

The Best of 2012

Members of *Cataract & Refractive Surgery Today*'s editorial advisory board share their picks for the year's best research, technology, and more.

BY GILLIAN McDERMOTT, MA, EDITOR-IN-CHIEF

We at *Cataract & Refractive Surgery Today* decided to wrap up 2012 with a look back at the best it had to offer. To identify exactly what that was, I surveyed *CRST*'s editorial advisory board. Happily, many of them were up to the task. Running this article in our November/December edition, of course, risks missing fourth-quarter highlights, but many of the trends and sparkling gems of the year have already been identified. I hope you enjoy your colleagues' responses.

CLINICAL PEARL

IOLs

A majority of the panel focused on cataract surgery in their selection of the year's best clinical pearls, and a large number of these choices concentrated on IOLs.

Michael Snyder, MD, of Cincinnati, selected "Warren Hill's adjusted regression formula for IOL [power] calculation in very high axial myopia." Dr. Snyder said that he uses this pearl weekly and noted that it affects many of his patients' outcomes.¹

Jason Jones, MD, of Sioux City, Iowa, chose a technique for stabilizing a misbehaving toric IOL presented by Kerry Solomon, MD, this year and discussed by others.² "Fortunately, patients with a toric IOL rotated out of alignment are rare, but the ability to rectify this situation and maintain the same lens technology as originally desired is very valuable," Dr. Jones stated. "Reverse optic capture [ROC] has been demonstrated as a reasonable technique with the Alcon [Laboratories, Inc.] single-piece acrylic lens with the publication of Maskit's analysis on abating negative dysphotopsia using ROC. ROC has also been a technique I and coauthors Thomas Oetting, MD, and George Jin, MD, PhD, demonstrated in a 2012 ASCRS film."^{3,4}

Mitchell Jackson, MD, of Lake Villa, Illinois, also focused on the IOL's stability when casting his vote for the best clinical pearl of 2012. He wrote that he was impressed by a presentation in which Robert Cionni, MD, discussed using a capsular tension ring to stabilize the AcrySof Toric lens (Alcon Laboratories, Inc.), "either as a secondary pro-

cedure at [the] time of re-rotation or placed at the time of the primary surgery to prevent rotation."⁵ Dr. Jackson noted that Cleveland surgeon William Wiley has discussed similar results for the STAAR Toric IOL (STAAR Surgical Company).⁶

Randall Olson, MD, of Salt Lake City highlighted on a very different aspect of IOLs—their potential to serve as a shield. "Using a three-piece IOL as a barrier after capsular rupture with [the] nucleus still remaining in the eye is a great approach," he stated. "Others have talked about this (Mike Snyder for one), but this is the first we have seen this in the peer-reviewed literature. ...I predict this will become a common and maybe the standard approach."

Phacoemulsification

"The most useful clinical pearl I came across this year was PhacoFirst by Stephen Slade, MD," commented Mark Kontos, MD, of Spokane, Washington. "Although described as a technique for use with the femtosecond laser, I have found it useful in nonfemto cases as well. I use this technique on ... mature dense cataracts with tight capsular bags as a way to safely create space prior to hydrodissection."

Dr. Slade described his approach in the March 2012 edition of *CRST*. The technique's name reflects the fact that the first surgical instrument in the eye is the phaco handpiece. "Using the phacofragmentation tip, I open the main incision, check the capsulorhexis, core the center of the nucleus, and remove the segments," Dr. Slade wrote.⁸

Laser Cataract Surgery

Mark Packer, MD, of Eugene, Oregon, singled out Sunil Shah, MBBS, FRCOphth, FRCSEd, for demonstrating "that careful cortical cleaving hydrodissection, with particular attention to tenting up the anterior capsule prior to irrigating in multiple locations, greatly facilitates cortical cleanup after femtosecond [laser] phacofragmentation with the LensAR Laser System [LensAR Inc.]."



eyetube.net/2v=kikuf

Dr. Packer explained, "As others have discovered in making the transition to femtosecond laser [cataract] surgery, cortical cleanup can be more difficult for at least two reasons. First, the laser cuts the cortex flush with the capsulotomy, so there are not cortical tags to grab with the aspiration port. Second, decompression of the capsular bag during hydrodissection is less effective, because the nucleus is already fragmented and cannot be pushed posteriorly as a single mass. However, [Prof.] Shah was able to effectively separate the cortex from the capsule by strongly tenting the capsule up and away from the cortex with the cannula tip. This maneuver allows removal of the cortex with the epinucleus."

