Question No. 1: Why would I as a physician choose to wait for a LensAR Laser System?

Being first to the market does not mean the platform is necessarily the best, and the goal of LensAR is to bring a quality product to the market that represents a significant step forward in refractive cataract surgery, enhancing patient outcomes and exceeding surgeon expectations. LensAR received several US Food and Drug Administration (FDA) indications for approval early on, but we felt that we needed to take our time coming to market, as we wanted to make several changes to improve upon the existing system, bringing a next-generation product to market even if it takes a bit longer.

Our system will be worth the wait for three reasons. First, LensAR was originally founded to create a treatment for presbyopia that was unique in approach as compared to other research and technology. We have studied the crystalline lens and are the only company to have performed human clinical trials where the lens is softened with the laser to restore accommodation. Therefore, our proprietary imaging system was designed specifically to work in the lens and anterior segment, integrated with the laser. The LensAR system takes precise measurements of all ocular surfaces, from the anterior surface of the cornea to the posterior surface of the lens capsule, automatically by scanning the eye in a single image without stitching images like current optical coherence tomography (OCT)-based laser systems. From these images, the high signal to low noise allows software to automatically locate and measure all of the surfaces, and wave tracing creates a 3-D reconstruction based on the patient’s actual ocular biometry. The LensAR Laser System will give the surgeon ultimate control and choice without manual intervention in locating cursors where they want to treat. Additionally, the system gives the surgeon the automatic choice to locate the capsulorrhexis on the optical axis, the center of the pupil, or the center of cornea. The system measures lens tilt and decentration in a true 3-D plane and automatically adjusts the treatment patterns for the capsulorrhexis as well as the fragmentation to accommodate for this tilt. The touchscreen monitor identifies and shows this to the surgeon prior to treatment, giving the surgeon complete control.

The second benefit of the LensAR Laser System is the noncorneal contact liquid patient interface device that is filled with balanced salt solution. This two-piece device (the surgeon places the suction ring on the patient’s eye and docks the laser) eliminates corneal compression and corneal folds without significantly increasing intraocular pressure. Additionally, there is no visual blackout, providing the surgeon with a wide treatment and visualization zone. The noncontact interface provides more accurate beam placement in the capsulorrhexis and fragmentation as well as corneal incisions due to the lack of corneal folds.

The third benefit is in the ergonomics of the system, which are unique as well. The head of the laser moves up, over, and down via joystick and is deployed to the patient instead having to move the patient’s head to the laser. The laser was designed to accommodate a variety of environments in the surgical suite or procedure room, and the laser head can be moved in order to swing in the operating scope, avoiding excessive movement of the patient to complete the procedure.

Question No. 2: How is LensAR’s imaging software different from the software of other femtosecond lasers on the market?

Unlike the OCT-based imaging technology of other laser systems, LensAR uses a proprietary imaging system to locate and measure all ocular structures from the
front surface of the cornea to the posterior surface of the capsule. LensAR designed the imaging specifically for these laser applications and is integrated as a part of the design from the start. This system, called 3-D confocal structured illumination (CSI), is designed to provide high-contrast and high-resolution imaging of the lens and lens capsule for greater surgical accuracy and efficiency in treatment. Our goal is to enhance patient outcomes and efficiency by automating many of the manual steps and giving the surgeon total control over the treatment plan.

With 3D-CSI imaging, the scan rate is varied to create high resolution with depth of field over the entire image and all ocular surfaces. Because of this, we can provide accurate biometric values automatically and the 3-D reconstruction is created to show the surgeon precisely and clearly what the treatment will look like. Because the laser does not use OCT imaging, many surgeons early on thought the imaging system used Scheimpflug technology. The LensAR imaging system does use a Scheimpflug principle infrared camera set on a 30º angle; however, how the system functions from there and the interaction with the software, imaging, measurements, and 3-D reconstruction is unique to LensAR.

Question No 3: How do I make this technology work in my practice, and how can I make it profitable?

There are still many considerations, including how to bill for this procedure, that have yet to be clearly defined. Currently, surgeons can charge an additional fee for laser cataract surgery if it includes some type of astigmatism treatment. We expect that the opportunity to treat astigmatism with the LensAR Laser System will be extremely significant, particularly when implanting premium IOLs or when a multifocal IOL patient wants distance BCVA without spectacle correction. The treatment of even moderate degrees of cylinder will have a big effect on the long-term quality of vision. Currently, the presbyopia-correcting lenses available in the United States do not correct cylinder. Lower degrees of cylinder are treated in LASIK to achieve spectacle independence, and it will evolve this way with cataract surgery as well. As surgeons get more comfortable with this technology and the technology continues to improve, laser cataract surgery will represent a huge opportunity for both patients and physicians—for patients safety and outcomes, and for surgeons to create a highly reproducible and predictable surgery designed to help improve outcomes and treatment in higher grade cataracts with enhanced safety.

