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Optimized refractive outcomes linked to technologies that deliver more relevant data, faster and elevate patient engagement

MAXIMIZING KNOWLEDGE, SPEED, AND IMPACT

INSIDE:

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AN INTERVIEW WITH JEFFREY A. WIPFLI, MD | BY ERIN MURPHY, CONTRIBUTING EDITOR

Perfect Surgery, Unhappy Patient?

FOR MULTIFOCAL IOL RECIPIENTS, THE SECRET TO SUCCESS IS IN THE PREOPERATIVE DATA.

At St. Luke's Cataract & Laser Institute, the motto is "Excellence…with Love." Physicians who perform cataract and refractive surgeries, as well as their medical teams at St. Luke's seven offices in Tampa Bay and central Florida, fulfill the promise of excellence using the latest surgical advances and technologies. Patients, in turn, expect the practice's promise of excellence to translate into first-rate visual outcomes. The love comes from caring staff members, who engage with patients and help educate them at every opportunity.

"We want happy patents, and patients are happy when they're completely satisfied with their vision after surgery," says Jeffrey A. Wipfli, MD, who performs more than 200 cataract and refractive surgeries per month at St. Luke's. With all of the advanced IOLs available to cataract patients, Dr. Wipfli's challenge is to identify candidates who will be successful and, therefore, happy with the results. In order to accomplish that, he has to know a patient's personality, history and pathology. But those things aren't enough.

"The vast majority of patients are happy with their vision after they receive an advanced IOL such as a multifocal," he explains. "But sometimes even when surgery goes smoothly and the refraction looks good, patients may experience glare or poor image quality. Few things are more frustrating than performing all the appropriate preoperative work and screening, only to have a patient be dissatisfied because of factors we couldn't identify before surgery."

Dr. Wipfli points to two major factors that lead to this problem: high angle kappa and higher-order aberrations.

"We've always known that patients with high angle kappa could have problems with multifocal lenses because they may not be looking through the center of the lens. If patients aren't looking through the middle of the concentric rings on the lens, they may experience glare and poor image quality. Patients with irregular corneas or higher-order aberrations can experience poor image quality as well," he says. "But it has been difficult to turn this knowledge into action, to rule out these patients as multifocal candidates. We had no device to easily and accurately measure angle kappa. I didn't put much faith in our previous wavefront device for mapping higher-order aberrations, so we were stuck with the occasional unhappy outcome."

> "We haven't had one unhappy multifocal patient since we started using the OPD-Scan III," Dr. Wipfli says.

Essential Data

Dr. Wipfli and his colleagues needed a way to measure angle kappa and higher-order aberrations accurately within the efficient timeframe of a high-volume practice. Marco's EPIC system had been automating the practice's fast, accurate preoperative workups and efficient patient flow for 5 years, and there was no room to backtrack by adding time to the process.

The solution came from St. Luke's clinical director, Myra Cherchio, COT, who suggested that surgeons try using Marco's OPD-Scan III with the EPIC workstation. The OPD -Scan III offers autorefraction/keratometry, corneal topography, wavefront aberrometry, the ability to measure angle kappa and much more. These capabilities set it apart and made it a potential solution to the problem of unhappy multifocal IOL recipients.

"Though we knew little about the new OPD-Scan III, I'm very glad we were able to experience all of the advantages of the new device," says Dr. Wipfli. "I've been very happy with it for numerous reasons, the most important being that the information it provides has helped dramatically in determining which IOLs are best for our patients. We have a much better idea, for example, who will have satisfying outcomes with multifocal lenses."

"The OPD-Scan III's added capabilities, such as retroillumination to measure angle kappa and higher definition for viewing rings and dry spots, make a big difference in our work," explains Sarah Saile, a lead technician at St. Luke's. "And it still happens all in one snap when we capture the corneal topography."

Happy Patients

"We haven't had one unhappy multifocal patient since we started using the OPD-Scan III," Dr. Wipfli says. "That doesn't mean it won't happen, but the device has definitely helped. Now we can predict much more accurately which patients are good candidates for the lenses and which ones risk visual problems. It measures angle kappa very accurately and clearly, so we can see if the visual axes align."

"I couldn't live without it. It gives us more information and cuts the mystery factor when it comes to lens options so surgeons can offer more educated suggestions," Ms. Saile says. "When patients with high angle kappa come in asking specifically for multifocal lenses, we can show them clearly on the OPD-Scan III if a multifocal isn't likely to work. It's not about selling lenses, it's about making patients happy."

That teaching component helps OPD-Scan III users engage patients in the discussion about IOLs and other aspects of surgery. "There are more teaching screens for patients than we've even learned to use yet!" Dr. Wipfli says. "But we're using the OPD-Scan III to explain some things, such as astigmatism and its treatments. Because the analysis separates lenticular and corneal astigmatism, we can show patients what the IOL will and will not correct."

Ms. Saile says the OPD-Scan III makes an excellent educational tool for another type of unhappy patient: one who experiences dry eye. "Patients who have dry eye after surgery tend to think that it was caused by the surgery," she says.