Backward Suturing

After reading an article by Narváez et al, Lisa Arbisser, MD, of the Quad Cities in Iowa and Illinois altered her suturing technique.⁹ "I now suture backwards when needed, especially for pediatric cataract, from the scleral side to the corneal side so you never have the risk of losing the formation of the anterior chamber," she said. "I then tie with an adjustable 1-1-1 knot and use [a] slipknot technique. In the rare event that an adult clear corneal incision will not seal, or in the setting of traumatic laceration repair, this technique not only prevents chamber loss during suturing, but [it] allows careful adjustment of suture tension to minimize induced astigmatism and to prevent the vexing change in tightness as edema is squeezed out of a wound requiring multiple sutures, which sometimes leads to asymmetric tightening and suture replacement."

Capsular Staining

The favorite pearl of John Hovanesian, MD, of Laguna Hills, California, was surgical. He said he learned from Brian Little, FRCS, FRCOphth, that trypan blue (VisionBlue; DORC International BV) "can be used *without an air bubble* when treating a white cataract."

"Previously, I had injected an air bubble to fill the anterior chamber prior to the dye," he explained. "It can be challenging to keep the air bubble intact while injecting the dye, and distributing the dye over the lens required extra manipulation. Based on Brian's teaching, I now skip the air and (prior to viscoelastic) inject trypan blue toward the surface of the lens. Next, I inject viscoelastic to eject the blue dye. (There is no need to inject [balanced salt solution] between the dye and the viscoelastic.)"

The Patient's Perspective

"My clinical pearl for this year would be an insight given to me from the podium by Eric Donnenfeld, MD,

in the context of astigmatic keratotomy incisions," William Bond, MD, wrote. "When a patient stays sitting up for something the doctor does, it's a touch-up or an adjustment or something trivial; when they have to lie down for something the doctor does, it's a procedure. ... This can be seen as a mildly comedic throwaway line, but when something is funny, check it for truth. [This pearl] has changed several things in the way I practice."

LASIK Setup

For Stephen Coleman, MD, of Albuquerque, New Mexico, the best clinical pearl of 2012 centered on the pupil. "Whenever I have the opportunity to hear Louis Probst, MD, talk about LASIK, even in a restaurant, I pick up a pen and take notes," Dr. Coleman quipped. "Lou told me to mount an infrared monitor on my laser, keep the illumination super low or off completely, and follow the black-and-white image during the treatment. [This advice] changed the way I do LASIK. The pupil stays more consistent, and large, throughout the procedure, which greatly improves [the] accuracy and reproducibility of LASIK outcomes."

RESEARCH OR REVIEW ARTICLE/ PRESENTATION

Astigmatic Correction

This category of the survey yielded a fair amount of consensus. Three panelists nominated a presentation by Douglas Koch, MD, on the analysis of total corneal astigmatism.¹⁰ Cincinnati surgeon Robert Osher commented, "I had been aware of the fact that my toric lens patients seemed to have a bit more against-the-rule cylinder than I would have expected following surgery. Dr. Koch solved this mystery for me."

Stephen Brint, MD, of New Orleans tried numerous devices and techniques to address the problem but exclaimed, "I still had a significant amount of under- or overcorrection of astigmatism, occasionally flipping the axis, with just as much cylinder as I started with in the opposite axis!"

Dr. Brint's results improved dramatically in terms of consistency, postoperative UCVA, and residual cylinder when he began using the ORA System (WaveTec Vision), but he found the device often told him to use a spherical lens or the T5 or T6 model of the AcrySof Toric IOL instead of the planned T3 or T4 model. "Now, I know why," he remarked. "Posterior corneal cylinder is usually (but not always) about 0.50 to 0.75 D against the rule. Thus, 1.25 D of anterior corneal with-the-rule cylinder can really be 0.50 to 0.75 D total, not requiring a toric IOL. Conversely, 1.25 D against-the-rule cylinder usually ends up really being 1.75 to 2.00 D against the

rule, adding in the posterior corneal cylinder. For those not fortunate enough to have the ORA System in the OR or the Galilei Dual Scheimpflug Analyzer [Ziemer Ophthalmic Systems AG] in the office, Doug has developed the Baylor Nomogram, which takes into account estimated posterior corneal astigmatism, a step in the right direction but still not as accurate as really using the [aforementioned devices]."

Dr. Snyder noted the timeliness of Dr. Koch's research, "especially as we use measures of the anterior corneal surface (only) to plan our toric IOLs and our (femtosecond) laser limbal relaxing incisions [LRIs]."

