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Utah needs support for kiosk Rx bill

Consumer health may be in danger if any bill allowing autorefractor exams is passed

Gretchyn M. Bailey, NCLC, FAAO
Editor in Chief, Content Channel Director

Salt Lake City, UT—Earlier this year, Clive E. Watson, executive director of the Utah Optometric Association (UOA), sent an open letter to all executive directors at state associations of optometry. He asked for financial help in continuing to battle any state bill allowing the use of optical scan machines in retail locations. In essence, consumers would obtain a spectacle Rx from an autorefractor without undergoing an eye examination from an eye-care professional.

Last year, UOA organized a grassroots response to prevent HB 408 from being introduced into Utah legislature by Rep. Gregory H. Hughes (R). The bill itself was what is called a “boxcar” bill—a bill that is created but purposely left empty until it is ready for introduction, likely at the end of the legislative session. (Interesting note: Utah is considering disallowing the use of boxcar bills. See “Resolution would put a stop to ‘boxcar’ bills”; <http://www.ksl.com/?nid=757&sid=23683046>)

Says Watson: “The UOA rallied, raised money through lobby, and managed to show enough strength through constituency that Rep. Hughes

withdrew the empty bill before it hit the table.”

Although UOA was able to prevent the “Use of Optical Scan Machines” bill from being put forth for consideration, the concept of kiosk Rx is not dead.

“Last year at the AOA Congressional meeting, [Utah State] Senator Karen Mayne (D) said that this bill is a matter of ‘when,’ not ‘if,’” says Russ Purdy, OD, UOA vice president of legislation and previous president. “We’ve heard from different sources that this is going to happen.”

The difficulty lies with knowing who is being...
See **Automation** on page 5

TOP MEDICAL APPS IN 2013

By Gretchyn M. Bailey, NCLC, FAAO
Editor in Chief/Content Channel Director

The use of mobile technology to deliver health-care services and information skyrocketed in 2012. Some 44 million health apps will have been downloaded by the end of this year (predicted to reach 142 million downloads by 2016),¹ and consumers are now spending \$700 million per year on these apps.² There are more than 10,000 health apps in the iTunes app store,³ the number of American using smartphones for health information grew from 61 million to 75 million in 2012,² and 88% of doctors would like patients to monitor their health at home.³

Here are a few medical and health apps your patients might be using in 2013.

MediSafe Project. MediSafe Project is the first-ever cloud-synced pillbox app that not only reminds you

See **Top apps** on page 5

Mobile healthcare delivery skyrocketed in 2012

44 MILLION health apps will have been downloaded by the end of the year (predicted to reach 142 million downloads by 2016)¹

\$700 MILLION consumers are now spending per year on these apps²

10,000 health apps in the iTunes app store³

61 MILLION TO 75 MILLION growth this year in the number of American using smartphones for health information²

88% of doctors would like patients to monitor their health at home³



Sources: iHealthBeat, Healthcare IT News, and MedNEWS Blog.