This patient demonstrates two contraindications to choosing a multifocal implant. First, the Angle Kappa is too large to be a multifocal lens candidate (red oval — PDist: 0.59@15°; MDist: 0.56@7°). Second, the numerical data indicates too much corneal coma to be a multifocal candidate (green oval). Also, the Placido disc image shows multiple areas of distortion indicating tear film irregularities from dry spots.

"Now I can show them that they had dry spots before surgery, and explain that surgery doesn't cure that. It's both a visual aid and visual proof, so patients understand and accept it."

Bonus Benefits

In addition to removing the mystery from IOL selection and helping St. Luke's have happy patients, the OPD-Scan III has several added benefits, according to Ms. Saile.

"Technicians are more confident that we've collected a good image for the doctor because of the advanced definition and accuracy of the OPD-Scan III," she explains. "We're also confident that measurements are correlated between the K-readings from the IOLMaster (Carl Zeiss Meditec) and the OPD-Scan III. We don't have to go back and forth, remeasuring and double checking to ensure that they match."

And remember the highly automated and efficient preoperative workup that St. Luke's wanted to maintain? It became a little more efficient.

"The OPD-Scan III collects more data in less time than the OPD-Scan II," says Ms. Saile It shaves 20 to 30 seconds off the EPIC process, which adds up in a high-volume practice like ours. The OPD-Scan III not only helps us clinically, but it also makes the process noticeably more efficient." ■

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AN INTERVIEW WITH MARK A. JANK, MD | BY ERIN MURPHY, CONTRIBUTING EDITOR

Selecting the Best IOL for Your Patient

YOU CAN PERFORM THE LATEST PERSONALIZED CATARACT SURGERY WITH NEW-TECHNOLOGY IOLS — IF YOU'RE PREPARED.

Cataract surgery discussions have featured the same keywords for years, such as "new-technology intraocular lenses," "individualized treatment," "high expectations," and "patient education." Add "efficiency" to the list and you'll have a good picture of the challenges that faced Ocala Eye in Fla. With 10 surgeons practicing in four locations and a surgery center, in 2013, Ocala Eye saw more than 30,000 patients, many of whom had cataract surgery.

"Manufacturers have been revolutionizing the IOL field at a remarkable rate, so now surgeons need to gather the proper data to choose the best lens for each patient from a long list of options," explains Mark A. Jank, MD, a surgeon at Ocala Eye. "In the past, that effort has required several workstations, four or five pieces of equipment that are expensive to purchase and operate, and various levels of technician training and time. Informed IOL decision-making had the potential to be inefficient and costly. We needed a better way to make IOL selections."

Like many surgeons, doctors at Ocala Eye wanted to continue offering patients the best options for cataract surgery, but didn't want to add machines, technicians, and chair time to accomplish the task. They needed more information, presented in a way designed to support customized IOL decisions, all through a streamlined and efficient process.

OPD-Scan III Automation

Ocala Eye surgeons found a way to prepare for the latest advances in cataract surgery: the OPD-Scan III (Marco).

"The OPD-Scan III amasses in a single source a multitude of information that is necessary for modern IOL selection and cataract surgery. Instead of moving patients around for testing, we take them to one workstation. From their perspective, it's one test," Dr. Jank says, "The OPD-Scan III not only gathers the essential data more efficiently, but it also gives us data that we didn't even know were essential until now."

The system separates corneal and internal astigmatism, locates the axis of astigmatism and determines if the astigmatism is regular or irregular. It measures angle kappa and pupil size, performs topography and locates dry spots on the corneal surface.

"The OPD-Scan III also tells us if the level of higher-order aberrations rules out multifocal IOLs, and its analysis of spherical aberration allows us to optimize depth of field and contrast sensitivity," says Dr. Jank.

According to Tina Phillips, COT, the technician trainer at Ocala Eye, the OPD-Scan III's value doesn't end with the data it collects. The system presents the data to surgeons in a way that supports and speeds clinical decisions.

"It's very straightforward," she says. "The system presents algorithms and color maps that can be interpreted easily and quickly. It even lays out step-by-step instructions on how to proceed, such as what to assess next and how to adjust treatment based on the results."

Phillips and others at Ocala Eye tried a similar technology from another manufacturer, but they weren't sure how it would fit into their clinic. When they tried the OPD-Scan III, the manufacturer laid out those critical details.

"Marco provided sensible algorithms and showed us how to interpret the wavefront aberrometry. A light went on! We understood how to use the information to benefit patients. They took us from fast data collection to efficient, practical application," Phillips says. "Dr. Jank told me, 'You don't need to convince me to buy it – just tell me how many we need.' We knew that without it, we wouldn't be providing our patients with everything they deserve. Since then, I've trained more than 50 employees to use the system, which is certainly simpler than training them to use the five devices it replaces."

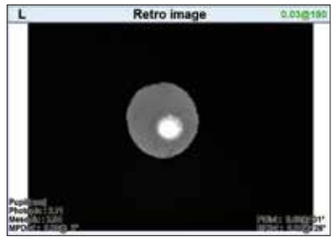
Personalized Surgery

Keeping up with IOLs means not only choosing a lens that will function properly in the eye, but also doing so in a way that meets or exceeds the current best practices for new-technology cataract surgery. Those best practices promote an individualized approach.