The next area that is significant to mention to the surgeon is the ability to accurately size, shape, and place the capsulorrhexis with the LensAR. One of the biggest challenges of cataract surgery with premium IOLs is to avoid tilt and decentration of the lens. The ability of our laser to precisely shape, size, and place the capsulorrhexis in order to provide better effective lens position and less decentration and tilt of the premium IOL leads to better outcomes—outcomes that the patient expects and is paying for in this surgery. We expect that surgeons will be able to use the LensAR for their premium IOL patients and that this technology will help give them the confidence to offer these lenses to a wider range of patients over time.

We are committed to partnering with practices that adopt our laser technology to establish practice objectives and can help to customize how they can integrate the LensAR Laser System into their practice through a more flexible business model.

LENSX LASER SYSTEM
Alcon Laboratories, Inc.
By Seba Leoni, Vice President and Global Franchise Head, Cataract

Question No. 1: How is the LenSx Laser System utilized for cataract surgery?

The LenSx laser is designed to bring the precision of a femtosecond laser to refractive cataract surgery. With a growing body of clinical data validated and published in peer-reviewed literature, the LenSx laser has demonstrated accuracy and predictability, as it replaces many of the manually executed steps in cataract surgery. This level of precision contributes to the efficacy of advanced technology IOLs by addressing crucial factors such as lens centration. Arcuate incisions may also be performed at the time of lens replacement surgery to completely meet the refractive goals of the patient.

Question No. 2: Why should I choose the LenSx Laser System over other lasers now entering the market?

The LenSx laser is the product of the most successful legacy in femtosecond laser technology. It is the first to market globally, and its technology has rapidly advanced based upon actual commercial clinical feedback. All components are proprietary and designed in-house to further facilitate rapid innovation.

As the world leader in ophthalmic surgery, Alcon chose to invest early during the development of laser cataract surgery and selected LenSx technology as the most robust and predictable platform to complement its existing and future product portfolio. The Alcon legacy of product innovation, commitment to excellence, and exceptional customer support enable surgeons to consistently deliver the most compelling surgical advancements to patients worldwide.
Question No. 3: Is the LenSx Laser System available in Europe?

The LenSx laser is not only readily available in Europe, but it has now been established globally, with more than 8,000 procedures completed in 20 countries across North, Central, and South America, Asia, Europe, and Australia. We expect to continue this rapid commercialization throughout 2012 as we continue to innovate this tremendous platform technology.

Question No. 1: What makes the Catalys Precision Laser System different from the other lasers designed for laser cataract surgery?

Catalys is the culmination of an intense, years-long effort by OptiMedica to bring the precision and safety benefits of a femtosecond laser to cataract surgery. Working closely with our medical advisory board of cataract experts from around the world, we committed ourselves to developing a system that delivers precision at every step and leaves nothing to chance. These efforts have produced a next-generation system that offers unmatched precision and accuracy and also a greatly streamlined workflow. Surgeons who have used Catalys tell us that it is the future of cataract surgery.

Question No. 2: What can surgeons and patients expect from the Catalys system?

The precision and accuracy gains made possible with Catalys are currently unmatched in the industry, and this is obviously of great benefit to both surgeons and patients. Results of our clinical study have demonstrated that Catalys produces capsulotomies that are within 30 µm of intended size and 80 µm of intended center, with near perfect circularity.1 Additionally, laser lens fragmentation with this femtosecond laser has also been shown to greatly improve the ease of lens disassembly, reducing cumulative dissipated energy (CDE) during ultrasound phacoemulsification by approximately 40%.2

Catalys also offers an exceptional user experience. From an integrated ergonomic bed with a custom headrest to the system’s unique Liquid Optics patient interface to template-based preoperative planning software, Catalys ensures a stable and comfortable experience for the patient and limits the patient’s time under the dock. The average case time with Catalys is just 3 minutes (from patient docking to undocking).

Question No. 3: How do I fit Catalys into the practice workflow?

OptiMedica designed Catalys not only for unparalleled precision but also for easy integration into practice workflow. Part of our development team included a medical staff advisory board of nurses, technicians, and ambulatory surgery center (ASC) administrators who provided practical input to ensure the technology’s successful adoption.