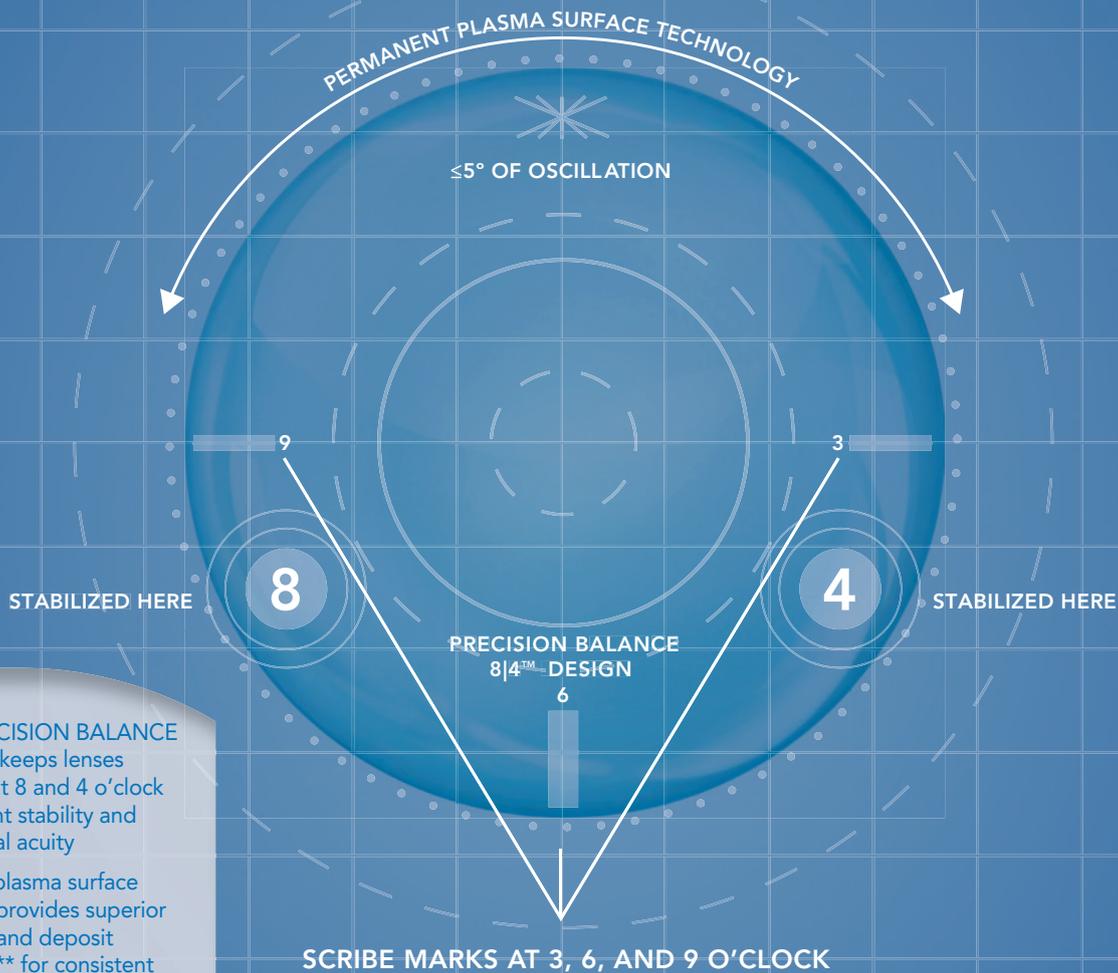
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Premium Frames & Lenses

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References: 1. In vitro measurement of contact angles on unworn spherical lenses; significance demonstrated at the 0.05 level; Alcon data on file, 2009. 2. Ex vivo measurement of lipid deposits on lenses worn daily through manufacturer-recommended replacement period; AOSep Plus used for cleaning and disinfection; significance demonstrated at the 0.05 level; Alcon data on file, 2008. 3. Nash W, Gabriel M, Mowrey-Mckee M. A comparison of various silicone hydrogel lenses; lipid and protein deposition as a result of daily wear. *Optom Vis Sci.* 2010;87:E-abstract 105110. 4. Davis RL, Eiden SB. Evaluation of changes in comfort and vision during weeks 3 and 4 of monthly replacement silicone hydrogel contact lenses. *American Academy of Optometry*; 2012; E-abstract 125401.

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FAX: 218/740-6417**Advertising**485 Route 1 South, Building F, First Floor, Iselin, NJ 08830-3009
732/596-0276 • FAX: 732/596-0003**Production**131 W. First St., Duluth, MN 55802-2065
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In partnership with our readers, we will achieve mutual success by:

- Being a forum for optometrists to communicate their clinical knowledge, insights, and discoveries.
- Providing management information that allows optometrists to enhance and expand their practices.
- Addressing political and socioeconomic issues that may either assist or hinder the optometric community, and reporting those issues and their potential outcomes to our readers.

