According to leading cataract and retina surgeons, the question should be — why not?
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Tracking Outcomes with the enVista IOL

Features that include aberration-free optics, a PCO-minimizing design and a lack of glistenings make this lens an excellent choice.

None of my enVista patients have complained about glare, halos, dysphotopsia or problems with driving at night.
My analysis of my first 50 enVista IOL cases, in which I also used the ORA System (WaveTec Vision) for intra-operative wavefront aberrometry, demonstrated excellent results. I followed my usual protocol for pre-operative measurements, including K readings, the IOLMaster (Carl Zeiss Meditec) and OCT of the macula, and used my usual formulas for calculating IOL power. (None of the eyes had concomitant pathologies.) Once a cataract was removed, I took an aphakic ORA reading to see whether it confirmed my pre-op IOL power calculation or suggested a different power. If ORA indicated a different power would produce better vision results, I chose that power, which I did in approximately 54% of the cases. Post-operatively, 99% of the eyes had uncorrected distance visual acuity of 20/40 or better, and 100% of the eyes had best-corrected visual acuity of 20/20 or better. In addition, giving a clear indication of the value of the intraoperative aberrometry, 100% of eyes were within a half diopter of the target refraction and 72% were within a quarter diopter. The mean absolute prediction error for the first 50 cases was 0.17, and the standard deviation was 0.11. Overall, I have implanted approximately 150 enVista lenses and have consistently achieved these LASIK-like results.

Why the enVista IOL?
The absence of glistenings was a powerful incentive for adding the enVista IOL to the group of lenses I prefer to implant. Most of the hydrophobic acrylic IOLs I’d previously used often developed at least some level of glistenings.

Typically they would appear early, in 6 to 8 weeks after surgery, and progressively become more apparent. In one study, the glistenings observed continued to increase for up to 10 years. I don’t see glistenings as something to be dismissed as a non-issue. In my experience, they have a propensity to adversely affect vision. Furthermore, a situation best avoided is one in which a patient has good post-op Snellen acuity but vision complaints that can be attributed only to a problem with the lens I implanted.

A lack of glistenings isn’t the only reason the enVista has become my monofocal lens of choice. Its other attributes are crucial for flawless outcomes as well. With two aspheric surfaces that neither add nor subtract spherical aberration to the eye, the lens maximizes the number of patients who can benefit from the proven higher quality of vision an aspheric design provides. In addition, because the lens is truly aspheric, its power is uniform from center to edge and its performance is unaffected in the event of pupil decentration, optical misalignment, or IOL decentration or tilt. None of my enVista patients have complained about glare, halos, dysphotopsia or problems with driving at night.

In addition to its unique optic design, the enVista IOL incorporates design elements that are believed to minimize posterior capsular opacification (PCO). It has a 360° square barrier edge to inhibit migration of lens epithelial cells, and the haptics vault the optic posteriorly for direct contact with the capsular bag. My PCO rate with the enVista has been very low. I’ve
performed only three YAG laser procedures after nearly 150 implantations.

Prior to the availability of the enVista IOL, the majority of my monofocal lens patients received either the fourth-generation silicone SofPort AO (Bausch + Lomb), unless they had known retina problems that could require surgery with silicone oil in the future, or the Akreos MICS (Bausch + Lomb) because it can be implanted through an unenlarged 1.8-mm incision. I still consider both to be good options, and I still implant the SofPort AO in cases where there are issues with the integrity of the capsular bag because its three-piece design allows placement in the sulcus. I have also replaced many older hydrophobic acrylic IOLs that had developed problematic glistenings with either Akreos MICS or enVista lenses. However, when all else is equal, being able to avoid glistenings leads me to choose the enVista in most of my monofocal lens cases.

