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# THE THRIVING PRACTICE

A compilation of accounts from seven ophthalmologists discussing the benefits of the OPD-Scan, Wavefront Aberrometer and Corneal Analyzer.

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## From better clinical outcomes to higher revenues, autorefraction completely changes the game.

#### By Charles M. Collins, MD

Ithough I have been using Marco autorefractors for more than a decade, it wasn't until I retired from the Navy and opened a solo practice that I realized what a big part of my practice model the devices would become. With just one optometrist and me, Marco's EPIC system enhances clinical outcomes while it saves time, increases revenue and integrates seamlessly with our electronic health records (EHR).

#### **Clinical Outcomes**

Much of the emphasis around autorefraction is placed on the time it saves — with good reason. When I performed the refraction myself, I averaged 10 to 15 minutes per patient. Using the EPIC system, refraction takes just 2 to 3 minutes with my staff; then I validate or tweak the prescription for 1 or 2 minutes for a total of about 5 minutes. That cuts refraction times in half, and translates into me seeing 5 to 10 more patients each day.

But saving time isn't the only key criterion. Fast is only good when it's done well. Marco systems fit the bill on both counts.

The EPIC is highly accurate. I am very confident in the quality of the refraction. If I am performing cataract or refractive surgery, I know that I am getting the data I need. To support using more advanced technology lenses in the practice, I also purchased the Marco OPD-Scan III several months ago, and I am beginning to incorporate that device into my work as well.

Outside of surgery, Marco systems give me more knowledge and confidence to help make prescription changes in habitual correction wearers as needed. The EPIC offers the lensmeter reading of a patient's current prescription alongside comparative data to demonstrate how a change in axis or cylinder will improve vision. Patients are able to see the difference by viewing side-by-side comparisons. With that very convincing feature, I can make vision-enhancing changes that I would not have made without the EPIC. I might explain to a patient that the new glasses will take some getting used to, but I think he should try them because the benefits are worth it. Patients often opt for the new prescription, and rarely return for remakes.

#### Seamless Part of the EHR

An EHR system was a central part of planning my new practice. After a long selection process, I chose the system I thought would perform to my satisfaction. At the same time, I was choosing diagnostic equipment such as the EPIC system. Together, the two have turned out to be a homerun.

The EPIC automates data entry, eliminating work and time for my staff and me. I have all the information I need at my fingertips (without transcription errors) — no matter where I am.

The EHR and Visual Clinic systems also tell us where patients are — in the history room, in lane A or lane B — so we can track how things are flowing. It can even alert me when a patient is ready for the exam. The system also knows where I am and tells my staff how long I have been with a patient. The technology is useful on a daily basis, but when my associate recently went away for Naval Reserve duty, it was essential in helping me work out of four exam lanes. Using the EHR's patient tracking system, it is very exciting to see how the EPIC, our other diagnostic equipment and our staff keep things flowing as they are meant to, with very little wait time for our patients.

#### **Dramatically Enhanced Flow**

By enhancing patient flow, the EPIC not only reduces the



The EPIC even offers a "wow factor" that I can showcase as a marketing tool. My EPIC room is visible from the waiting area. It piques patients' curiosity, and it helps me get across the concept that I am bringing them the latest technology.

The EPIC system is prominently displayed in Dr. Collins's office and takes up little space.

time required to get an excellent refraction, it also influences the practice's physical design in some very constructive and money-saving ways.

When I was designing my new practice, I wanted to optimize patient flow. I thought the best way to accomplish this would be by dividing my square footage into seven exam lanes. When I met with my Marco representative about purchasing an autorefractor, he recommended that I get an EPIC and outfit just four lanes, an EPIC room and two history/interview rooms. He laid out how this would help achieve greater efficiencies and flow in the practice. In the end, my decision to follow his suggestion saved me square footage and has kept patients moving swiftly and smoothly through the practice while I move around less.

My rep also showed me that if the flow is right, I only want six occupied chairs in my reception area. If more than six patients are waiting, then I've got a flow problem.

The Marco rep was incredibly valuable for planning our practice. My rep visits hundreds of practices where he sees the problems that can arise and finds solutions to them along the way. His experience helps practices achieve simple goals — primarily, keeping patients moving, not waiting — to enhance their satisfaction and the practice's bottom line.

He also connected me with other EPIC users, and my visits to those practices were invaluable. One physician told me that "EPICs are cheap" because they pay for themselves quite readily, and I've found that he is right.

#### Marketing and Sales Opportunity

The EPIC even offers a "wow factor" that I can showcase as a marketing tool. My EPIC room is visible from the waiting area, with a smoked glass window emblazoned with the EPIC logo. Patients understand that something interesting is located behind the glass. It piques their curiosity, and it helps me get across the concept that I am bringing them the latest technology. I have no qualms about charging for the technology, and they do not mind paying those charges when they understand it is the best refractive exam they can receive.

I haven't tracked the return on investment for the EPIC, but I see my bank account growing. Saving time and seeing more patients make a major difference. There is also no question that the EPIC increases sales. My optical business is 2.5 times what it was before we added the EPIC and a new design for the optical display. All these ingredients for success add up to a healthier bottom line and a superior patient experience.

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## **Efficient Support for Cataract and LASIK Decisions**

In 1 minute, the Marco OPD helps identify LASIK candidates and guides choices for LRIs and IOLs.