"Standard cataract surgery is a very good operation, but I don't think you can say it's the best surgery available any longer. We're moving into the age of personalized medicine, and the OPD-Scan III technology is on the leading edge of that technology. It gives us an excellent data set for making personalized clinical decisions," explains Don Cushing, administrator at Ocala Eye. "With technologies such as the OPD-Scan III, intraoperative refraction and such, surgeons can give patients a customized result. If the patient is comfortable in glasses, there's an operation for that. If a patient wants to read and drive and play golf and surf the Internet, surgeons can usually provide visual acuity at all of those distances free of spectacle requirements."

"The trend toward personalized cataract surgery isn't new," Dr. Jank says. "When we combine a patient's lifestyle and vision priorities with all of the information from the OPD-Scan III, we can make the right lens choice. We can optimize and customize the best lenses for each individual patient, improving our outcomes and giving us fewer patients with intolerable side effects."

Cushing points to the additional advantages of the system for more complex cataract cases.



The patient saw diagonal streaks as shown by the Point Spread Function display, due to diagonal wrinkles in the posterior capsule.

"The OPD-Scan III supports decision-making in cases where the patient has undergone previous refractive surgery," he explains. "We're bound to see more of these cases in the future, particularly as our cataract patients get younger. Today, the average age of our cataract patients is about 72, but new patients are 65 and younger. Baby boomers are responding to their doctors, the media and their peers, who are making the case for starting ophthalmic care earlier. We're ready to meet their needs clinically and in terms of partnership-style patient education they tend to prefer it."

Confident, Informed Patients

Both technicians and surgeons use the OPD-Scan III to educate patients at Ocala Eye.

"As technicians, we try to bridge the gap between doctor and patient. The doctor says there's wrinkling in the capsule and he can treat it with a laser. With the OPD-Scan III's retro-illuminated image, we can show those wrinkles to the patient. They used to be something only the doctor could see," says Phillips. "One patient saw diagonal lines after cataract surgery, and the retroilluminated image showed diagonal wrinkles behind the implant. From the patient's perspective, there was a concrete cause, so the recommended course of treatment made more sense. He was more informed and more comfortable with what was happening."

"It's very approachable for patients, who can easily see a great deal of information on one screen," Dr. Jank agrees. "When patients are involved in visualizing the tests and they hear the reasoning behind my choices for surgery, they feel dramatically more confident in the testing, the surgery and me. Uncertainty makes the mind wander in negative directions. Confident patients who understand what's happening to them often have better results." ■

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AN INTERVIEW WITH MITCHELL A. JACKSON, MD | BY ERIN MURPHY, CONTRIBUTING EDITOR

Clinical Advantages in Less Time

THE OPD-SCAN III MAKES COMPLEX CASES EASIER WHILE STREAMLINING EVERYDAY WORKUPS.

When it comes to diagnostic technology, every new addition to a practice has the potential to deliver data that will assist surgeons in making the best treatment decisions. The bar continues to rise, and gathering more accurate data can help you reach it. As time becomes more precious than ever, technologies such as the OPD-Scan III (Marco), which improves outcomes while automating testing, offers more essential data in less time.

"We added the OPD-Scan III to increase efficiency in the practice and capture as many data points as possible in the shortest amount of time," explains Mitchell A. Jackson, MD, Founder and Director of Jacksoneye in Lake Villa, Ill. "It delivers corneal topography, wavefront analysis, higher-order aberration data and angle kappa for both eyes in 20 seconds or less. That indirectly allows us to see more patients per hour, which improves our bottom line. It gives me a lot of bang for my buck and a superior understanding of the total visual system."

Dr. Jackson says the inherent accuracy of the OPD-Scan III, combined with its speed and simultaneous functions, helps ensure that he receives accurate data. "When patients move from one device to the next, their eyes dry out and the accuracy of the data declines. By getting the whole picture on one machine, we eliminate the risk of ocular surface desiccation, so we can obtain the accurate data we need to make decisions."

The OPD-Scan III at Work

At Jacksoneye, all preoperative LASIK and cataract patients are evaluated with the OPD-Scan III. "With the data it provides, we're able to customize surgery," Dr. Jackson says. "That might mean choosing the best lens implant, whether it's standard or advanced. It might influence other surgical decisions, such as whether to use a wavefront-guided or wavefront-optimized approach based on aberration data. The OPD-Scan III helps us make those kinds of decisions for a broad range of patients."

Dr. Jackson and his staff offer several examples of types of patients who can benefit from the information provided by the OPD-Scan III.

Patients with high angle kappa: "A patient came in for her cataract workup and asked for multifocal IOLs, which her husband had received several years before and loved. However, her mesopic angle kappa was 0.46, beyond my 0.4 cutoff for multifocal lens implant technology (as presented at the ESCRS 2012 meeting in Milan)," recalls Dr. Jackson. "I explained to her that she would not see properly with multifocals, especially for night driving. Instead, based on the fact that she's an avid bird watcher, we decided to go with an aspheric monofocal IOL, and she continues to use reading glasses after surgery. She couldn't have the lens she asked for, but she understood that based on the data, a multifocal IOL wasn't right for her."