The enVista IOL in the Operating Room

The quality of the enVista IOL material is readily apparent when removed from its packaging. It looks much clearer than other acrylic lenses and has no marks or scratches. It is durable as well as flexible. Even though it can be folded small enough to be implanted through a 2.2-mm incision, (Figure 1), it isn’t creased by forceps or a second instrument. I have found it to be far less susceptible than other lenses to scratches and tears.

Once inserted, the lens unfolds in a controlled manner (Figures 2-4). This is an advantage for me because I’m able to remove all of the viscoelastic as the lens is opening fully and reinflate the globe prior to taking my final aberrometry reading. In contrast to some of the other acrylic lenses I’ve tried, the enVista doesn’t unfold too quickly or stick to itself.

It’s About Time

The enVista IOL includes all of the time-tested features cataract surgeons have come to expect, with the added advantage of no glistenings. It enables a hassle-free procedure for me and contributes to excellent vision outcomes for my patients in the short and long term. No other hydrophobic acrylic lens on the market offers its combination of aberration-free optics, foldability with durability and the expectation that glistenings will not develop. I’ve been amazed at how beautifully the lens centers in the eye and how clear it looks. In my hands, I believe it’s the best choice among monofocal IOLs, and I’m happy to be free of the risk of glistenings.

Reference

Dr. Stephenson is the founder of Stephenson Eye Associates, which is based in Venice, Fla., and has been serving patients along the state’s southwest coast since 1989. She specializes in microincisional refractive cataract surgery and premium intraocular lenses. She is also an associate professor at the University of South Florida.
n the realm of refractive cataract surgery, consistency is king. The more variables we can eliminate to standardize each step of the procedure, the better able we are to refine our results and deliver the spectacle-free vision patients desire. In my practice, I’ve been using several new technologies that help me ensure accuracy and consistency.

How the Latest Technologies Can Help
Our practice was an early adopter of femto technology, because we believed the femtosecond laser could be used to automate the cataract surgery maneuvers that are most vulnerable to human error, thereby taking our results to the next level. In my practice, we use two different platforms. They’ve both been outstanding, and I’ve found the Victus Femtosecond Laser (Bausch + Lomb) to be particularly effective for creating the ideal and complete anterior capsulotomy. Compared to executing these steps by hand, I’m much more likely to achieve a properly sized and centered rhexis that will serve to keep the IOL in the optimum position. I’m also much less likely to have an incomplete

To achieve the intended postoperative refraction, selecting a high-quality IOL is just as important as using the femtosecond laser and other technologies.
rhexis that could compromise the posterior capsule during phacoemulsification.

The Victus platform also has FDA clearance for the creation of arcuate incisions, which helps me improve correction of preexisting corneal astigmatism for refractive cataract surgery patients. This is an important goal because even small amounts of residual astigmatism can compromise postoperative uncorrected visual acuity. While manual astigmatism-correcting incisions, such as limbal relaxing incisions (LRIs) can be effective, the laser can place the wounds in the specified optical zone and axis, and can achieve precise depth across the entire incision more accurately.

I use the femtosecond laser as part of the refractive cataract surgery package I offer to eliminate or reduce patient dependence on eyeglasses or contact lenses. Approximately 50% of the patients in our practice choose an advanced procedure that involves LRIs and/or a toric or presbyopia-correcting IOL. These procedures include additional preoperative steps, such as analysis of corneal astigmatism, wavefront measurements and double and triple-checking of biometry with more than one device. Intraoperatively, I use the femtosecond laser to execute the capsulorhexis and to correct corneal astigmatism where appropriate. I also use the ORA System (wavefront aberrometry by WaveTec Vision) in the OR to take aphakic and pseudophakic measurements for confirming IOL power selection and/or determining the magnitude and axis of astigmatism. In addition, I use the TrueVision 3D surgical system, a surgical visualization system from TrueVision 3D Surgical, Inc. The system incorporates cyclorotation compensation, image registration and real-time eye tracking to help guide toric IOL placement and astigmatism correction.