We know that workflow varies among centers, and potentially from surgeon to surgeon within the same center, and Catalys is designed to be versatile to fit these various needs. For example, some surgeons might prefer to perform a laser procedure followed by immediate lens removal and IOL implantation. Others might prefer to perform several laser procedures in a row and then move to the operating room. It will be up to the ASC administrator to decide between a standard workflow for all surgeons or rotating the flow based on surgeon preference.

What we can tell you is that surgeons who have used Catalys tell us they are amazed at how quickly and easily they have been able to incorporate Catalys into their existing workflow.

Question No. 1: What differentiates your femtosecond laser platform from other femtosecond laser platforms on the market?

The Victus Femtosecond Laser Platform is a first-of-its-kind device that uniquely supports cataract, refractive, and therapeutic procedures in one versatile platform. This platform is indicated for creation of the LASIK flap and for performing arcuate incisions, capsulotomy, lens fragmentation, and Intracor procedures.*

Question No. 2: How does your femtosecond laser platform support multiple therapeutic procedures?

A combination of unique features provides the
A Global Femto Network

Introducing the International Society for Laser Cataract Surgery.

BY MARK CHERNY, MD

The laser cataract surgery craze reached Australia in April 2011, when the first femtosecond laser unit capable of cataract surgery was installed in the country. It was only the fourth LensX laser (Alcon Laboratories, Inc.) installed in the world. After watching a laser cataract surgery demonstration at the Asia Pacific Academy of Ophthalmology (APAO) meeting in Sydney a few weeks previous, I immediately realized that this is one of the most significant developments in cataract surgery since phacoemulsification.

The technology has been promoted with much fanfare, but not without rumors of surgical complications. Because laser cataract surgery is a new phenomenon, the majority of cataract surgeons around the world still know little about the technology itself, with many holding strong opinions either for or against its use.

This July, I established a global social network for surgeons to dialogue and share their experiences and opinions about this rapidly evolving technological change. The International Society for Laser Cataract Surgery is a not-for-profit organization with members in more than 30 countries thus far. I see it as not just a platform for those currently using the technology, but also a forum with resources and links for all surgeons, technicians, and industry. Members are free to express their opinions and find others facing similar challenges to network with.

The society’s Web site, lSLS.org, houses regional forums with updates from around the world as well as discussions of the ethical, clinical, technical, and logistical challenges of laser cataract surgery. I hope this organization helps surgeons find their way through this somewhat confusing maze of new opportunity.

Mark Cherny, MD, practices at the Cataract Clinic of Victoria, Australia. Dr. Cherny may be reached at e-mail: markcherny@cataract.com.au; Web: www.cataract.com.au.

Vicrus platform with the versatility to support multiple therapeutic procedures:

A curved patient interface and intelligent pressure sensors. The proprietary curved patient interface monitored by intelligent pressure sensors allows surgeons to closely monitor the vertical and horizontal pressures on the eye. The interface is designed to reduce applanation of the cornea and minimize corneal folds to allow a straight path for the laser, regardless of procedure type. Additionally, the intuitive user interface associated with the intelligent pressure sensors displays a color-sensitive light panel indicating when the eye is optimally positioned for various procedure types.

Fast pulse rates. Multiple laser pulse settings ranging up to 160 kHz allow treatments ranging from therapeutic uses to LASIK flap creation.

Eye stability and monitoring. An adjustable vacuum pump is designed to maintain the necessary suction when the eye is docked, optimizing eye stability across procedure types. Additionally, real-time, high-contrast optical coherence topography (OCT) allows continuous 3-D viewing of the eye during various procedures.

The combination of these features provides the physician with the power and control needed for a highly targeted femtosecond laser treatment uniquely designed to optimize eye stability when the system is used across multiple laser depths and patterns.

Question No. 3: What are the key business factors physicians should know about your femtosecond laser platform?

The Vicrus Femtosecond Laser Platform is the only available femtosecond system to offer surgeons the ability to perform a wide range of applications, ranging from creation of the LASIK flap to arcuate incisions, capsulotomy, and lens fragmentation. The Vicrus platform can also perform Intracor procedures.

We are working with industry leaders to develop recommendations regarding appropriate placement of the machine for optimal patient flow and to learn how we can best support physicians’ practices and the real-world needs of patients, surgical teams, and doctors. Vicrus will be priced according to market conditions based on consideration of the advancements in the technology. The cost of the system and user fees will vary depending on country of purchase and contractual agreements.

*Editors Note: At this time, the Vicrus Femtosecond Laser Platform is approved for international (non-US) use only; not approved in all countries. The Vicrus platform received the Conformité Europeénne (CE) Mark in December 2011.