Post-refractive patients: With the likelihood that more and more cataract patients will have had previous refractive surgery, Dr. Jackson is further empowered by data from the OPD-Scan III. "Spherical aberrations are common in post-refractive patients. For example, one of my patients who was treated for myopia presented with significant positive spherical aberration. By quantifying the aberrations, the OPD-Scan III enabled me to choose the lens implant with the best negative spherical aberration to balance those numbers," says Dr. Jackson. "It also gives me the effective central corneal power to plug into the ASCRS calculator, so it's fast and easy to get the correct IOL power for a post-refractive patient."

Patients with challenging refractions: Dr. Jackson has confidence in the accuracy of the OPD-Scan III's autorefraction. His staff knows that in certain cases, autorefraction is a far superior choice to the manual option. "For nonresponsive patients, small children or anyone who has trouble determining whether 1 or 2 is better, the OPD-Scan III gives us an accurate starting point," says Heidi Spaw, Jacksoneye's coordinator of surgery scheduling and clinical studies. "We can see what the patient sees. So, for example, if a child really wants glasses, the OPD-Scan III can show us very clearly and objectively if he really needs them."

Connecting with Patients

The quality and volume of the data provided by the OPD-Scan III, as well as the speed of collection, aren't necessarily visible to patients. But doctors and staff also can use the system to engage patients in the process of diagnosis and treatment.

"The testing process is much more visual in our 'Marco room' than it is in our standard testing room. With the EPIC workstation and the OPD-Scan III, patients can see everything we're doing," says Ms. Spaw. "The OPD-Scan III also lets Dr. Jackson show patients the objective facts about their eyes, whether that means showing them how well they might see with an advanced IOL or showing parents how their child will see with glasses."

When a cataract patient has significant corneal astigmatism, the OPD Scan III can demonstrate for them how they currently see (left photo), compared to how they would see with a spherical IOL (center photo) and a Toric IOL (right photo). This helps them understand the need for premium Toric implants to provide the best outcome.

"Patient education with the OPD-Scan III is graphic," Dr. Jackson agrees. "Because I can show patients the reasons behind my recommendations, such as distinguishing between corneal and lenticular astigmatism and the need for a toric IOL, they feel more confident. They're even more likely to go with an advanced IOL if that's what I think is best. And most importantly, they're more satisfied after surgery." ■

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SPEED AND ACCURACY: THE TECHNICIAN'S PERSPECTIVE

At Jacksoneye, technicians use two workup rooms: a "Marco room" with an EPIC system and OPD-Scan III and a second room with a manual refractor and autorefractor.

"We schedule one technician for each room for the whole day, and everybody wants to use the EPIC and OPD-Scan III," says Heidi Spaw, coordinator of surgery scheduling and clinical studies.

The reasons are efficiency and accuracy. According to technician Stephanie Olson, there's at least a 10-minute difference between workup times in the two rooms.

"Because the OPD cuts down refraction time — the longest part of an exam — it enables us to move patients in and out faster and reduce wait time," says technician Stephanie Olson.

"It's also more accurate than a manual refraction," says Ms. Spaw. "The doctors know that they're getting an accurate result that needs less adjustment. Our OPD-Scan III refractions are rarely more than a half diopter off either way at the most."

The "Marco room" is also easier to use for both technicians and patients. "You don't have to be a 10-year veteran to use the OPD-Scan III. It guides us in what to do, step by step, which is definitely easier to learn than a standard phoropter," Ms. Spaw explains. "And our patients don't have to move around, which is especially good for people who are in wheelchairs or have other mobility challenges." And since patients can instantly compare old and new perscriptions, they can immediately appreciate the enhancement.

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AN INTERVIEW WITH CYNTHIA MATOSSIAN, MD, FACS | BY ERIN MURPHY, CONTRIBUTING EDITOR

How a Perfectionist Cuts Chair Time

THE OPD-SCAN III PLAYS A CENTRAL ROLE IN ONE SURGEON'S PURSUIT OF BEST OUTCOMES.

The word "best" comes up often when talking to Cynthia Matossian, MD, FACS, founder of Matossian Eye Associates, an integrated ophthalmology-optometry practice with three offices in Pennsylvania and New Jersey.

"I always say my first priority is what is best for my patients. I want to try my hardest with whatever technologies are available to get them their best potential visual outcomes," the surgeon explains.

In Dr. Matossian's practice, the means of achieving the best have been methodically thought out from start to finish. In addition to her surgical skills, technology and staffing strategies ensure the practice consistently meets her exacting standards. The OPD-Scan III (Marco) has played a central role in helping meet her clinical goals and engaging high-level technicians in the process helps to reduce her patient chair time.

Doctor Knows "Best"

Clinically, Dr. Matossian wants data that will help her produce the best outcomes. She uses the OPD-Scan III to both measure and explain these key factors to her cataract patients:

K values: Dr. Matossian uses the OPD-Scan III wavefront analysis to determine Ks and checks the values against those obtained through at least three other methods. "If there's a > 0.5D difference in the overall amount of cylinder or a larger than 10˚ difference in the location of the steepest axis, I stop and reevaluate the test results," she says.

Corneal spherical aberration: Dr. Matossian reviews the corneal spherical aberration of every patient with the OPD-Scan III, and then matches the best IOL to the patient's corneal data if the patient selects a monofocal IOL.

