masters in Business Administration degree and decided to do my management thesis on the medical laser industry – the technical side, medical side and business sides. In a few years, exploring medical laser options, I quit my job at the hospital and started to work for a laser distributor – first as a technician since I could build and fix lasers, and then in sales so I could make more money. We distributed for Sharplan at the time – an Israeli manufacturer that I still have much respect for. I could be mistaken, but I believe that I was their highest performing salesperson in the U.S. for a while. I didn't just sell the equipment. I helped clients learn and employ these devices in the best way for them and their patients. Sort of a "missionary" salesperson. Selling new equipment, one of the things that I did NOT do was to discount prices. In fact, I generally charged higher than retail prices and when asked why I wouldn't come down on price my response was always the support that I would provide them. If I didn't charge higher then I couldn't afford to stay with them long term to help them be successful, and I did exactly that. You can ask the same from companies selling you equipment now.

I have been involved in the medical laser industry now for over 43 years. I am one of the sitting members of the American National Standards Institute (ANSI) Z136.3 committee for the safe use of lasers in health care facilities. I have served on the Board of Directors for the American Society for Laser Medicine and Surgery (ASLMS) and served in various roles as faculty and on committees, and our nonprofit organization continues to provide the nursing accreditation of training programs provided through the ASLMS. I've served as a consultant to a myriad of hospitals and universities in establishing their laser programs. I'm offering this background just in case some groups think that what I have to say here might be controversial. I just want you to know that there is reason for it.

OK – lets get started talking about what you came here for, how to choose laser equipment. I'll just use the word "medical lasers" but that really applies to any FDA¹ approved laser that might be used.

I first want to separate out the different areas where medical lasers may be used. These entail:

1. Medical – as in a physician's office doing actual medical procedures (not aesthetic)
2. Surgical – generally in hospitals in surgery, endoscopy and ophthalmic clinics
3. Aesthetic/Cosmetic – used for "make me look better" types of procedures by physicians and nonphysicians, such as laser hair removal, skin rejuvenation, etc..
4. Dental – lasers that are used for hard and soft dental tissues in a Dentist's office
5. Photobiomodulation – previously called Low Level Laser Therapy and used for things such as wound healing, relief of chronic pain, etc..

Regardless of which field you're in, the process of informed purchasing of laser equipment always starts the same. LEARN about the principles in your area of practice BEFORE you purchase the equipment. Even though the manufacturers supply some excellent training, I would not use that as my introduction to lasers. For understandable reasons your training will be highly biased toward whatever equipment that they're selling. I remember being admonished by my boss when I sold Sharplan lasers because I would try to educate the doctors and hospitals I was working with about "other" laser devices and the future of lasers. I was told to ONLY sell what was in my bag and not confuse or distract customers with other ideas and growing developments. Stay focused on what you're selling they told me. However, my openness and honesty with them created a degree of trust and reliance on me that always returned to me in the end. When I left that company and continued to teach laser principles through our nonprofit organization, I was sued by them (Distributor, not Sharplan) for a lot of money and to cease and desist. It had nothing to do with any contractual obligations I had. At the time the only source of training was from the companies, and I was just told point blank that if customers could learn about lasers from our nonprofit organization, then they didn't need to rely on the company and they would lose sales. I fought that lawsuit and won.

I think you should receive your first training through educational groups like us, or other individuals and groups that are not associated directly with laser sales, such as the American Society for Laser Medicine and Surgery. However, what you have to be mindful of is that some groups that claim to be "independent" are taking money under the table from laser manufacturers. I saw that frequently when I sold lasers and it still occurs. I have taught openly for laser companies in the past but it was all above-board and clients knew that I was being paid by the company to train them. That was most notably Coherent Laser and Surgilase, but others were involved too. That was all in the open. Look for reputation and credibility. These initial training courses can be done online or in short seminars to learn the basics of what you want. They usually don't teach specific "push-button" operation of the devices because that's not how you start to learn. You learn the principles of achieving your end result, and how wavelengths, pulse times and energy delivered effect your result. Yes, you finally have to get to the point of "pushing the buttons" to run a laser but that is a separate process. A Chevy might have different operating controls in different positions than on a Ford, but when you learn to drive you learn the same things for each to drive safely on the road. The same with lasers. Learn the principles first and then get to the push buttons later. Manufacturers rightfully want to show off their equipment and show features that make it better than the competition. Many times, they do this by the way that they label their

¹ U.S. Food and Drug Administration – that approves medical devices. Although a U.S. based entity FDA guidelines are usually accepted in other countries.

buttons and controls to make it appear different from the competition, but mostly (not always) they work exactly the same. IPL's (Intense Pulsed Light) devices have even more variations in their configurations than lasers, and some platforms incorporate a variety of laser and IPL heads on the same device.