Negative Dysphotopsia

Both Dr. Olson and Editor Emeritus of CRST John Doane, MD, of Kansas City, Missouri, selected research by Holladay and colleagues on negative dysphotopsia.¹¹ Commented Dr. Olson, this "elegant [article] clearly elucidates the mysterious phenomenon ... in great detail and gives us all the information we need to treat and correct this problem. We have shown that this is a much more common and persistent problem than most surgeons realize, because many patients quietly suffer without telling their surgeon."¹² Furthermore, we showed that there is a measurable impact on everyday function, so this is more than a mere annoyance. Jack's ray tracing analysis points out that function follows design and should (could?) lead to IOL design improvements that can ameliorate this problem."

Dr. Doane had a slightly different perspective on Dr. Holladay's findings. During the past 12 years, it is unlikely that any ophthalmologist, optometrist, or ophthalmic technician in the world who has seen patients with IOL implants has not also heard a complaint about a disturbing, temporal, black arc or crescent at the 1-week postoperative visit, Dr. Doane asserted. "Henceforth, if a patient asks what is causing this negative dysphotopsia symptom, I can tell them it is a type 3 penumbra, give them the article ... to indulge their curiosity, and tell them, as we always have, that their symptoms should fade with time," Dr. Doane said. "With this problem thankfully solved, we can now look for another riddle in the ocular universe to bother us."

The State of Cataract Surgery

Both Dr. Slade and Jai Parekh, MD, MBA, of Woodland Park, New Jersey, voted for an assessment of complication rates in cataract surgery by David Chang, MD.¹³

Noted Dr. Slade, in the review, Dr. Chang describes the current state of the art in cataract surgery and examines where and how femtosecond lasers may help to advance the field. Dr. Slade stated that, even without those pre-

dictions, "Dr. Chang's description of where we are with endophthalmitis, LRIs, toric lenses versus LRIs, and phaco technique was enlightening and educational."

Dr. Parekh praised the article for speaking "to the reality, today, of where we are in cataract surgery. Our outcomes are just so good that, before the greater mass of cataract surgeons adopts the femtosecond [laser], we probably need comparative studies to see if outcomes are different between both platforms."

Endophthalmitis Prophylaxis

Dr. Arbisser and New York surgeon Tal Raviv identified research supporting the use of intracameral antibiotics to decrease the rate of endophthalmitis after cataract surgery.¹⁴

"I was impressed with the study by Shorstein [and colleagues], which showed for the first time in a US center a tenfold reduction in endophthalmitis rates after instituting 100% intracameral antibiotics injection after phaco-emulsification," commented Dr. Raviv. "In my opinion, US surgeons now have fewer excuses to not follow this internationally accepted standard. Interestingly, some of the surgeons in the study used only intracameral antibiotics without any topical drops postoperatively and maintained safety. I have been using intracameral antibiotics (moxifloxacin) in 100% of my cases this year and look forward to more data on the effectiveness (or lack thereof) of postoperative topical prophylaxis."

According to Dr. Arbisser, this article "absolutely shows that it is appropriate to use intracameral antibiotics for cataract surgery." She added, "Next, they will try eliminating topical antibiotics. I think this is so important."

IOL Power Calculations

Dr. Packer nominated an article by Canovas and colleagues that, he said, demonstrated significantly more accurate IOL power calculations when spherical aberration in the cornea is taken into account.¹⁵ "A ray-tracing model ... determined which IOL power maximized the area under the modulation transfer function curve," Dr. Packer commented. "Post-LASIK IOL calculations have improved with better empirical formulas and the use of intraoperative aberrometry, but we can still use all the help we can get."

Presbyopic Correction

Dr. Wiley chose research on combining a corneal inlay with LASIK for the treatment of presbyopia.¹⁶ "It appears that [the] simultaneous placement of corneal inlays during LASIK is safe and effective in the treatment of both the underlying distance refractive error and providing

near visual acuity," he stated. "There are many young presbyopes who are seeking LASIK surgery for their distance correction and would welcome the potential to also decrease near vision spectacle dependence."