Astigmatism pattern: By reviewing patients' astigmatism pattern with the OPD-Scan III's axial map, Dr. Matossian and her staff can show them their astigmatism and recommend a toric IOL, if appropriate. "It's hard for a patient to understand the concept of astigmatism, but it's easy to see a color bow-tie pattern on the map. Once patients visualize the astigmatism on our large screen monitor, they understand the need for correction with a toric IOL, and they select one if they are financially able," she says. "I recommend toric IOLs for patients with 1.25D of astigmatism or greater as long as it's symmetrical and the patient is a good candidate."

Irregular corneas: Like astigmatism, irregular corneas are important to show patients, according to Dr. Matossian. "Patients who have very irregular corneas aren't candidates for multifocal or toric IOLs, but I still need to mention those lenses and explain why they wouldn't be effective," she explains. "I don't want patients to wonder why I didn't offer them the IOL that a spouse or friend has."

Dry eye: With the placido disc map, she shows her patients, who often don't know that they have ocular surface problems, the evidence of chronic pre-existing dry eye disease. "The placido disk map shows concentric circles on the cornea, which should be equal and perfect. I explain that if those circles are warped or irregular or vary in width, then the tear film is not healthy. That can affect surgical outcomes," explains Dr. Matossian. In her practice, "compliance with dry eye therapy leading up to surgery has improved because patients can see the problem. And if they have symptoms after cataract surgery, patients know that it isn't a result of the cataract surgery."

Angle Kappa: The angle kappa measurement and higher order aberrations determine, in part, whether Dr. Matossian recommends a multifocal IOL. "It's one of several ways that the OPD-Scan III not only gives us the information we need to make decisions, but also helps us educate patients," she says. "When patients have a very large positive angle kappa, I can show them that they may not be a good candidate for multifocals. I might recommend an accommodative lens to achieve good distance and intermediate vision."

The "Best" Techs Cut Chair Time

Dr. Matossian only has trained senior technicians perform cataract surgical testing. Two of those technicians, head technician Nicole Thompson, COA, and Kristina Farley, COA, spend a typical day seeing general ophthalmology patients, cataract consults and postoperative patients, as well as cataract surgical testing appointments that are scheduled every 45 minutes.

For surgical testing patients, Ms. Thompson and Ms. Farley must be both technician and educator. While performing the OPD-Scan III and other tests, they discuss each patient's IOL options based on extensive training they've received from Dr. Matossian.

"Dr. Matossian is very precise about what exam data tells us about IOL options," Ms. Thompson says. "Just by looking at test results for our cataract surgery patients, Kristina and I know if we should talk about multifocals, torics or limbal relaxing incisions."

"The OPD-Scan III removes any guesswork from determining a patient's visual potential," says Ms. Farley. "I can show patients that potential with graphic maps of their astigmatism, corneal dystrophy or keratoconus. It helps me engage the patients and explain why they have certain IOL options and why they can, or cannot, expect a 20/20 outcome."

All of this work by Dr. Matossian's highly trained staff reduces the surgeon's chair time.

"We list all the IOLs for which a patient is a candidate. We don't go into what the lenses are, but we explain what vision the patient will achieve from each lens," Ms. Thomson says. "Next, the patient sees Dr. Matossian. During the exam, she hears the patient's thoughts on the options we've laid out, gets more information about the patient's lifestyle, and recommends an implant. By explaining the options to patients in advance, we reduce Dr. Matossian's chair time."

Training the "Best" Methods

Dr. Matossian has put thought and work into building this system around the OPD-Scan III. All of the eye care practitioners in her practice can use the OPD-Scan III for a variety of purposes, including advanced clinical evaluations or placido disc imaging for dry eye. But for cataract cases, only four technicians are trained to determine IOL candidacy based on the results... and have that discussion with patients.

"Dr. Matossian does a good deal of training with us," explains Ms. Thompson. "We don't want to tell someone that they're not a candidate for multifocal IOLs and find out we were wrong. Dr. Matossian clearly lays out what numbers exclude multifocals, what a toric candidate looks like, and so on. She goes over guidelines and teaches us to have that conversation with the patient. It's a very smooth series of discussions that work well for our patients." ■

Dr. Matossian can be reached at cmatossian@matossianeye.com.

GETTING THE "BEST" OCULAR SURFACE

Dr. Matossian schedules her cataract consultation separately from the surgical testing so that if a patient has ocular surface disease, she can treat it aggressively and get more accurate keratometry and topography data and more predictable refractive outcomes.

"Treatment to optimize the ocular surface might take 2 to 4 weeks, depending on the severity of the problem," Dr. Matossian explains. "I need the cornea in tip-top shape for the measurements that will impact lens choice and surgery."

AN INTERVIEW WITH JAMES J. SALZ , MD AND BARRY S. SEIBEL, MD | BY ERIN MURPHY, CONTRIBUTING EDITOR

The Value of Versatility

THE OPD-SCAN PERFORMS MANY ESSENTIAL FUNCTIONS – QUICKLY.

In a practice where surgeons perform refractive and cataract surgeries, versatility is a necessity. Physicians at Laser Vision Medical and Seibel Vision Surgery, which share a facility in Los Angeles, have been using the OPD-Scan (Marco) for both types of surgery for several years.