**Individualized IOL Choice**

To achieve the intended postoperative refraction, selecting a high-quality IOL is just as important as using the femtosecond laser and other technologies. While the recommendation for many of my patients is a toric or presbyopia-correcting IOL, in some cases, a monofocal lens is the best choice. Some patients, for example, want to have only their distance vision optimized, while others prefer to be nearsighted after surgery. Still others are looking to match the vision they had with a monovision contact lens approach preoperatively. In these types of situations, when I am aiming for precisely targeted vision with a monofocal non-toric implant, the hydrophobic acrylic enVista IOL (Bausch + Lomb) is a good option. It takes the concept of aspheric optics a step further than other designs by not adding or
subtracting any spherical aberration (SA) to the visual system. While other aspheric IOLs aim to neutralize the cornea’s natural positive SA by introducing negative SA, the enVista does not. After reviewing all of the relevant literature, I believe an aspheric lens that leaves the eye with its natural positive SA provides not only the crispest vision possible but also maintains or enhances depth of field, which improves overall visual function.

The enVista IOL has another unique feature that contributes to its ability to deliver high-quality vision. It is manufactured and packaged in a manner that inhibits the formation of glistenings. Glistenings in other IOLs, especially other hydrophobic acrylic IOLs, have been widely documented. These fluid-filled micro-cavities that form in the IOL material may develop soon after implantation or months or years after. They are another variable that most surgeons would prefer to avoid. Even in cases where glistenings don’t seem to be an issue for a patient, they are visible at the slit lamp and can obstruct the view to the retina. Sometimes they seem to be the only plausible explanation for a patient’s vision to end up worse after surgery.

The enVista IOL is a solid choice for traditional cataract surgery procedures as well. I’m very comfortable with its proven platform and design. Because it has the added potential advantage of no glistenings, I tend to choose it over other hydrophobic acrylic lenses whenever the benefits of a one-piece acrylic IOL with a square edge and traditional C-loop haptics would minimize potential problems for a patient. This applies most often to patients who have co-existing conditions and who are likely to require care from a vitreoretinal specialist in the future. A clear optic will not interfere with the posterior segment surgeon’s view into the eye. Furthermore, hydrophobic acrylic is one of the most frequently used materials in the history of implants. It has a strong track history of being well tolerated. Surgeons have also come to expect that single-piece IOLs with C-loop haptics will remain centered and are

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**Figures 1-3.** Three nicely centered enVista IOLs on post-op day 1.
unlikely to move anteriorly or posteriorly if a patient undergoes a subsequent surgery with a glaucoma or retina specialist. We’ve also come to expect that a square-edge design will minimize the risk of posterior capsular opacification (PCO), which makes it more likely that we can avoid YAG laser procedures in eyes that are already otherwise compromised.

**Results from enVista Cases With & Without Femtosecond Laser**

I’ve been very pleased with the outcomes I achieve with the enVista IOL. In my initial series of cases, 92% of patients were within 0.5D of plano and the average deviation from intended target was 0.1D.

Not one of my enVista patients has had a vision complaint or any other problem associated with the lens, and the rate of PCO has been extremely low thus far. In our ORs, scrub techs typically load the IOLs into the inserters. They say it’s easy to handle and they’ve had no challenges loading it. We haven’t had any instances of ripped lenses or torn-off haptics, which can occur when a staff switches to working with a new IOL or injector. The enVista inserter, which is disposable and designed for one-hand use, works well, too. It was recently improved to allow implantation through a 2.2- to 2.4-mm incision. The bevel angle was increased to make wound entry easier, and a rib was added in the cartridge to minimize lens rotation.

Once inside the eye, the enVista unfolds smoothly and centers very well, almost automatically (Figures 1-4). I prefer to remove all of the viscoelastic from the capsular bag at the end of each case so the lens sits more posteriorly and in the predicted effective lens position. Also, if I remove the viscoelastic completely every time, it is one more variable taken out of the equation. Some surgeons find it helpful to go under the lens or to rock the optic back and forth when removing the visco.