#### By James J. Salz, MD

o achieve the best visual outcomes from cataract and refractive surgeries, we need a complete picture. Accurate refraction, analysis of higher-order aberrations and evaluation of pupil size all help us to choose the best option to achieve the patient's goals for vision. Gathering that information can extend the time required for routine exams. However, a multifunction device can combine those analyses into a single, brief exam for greater efficiency.

In my practice, we've been using the Marco OPD for 5 years to obtain accurate, detailed information in about a minute. Its autorefraction is excellent, providing us with a starting point for determining a patients' eyeglass prescriptions. Its topographer also helps us to plan cataract surgery and identify good LASIK candidates. For a general practice that wants a quick exam, this instrument is hard to beat.

#### **Guiding Use of LRIs**

The information offered by the Marco OPD helps me characterize astigmatism, make decisions regarding LRIs and select the right IOLs.

I have other instruments that perform topography, but they only give me topographic information and some data about higher-order aberrations. The Marco OPD performs topography and autorefraction. So it includes analysis of internal higherorder aberrations as well as pupil size.

Looking at topography and refraction, you can determine if

a patient has asymmetrical astigmatism or early signs of keratoconus. Either situation would make you think twice about using LRIs. If the patient has asymmetrical astigmatism, you can make the incisions by hand or program the femtosecond laser to make a longer arcuate incision superiorly and a shorter incision inferiorly.

For surgeries with astigmatism of 2 diopters or less (most surgeries), the femtosecond laser option is a cost-effective approach. We use the laser for the incision, capsulorhexis and emulsification of the nucleus. Patients pay about the same fee as they would for a toric implant, but that approach doesn't offer all the added advantages, functions and accuracy of the laser.

#### **Informing IOL Choice**

If the astigmatism is symmetrical, the data can help you decide whether to correct it internally with a toric IOL, on the surface with LRIs or both. In most cases, if we have a large amount of astigmatism, we're comfortable correcting it with a toric lens rather than making incisions.

When we get a first look at new patients, the autorefractor's analysis tells us the patient's current prescription. We print out the report on a one-page sheet along with topography and keratometer readings, which tell us both the quantity and the location of the astigmatism (in the cornea, the lens or both).

For example, the refraction might find 2 diopters of astigmatism on an  $80^{\circ}$  axis. It will also report that the cornea is



spherical, so this is a case of lenticular astigmatism. This doesn't affect an eyeglass prescription, but if this is a cataract patient, I need to know whether the astigmatism is corneal or lenticular before I choose an IOL and IOL power. The toric IOL is, of course, not necessary to correct lenticular astigmatism in most cases.

You can obtain this information with a keratometer, but not in a single sitting with a single report. You have to perform the refraction, and then position the patient's head in front of another instrument. For that reason, we no longer use the manual keratometer in my practice.

Once I implant an IOL for corneal astigmatism, the Marco OPD also lets me see how well the internal correction is working and how close we've come to meeting the goals for the patient's vision, and we can check the alignment of the IOL.

#### **Evaluating LASIK Candidates**

When we evaluate potential refractive patients, the Marco OPD not only tells me the patient's refraction, it also tells me whether he's a good candidate for refractive surgery and, if so, whether conventional or wavefront-optimized LASIK will be a more effective option.

We set up the OPD to use for routine exams every day, However, it's very simple to set the device to collect additional data. For LASIK candidates, I program the device to collect data on the patient's spherical aberrations during the initial screening and evaluate coma, trefoil and tetrafoil on another exam screen. Once the testing is complete, the OPD produces a printout specifically for LASIK that includes all the relevant data, such as higher-order aberration scores, on one report.

If a patient has had LASIK surgery, the Marco OPD can tell me whether the LASIK was myopic or hyperopic. In addition, I see many patients who've had radial keratotomy 25 years ago, and the OPD helps me see if they have astigmatism that prevents them from refracting to 20/20.

Another unique function of the Marco OPD is that it gives you automated refraction and photography. It measures pupil size in dim light and flash, and alerts you if you may be dealing with an unusually large or small pupil. This is important for LASIK candidates, since patients with unusually large or small pupils can experience glare and halos after surgery. We also need to be aware of pupil size for cataract patients who may be receiving multifocal implants, since the optics of those IOLs are based in part on pupil size.

#### **Enhancing Ease and Value**

The Marco OPD is fast — just a minute or so for both eyes gives me a great deal of very accurate information. It's also an easy experience for patients. They get lined up, look at a target and they're done.

Ease of use is essential for our technicians as well, and this is one of the simpler devices to use and teach. I can use the Marco OPD and teach others to use it, whereas with some devices, we need manufacturer representatives to train our technicians.

The OPD's speed and ease of use also have a positive effect on patient flow, efficiency, chair time and return on investment. We collect a great deal of data through a single device, so patients move around less and the exam takes less time.

If you don't have a corneal analyzer/topographer in your practice and you need a new autorefractor, the OPD's autorefractor is excellent and the topographer will give you bonus information about higher-order aberrations. We perform topography on all patients in my practice. If you prefer, you can just print a strip with the autorefraction for routine exams, making the throughput even faster, and only perform topography when it's reimbursed for existing conditions.