"There are other instruments similar to the OPD-Scan, but very few can capture as much data at one time," explains James J. Salz, MD, president of Laser Vision Medical and clinical professor of ophthalmology at the University of Southern California, Los Angeles. "We can't identify aberrations in the optical system, measure the pupil and autorefract with a simple topographer. We can't get simultaneous topography with an optical biometer. The OPD delivers a great deal of information in a few minutes — and that's technician time, not physician time."

"The OPD makes it easy to handle challenging cases," says Gomer Ines, one of Dr. Salz's technicians. "With this system, we can obtain necessary measurements, even from patients with small pupils and we can easily identify any ocular surface problems that should be treated before surgery.

The OPD helps surgeons and their staff elevate the standard of care and streamline their exam process.

Support for IOL Choices

Surgeons have many goals for surgery, ranging from superior clinical outcomes to fast healing and patient satisfaction. Patients tend to focus on one specific goal: to see better.

Dr. Salz practices with another cataract surgeon, Barry S. Seibel, MD, of Seibel Vision Surgery, a pioneer of laser-assisted cataract surgery and clinical assistant professor of ophthalmology at the University of California, Los Angeles.

"Patients ultimately want great vision. The OPD-Scan enables us to assess the extent to which the cataract contributes to the vision problem, compared to other factors such as corneal irregularity or lenticular aberrations. We can see the optical path difference between the overall wavefront and corneal wavefront as well," Dr. Seibel says. "By separating the cataract from the rest of the visual system, we can identify residual problems the patient may experience after cataract surgery."

Once Dr. Seibel determines that a patient has aberrations, he can see if they include any aspheric aberrations that can best be addressed by an IOL with positive, neutral or negative spherical aberration. He also uses the OPD to determine if a patient has undergone previous PRK or LASIK procedures. The sign and magnitude of spherical aberration typically indicates whether a hyperopic or myopic ablation was performed, which drives the choice of post-refractive IOL power calculation protocol.

"I had a patient with an unusual Salzmann's nodular degeneration, which lead to irregular astigmatism that was very clear on the OPD. I knew I wouldn't be able to obtain good measurements for surgery and as a result, she wasn't going to achieve good visual results," Dr. Seibel says. "I was able to perform lamellar keratectomy and a new set of testing, followed by toric IOL implantation. In the end, she had sharp, clear vision.

Pupillometry for LASIK and Cataracts

Drs. Salz and Seibel use their OPD to plan for cataract and refractive surgeries, because they say pupil measurement is an advantageous feature.

"In LASIK, there's some controversy about whether pupil size impacts the quality of vision at night. I think patients with extremely large pupils are at risk," Dr. Salz says. "We keep our OPD in a semi-dark area, which gives us a measurement of the mesopic pupil that's within 0.5 mm of a dark room. That allows us to screen and select the right patients for LASIK and inform them about the likelihood of night vision problems."

Some IOL choices are dependent on pupil size as well. Pupillometry results might determine whether the patient is a candidate for an apodized multifocal lens, according to Dr. Seibel. For example, the AcrySof Restor lens (Alcon) is diffractive only in the central 3.6 mm of the 6.0 mm optic, and the diffractive rings provide progressively less near vision as they progress from the center to the periphery of this zone. Therefore, a patient with a photopic pupil size of 1.5 mm will have stronger uncorrected near visual acuity than a patient with a pupil size closer to 3.0 mm. Patients with larger pupils may be better candidates for a full diffractive IOL design. Also, a patient with a mesopic pupil significantly larger than 6.0 mm may be at increased risk for edge glare with the smaller 5.0 mm optic of a Crystalens (Baush + Lomb).

Fast, Accurate Refraction

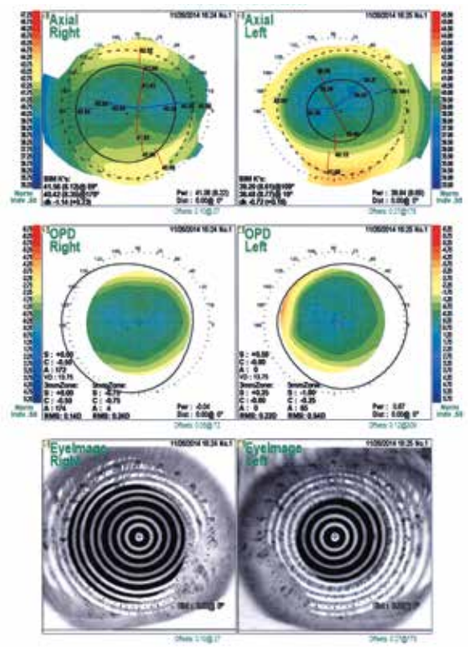
Autorefraction gives many surgeons a good starting point. Used as part of a regular exam or a surgical workup, the OPD provides reliable results for Drs. Salz and Seibel.

"This machine is a game changer," Mr. Ines says. "With the OPD-Scan, you're not going to have many returned prescriptions. You see the difference. You have confidence when you dispense a prescription because you know it's right."