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**Versatility Plus Consistency**

Built on a proven platform with the added advantages of zero-spherical-aberration optics and an absence of glistenings, the enVista IOL is a versatile lens easily incorporated into any surgical practice. Along with other cutting-edge technologies, it contributes in a meaningful way to the achievement of precise, consistent, predictable and patient-pleasing cataract surgery outcomes. For added peace of mind, we can expect the favorable results to endure for the long term.

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Dr. Weinstock is the director of Cataract and Refractive Services at the Eye Institute of West Florida and the Weinstock Laser Eye Center and the surgical director of the Largo Ambulatory Surgery Center. He’s an associate clinical professor of ophthalmology at the University of South Florida in Tampa.
iven the average age of the patients typically seen by retina specialists, it’s no surprise that the majority of them, close to 80% in my experience, are pseudophakic. As these patients reach their 70s and beyond, it’s likely they’ll require more frequent evaluations and perhaps treatments or surgeries by a retina specialist. When that time arrives, it’s important that the IOL not interfere. A clear IOL optic is crucial for useful clinical examinations, preoperative evaluations and successful in-office laser procedures. An obstructed view of posterior segment structures can be particularly detrimental to the accuracy and effectiveness of surgical procedures. Problems with visualization and other issues can arise with just about any IOL in use today, depending on the design and material.

For example, although PMMA lenses are rarely used, many of our older patients had them implanted years ago. Most PMMA IOLs have a three-piece design, which can present short- and long-term problems with centration. Three-piece lenses also can be difficult to manage should the lens become dislocated posteriorly. The same can be said for plate lenses. Unlike one-piece lenses with loop haptics, plate lenses can only be grasped in one plane, making it difficult to manipulate in the event of a dislocation. Plate lenses also can inhibit the posterior segment surgeon’s view of the retinal periphery, especially if some peripheral opacification of the capsule is present. Lenses with small optics, too, can inhibit the view in the periphery.

Even today’s most advanced IOLs, such as multifocals, may have drawbacks from a retina surgeon’s perspective. As a general rule, cataract surgeons avoid implanting multifocals in patients with posterior segment conditions or diseases, but future eye health isn’t always predictable. In cases where subsequent retina surgeries are required, the view through a multifocal isn’t as crisp when compared with a monofocal. Multifocals with concentric rings of varying refractive power can obstruct the view, making detailed macular work or membrane peeling as difficult as it is through a cataract. Furthermore, the risk of iatrogenic tissue damage is increased when a surgeon experiences changes in depth perception while looking through the different optical zones.
In certain situations, the IOL material may make retina surgery more challenging. Silicone oil is a valuable adjunct for the retina surgeon, especially in complicated detachment cases, but it can’t be used in the presence of a silicone IOL. The oil adheres to the silicone material, robbing the lens of its refractive power. In addition, condensation tends to form on silicone IOLs during fluid/gas exchange in eyes that have previously undergone a YAG capsulotomy. This can also occur with PMMA or acrylic lenses, but with silicone, it tends to produce an instantaneous obstruction of view. Glistenings in an IOL optic of any material can also be a source of difficulty during a posterior segment procedure. Although they haven’t been a common problem for me, the risk that they could become an issue is certainly not ideal. Like anything with the potential to distract from a safe, efficient procedure, glistenings are something posterior segment surgeons would rather avoid.

**A Retina Surgery-Friendly IOL**

Fortunately, one of the newest IOLs available to our anterior segment colleagues is also retina and retina surgery-friendly. The enVista IOL (Bausch + Lomb) is made from a UV-absorbing hydrophobic acrylic, a material type many cataract surgeons prefer. Because acrylics tend to be durable and well tolerated in the eye, they’re a solid choice for patients with diabetes and inflammatory conditions. Also, during vitrectomy, if the IOL is acrylic, the surgeon can use any tamponade — gas or silicone oil for example — without worrying about its effect on the lens. The enVista acrylic material offers an additional benefit in being clear and glistening-free. The lens’ labeling reflects this, as does surgeon experience more than a year after the lens was introduced.