Detection of Keratoconus

Li and colleagues published "a seminal article on the use of Fourier-domain optical coherence tomography [OCT] with 5-μm axial resolution to differentiate keratoconic from normal eyes based upon epithelial thickness patterns," commented Jay Pepose, MD, PhD, of St. Louis.¹⁷ "Of a number of epithelial thickness variables analyzed, the pattern standard deviation of the epithelial map showed 100% sensitivity and 100% specificity in detecting the apical epithelial thinning that characterizes keratoconus. The speed and reproducibility of this technology could lead to automated detection systems. However, current potential limitations are the central 6-mm optical zone map, segmentation errors in some keratoconic eyes where the interface between epithelium and Bowman [layer] is less defined because of reflectivity, and [a] need for more extended studies with contact lens wearers to be sure that they don't show similar patterns of epithelial thinning. Nevertheless, the use of this promising technology may represent a paradigm shift in facilitating keratoconic screening in planning for refractive surgery."

"Fake" Side Effects

For his pick, Dr. Coleman looked outside the ophthalmic literature and meetings to an article in *The New York Times*.¹⁸ "I've long thought that, overall, as a specialty, we [ophthalmologists] could do a much better job with patients regarding informed consent and LASIK," he asserted. "This article highlights a review of 31 published studies where doctors describe a potential adverse side effect to a patient, give that same patient a 'fake' pill, and yet the patient reports the exact side effect that the doctor had initially described. [It is] sort of the opposite of the placebo effect, where a patient's expectation is that a particular treatment will benefit them. It's fascinating reading."

SOFTWARE

Most of the panelists were unenthusiastic about this category, but several respondents offered nominations.

Dispensing

Two surgeons voted for EyeScripts Dispensing, including the company's cofounder Dr. Jackson. He said that, "with software similar to that of any Walgreens or CVS," this software gives ophthalmologists the opportunity "to adjudicate claims in office to maximize patient[s'] outcomes by

eliminating unwanted brand-to-generic switches. Proper credentialing is needed and varies state by state."

Dr. Pepose noted that his practice adopted the software this year "to allow our patients the option and convenience of purchasing ophthalmic drugs while in the office. The company provides a computer software interface that allows us to determine the patients' benefits, copays, and keeps records of our inventory and when we will need further shipments of medication. Our patients are delighted with the convenience of obtaining their medications without an extra trip or line at the pharmacy, and we take the time to be sure that they have the benefit of any coupons supplied by the pharmaceutical industry. We also know that the patient is obtaining the specific drug that we prescribed without substitution and feel that compliance has been enhanced. In addition, the endeavor has been financially profitable."

Electronic Medical Records

According to David Goldman, MD, of Palm Beach Gardens, Florida, version 3.6 of Modernizing Medicine's EMA medical record system "is incredibly intuitive with rapid completion of visit notes via cloud-based computing and iPad interface [Apple, Inc.]. The electronic medical record adapts to your style of medicine, so after each use, [it] becomes faster and easier to use."

Surgery

Dr. Donnenfeld, CRST's chief medical editor, remarked on how impressed he has been "by the rapid development in software associated with femtosecond [laser] cataract surgery. We have had four software upgrades in the past 18 months on our LenSx Laser [Alcon Laboratories, Inc.] that have significantly improved the quality and speed of laser cataract surgery. The technological advances are coming quickly [and] will continue to improve the precision and accuracy of laser cataract surgery."

Dr. Packer chose the three-dimensional virtual guidance software for corneal relaxing incisions released this year by TrueVision Systems, Inc. He says that it "takes into account preprogrammed surgically induced astigmatism. As well as determining the arc length and position of the corneal relaxing incisions, the software further minimizes predicted postoperative refractive astigmatism by rotating the position of the main clear corneal incision. The system registers high-definition images from a preoperative slit-lamp exam and automatically superimposes them on the surgical eye to create a floating template for incisions. This system eliminates the need for any type of on-eye marking, fidgety devices, and messy ink. Also, the virtual arcuate incisions can be manipulated in the OR, allowing modification based on

intraoperative aberrometry or structural considerations (such as the location of clear corneal incisions)."

Dr. Wiley voted for a software program developed by John Berdahl, MD, and David Hardten, MD. According to Dr. Wiley, The Toric Results Analyzer (<http://astigmatismfix.com>) "can help surgeons who do not have access to intraoperative measurements. This software can guide a surgeon to adjust a toric IOL to maximize cylinder correction in a patient who has postoperative residual astigmatism secondary to a malpositioned IOL. This can be a valuable tool to use when attempting to correct residual cylinder in [a] patient with an unsatisfactory result and can help guide the surgeon as to what would be the best course of action to correct the residual cylinder."