#### **Delivering Speed and Accuracy**

For the minute or so that it takes to use the Marco OPD, you get a tremendous amount of information. No other instrument performs all of these functions in a single sitting, which makes the unit an excellent choice for practices that perform cataract or LASIK surgeries. The OPD's speed, ease of use and reporting capabilities help physicians make key decisions with speed and confidence.

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## Better, Faster, Cheaper Refraction

Electronic refraction system produces excellent results while saving time and money.

By J.C. Noreika, MD, MBA

've been practicing ophthalmology since 1981. Like many of my colleagues, I always considered the process of subjective refraction to be a necessary evil at best. At worst, it was a task well below my pay scale. Eye surgeons were well compensated for their skills 30 years ago. The task of subjective refraction was eminently delegated.

Thanks to elegant advances in computer hardware and software, the good news is that refractions can be easily delegated.

#### The Long Wait for an Integrated Refraction System

Today, to be profitable, it's essential to spend our time on well-compensated work and delegate less skilled actions to our staff. Advances in refraction technology mean we can lower the level of professional skill required for an accurate refraction. Since 2006, my practices have owned four Marco/Nidek 5100 instruments and two EPIC refraction systems, one with wavefront aberrometry capability. The long wait for true integrated refraction system is over.

#### An Easy, Welcome Delegation

I don't perform many refractions. With the help of the instructors at Marco, I have learned how to use the technology to its full potential, and now I can teach the process. This is the best use of my time.

When my practice administrator of 18 years told me she'd had enough with insurance companies and paperwork, rather than lose a valuable employee, I talked to her about getting more involved at the technical level. Marco staff trained her on the EPIC System. She never had to read a book on optics or explain the Jackson cross-cylinder, but today she's an excellent refractionist. We measure patient satisfaction with purchases from our dispensary and track returns and remake rates, and the data show that her refractions are accurate and comprehensive.

Training was smooth because the Marco refraction system offers several critical advantages. It's easy to learn and use. The five refraction techniques that can be programmed into the system offer a foolproof methodology for determining refractive error. Doctors or technicians can customize these programs to their preferences. For example, I prefer to use fogging principles and the duochrome test to avoid over-minusing patients.

The technology is patient-friendly, too. The determination of cylinder and axis using prismatic split-screens is the most efficient, quickest and most accurate method I've ever used. The system has a complete library of testing protocols for phorias, tropias, stereopsis, convergence and near-point of accommodation. It offers vision screening charts for children, numbers and the illiterate E. The speed and simplicity of the experience reduces the time that operators need to spend instructing them.

#### **A Patient-Driven Decision**

Because most medical insurance companies and Medicare don't cover the cost of subjective refraction, patients pay for this service out of pocket — an added expense to their already increasing deductibles and co-payments. These cost perceptions are compounded when the sticker shock sets in for a new pair of glasses. The out-of-pocket costs realign patients' expectations, shifting the value equation to a higher standard. And although they may not judge the value of how comprehensively an ophthalmologist performs a retinal evaluation, how well they see in their new glasses or contact lenses tells them if the refraction was worth their hard-earned dollars.

Marco's refraction system also has a very useful tool to help patients see the value of their refraction and the new glasses

#### Econometric Modeling for Practices Implementing Marco's Refraction System

The following represents a generic practice; assumptions will vary by individual situations.	
Gross Revenue Assumptions	
Gross revenue per patient (including all services and products – examination, refraction, testing, surgery and post-operative care, contact lenses, optical dispensary, etc.)	\$175 per patient
4 patients per hour:	\$700 per hour
Seven productive physician hours per day:	\$4,900 per day (rounded to \$5,000)
Five days a week:	\$25,000 per week
Fifty weeks a year:	\$1,250,000 per year
Manual Phoropter Time vs. Marco Autorefraction	
Manual refractions per hour:	4
Manual phoropter refracting time:	12 minutes/patient
Marco phoropter refracting time:	8 minutes/patient
Marco advantage (time saved):	4 minutes/patient
How These Time Savings Add Up	
Continuing a the same rate of 4 refractions per hour, this generic practice will experience the following savings:	
Marco time savings per 8-hour day:	128 minutes (rounded to 2 Hours/Day)
Marco time savings per week (based on 3.5 refracting (clinic) days per week):	7 hours/week
Time savings per 50-week year:	350 hours/year
And Translate Into Dollars	
Practice's current productivity:	\$175.00 per patient
4 patients per hour:	\$700 per hour
Marco time savings per year:	350 additional productive hours/year
Potential gross revenue gain:	\$245,000 per year

Staffing Changes Also Boost Net Revenue The Marco system permits reduction in the overhead cost of the refractionist. Instead of refractions being performed by a doctor at \$175/hour, an optometrist at \$60/hour or a certified ophthalmic technician at \$26.50/hour, you can use staff trained on the Marco system at \$17.50/hour (optometrist, technician and trained refractionist assume total wages and benefits). Higher cost personnel can be reassigned to higher productivity, revenue-generating tasks.

they're thinking of buying. The device shows patients a consecutive comparison of their vision with their current correction and their vision with the new, subjective reading determined by the Marco program. Patients then make an informed decision about whether the change in correction is worth the cost. This ability to immediately compare prescriptions shifts responsibility for choosing new glasses from the doctor to the patient. If they want the vision that the new refraction offers, then they want new glasses. Patients who buy glasses are confident that they made the right choice, a factor that, combined with the system's accuracy, means we have fewer remakes and optical dispensary charge-backs due to "buyer's remorse."