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Chief Optometric Editor Ernest L. Bowling, OD, MS, FAAO
Associate Optometric Editor Katherine M. Mastrola, MS, OD, FAAO

Group Content Director Mark L. Dlugoss
mdlugoss@advanstar.com 440/891-2703

Content Channel Director Gretchyn M. Bailey, NCLC, FAAO
gbailey@advanstar.com 215/412-0214

Content Channel Manager Paul Matheis
pmatheis@advanstar.com 440/891-2606

Digital & Interactive Content Manager Brandon Glenn
bglen@advanstar.com 440/891-2638

Content Coordinator Miranda Hester
mhester@advanstar.com 440/756-2726

Group Art Director Robert McGarr

Art Director Nicole Davis-Slocum

Publishing/Advertising

Executive Vice President Georgiann DeCenzo
gdecenzo@advanstar.com 440/891-2778

VP, Group Publisher Ken Sylvia
ksylvia@advanstar.com 732/346-3017

Publisher Leonardo Avila
lavila@advanstar.com 302/239-5665

Associate Publisher Erin Schlusel
eschlusel@advanstar.com 215/886-3804

National Account Manager Rebecca Hussain
rhussain@advanstar.com 415/971-4650

Account Manager, Classified/
Display Advertising Darlene Balzano
dbalzano@advanstar.com 440/891-2779

Account Manager, Recruitment Advertising Jacqueline Moran
jmoran@advanstar.com 800/225-4569 Ext. 2762

Director, Sales Data Gail Kaye

Sales Support Hannah Curis

Reprints 877-652-5295 ext. 121/bkolb@wrightsmedia.com
Outside US, UK, direct dial: 281-419-5725. Ext. 121

List Account Executive Renée Schuster
rschuster@advanstar.com 440/891-2613

Permissions/International Licensing Maureen Cannon
mcannon@advanstar.com 440/891-2742

Production

Senior Production Manager Karen Lenzen

Circulation

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Director Christine Shappell

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Automation

Continued from page 1

hind the proposed legislation and when a bill would be introduced. UOA believes that locally based online contact lens retailer 1-800 CONTACTS was behind last year's HB 408. "The problem is that there's nothing in writing," says Dr. Purdy. "HB 408 had a number and a title, but that's it. A lobbyist talked to Rep. Hughes about HB 408 last year, and he said he wasn't reintroducing the bill. We still haven't seen any wording about what that bill would have said because we killed it before it was introduced.

"It's hard because we don't have something concrete in our hand to say that's what the legislation looks like," he says. "It's like fighting a ghost. It's hard to get people to understand if we have nothing to show them. Legislators may have good intentions, but they perhaps don't foresee the problems down the road that this could cause."

The 2013 legislative session comes to a close on March 14, and it's possible but unlikely that a new bill could be introduced before the close of session.

UOA members are urging their colleagues to pay attention to what happens in Utah

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Russ Purdy, OD

because if such a law is passed, similar laws could be introduced around the country. "We need to beat this if it comes up, and we expect it to come up," says Dr. Purdy. "If this were to pass, it's like the contact lens expiration law—if it gets passed in Utah, it goes to other states. We need other states to be aware that it could happen anywhere."

Watson points out in his letter that 1-800

CONTACTS was bought in June 2012 by WellPoint, a large national insurance provider. He also notes: "WellPoint has invested in SoloHealth, a deliverer of healthcare-related 'kiosks.' The UOA has not been able to determine how this will affect things, but we believe it makes our job more difficult." 1-800 CONTACTS launched *www.glasses.com*, an online optical retail site, in June 2011.

WellPoint was contacted for comment but did not respond.

UOA members are concerned about the implications of allowing consumers to walk up to a kiosk and obtain an eyeglasses Rx in a minute or two without any medical advice from an eyecare professional. "A consumer could step up to such a kiosk much like to a blood pressure cuff machine in drug-stores or supermarkets," Watson says. "It's kind of sexy from a consumer standpoint. The kiosk does a screening and spits out an Rx for spectacles. But the concept in itself eliminates the doctor from the equation and opens up the potential of undiagnosed pathology. The majority of consumers are going to walk away from this screening feeling that they've had an examination when in reality they could have underlying pathology that might affect their health." **ODT**

Cover: Thinkstock/Stockphoto

Top apps

Continued from page 1

when it's time to take your medication, but also sends your family, friends, and caretakers alerts if you miss a dose, leveraging the power of your support system to keep you healthier. Compatible with the FDA's drug database, generic and brand name medications autocomplete as users enter them—automatically recording the correct pharmaceutical name, manufacturer, and medication strength. Or, use your smartphone's camera to snap the FDA's universal National Drug Code (NDC) number, found on all original pharmaceutical packaging, to enter a medication. <http://medisafeproject.com/>