Mr. Ines frequently uses the OPD as part of the workup for cataract surgery. In that process, the OPD is one of three tests performed to ensure accuracy.

"When we're preparing for cataract surgery, we compare results from the OPD at the first visit, followed by the IOLMaster and Atlas 9000 (Carl Zeiss Meditec) at the second visit. If the comparison creates some uncertainty, the patient may need ocular surface treatment followed by a new set of tests. If the ocular surface is clear, we take another optical path difference measurement and use that refraction result," he says.

"I get a very accurate automated refraction with the OPD," Dr. Salz says. "Manual refraction has some subjective uncertainty and takes time, but the OPD-Scan gives you a starting point that's very close to the final prescription in 2 seconds per eye. When you think about that and the total OPD time of about 2 minutes, we're getting an accurate refraction and all the other measurements rapidly, which speeds patient flow through the office."



Map of postop LASIK patient with complaints of increased halos and glare since LASIK 18 months prior. OPD Scan shows minimal refractive error in each eye, well-centered ablations. Dotted line on topography maps represents dilated pupil measured at 7.49 mm OD and 7.37 mm OS. At night, pupils are no doubt even larger than in the exam room, so light enters around the edge of the ablation causing the night vision complaints. This is confirmed by Spherical Aberration scores of 0.31 OD and 0.45 OS. Normal values in a study by Wang and Koch would be 0.128.[1] The OPD Scan wave gives us valuable information about refraction, topogrpahy, mesopic and photopic pupil size and spherical aberration scores.

Reference:
1. *Wang L, Koch D; Ocular higher-order aberrations in individuals screened for refractive surgery. J Cataract Refract Surg 2003; 29;1896-1903.*

Versatility is Key to Success

The OPD provides reliable refractions, along with pupillometry, topography, and wavefront and keratometry readings, all of which helps physicians save time while collecting all the necessary data to guide decision-making and ensure successful results after refractive and cataract surgeries. ■

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AN INTERVIEW WITH JONATHAN H. TALAMO, MD | BY ERIN MURPHY, CONTRIBUTING EDITOR

Better Flow Means Faster Diagnoses

BY ADDING ADVANCED TESTING TO THE INITIAL SCREENING, ONE PRACTICE LIMITS RETESTING AND MAKES MORE COMPLETE DIAGNOSES.

Is it really possible to spend less time with patients while adhering to the same rigorous standards of care? Your ability to do so may reside in your screening tests.

Typically, patients who enter an ophthalmic practice go through a series of standard tests performed by technicians before they continue to the doctor's examination. If the exam reveals a problem such as cataracts, keratoconus or retina disease, or if patients express interest in refractive surgery, then they return for more extensive testing. The physician evaluates those tests for a more complete diagnosis and starts a treatment plan.

At Talamo Hatch Laser Eye Consultants in Waltham, Mass., a busy cataract and refractive practice that also treats many patients with keratoconus, founder Jonathan H. Talamo, MD, decided to change this process. For the past 18 months, he's been using the OPD-Scan III (Marco) as part of his first-line testing for all patients. The OPD-Scan III simultaneously performs autorefraction, keratometry, placido disc topography, wavefront aberrometry, angle kappa measurement and pupillometry.

This approach allows Dr. Talamo to deliver a faster diagnosis and initiate treatment planning for most patients in a single visit.

"We wanted something that would combine and automate testing in an inline fashion that allowed comparisons between important aspects of the refractive and anatomic states of the eye. It also had to be quick and efficient to use so we could screen every patient who came into the practice. The OPD-Scan III fulfills those needs," he explains.

Saving Time

The inherent speed and automation of the OPD-Scan III are key to its value at Talamo Hatch Laser Eye Consultants, as is the workflow Dr. Talamo has designed around the system.

"The OPD-Scan III saves a tremendous amount of time. It gives us high-quality images very quickly, and we obtain results that would normally require three or four instruments as well as manual testing," he says. "Getting an accurate refraction, pupillometry, topography to view the anterior corneal curvature, wavefront and other interpretive data are all within the system's capabilities. And the combined diagnostic suite is very easy to use."

Many patients in the practice are referred for cataract or pathology, but doctors also see many healthy patients who express interest in corrective surgery options. Dr. Talamo has the data he needs when these patients walk in the exam room. "With the OPD-Scan III, when I see patients for the very first time, I already have much of the information I need without tying up staff to perform more testing. We can have a conversation about refractive or cataract surgery options immediately."

When Dr. Talamo trained his technicians on the OPD-Scan III (training is also available from Marco), he made sure they understood not only how to perform the tests, but also how to understand what the results meant. He explained what he was looking for on the system's maps, customized the displays for their needs and taught technicians to use the software to its full potential.

The Point Spread Function (PSF) representing the entire optical system (left image) matches the PSF from the internal optics (center image) of this cataract patient. The right image represents the PSF that would derive from the corneal surface alone, and is nearly perfect, confirming the distortion is from the internal optics (cataract).

"We find the OPD-Scan III very easy to use. We have a large population of elderly patients, and the device is a very quick and easy experience for them," explains Emily Woodcock, senior technician at the practice. "Now we use the OPD-Scan III on every new patient who walks through the door. The system has become the first choice for screening. Refractive and cataract evaluations and dry eye confirmation are quick and clear, and we get additional important information for surgeons, such angle kappa and internal versus external astigmatism."