In my experience, the enVista IOL hasn’t been the source of any problems during posterior segment evaluation or treatment in the clinic or OR. These implants have a relatively large, aberration-free aspheric optic and they’ve been clear and well-centered, all of which enhances my view.

Further augmenting the enVista’s value to retina surgeons and their patients are its PCO-minimizing features. Lens epithelial cell migration is inhibited by the 360-degree square edge, and the haptics are designed to vault the optic posteriorly for direct contact with the capsular bag. Reducing the rate of PCO among vitreoretinal patients is important for a variety of reasons. The ability to avoid a YAG capsulotomy helps to reduce the rate of future retinal tears and detachments, and spares eyes with inflammatory conditions the inflammation induced by a YAG capsulotomy. Also, with an intact capsule, condensation doesn’t form on the IOL during fluid/gas exchange, and the chance of silicone oil migrating to the anterior chamber is virtually zero. Finally, the absence of capsule opacification almost guarantees the retina surgeon will have a clear view. This is important because even opacification that’s not extensive enough to warrant a YAG procedure can be problematic.

Because implantation of the enVista IOL is straightforward, it works well for combined cataract and retina surgery. The cataract surgeon can implant the lens through a small incision and is unlikely to be faced with an extended operating time. In turn, corneal edema is minimized and less likely to interfere with the posterior segment surgeon’s view.

**Setting the Stage for Success**

The diagnosis and management of vitreoretinal conditions require an unobstructed view to the back of the eye, and the safety and effectiveness of today’s delicate surgical interventions depend on clear visualization of the macula and periphery. Ideally, retina specialists are examining and treating patients who have opacity-free capsules and well-centered, well-tolerated IOLs with clear optics. Under these conditions, we can focus on the task at hand unencumbered and perform procedures efficiently, which is in the best interest of our patients. The easier I can do what I need to do and get out of the eye, the better I feel. The enVista IOL has been noticeably crystal clear and stable and thus helpful in making that happen.

**Dr. Hairston** is co-director of the Retina Center at the Eye Institute of West Florida, a longtime leader in Tampa Bay area eye surgery.
INDICATIONS: Indicated for primary implantation for the visual correction of aphakia in adult patients in whom the cataractous lens has been removed by an extracapsular cataract extraction method. The lens is intended for placement in the capsular bag.

WARNINGS: Physicians considering lens implantation under any of the following circumstances should weigh the potential risk/benefit ratio: 1. Recurrent severe anterior or posterior segment inflammation or uveitis. 2. Patients in whom the intraocular lens may affect the ability to observe, diagnose, or treat posterior segment diseases. 3. Surgical difficulties at the time of cataract extraction, which might increase the potential for complications (e.g., persistent bleeding, significant iris damage, uncontrolled positive pressure, or significant vitreous prolapse or loss). 4. A distorted eye due to previous trauma or developmental defect in which appropriate support of the IOL is not possible. 5. Circumstances that would result in damage to the endothelium during implantation. 6. Suspected microbial infection. 7. Children under the age of 2 years are not suitable candidates for intraocular lenses. 8. Patients in whom neither the posterior capsule nor zonules are intact enough to provide support.

PRECAUTIONS: Do not attempt to resterilize the lens as this can produce undesirable side effects. Do not soak or rinse the intraocular lens with any solution other than sterile balanced salt solution or sterile normal saline. Do not store the lens at a temperature greater than 43°C (110°F).

DO NOT FREEZE. Do not autoclave the intraocular lens. Do not reuse the lens. It is intended for permanent implantation. If explanted, sterility and proper function cannot be assured. For complete physician labeling information, refer to the enVista™ product package insert.