Once you've had basic laser training then you're in a much better position to interpret the sales approach by the various companies. Most have excellent equipment, but is it the best for YOU? - considering differences in patient populations, specific procedures that you want to perform, and how affordable this will be considering initial capital costs and then possible ongoing costs in disposables, and then the cost of service. We'll address that.

Once you've had this basic but importantly impartial training, then start talking to the companies about what type of training that is specific to their device that they're willing to provide to you. Most have very good training programs. One of the things that I'd suggest is that if the company does provide training for you, that they provide the Certificate of Training that has the ACTUAL HOURS of training printed on them that was involved. That's important because if you wish to obtain one of the actual Laser Certifications² (mostly optional but in some States becoming mandatory for licensing), then you'll need that Certificate with the hours on it. Companies that sell equipment generally cannot get accreditation for their training (even though very good) because of the conflict of interest with sales. Many of these companies then believe that they cannot list the hours on the Certificate since they are not accredited. That is not true. You can still list the hours on it but you don't claim that it is accredited by someone. It's also possible to request a letter on letterhead from the company that states the hours associated with the Certificate, but it would be easier just to put it there to begin with.

If you decide to purchase good used equipment then there are still sources for continued clinical training. The ASLMS offers preceptorship programs, our nonprofit group does in office training for new users, and a variety of other "proctors" around the country are willing to bring people in for clinical work.

One of the best places to start your "shopping experience" is the annual scientific meeting of the American Society for Laser Medicine and Surgery³, held in the spring of each year. There are both new and used laser vendors there. I served as the Exhibits Chairman for the ASLMS for over 15 years and had the privilege of working with these companies. You won't find a better collection of laser and related equipment like this anywhere in the world. Some people register for that annual meeting for one day only for the cost of just an exhibits pass, which is less money than registration for the full meeting. I'd encourage you to attend the entire thing, but if you have just one day and want to see equipment, then ASLMS is the place to do that.

You should have had your basic laser training before going to such an exhibit so that it makes a bit more sense as you talk to each company. I know that this must be a terribly confusing experience for new buyers, and I don't mean this in any negative way but bouncing from one booth to the next can be like walking a gauntlet, with each company persuading you that their equipment is absolutely the best for everything that you want to do. Just slow down a bit. There is a little truth in everything but the trick is to discern what is solid and what is marginal.

² See the National Council on Laser Certification (NCLC) for Certifications for Medical Laser Safety Officers, Laser Hair Removal Specialists, Aesthetic Laser Operators, or Laser Repair Technicians. Go to <https://LaserCertification.org> for info. For a variant of the NCLC's original Laser Safety Officer Certification see the Board of Laser Safety (BLS). Go to <https://LaserSafety.org>.

³ Go to <https://aslms.org> for information. We'd also encourage you to seek membership – both physicians and nonphysicians.

This is where you must know exactly what you want to achieve and on what types of patients. The Aesthetic/Cosmetic practices get the most complicated in this regard because there are so many types of procedures on patients with all skin types and ethnicities. Keep in mind that just because one piece of equipment has the capability of doing many things, it doesn't mean that they do them all well, or even that it's a good idea to try some of them at all. A simple example would be those wanting to do laser hair removal on clients of all skin types. There really is no one machine that can do all skin types safely and effectively. Many people in this situation would opt for both a Nd:Yag and an Alexandrite laser. Diodes at around 810nm are another option to treat both light and somewhat dark skin, but they won't treat everything. Companies promote their IPL's for treating very dark and even black skin, but I think that this is a terrible idea and dangerous for those patients. Trying to remove Tattoos with an IPL is a BAD IDEA. Sure, it's technically possible, and a few expert physicians could manage that. For most of us other "normal" people that's an accident waiting to happen. Just because they say that they're approved for it doesn't make it a good idea. Use your initial training to discern claims and make informed judgements about what is reasonable, and what will keep you out of trouble treatment safety wise.