In addition to teaching the practice's technicians to use the technology, I'm in the process of teaching my licensed opticians the Marco system, as well. The goal is to permit them to develop

a relationship with the patient from the lensometry reading of their current prescription, through the subjective refraction, and finally to the selection and sale of glasses. The optician will own the entire process. The program allows them to customize their refractions to best meet their growing experience and the patient's needs. The hardware and software encourage the democratization of the subjective refraction.

#### **Numerous Advantages**

The payback period for my Marco refraction system, based on annual potential revenue gain analysis, is less than 1 year – dramatically lower than the general accounting rule that stipulates a 3-year payback period for advanced technology purchases. We use the advanced clinical technology as a marketing tool as well, and the effect of increased patient satisfaction is priceless.

The system is efficient and reliable as well. Marco has been quick to work with vendors to ensure that the refraction data populate appropriate fields in the electronic health record, thus avoiding the time and risk of double-entry. After 6 years of experience with the system, I've had just one maintenance problem: a patient knocked the keypad off the pedestal in an attempt to shake my hand. A few strips of Velcro have discouraged further incidents.

My Marco system meets all the utility criteria of advanced technology: the task of

refraction is done more efficiently and accurately, while at the same time decreasing cost — my costs. And, I daresay, it makes refracting fun again.

**J.C. Noreika, MD, MBA**, is Managing Partner at Excellence in Eyecare, Inc., Medina, Ohio



## **Advancing Cataract Outcomes and Profits**

Get an indispensible clinical tool in the Marco OPD-Scan III, educate patients and enjoy a boost in revenues.

nsuring continued success and growth for over 25 years at Matossian Eye Associates, an integrated ophthalmology and optometry practice, has required dedication to uncompromised excellence in eye care as well as ongoing commitment to wise business practices. Both elements are equally necessary for success.

One example of this essential and symbiotic relationship is investment in technology that helps me choose the most appropriate IOLs in order for my patients to achieve their best potential outcomes. The OPD-Scan III (Marco) provides me with information to confidently select multifocal and toric implants. This leads to superior surgical outcomes with increased referrals from satisfied patients; it also leads to a healthy conversion rate to premium IOLs with added revenue for the practice.

#### **Selecting the Best Lens**

The key to predictable surgical outcomes with toric and presbyopia-correcting IOLs lies in the ability to match available implant technology to the eye measurements of each patient. The OPD III gives me the data I need to make accurate determinations. Using the OPD III, I perform the following steps:

■ Verify Ks. If patients have dry eye or other ocular surface conditions, keratometry data may not be reliable. I use the OPD III to verify Ks and compare them against other methods of keratometry to give me the accuracy I need.

If the Ks are inconsistent between the instruments, I initiate further management of their ocular surface disease and bring the patient back. That treatment may take weeks or months, after which I repeat the tests until we obtain stable, reproducible data. I also use the OPD III to show patients their problem and monitor its improvement from visit to visit. When their

#### By Cynthia Matossian, MD, FACS

surface problems are resolved or stabilized, I can calculate patients' implants with more reliability.

■ Identify toric candidates. I review the astigmatism pattern on the OPD III with patients and decide if they're candidates for toric IOLs. If there is no significant symmetry in the bowtie pattern, patients may not do well with torics.

■ Assess angle kappa. I review the angle kappa on every patient. If the patient has a positive angle kappa of more than 0.4 mm, then I rule out a multifocal IOL. Since I implemented this rule, I have happy multifocal IOL patients. For patients with a positive angle kappa greater than 0.4 mm, I recommend a Crystalens AO (Bausch + Lomb), for which the alignment of the anatomic and visual centers isn't as critical.

■ Measure pupils. I measure the pupil size in both mesopic and photopic conditions. If the patient has a very mitotic or a very large pupil, I take this fact into consideration when recommending an IOL. For example, patients with large pupils that don't constrict well may have increased glare from headlights, which can be annoying or debilitating. These patients may experience an increase in this glare if they receive a multifocal IOL, so I don't recommend this type of lens for patients with large pupils. Instead, I recommend an accommodative IOL, the Crystalens, or blended vision using a monofocal IOL with a mini-mono approach.

By allowing me to show patients their pupil size, the OPD III helps them understand my choice.

■ Review spherical aberration. Even for patients who select monofocal IOLs, I match each patient's corneal spherical aberration to an IOL's negative asphericity. As a result, I end up using just about every IOL on the market, from those with a positive SA to designs up to -0.27 SA.



■ Evaluate lens requests. Patients, at times, come to our offices requesting an IOL that they've read about online or one that a friend has been raving about. Of course, not every patient is a candidate for the lens he requests. The OPD III allows me to know with confidence who is and is not a good candidate for a particular lens.

Not all surgeons have this information, however. I see patients who have already had cataract surgery and received the lens they requested, only to be disappointed with their vision after surgery. They're frustrated that they don't see clearly after paying significant out-of-pocket fees. Using the OPD III, I can determine if the patient has been implanted with a lens that may not have been the best option. With an IOL exchange, I replace it with a more appropriate lens, improving their annoying visual issues.

