# The Reproducibility of the ORA System With VerifEye Hardware

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My clinic first received the WaveTec intraoperative aberrometry system when it was still ORange, after its second software upgrade. We have used the device through all its iterations, including the newest version that features the VerifEye monitoring system. As a surgeon, I have come to rely heavily on this technology to achieve the best results possible for my patients. I have found that if I pay attention to ORA's readings, it unfailingly leads me toward better results. Yet, I have learned that the quality of the intraoperative readings it gives is 100% predicated on my ability to stabilize the eye at the time of measurement. Ideally, the goal is to reproduce a natural state of the eye postoperatively.

If I give the following due diligence—take my time with the IOL calculations preoperatively, pay close attention to the IOL's position after I implant it, make sure the patient has fixated appropriately, ensure the IOP is well controlled, eliminate variables such as the lid speculum's position and tear film irregularities—then it is remarkable just how reproducible the measurements with the ORA System are.

> "VerifEye enhances the information provided by ORA's three-camera monitoring system."

## VERIFEYE HARDWARE FOR MORE PRECISION

The ORA System with the VerifEye hardware upgrade provides even more reproducibility and precision than previous iterations. VerifEye gives surgeons continuous assessment of the patient's eye, which enables me to take extremely precise measurements. VerifEye enhances the information provided by ORA's three-camera monitoring system, giving me high confidence that the eye is stable prior to taking the measurement. A stable refraction results in greater accuracy of lens power calculations and improved outcomes. I have also been impressed with the increased speed of the system's measurement with the VerifEye. The transition to the VerifEye was seamless for my staff and for our surgical flow.


**Figure 1. The author placed reference marks at the orientation prior to taking the first ORA measurement (A), which demonstrated 4.41 D of astigmatism (B).**


**Figure 2. He then viscodissected the IOL free before rotating it nearly 90° (A). A second ORA measurement revealed a reduction in cylinder of more than 50% (2.00 D) (B).**

## CASE EXAMPLE OF ORA'S VALUE

One patient who benefitted significantly from the ORA System was a 53-year-old man who had undergone previous RK (eight incisions) and received additional arcuate incisions. A respected local surgeon implanted a toric IOL in this patient's eye based on preoperative topographic, keratometric, and

tomographic measurements that all supported his choice of implant placed at a particular orientation. Unfortunately, the surgery further increased the patient's astigmatism, so the surgeon sent the individual to me for evaluation of either an IOL rotation or a possible exchange using the ORA System.

After taking several preoperative measurements, my staff and I scheduled this patient in the OR. We measured his IOP, looked at the orientation of the lens, and carefully dissected the implant free of its endocapsular support. We intended to rotate the IOL a few degrees clockwise and counterclockwise to see if a different orientation would reduce the eye's astigmatism. Surprisingly, the final rotation was nearly 90° from the original location, which lowered the refractive astigmatism from more than 4.00 D to approximately 0.75 D (Figures 1–4). In reviewing the patient's records after the surgery, I do not believe it would have been possible for any surgeon to determine the correct axis of implantation in this eye without intraoperative aberrometry.


**Figure 3. The author removed retained cortical material (A) in preparation for the third ORA measurement (1.21 D of cylinder) (B).**


**Figure 4. The author placed a capsular tension ring to expand the equatorial bag to minimize asymmetric compression of the haptics (A) before taking a final ORA measurement (0.78 D of cylinder) (B).**

## DISCUSSION

I believe this case highlights two important points. First, it debunks previous reports that the ORA System underperforms in eyes that have had previous RK. I believe the ORA System can be quite beneficial in these eyes, as long as we read its numbers correctly, are meticulous in our efforts to reproduce normal physiologic conditions (eg, control the IOP, verify the effective lens position, and minimize excessive corneal distortion), and as long as the incisions do not reach too far into the visual axis. Second, this case serves as a good example of how, even in the most complex situations, the ORA System assists us in ways we may not anticipate. It gives us the ability to correct refractive errors in otherwise unmeasurable eyes.

## CLINICAL IMPACT OF THE ORA SYSTEM

The ORA System has reduced my clinic's postoperative refractive error measurably. We have seen a drop in our mean absolute prediction error of about 15%. Mark Packer, MD, published an article in the *Journal of Cataract & Refractive Surgery* 2 years ago showing that ORA will reduce enhancement rates for astigmatic correction.[1] My staff and I have seen similar results as the ORA's software has improved.

We bundle the application of the ORA System with our premium cataract package. We use it on any eye that requires an upgrade from standard cataract surgery, such as astigmatic correction that we tend to bundle with either an LRI or a toric lens for distance correction, or for premium IOLs. The ORA System is probably the single most valuable refractive tool that we have in our OR at the moment. Although my colleagues and I work with many different technologies on ways to align an IOL implant for astigmatic correction, this is the one we find to be most effective with our current options. ■

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1. Packer M. Effect of intraoperative aberrometry on the rate of postoperative enhancement: retrospective study. *J Cataract Refract Surg.* 2010;36(5):747-755.