We had one female anesthesiologist from Haiti come to one of our aesthetic laser classes in Ohio a few years back. She had already purchased a laser from the U.K. that I think she got for under \$5,000. She didn't know what kind of laser it was but started telling me all of the things that it could do. It could do hair removal on any skin type, laser skin resurfacing (not just rejuvenation). It could take out brown pigmented spots and red vascular lesions, and could even do tattoo removal. WOW! I had no idea of what type of device could do all of that. Those of you that have laser experience will appreciate this. She had her office fax in the brochure for the device and it was an 810nm diode laser delivered through a bare fiber (not even handpiece) and was a continuous wave output and not even pulsed! For those of you with no laser experience it is not possible for that laser to do the things they said it could. This is why it's best to get some training prior to buying any equipment. That was \$5K just down the drain. We felt badly for her so hooked her up with a credible used laser person who got her a used millisecond pulsed Nd:Yag to do most of the things she wanted and shipped it to Haiti.

One of the best places to "laser shop" from one place is on our <https://LaserTraining.org> website. Go to the "Resources and Links" tab on the left side, and when on that page choose the "Laser Links" tab to view medical laser related companies. Take the page with a grain of salt however. The listing of all of those companies comes through my experience as Exhibits Chairman at the ASLMS for all of those years. Every year I still look through the list of Exhibitors and try to update the page on our website, but we make no effort to keep it monitored or current. We take no money for advertising from anyone listed and instead do this as a public service. For that reason you may find listings that are out of date or even closed. There certainly could be other companies that are not listed there. If you see things that are incorrect, just email us and we'll try to correct those. If you are a laser manufacturer and are not listed, then contact us and we'll be glad to list you at no charge.

The Aesthetic/Cosmetic lasers have many overlapping applications, but a simplistic list is Alexandrite for hair removal on light skin, pulsed Nd:Yag for hair removal on dark skin. CO₂, Er:Yag and YSGG lasers for fractional and other skin resurfacing. KTP lasers for brown spots and Pulsed Dye Yellow lasers for red vascular, plus many more. Intense Pulsed Light (IPL) has MANY variations of heads and filters for various uses. These are the things you learn in a basic class.

Surgical lasers are a bit more straightforward than all the combinations that you see with Aesthetic/Cosmetic. A surgical laser is usually designed for a specific use. Those include the ubiquitous CO₂ lasers for cutting and

ablating, Ho:Yag lasers for urinary calculi and sometimes arthroscopy or spinal surgery. Green light KTP lasers for prostate work and laparoscopies, and Nd:Yag lasers for endoscopic applications including hot tip fibers for precise cutting and ablating. Ophthalmic lasers are used for retinal coagulation with argon and krypton lasers. Q-Switched Nd:Yag lasers perform posterior capsulotomies, excimer lasers the corneal lasik procedure, and some very sophisticated femtosecond lasers for precise ophthalmic work.

Dental lasers mirror many of the surgical ones, but are constructed slightly differently to account for the irrigation and sprays needed during those procedures. They include things like diode lasers for soft tissue work, or various Er:YSGG lasers for hard tissues. Dentistry is also seeing increased use of Photobiomodulation with Class IIIb and Class IV lasers for wound healing and the like.

The entire area of PhotoBioModulation (PBM, and previously called Low Level Laser Therapy) is a very promising field using light to reduce or eliminate chronic pain, speed wound healing and even grow your hair faster. There is significant competition in this field. The devices are fairly straightforward but because of the competition you see each manufacturers device labeled (control buttons and settings) in highly proprietary ways that make it difficult to compare one with another. They all work. If you're interested in this area, you should look at attending the North American Association for Laser Therapy (NAALT) meetings⁴.

OK – back on track now on what to request (and sometimes require) from a laser manufacturer/distributor. You've already had your initial laser training that was impartial from any company. You've started looking at devices and comparing prices and level of support. Now we're getting down to specifics.