EveryoneEat! EveryoneEat! helps the 150 million Americans living with a chronic condition or dietary restriction find restaurants serving meals appropriate for them. By partnering with nationally recognized health associations, clinical and registered dietitians, and thousands of your favorite restaurants, the app finds dishes that meet your dietary needs and displays them by cuisine type or restaurant name. Simply enter your age, height, weight, gender, and

activity level, and the app is ready to use. <http://foodcalc.com/everyoneeat>

WebMD Pain Coach. WebMD Pain Coach helps people with chronic pain conditions make daily health and wellness choices so they can manage their pain smarter. From back pain to migraines, the app lets you record daily pain levels, export your pain history to PDF, and e-mail it to your doctor. You can also select doctor-approved goals from 5 lifestyle categories related to your pain condition(s): Food, Rest, Exercise, Mood, and Treatments, view "bite-sized" tips matched with your goals and organized into the same 5 lifestyle categories, and read hundreds of articles, videos, slideshows, and quizzes on pain management related to your condition(s). <http://www.webmd.com/a-to-z-guides/video/pain-coach-long>

Emotion Select. Part of the "Spotlight Autism" app series, Emotion Select helps children on the Autism Spectrum Disorder (ASD) or those suffering other social delays practice learning and identifying emotions. After reviewing illustrations for joy, sadness, anger, surprise, and fear, children are given the chance to anticipate and apply them in "real life" social situations. Includes statistical analysis for parents, teachers, and therapists to track specific strengths and weak-

nesses of children's learning progression. <http://www.zbrainy.com/apps/emotionselect/>

Emergency Kit. Emergency Kit is an easy way to aggregate all of your most critical information—and could save your life in a medical emergency. Emergency technicians will be able to view your vital stats including blood type, allergies, medications, and emergency contacts within the app. It can also turn your phone into an SOS light beacon, send out an emergency text message or e-mail with your GPS coordinates, or look up how to treat a variety of injuries. <http://startlab.us/emergency-kit/> **ODT**

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'Help! I need a pro'



By Ernest L. Bowling,
OD, MS, FAAO
Chief Optometric Editor

The other day I was driving along, enjoying a beautiful, warm Southern winter day, when a plumber whizzed by in his dirty white van. The truck-side advertising showed a dripping faucet beside the plumber's name and a list of services he performed. Below that, across the length of the van's side, was this jingle: "We fix what your husband repaired."

I smiled, recalling the time I stood in my basement, ankle deep in water with a pipe wrench in my hand, stubbornly determined to repair what began as a leaky faucet but, through my efforts, had escalated into something much worse. Only after my wife turned off the main water valve did I call a plumber.

I'm not alone. Our patients do it every day. How many patients have you seen who, in an attempt to quiet a red eye, self medicated with over-the-counter products only to present to your office days later with a smoldering iritis or corneal ulcer? Who had a foreign body in the eye and went to the emergency room instead of calling you, then were told by the ER physician to "follow up with your eye doctor in the morning"? Who had flashes and floaters but decided to give it a few days,

then shows up in your office with a retinal detachment?

We are the primary eye care profession. It is our job to care for our patients' visual and ocular health needs. Then why do they so often do they seek care on their own or elsewhere?

It's how we are perceived. I know I'm preaching to the choir, but we are so very much more than prescribers of eyeglasses and contact lenses. Developing a medical optometric practice begins with the doctor, of course, and then it follows with continually training the staff in what we can do. But to be most effective we have to get the message to the patients we serve.

Developing a medical optometric practice takes time and planning. Think about these first steps:

- 1. Business cards.** All my business cards have a tagline, "Diagnosis and Treatment of Eye Disease," directly below my name. The card has my cell number, and I tell each and every patient not to hesitate to call me if he or she has any sort of eye health problem. Anytime. 24/7. And I mean it.
- 2. Answering service.** You can employ a professional answering service or have the office phone rolled over to your pager or cell number after hours. Again, it's all about patient access.