#### **Educating Patients**

The OPD III lets me show patients why a certain lens is or is not the right one for them. I review the data on a large monitor in the exam room with each patient and his family. Based on the data, I recommend the best IOL option. This may translate into a different IOL in each eye — for example, a toric in one eye and an accommodative IOL in the other eye, depending on the amount of astigmatism. The patient then understands his options (or lack thereof).

The display has a "wow factor," for patients and their families because they can "see" what I'm talking about. For example, rather than take me at my word that the shape of their cornea would make them an excellent candidate for a toric lens, they can actually see their symmetrical bowtie astigmatism. They visually verify my diagnosis, which helps them understand their implant options.

The OPD III also helps me set realistic expectations for patients. For example, I review the point-spread function that demonstrates higher- and lower-order aberrations before and after cataract surgery with every patient. This reinforces the idea that the patient may have some residual higher-order aberrations and glare that will not be resolved by the upcoming cataract surgery. The OPD III actually simulates vision post-surgery so patients can see what problems the IOL will solve and which pre-existing conditions will remain. By making this clear to patients and their families, I ensure that there are no surprises after surgery.

I also show patients with dry eye syndrome their Placido disk corneal pattern and point out their "dry spots." I explain that they have a pre-existing condition that will probably get worse as they age, regardless of their cataract surgery. By talking about the problem and proving it to them visually, I head off any potential postsurgical complaints that cataract surgery "gave" them dry eyes.

#### **Generating Revenue**

My primary goal is to achieve optimal clinical results for my patients, but running my business according to a profitable model is key to overall success. The OPD III enhances profitability in a number of ways.

The process begins during the cataract consultation. I explain that during the follow-up biometry exam, I want to use the OPD III to collect very important data in an effort to customize the implant to the patient's ocular findings. I hand the patient an information sheet about the importance of the OPD III data. I make sure that patients understand that if they permit me to perform this test, there will be a \$90.00 out-of-pocket charge. My patients sign an Advanced Beneficiary Notice of Noncoverage (ABN) to ensure that they commit to paying this fee after their exam.

The OPD III also increases my conversion rate to advancedtechnology IOLs. Because patients can "see" their problem and understand why a more expensive advanced technology IOL may help with their vision, they're more confident to proceed with my recommendation.

Finally, the OPD III generates a great number of word-ofmouth referrals. My patients are so happy with their vision that they tell friends, family, neighbors and work colleagues, effectively becoming good will ambassadors for the practice. The opposite would happen with dissatisfied patients. Moreover, both happy and unhappy patients can easily post their reviews to Google and other websites, thus boosting the potential reach of their "word of mouth" exponentially.

In all of these ways, the OPD III increases revenue for the practice. From a business perspective, to assure continued growth, we need to make choices like the OPD-Scan III that enhance both the clinical outcomes and the profit potential of our practices.

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**Vision Corrective** 

### **Surgery** In the clinic and in surgery, the OPD-Scan III is integral in pursuing a 20/20 goal for every patient.

great deal has been written about efficiency in patient care using the OPD-Scan III system. Undoubtedly, its ability to perform an array of tests in less than 2 minutes, its small, space-saving footprint and its in-depth data summary at one station do facilitate an efficient movement of patients in clinic. The OPD III also provides an accurate starting platform for an eye consult for all levels of eyecare providers.

#### **Best Vision Potential**

My definition of efficiency goes a bit further. I believe efficiency is meaningless without 'effectiveness' and is therefore a measure of our ability and desire to provide the best vision potential (BVP). In other words, the best vision the patient is capable of achieving, always aiming for better than 20/20 — for each and every patient in our care.

This is not just hype that I use in my practice, nor is it a guarantee that I make for patient outcomes. Instead, it's my unshakable and accountable personal mission.

By striving for BVP for every patient using custom-designed, individual surgical plans for each and every eye, we achieve several very important goals. First, we have more satisfied patients, which results in increased word-of-mouth marketing, referrals and a better reputation. Increased organic referrals received in this manner reduce the need and expense of traditional advertising. There are fewer retreatments with their associated costs, as well as less "final" chair time. Overall morale is high because we celebrate success with patients instead of making excuses for poor outcomes to patients. In my experience, this level of efficiency results in higher satisfaction — personally, professionally and monetarily.

In my boutique referral practice for vision corrective surgery, I

#### By Arun C. Gulani, MD, MS

employ a full range of techniques and technologies with a final goal of BVP for a worldwide clientele of patients seeking the best vision they can achieve, including those looking for second opinions and solutions to complications.

The OPD III has become an integral part of my practice because it helps us achieve our mission.

#### **OPD III & BVP**

The OPD III lets me show patients why a certain lens implant is or is not the right one for them. I review the data on a large monitor in the exam room with each patient and his family. Based on the data, I recommend the best IOL option. This may translate into a different IOL than the patient's friends have had, or a combination surgery that uses a multifocal lens implant followed by astigmatic laser vision surgery. This way, they understand their options.

One important concept I like to emphasize to every eye surgeon is that we shouldn't be consumed by just the surgery; instead, we should exhaust ourselves while planning for the surgery. Excellent vision should be the final endpoint, while surgery is simply a means of achieving that goal. With this mindset, surgery becomes the successful delivery vehicle for a sound planning process.

Many of my referral patients aren't victims of bad surgery; their problems are the result of poor or incomplete "vision planning." The OPD III can help any practice change that. Despite the numerous technologies available to me at our Vision Institute, it's the OPD III that allows me to look at the entire optical system and see how each optical element is affecting vision. This helps me design my 'vision plan,' which I can also show to patients, educating them on their journey to reach their personal BVP. The process becomes a team experience.