First just a general discussion of buying new versus used equipment. Both routes can work. The big advantage of buying new equipment from a company is all of the support that they (potentially) can provide to you – just like I used to do selling new equipment back in the 80's. Make sure the laser itself meets your needs first. Don't be too distracted by ringers/bells/applications that are not important to you. What you want is support – in terms of additional training, warranty on your equipment, viable options for continued service, marketing support, and detailed information via both operating and service manuals (whether or not you intend to do your own service – get the manuals). The big advantage of buying new equipment is that you can get all of this support that might be difficult to obtain when you buy a used laser. The time to ask for it is up front before you purchase. You're not likely to get much additional if you ask after the fact. Don't be misled though in thinking that you must have the "latest" in laser equipment to have something good. Unless they have changed some modality in their device capability, a new laser works just like an older one. I've heard this argument offered by salespeople many times, that the customer should get the newest in order to stay up to date. Sometimes this is true, but often as not it just means that it does exactly the same things but has differently colored ringers and bells.

The big advantage in buying used equipment is the MONEY saved. There is a huge supply of good used lasers out there. The reason that more people don't do this is the insecurity they feel about used equipment (like a used car). It might get your attention though if the same laser were available to you for \$15,000 used, but \$125,000 new. That gets my attention. When I was the Exhibits Manager for the ASLMS annual meetings, I had one manufacturer very irate and asking me to throw out another exhibitor from the meeting. The company with the new laser was selling it for about \$190,000. The used equipment person had EXACTLY the same equipment and was selling it for \$45,000. It even looked brand new. I explained to the manufacture that the used company had paid for their booth the same as the manufacturer did, and was doing nothing wrong because they owned the equipment and could sell it if they wanted. Salespeople from manufacturers compete against the used

⁴ Go to <https://NAALT.org> for information.

equipment by planting seeds of fear and insecurity about the used equipment. This is usually nonsense. There are plenty of independent service agents out there who can assess equipment for you and even fix it if it goes down. This is going to lead us into the service discussion which we'll do right now.

New equipment comes with a warranty which is good. Sometimes you can negotiate an extended warranty period. If you or an independent service agent did work on the laser during this period it could void the warranty so don't do that. Once the warranty is up though you should be able to get continued service at fair prices. You can either buy service agreements that essentially keep extending the warranty, or you can pay as you go with individual service calls. Both manufacturers, distributors and independent service agents can do this. You can also train your own people to do the "bread and butter" service on lasers to keep costs under control.

If you buy a used laser you should be able to just call up the manufacturer and request pay as you go service on it as needed. Many times, this is not the way it works. Some laser companies will do this for you, and I believe that's the way it should be. Just because you buy a used Ford car doesn't mean that Ford won't service it – just pay them. They can and do, and also independent mechanics. It makes no difference. Here though I must call out a practice that is quite deceptive. Some manufacturers who have been called to provide service on used lasers have put up a smoke and mirrors curtain about how they can't do any work on that laser until it is "recertified" by them. The implication is that there is some federal requirement to do this, and that is not true. Anyone that wants more details on this can contact me and I'll provide another article about it. You just paid \$15,000 to get a used laser. When you speak to the manufacturer, they then tell you that it will be \$40 or \$45,000 to get it "recertified", and that doesn't even include the cost of the service! They'll bill extra for the service. This is wrong. I do understand the business problem of losing revenue from new laser sales because of the used laser markets. The companies have to make money to stay open somehow. My preference would be to just have them say straight out that since you bought used equipment from someone else, that the company doesn't have as much financial support to keep their services running and therefore has to charge you a high initial fee in order for them to keep offering service. I wouldn't like that but at least it's honest. Your other option is to get good service from an independent laser service provider. There must be 30+ of them around the U.S., and our own nonprofit organization runs quarterly workshops on laser repair and maintenance.

What I'd like to see that would help both the manufacturers and the customers, is for the potential customer to call the manufacturer in advance of any purchase and ask them about reasonable terms that they could buy for service support on used equipment. It also gives the manufacturer the opportunity to sell them their own used devices if they have them. If there is nothing reasonably offered then turn to any of the independents.

OK ... back to buying a laser. Here's my version of the list I'd request (preferably require) from the manufacturer or used broker. The manufacturer has the best ability to meet all of these if they are willing. If you seek bids from multiple manufacturers then your chances go up of getting what you want.