Imaging

George Waring IV, MD, of Charleston, South Carolina, nominated new software for the RTVue R FD-OCT system (Optovue, Inc.). "Anterior segment OCT includes total corneal power (FDA approved) and epithelial mapping software (pending FDA approval)," he said. "The total corneal power software allows clinicians to take direct images of both posterior and anterior curvatures of the cornea with high fidelity and reproducibility. This data is processed with a corneal segmentation algorithm for measuring true total corneal power. This is of obvious importance and is very useful in postlaser refractive [surgery] IOL calculations. Optovue is working on corneal epithelial mapping software that will likely be a game changer for screening refractive surgery patients and understanding the role of [the] epithelium in general, which has been long overlooked."

Diagnostics

Marguerite McDonald, MD, of Lynbrook, New York, voted for the new network-capable software for the Keratograph (Oculus Optikgeräte GmbH). "[It] combines keratometric and corneal topography information gleaned from 22,000 measuring points," she wrote. "It has intuitive applications for keratoconus detection (critical for both LASIK and premium-channel IOL surgeons), contact lens fitting (fluorescein image simulation saves fitting time, especially in difficult cases), and has an optional pupilometry module. The Keratograph also has the ability to objectively classify bulbar redness, noninvasively assess the tear film, and document meibomian gland structure using infrared imaging."

Video

As in CRST's previous survey of this sort,¹⁹ Dr. Donnenfeld's fellow chief medical editor, Dr. Slade, picked video software, turbo.264 HD (Elgato Systems). "This software, and an optional USB chip, takes videos

and transcribes them into H.264, a powerful, low-loss codec," he said. "The software will also upload videos onto YouTube or put them into a suitable format for iPhones [Apple, Inc.], iPads, or high-definition presentations."

TECHNOLOGY

Laser Surgery

Several panelists chose femtosecond lasers as the best technology of 2012. Citing the simplicity and elegance of the approach, Dr. Olson said he is a big fan of the Catalys Precision Laser System (OptiMedica Corporation) in particular. "The high hertz rate, advanced visualization system, and liquid interface all seem to add a lot to this emerging overall technology," he said.

Dr. Slade focused on the real-time OCT used by femtosecond lasers for cataract surgery. "This is the 'image-guided' part of the laser that we often overlook for the effects of the laser cutting," he observed. Dr. Slade added that he has "found the wealth of information provided by these [OCT images] to be extremely valuable, first in planning the laser treatment but also in getting a look at the dimensions and density of the lens before [I] go into surgery."

Dr. Pepose commented that the frequencies used by the various femtosecond laser devices "may offer advantages in corneal surgery [with] regard to [the] smoothness of incisions. Current femtosecond [laser] models differ in their interface, engine speed, and other aspects. It will be interesting to determine whether some interfaces (such as liquid) may have advantages for steps in cataract surgery, while other interfaces that applanate may be better for corneal surgery, and curved interfaces may fall in between." Dr. Pepose is also curious what role these lasers may come to play in glaucoma and vitreoretinal surgery.

For refractive surgery, Scott MacRae, MD, of Rochester, New York, said he is impressed with the new Femtosecond LDV Z6 laser (Ziemer Ophthalmic Systems AG). "[It] can make vertical cuts, reverse bevels, deep lamellar keratoplasties, pockets for inlays or Intacs [Addition Technology, Inc.]," he explained. "The level of control is outstanding. One gets the best of both worlds being able to perform a variety of procedures ... and the use of small-bubble (microbubble) technology, which causes almost no tissue reaction, opaque bubble layer, or transient light sensitivity."

Microinvasive Glaucoma Surgery

Dr. Donnenfeld asserted that "this is the year of MIGS [microinvasive glaucoma surgery]. Ab interno glaucoma surgery ... promises to deliver unparalleled safety, which

will allow cataract surgeons to perform these procedures on patients with glaucoma and ocular hypertension. The iStent [Trabecular Micro-Bypass Stent; Glaukos Corporation] represents the first technology approved in this class and will be followed by several promising devices over the next several years."

Along the same lines, Dr. Arbisser stated that the iStent "will be the most game-changing technological device in our near future." She anticipates that the ability to combine ab interno glaucoma surgery with cataract surgery while preserving the conjunctiva for future interventions, if needed, will produce a major shift in glaucoma treatment. "I predict the next decade will see the synergy of cataract-glaucoma practice similar to the last decade's synergy of cataract and cornea," Dr. Arbisser remarked.