Patients get to see why we select a certain surgical technique over another. For example, they can see:

 $\hfill\blacksquare$  Why we choose laser PRK instead of LASIK in cases with thin corneas

■ Why we recommend cataract surgery in a 65-year-old patient who comes in for a LASIK evaluation

■ Why a certain kind of premium lens implant is best for a patient's spherical aberration, angle Kappa and pupil size

• Why we suggest cross-linking and Intacs (Addition Technology) for a patient whose LASIK evaluation detected keratoconus.

Why referral patients need IOL exchange or laser advanced surface ablation on the cornea to correct halos from multifocal lenses or poor reading vision from accommodative lens implants.

Using the OPD III, we can educate the patient while we interpret all the data displayed to us in the consult room. So, in the "same" amount of chair time you currently spend, you can help patients understand that you've designed a plan specifically for their best interests. They believe in your desire to improve their vision. As such, not only are they eager to proceed, they can't wait to tell others about their experience.

This fulfills my definition of "efficiency," which includes a great patient experience, a high patient referral base, a rise in the conversion rate and greater personal satisfaction (achieved by a doctor and staff that is unified in their mission and dedicated to consistently providing excellent outcomes).

#### 'Leaving Vision on the Table'

In my mind, all eye surgeons are "vision corrective surgeons." A vision corrective surgeon has the ability to perform cataract, cornea, anterior segment and LASIK surgery, including combinations of these surgeries to truly customize a plan for each patient.

The OPD III plays an essential role, determining the visual impact of each optical system in the eye so we can treat or modify the same. Anything short of achieving the BVP for patients is what I call 'leaving vision on the table.'

The majority of the premium IOL cases referred to me with unhappy outcomes occurred because the surgeon left vision on the table. Often, it's as simple as residual astigmatism or sometimes it's more involved. Such was a case referred to me with a very unhappy patient who had premium IOL implantation followed by laser PRK, which caused corneal scarring. After studying each optical element of the eye along with its vision impact, I planned the approach:

Stage I: Laser ASA for refractive scar clearance

■ Stage II: Piggyback IOL (because the premium IOL bag had undergone Yag laser by the patient's surgeon), to unaided emmetropia, 20/20 vision, and a very happy patient (BVP achieved).

Using the OPD III, I can show patients very clearly what I'm thinking, even in these complex cases, so they don't need to rely on my verbal explanation of abstract concepts. I can show them how they've improved in vision with each stage as well as what additional vision improvements we may achieve by the next stage.

The OPD III also helps me shape expectations. Patients understand that reaching their BVP doesn't guarantee they'll see 20/20, but they appreciate the charting of the journey. Patients naturally have high expectations, and the OPD III and my vision corrective approach fulfill those expectations. My patients leave happy and refer their friends and families from all over the world to my practice.

#### The Next Level?

The ophthalmic technologies available to us today are truly remarkable. But how should we use the data? How do we raise the bar on surgery, as well as outcomes, so patients can consistently achieve their individual BVP? At the next level of diagnostic technology, the device that gathers and presents data also will generate a series of recommended options based on that data. This is the logical next step but it's impossible to achieve without truly understanding every patients' total visual system — every possible aspect of their optical pathway, as well their physiologic optics to position accurate validation and optimized outcomes.

I believe the OPD-Scan III provides us with the necessary core data to ultimately select treatment options that will have a higher probability of success. Our goal is to give patients more consistent, successful treatments across the board, all over the world. Equipped with the best technologies, we must strive to achieve the BVP for each and every patient, which is where the future in ophthalmology should be headed.

Arun C. Gulani, MD, MS, is Chief Surgeon and Fellowship Director of Gulani Vision Institute in Jacksonville, Fla.



## **"Perfecting" Cataract Outcomes**

Patients ask for perfection. Get as close as possible by approaching cutting-edge surgery with the OPD III.

hen patients undergo cataract surgery and pay out of pocket for premium IOLs, they're expecting perfection, so we better get it right the first time. We can't promise perfection, but we're getting closer, thanks to new lenses and new diagnostic technologies such as the OPD Scan III (Marco).

#### The Right Diagnostic Technology

Outdated diagnostic equipment doesn't provide us with the complete picture, so it sometimes prevents surgeons from getting the IOL and positioning right. New diagnostic technologies help ensure that we get it right the first time, choosing and positioning IOLs for the best outcomes, plus new technology makes it easier to up-sell premium lenses because patients can see the differences in their vision correction options.

I use the OPD III for all of my cataract patients. It's a blue-light corneal topographer and autorefractor that also includes a wavefront refractor, wavefront analyzer, internal optical path difference analyzer (OPD) and light/dark pupillometer. The OPD allows me not only to get corneal topography, but also to see corneal spherical aberrations so I can match the best aspheric lens for maximum contrast sensitivity. Its 11,880 data points and 33 placido disc rings provide a dense matrix of data, making IOL calculations more accurate and enabling me to evaluate the effects of previous refractive surgery on the central cornea.

By adding wavefront patterns and IOL-matching to the cataract evaluation, the OPD III manages to avoid adding time and square footage. The scan takes 10 seconds without moving patients around between four different machines, desiccating the ocular surface

#### By Farrell "Toby" Tyson, MD, FACS

along the way. We acquire the data simultaneously from a fresh eye.