3. Professional referrals. Perhaps the easiest way to build a medical optometric practice is by communicating with other healthcare practitioners. Got a diabetic patient in your chair? Shoot his general physician a letter communicating your exam findings. I have found that other practitioners appreciate this communication and, these days, many physicians require some form of communication to complete the patient's record. Nurse practitioners have always seemed very receptive to my efforts. Spend time developing a strong network of referral relationships.

4. Get on medical plans. Doing so will reduce your dependency on routine exam patients coming from vision care plans and increase the number of services billed to major medical insurance. It is important that you get paid for what you do, or else you won't be doing it for long.

Ultimately, it is up to you to create the type of practice you want. It's your job to educate everyone around you about the full range of services you can provide. And you gotta be willing to answer that phone at 3 in the morning.

How do you educate your patients and healthcare colleagues about optometry? Drop me a line at drbowling@windstream.net. **ODT**

Want your techs to be motivated and engaged? Train them



By Gretchyn M. Bailey,
NCLC, FAAO
Editor in Chief, Content Channel
Director

I mentioned in my January editorial that I am a former optometric and contact lens technician. I began my optometric career by chance. I had transferred from a university near Pittsburgh to Temple University in Philadelphia, I had moved back home to commute to school, and I needed a job. A neighbor worked for an optometrist adjacent to LensCrafters in our local mall, and the doctor needed help. I was 19 years old.

I left 19 behind a long time ago, but somehow optometry stayed with me. Little did I know then that I had started walking on a new career path. After spending some time at that first optometrist's office, I moved on

to a short stint at an optical. Then I moved about an hour away and needed a job closer to where I lived. The optical manager's husband was an optometrist, managing partner in a very busy group practice, and he was able to find a place for me. I stayed at that office for several years, even continuing part time after I landed my job at *Review of Optometry*. Working with those doctors changed the direction of my life.

I learned a lot at each of those positions, knowledge that helps me today, but I never learned that optometric techs could take classes to learn more about their jobs and earn any type of certification.

Sadly, many techs don't know that learning more or obtaining certification is an option. Many techs don't realize that their jobs could be a career.

Their bosses, optometrists, need to encour-

age techs to make their jobs a career and then value techs who make that choice. Optometrists need to tell techs that education and certification is an option. Optometrists need to be excited so their techs will be excited about taking the next step. Optometrists need to be supportive in all ways to encourage their techs.

Optometrists also need to get over the fear that their techs will leave after gaining formal education or earning certification, especially if the practice paid for it. Will some leave, in search of a better or different position? Sure. And some will stay to put their knowledge to work in *your* office, building *your* practice.

iTech, our quarterly publication directed toward techs, accompanies this issue of *Optometry Times*. One article discusses education and certification. Please give the issue to your techs and encourage them to turn their job into a career. **ODT**

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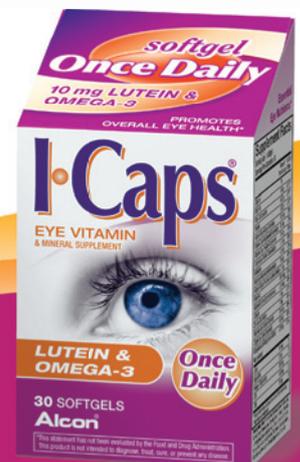
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Patients more likely to share information with practitioners via digital communication, survey says

By Rachael Zimlich

Whether or not eyecare professionals are comfortable with moving their practices into the virtual realm, more and more patients are moving in that direction, and some say digital communication may even improve their level of honesty with their practitioners.

TeleVox, a high-tech engagement communications company, polled over 1,000 consumers about their preferences when it comes to digital communications with their healthcare providers.

Overall, 85% of consumers said that digital communications, such as text messages, e-mails, and voicemails, are just as helpful—if not more helpful—than in-person or phone conversations with their practitioners. More than one-third of respondents admitted they would be more honest about their medical needs through an automated call, e-mail, or text message than they would be in person with their doctors. Nearly 30% said they would talk more about their nutritional habits and fitness regimens through digital communication, according to the report.