Used as part of routine testing, the OPD-Scan III's capture and processing speed and its role in smart workflow coordination have proved very rewarding.

"This improves patient flow tremendously because technicians aren't guessing what tests I might want. No matter what established problems or complaints a patient has, or if it's a new patient, or someone who wants surgery, my technicians know that I want the OPD-Scan III," says Dr. Talamo. "We have evaluation matrices set up on the OPD-Scan III for cataract, refractive surgery and keratoconus, as well as for new patients whose status is unknown, and the technicians have the knowledge to perform additional testing based on the results. For example, if a patient comes in for refractive surgery and the device shows astigmatism on topography, our technicians are trained to recognize what is normal versus abnormal, so they can redirect the workup and the conversation."

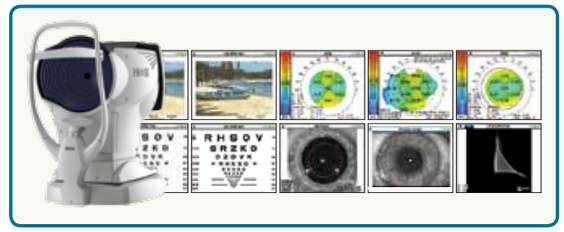
Gaining Information

The automated OPD-Scan III not only has trimmed workup time at Dr. Talamo's practice, enabling him create a faster and more favorable patient flow, but it also has given him additional key data to support clinical decisions.

"The system gives us efficiency as well as diagnostic capabilities that aren't routinely available with other devices," he explains. "And while I would normally have to put together data from different devices in my head, the OPD-Scan III does it for me seamlessly. For example, I'm able to look at aberrations and see where visual distortions originate. The point-spread function separates aberrations due to the corneal shape or ocular surface changes from those inside the eye."

Dr. Talamo also uses the device to assess patients who have had toric lens implants but don't meet expectations for visual acuity after surgery. "I dilate the patient and perform a scan with the OPD-Scan III, and we see if the lens has rotated," he says. "If so, the rotation may explain the residual astigmatism."

Graphic displays on the OPD-Scan III make it valuable as a teaching tool as well. When patients visualize the problem, they understand the necessity of treatment and support the doctor's recommended approach. It is also valuable in managing patient expectations concerning outcome limitations.



"It's very helpful to show patients their dry eye, especially if they don't have overt signs of severe dry eye. I also show patients retroillumination images of their cataracts, and if patients with wide angle kappa are interested in a multifocal lens, I can show them why that may not be a good choice," explains Dr. Talamo, adding, "Whether I'm diagnosing a problem, planning treatment or engaging my patients in that process, the OPD-Scan III is a very valuable system." ■

Jonathan H. Talamo, MD, is founder of Talamo Hatch Laser Eye Consultants in Waltham, Mass.

XFRACTION℠

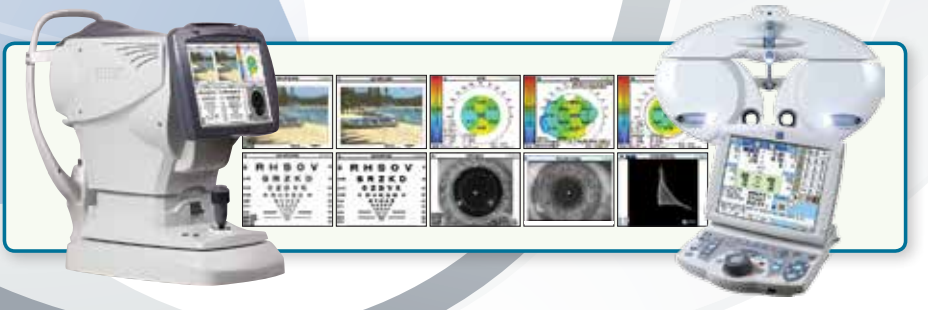
Optical Path Diagnostix & Wavefront Optimized Refraxion

XFRACTION℠ is a groundbreaking refractive process for today's thriving eyecare practice.

In this process, unique Optical Path Diagnostix are employed to define the physiological alignment of all optical path components. The OPD-Scan III runs over 20 diagnostics, corneal analytics, aberrometry, topography, and establishes the correct refractive starting point. This data is directly transferred to the TRS-5100 digital refractor, where either minor adjustments or full refractions are completed in Wavefront Optimized Refraxions.

Refractions are reduced by 5 to 7 minutes on wavefront patients (compared to manual refractions), and the vast diagnostic information about the patient's optical pathway provides full understanding of their physiological optics — only possible with the addition of unique Marco wavefront technology. Other benefits include greater time efficiencies, superior patient flow, daily patient capacity increases, optical revenue growth in the 15-20% range, and more quality time with each patient. Patients requiring cataract and/or refractive procedures will also benefit from optimized IOL selections and surgical outcomes.

The overall patient experience is greatly elevated through shorter wait and exam times, more time for doctor interaction/consultation, and greater satisfaction with prescriptions. In addition, the advanced technology experience is one that is reflected in higher patient loyalty and positive references to the practice.



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