Most importantly, data provided by the OPD III translate into better results because it's easier to achieve the outcomes we want when we know what we're aiming for. As surgeons, we're concerned that we can only hit within a quarter diopter of our target with cataract surgery. That quarter diopter is all the more reason to remove every potential source of error from the system. If we reduce astigmatism and spherical aberration and improve lens positioning through diagnostics, then we "limit the limitation" to that quarter diopter.

#### **Toric Lens Advantages**

Any surgeon using toric IOLs should be using corneal topography. The IOL Master (Carl Zeiss Meditec) and LENSTAR (Haag-Streit) have built-in keratometers whose purpose is to obtain average K readings for lens formulas, but they don't include topography and thus can't tell you if astigmatism is symmetrical. Even if IOL calculations show that a patient has a high degree of cylinder, topography may reveal asymmetric astigmatism that makes torics the wrong choice. Without topography, we may implant toric lenses in these patients, and they'll be very unhappy with the results.

The OPD III provides a Toric IOL Summary that merges the corneal topography with infrared photography. This summary includes a built-in, easy-to-use toric axis marker. Rather than marking with a pen in the optical area, which gives you a mark with an ink spread of about 5 degrees and doesn't account for cyclorotation, you can mark very accurately with preoperative diagnostic imaging.

To mark the location where keratometry calculations show the lens should be, I look at illuminated physical landmarks like scleral



vessels and iris crypts or nevi, with the astigmatism imaging and IOL placement superimposed. During surgery, I line up my IOL according to physical landmarks, rather than ink marks. This is a much more accurate system, and it allows me to check accuracy and rotation after surgery.

#### **Multifocals and Angle Kappa**

In my practice, we're seeing a large number of multifocal cataract patients. Every now and then, we would get surprises where refraction and topography said the patient should get a multifocal IOL, but after surgery, the patient didn't see well. This is due to large angle kappa. Patients with large angle kappa are looking through the IOL's rings off to the side, rather than straight through the center.

The OPD III picks up the angle kappa before surgery. Because each IOL has a certain range in which a patient can be off axis and still reach their vision goals, we may still be able to implant a multifocal lens, or we may need to use a different approach.

The OPD III can refract patients with mesopic pupil and a photopic pupils, giving us an advantage in terms of evaluating day and night vision and predicting the effects that any IOL, but particularly multifocal lenses, will have on night vision. I can adjust the prescription to reduce problems with night driving. I can even identify those patients who might have trouble driving with multifocal lenses during the day because their pupils are a bit larger than expected in daylight conditions.

The fact that the OPD III's wavefront analysis allows us to choose an IOL based in part on how it corrects spherical aberration is another major advantage for multifocal patients. Multifocal and post-refractive patients have extremely high standards, so any reduction in spherical aberration — and enhancement to contrast sensitivity — will improve their satisfaction with the outcome.

#### **Previous Refractive Surgery**

When patients have had previous refractive surgery, we must be mindful of the risk of adding additional aberrations and distortions into the eye. Some patients may have better results from monovision or toric rather than newer lens technologies such as multifocal lenses.

Though cataract patients may tell us they've had laser surgery, they often don't have documentation or don't know the details of the procedure and outcome. They usually don't even know if the refraction was myopic or hyperopic. Since they can't answer these questions, we need a diagnostic technology that can provide the missing information, especially as we look to a future that is bound to include more and more post-refractive surgery patients.

The OPD III shows me the patient's total optical system. Topography answers basic questions about the previous surgery. Effective lens position is another concern. The OPD III acquires wavefront data in a 9.5-mm area, which includes LASIK treatment edges and blend zones. By comparing the periphery to the central corneal powers from the topography, the system determines the central corneal curvature power before refractive surgery and arrives at an effective central corneal power (ECCP). We use the ECCP to get our K value for IOL calculation. I go into surgery knowing that even without thorough documentation of the previous refractive surgery, my treatment is on target and I can expect my patient to be happy with the outcome.

#### **Outcomes and Satisfaction**

With patient expectations so high, we have to deliver the best possible vision. The OPD III and the latest IOLs make that an attainable goal. What's more, the OPD III helps us bring patients into the loop. We can show them the difference that premium IOLs might make over other lenses. Patients can compare the difference after surgery as well. They're making a major investment in their vision, and the OPD III can show them that the expense was worth it.

Farrell "Toby" Tyson, MD, FACS, is a refractive cataract/glaucoma eye surgeon at the Cape Coral Eye Center in Florida.



### **Top Practice Benefits of the OPD-SCAN, Wavefront Aberrometer and Corneal Analyzer**

In addition to better outcomes, this technology delivers a host of advantages to your practice.

By Jonathan D. Solomon, MD

'm a technophile at heart. I have all the latest diagnostic devices. The OPD-SCAN (Marco) brings more value per dollar to the day-to-day function of my practice than any other technology.

The machine speaks for itself. A great deal of thought and energy went into designing this instrument to provide the highest quality data, all in a way that enhances practice efficiency. Combining five instruments in one — an autorefractor, keratometer, pupillometer, corneal topographer and wavefront aberrometer — the OPD-SCAN brings depth and accuracy to an extremely efficient, single-click testing experience.