Digital communication also can help eyecare professionals gain patient trust in an era when little opportunity exists to take more time to bond with patients during office vis-

its. Three in 10 consumers polled said that receiving some kind of digital communication from a doctor between visits would increase feelings of trust, and 51% said that such communications make them feel more valued as a patient. Another 35% say digital communication improved their opinion of a provider, and 34% reported feeling more certain they would visit that provider again. Patients who don't follow their exact treatment plans could benefit from additional communication, too, with 35% admitting they would be more likely to follow a doctor's directions if they received reminders via e-mail, voicemail, or text message.

Consumers surveyed by TeleVox also identified their preferences related to digital communication. E-mail was the favorite method overall and was poll participants' preferred communication tool for feedback after an office visit. Roughly 55% of consumers also said they prefer e-mail when it comes to seasonal health offers such as scheduling flu shots and for payment reminders.

Appointment reminders

When it comes to appointment reminders, however, consumers reported a preference for phone calls. For patient care between visits, survey respondents were split down the middle, with 45% preferring phone communication and 49% preferring e-mail. Likewise, 45% of poll participants said they preferred phone calls for notification of medical or health product recalls, whereas 50% said they preferred e-mails.

Preferences are further refined in the study by gender and generation. More than 20% of men polled said that communications from their physicians should go beyond telling them to get healthy—physicians should tell them *how* to get healthy. Three in 10 said that digital reminders about appointments and patient care would increase trust in a doctor, but roughly half expect that communications be relevant to them individually and personalized to their specific needs. About 14% of the men surveyed said they would ignore or refuse digital communications that are not personalized with their information.

Similarly, 11% of women said they would reject communications that were not personalized. More women were open to digital communications—with 42% saying text or e-mail communications would be helpful—but 35% prefer phone communications, and 10% wanted direct mail.

Age didn't prove to be as large of an obstacle to digital communications as one might think, either, according to the report. More than 80% of baby boomers—who visit their healthcare providers more frequently than their younger counterparts—said they would find text, e-mail, and voicemail messages helpful. But 42% still said

MY FAVORITE APP

Tript Pro

I'd say Tript Pro is my number-one app. Most of my favorite apps are travel related because I travel so much. Tript Pro was the first and remains the best way to organize all travel details in one easily accessed place. It also helps rebook when flights are cancelled or misconnect.

—Art Epstein, OD, Phoenix, AZ



Go Digital

More than 1,000 consumers responded to a poll about digital communications (text, e-mail, or voicemail messages) with their healthcare providers.

With digital messages:

- 85% say they are just as helpful.
- 33% would be more honest about their medical needs.
- 30% would more frequently discuss nutrition and fitness.
- 34% would likely visit that physician again.
- 35% would be more likely to follow physician instructions.

their preference was for phone communications.

Regional differences regarding digital communication preferences were observed, too. Roughly 40% of consumers in the South and West said text or e-mail would be helpful, whereas 30% said they prefer phone calls. In the Midwest, however, only 32% said they would appreciate text or e-mail; 34% would prefer phone calls, and 9% would prefer direct mail—one option not even noted by consumers in the South and West. Similarly, 49% of consumers in the Northeast said they preferred text and e-mail communications, 36% said they preferred phone calls, and 8% said they preferred direct mail. **ODT**

Crizal Kids UV™ Lenses: Shielding Young Eyes from Ultraviolet Radiation



Mary Lou French, OD, MEd, FAAO

Today, almost everyone knows that long-term sun exposure can cause serious damage to the skin, but fewer people are aware that ultraviolet (UV) radiation can cause equally severe damage to eyes. The risks of UV to the eyes are well documented. There is compelling epidemiological evidence that sun exposure can cause very serious eye disease, including pterygium, cortical cataract, and possibly age-related macular degeneration.

Limiting UV exposure is, therefore, of critical importance to eye health. This is particularly true for children, who are more vulnerable than adults to ocular UV hazards. It is vital that eyecare practitioners help parents recognize the dangers of UV exposure and offer solutions for protecting their children's eyes.

Children at Higher Risk

Children have larger pupils than adults, and their crystalline lenses are virtually transparent. As a result, almost all visible light *and* any UV radiation that is not absorbed by the cornea can pass easily through the lens and strike the retina, increasing its risk for cumulative photochemical damage.