1. Price quote on the laser and specifying exactly which attachments/heads/accessories are included. Have them include an adequate number of laser safety glasses and laser door signs (current ones, not the old ones many have been distributing)
2. Shipping and installation included in the price
3. Assistance with registration of the lasers in the few States that require that (i.e. FL, AZ, TX, etc)
4. Full disclosure of what disposables and total operating costs might be, including fibers.
5. Complete Operating Manual

6. Complete Service Manual⁵
7. Minimum of 1 year full warranty, and preferably 2
8. Quote on laser service after the warranty expires, with options for service agreements or pay as you go service. This must include a written preventative maintenance schedule made available at time of purchase. Know all of this before you commit to a purchase.
9. Agreement to provide any service or access codes, software or access dongles for laser service for the life of the laser. If they won't provide it then look for another company.
10. Agreement to sell you any and all parts needed for the laser as long as the manufacturer still has access to those parts (obsolescence excepted)
11. Included training for your staff and physicians
12. Preceptorships for physicians for surgical laser use, from qualified preceptors
13. Quote for training for additional staff and physicians after initial training.
14. Marketing and Sales materials and services for your laser practice (if available from mfg). Assess the value of services that each manufacturer can provide to you to help you be successful in your laser practice
15. If you're buying an aesthetic laser, then perform a test shot of the beam mode structure on zap-it paper, and compare one laser to another at the same low settings to see the most uniform beam distribution.
16. In an aesthetic practice, assistance from the mfg in determining what the requirements are for licensing in the few states that require that for nonphysicians.

Competition in medical laser sales is pretty high, but there are a couple of opposing viewpoints on how to handle this. There are those that believe that you must tightly control and restrict things around you in order to ward off competition and be successful. Divide and Conquer. On the other hand there are those that believe that "what goes around comes around". By being open with people and offering all the help you can, I believe that this gets you further ahead personally. Sure, there are times when you're taken advantage of and get the short end of the stick, but in the balance, I think life is much better and successful this way.

Translating philosophy into practice, I'd like to encourage laser manufacturers to take some cooperative steps to make this industry better for everyone, and I'd be glad to help in any way I can.

1. Ensure that your customers receive adequate training on your devices – whether you provide that or channel them into proper courses. Don't "make do" with inadequate training because it's cheap. People get hurt that way. I've seen people get only an hour of an "in-service" on an aesthetic laser, when they've had no previous training whatsoever. This is an accident waiting to happen.
2. Look at starting a publicly available documents library of both operating and service manuals, and also any specific protocols that you might have. This would be VERY helpful to all of your customers, and its federal law to make those available anyway. Why not let a group like the ASLMS, the CDRH of the FDA or other nonprofit organization collect and compile all of these for you so that they are available to the general public? Helps them and you meet the Federal Law.
3. Please make available in writing, the exact Nominal Hazard Zones of your laser(s) in the various specific configurations. ANSI allows that for the facility LSO to set hazard zones and the requirement for safety glasses. A Ho:Yag laser is a perfect example. They have VERY SMALL NHZ's and people really don't need

⁵ Federal law REQUIRES manufacturers or distributors to provide the FULL & COMPLETE SERVICE manual upon request, at the reasonable cost of reproductions. The ANSI Z136.3 standards reinforce this federal requirement. Go to this page for more specific information: <https://www.lasertraining.org/CFRs-Service.html>

to wear any glasses at all. It would make it so much better for your clients if you'd just give them that exact NHZ in writing. You had to do that for the FDA in order to get your 510K approvals anyway, so why not share it? This could be done in a similar way to the other manuals.

4. For those manufacturers that will not provide service support nor training on their devices that were bought as used equipment from someone else, please reconsider your position. You can still charge a fair fee and make a profit from service and education. The fact that you're so supportive of your equipment might also mean that the word gets around on how reliable you are..... and what goes around comes around. The more you give the more you'll receive back. The entire industry prospers. A rising tide floats all boats.
5. Consider agreeing on standard nomenclature for labeling of your laser controls. I understand the marketing aspects of attractive "branding" names on controls, but it creates a lot of confusion in the industry for new users. You could still use the branding in the naming of your devices of course, but giving the controls standardized names would help encourage laser use overall in the industry, and eventually helps everyone. A defacto industry committee could be formed for these kinds of "common interests" of manufacturers. It also makes training easier and more consistent because we all know what we're referring to on laser devices.

I certainly have not covered all bases here on buying lasers, but I think I've hit the main points and how to go about the process. You're welcome to email or call me with any questions or comments.

Gregory Absten, Professional Medical Education Assn – The Laser Training Institute
3142 Broadway, Stes 200-201, Grove City, OH 43123 , USA

Absten@LaserTraining.org, <https://LaserTraining.org> , <https://LaserCertification.org>

Tel 614.883.1739