I've written before in *Ophthalmology Management* about how this device helps improve my outcomes. Here, I'd like to share other ways this instrument benefits my practice.

#### **More Information**

Because the OPD-SCAN provides so much information, it's a great place to start. We make the instrument the first stop in our clinic, using it as a comprehensive screening system for all patients who don't have a clear and detailed diagnosis.

The autorefractor is extremely accurate, and the wavefront scan illuminates aberrations that might also be contributing to visual complaints. We can see, for example, if the visual complaint is a result of a refraction problem, early cataracts or keratoconus, just by sitting the patient in front of this one machine. When the system doesn't reveal any problems, we can rule out a host of pathologies in just a few minutes. I believe this technology makes it difficult to miss a diagnosis.

The large display makes it easy for me evaluate the data and

analyses. Using the results from this device alone, I usually can narrow a cataract patient down to two IOL choices. And there's no better way to impress patients than to walk into the room already prepared to tell them what you think is wrong with their vision and how you plan to fix it.

#### Less Time

When it comes to speed, you can't beat the OPD-SCAN. No other instrument does what this device does in such a short amount of time. Patients sit in one chair while a single instrument acquires pupillometry, refraction, wavefront data, retro-illuminated images, mesopic and photopic vision and more in just 15 seconds. In fact, over 20 diagnostic measures are harvested in this timeframe.

In our clinic, that speed translates into a 15-minute savings on each cataract consultation. The clinic is a circle, and the OPD-SCAN is the first stop. Technicians get all the information we need at that first stop before they move the patient around the remainder of circle. If we used slower instruments or bounced patients around between three or four desks, we would be far less efficient.

#### **Bigger Role for Techs**

A clinic is always more efficient when physicians delegate work to the staff, and the OPD-SCAN allows us to delegate in our clinic. Because the instrument is so easy to use, technicians simply line up the patients' eyes and click to simultaneously perform a host of tests. That saves training time and allows technicians to take on more responsibilities without compromising quality.

For example, we no longer have to perform pupillometry ourselves or spend hours teaching technicians how to do it. Instead,



we can spend more time training technicians how to perform basic interpretations of test results and point out key findings to surgeons.

When we have a patient with an undiagnosed visual complaint, we don't have to tell the technicians which tests to perform. They know they should obtain topography, refraction, wavefront aberrometry, and a retro-illuminated image. If something stands out to them in those tests, they can note it. For example, if a technician is studying a patient's images and sees something on the cataract, he can pull up the retro-illumination image on the electronic medical record so I see it in the exam room.

The technicians are more effective, I'm armed with all the information I need for my exam, and as a result, the whole practice benefits.

#### **Better Use of My Time**

When we can delegate tasks to staff, we're able to make more productive use of our time as physicians, focusing on the tasks that require our education and experience.

Before I bought the OPD-SCAN, I had to perform some testing myself. Pupillometry was particularly challenging to delegate because it was difficult to get technicians to use the proper illumination and obtain the accurate measurements I wanted.

Now I'm not testing patients. They smoothly transition to me at a predictable pace. We've been able to establish a more efficient patient flow by scheduling cataract consultations in blocks. And I can either see more patients or spend more time with each patient, discussing their specific needs and explaining my recommendations.

#### **Smarter Choices**

With this instrument, which puts so much information about the patient's total visual system in front of me, I'm very confident in my choices for surgery. In particular, when I see "premium-track" patients for LASIK or cataract surgery, the instrument allows me to sift through early diagnostic information to determine if the patient will be happy with the premium surgery. I don't want patients to pay thousands out of pocket and be dissatisfied, and this technology helps me avoid that situation by showing certain patients why premium surgery isn't the best choice in their case.

The OPD-SCAN also helps me reach a goal of zero spherical aberration with my cataract patients. A few years ago, I studied how accurately and predictably dynamic skiascopy, the wavefront technology used in the OPD-SCAN, measures spherical aberrations and guides IOL choice.<sup>1</sup> When I chose from three different IOLs

based on data from the device, postoperative spherical aberration for 40 patients was just +0.019  $\pm$  0.051  $\mu m.^1$ 

This is one way the OPD-SCAN improves outcomes, but it is also a way that it helps our clinic. When we can virtually eliminate spherical aberration for our cataract patients, we increase patient satisfaction. In particular, when patients have other visual problems that we can't correct, even a relatively small change, such as reducing nighttime glare, can make a big difference in their lives. We want to take full advantage of all the tools we have to improve their vision as much as possible. We want to be the practice that offers advantages for all the patients who come through our doors.

#### **Clearer Communication**

An educated patient is a happy patient. And although we've all put a great deal of time and work into crafting how we explain pathology to patients, nothing is more effective than using images to show them pathology. Any time you can illustrate something for patients, you're giving yourself an advantage.

For example, when I have a patient with dry eye in the chair, I can show him the placido image on the iPad and explain what's causing his problem. Our communication is better, he's better informed and we're both confident in the treatment choices.

With the OPD-SCAN, I can show patients what's wrong, as well as why a certain LASIK surgery or IOL will work best for them. Patients better understand the explanation and my recommendation. As such, they're more likely to take that recommendation, whether it means having "premium" surgery or routine surgery, and they're more likely to be pleased with the outcomes. And there's nothing better for your practice than successful surgeries and satisfied patients.

#### Reference

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