Dr. Snyder expressed enthusiasm for the recently approved trabecular microbypass stent as well as a supraciliary microbypass stent (CyPass Micro-Stent; Transcend Medical) that is currently in investigational device exemption trials.

The Cataract Procedure

Both Drs. Jackson and Packer voted for the ORA System. The latter said it allows "enhanced accuracy of intraoperative, real-time decision making for post-LASIK IOL power calculation and correction of astigmatism with either toric IOLs or corneal relaxing incisions. ORA now has an incorporated reticle for axis registration. Even if one uses all of the available empirical formulas for post-LASIK eyes, there is still a range of possible IOLs. My current methodology is to run the ASCRS IOL Calculator using all available information and then [to] pull the entire range of IOLs recommended. These sit on a shelf in the OR. When the eye is aphakic, I measure the refractive state with ORA, carefully adjusting the IOP and making sure there is good alignment and targeting. I implant the IOL recommended by ORA if it is within the range of IOLs on the shelf. If it is not (it has never been outside the range by more than 0.50 D), I pick the IOL from the range closest to the ORA-recommended power. Using this method, so far, I have avoided outcomes worse than 20/40 UCVA."

Dr. Osher raved about the SMI Surgery Guidance product line (SensoMotoric Instruments GmbH). "This guidance system performs preoperative registration of the patient's limbal anatomy and then allows the surgeon to precisely align a toric lens," he stated. "It also sizes the capsulorhexis and confirms centration of a multifocal lens."

Dr. Parekh singled out the Bausch + Lomb Storz CapsuleGuard IA. "Sometimes, in cataract extraction, removing the cortical material can be trickier than

removing the nucleus, especially with smaller pupils, flimsy posterior capsules, and tougher cataracts," he stated. "Given [the handpiece's] silicone composition, I feel safer going after the cortex in all my cases, including 'hidden cortex' under the iris plane in the periphery."

Richard Mackool, MD, of Astoria, New York, voted for the Intrepid AutoSert IOL Injector (Alcon Laboratories, Inc.), which Dr. Osher mentioned he uses for every single case. "The IOL is injected through a cartridge that is attached to the handpiece, and the entire process is controlled via the Infiniti [Vision System's] foot pedal," Dr. Mackool wrote (phaco unit manufactured by Alcon Laboratories, Inc.). In his experience, the instrument "permits remarkable control of IOL delivery, and only one hand is required to hold the handpiece. ...The ability to simultaneously inject the IOL at a desired rate while simultaneously positioning the leading or trailing haptic with the second instrument can be of great value in eyes with anterior and/or posterior capsule tears. [I] have also used this two-handed technique when injecting lenses into the ciliary sulcus, enabling [me] to verify that the leading haptic entered the space between the iris and anterior capsule."

Dr. Raviv nominated "the modernized anterior vitrectomy setup" on the Whitestar Signature System (Abbott Medical Optics Inc.). "The vitrectors come in 23 gauge (in addition to the older 20 gauge) and are designed to be used biaxially with a separate infusion cannula through two 1-mm paracenteses," he stated. "Furthermore, the Signature allows cut rates of 2,500—a safer rate used by retina surgeons. This year, I've even attached a 25-gauge vitrectomy cutter to the Signature and, using a trocar, performed one-port, sutureless, pars plana vitrectomies in cases of traumatic cataracts or to deepen [a] dangerously shallow chamber. Using the 25-gauge instruments anteriorly through [a] tiny paracentesis gives the surgeon the utmost control of vitreous removal. With planned vitrectomies—not uncommon for IOL exchanges after YAG or in complex cataract cases—anterior segment surgeons can now benefit from the technological advancements of our retina colleagues."

The Ocular Surface

Dr. McDonald voted for the LipiFlow Thermal Pulsation System (TearScience, Inc.). "At last, we have something to offer our ocular surface disease patients who are on a maximum regimen but still symptomatic or who cannot find the time or money to follow their doctor's suggested regimen (soaks, scrubs, etc.)," she wrote. Dr. McDonald added that the "12-minute, computer-controlled, thermal, homeopathic lid massage

heats all four lids until the altered meibum is less viscous, after which the gentle pulsations assist in the extrusion of the meibum. The patients feel better immediately and every day thereafter until they reach their maximum benefit at approximately 3 to 6 months for severe cases (faster for mild to moderate cases). The patients hold that benefit for approximately 9 to 12 months (range, 6-36 months). During this period, the patients feel comfortable while cutting back very significantly on their ocular surface regimen. When the symptoms come back, the treatment can be repeated." ■

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