However, as children mature, their crystalline lenses yellow and become more effective UV filters. Thus, in children aged 10 or younger, the lens transmits 75% or more of UV radiation, but by age 25, that drops to 25% (Figure 1).¹

Children's lifestyles also make them more likely to experience prolonged sun exposure. Active children spend much of their time outdoors, particularly in the summer, the time of year when ambient UV radiation levels are highest. Without proper protection, these children will receive a significant fraction of their lifetime UV exposure early in life—when they are most vulnerable. There is no consensus on the

Most Complete Daily UV Protection



- UV protection on front *and* back sides of lens
- Eye-Sun Protection Factor (E-SPF®) of 25 (ie, the eyes are 25 times more protected than wearing no lenses at all)

transmission, however, does not eliminate the UV hazard to the eye. Research by Dr. Karl Citek has shown that while traditional antireflective coatings transmit almost all visible light, they reflect high levels of UV.³ As a result, the back surface of some No-Glare lenses can reflect damaging UV directly into the wearer's eye.

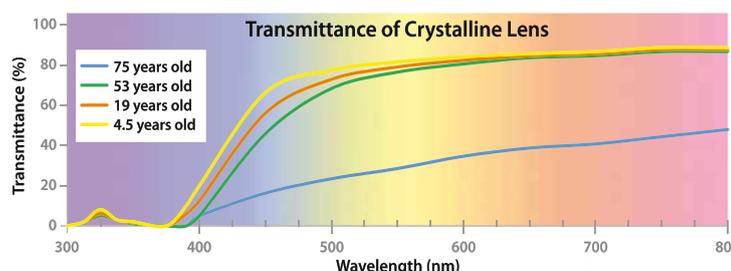


FIGURE 1. Percent transmission of the human crystalline lens at various wavelengths, by age. (Source: Refs 4 and 5.)

average UV radiation dose during childhood and teen years, but studies have indicated that as much as 50% of total lifetime UV exposure can occur before age 20.²

UV radiation damage is cumulative, which means that the risk for developing UV-related conditions continues to increase with age. The harmful effects of UV radiation can manifest many years after exposure, and childhood exposure to UV radiation may play a role in the development of ocular diseases in adulthood. Thus, it is vital to start UV protection at the earliest possible age.

Greater Protection

UV-protective lenses are a valuable tool in reducing UV radiation exposure, as is wearing a broad-brimmed hat and, for those children that wear them, UV-blocking contact lenses. Today, the standard material in children's eyewear is polycarbonate, which absorbs 100% of UV-A and UV-B rays transmitted through the lens. Just blocking UV

This backside UV reflection inspired the development of Essilor's Broad Spectrum Technology™, which effectively reduces UV reflection. This technology has been incorporated into all Crizal® lenses from Essilor, including the new Crizal Kids UV lens (which comes standard with polycarbonate), providing an additional measure of UV protection where it's needed most: in children's eyewear.

Mary Lou French, OD, MEd, FAAO, practices at Children's Eyecare in Orland Park, IL.

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The Advantages of Crizal Kids UV™ lenses

Crizal Kids UV lenses are tailored to meet children's needs for safe, clear and comfortable vision.

Eye Protection:

- Most complete daily UV protection: front side UV transmission protection (Airwear® polycarbonate lens material) plus backside UV reflection protection (Crizal Kids UV No-Glare technology)
- Made from Airwear® polycarbonate material for durable, lightweight lenses

Clear Vision:

- Treated with Essilor's superior Crizal No-Glare technology, lenses are easy to clean, resist smudges and scratches, and protect against glare
- Because children learn so much through their eyes, Crizal Kids UV lenses ensure they can have the clearest vision possible

Transitions Optical compiles multicultural initiative report

Pinellas Park, FL—Transitions Optical Inc. has released *Cultural Connections: The 2012 Multicultural Initiative Report*, an overview of the company's multicultural initiatives.

Among the programs and opportunities included are research conducted by Transitions Optical; resources available to both eyecare professionals and culturally diverse consumers; and programs executed through partnerships with industry and cultural organizations. The report also features profiles of Transitions Optical's Diversity Advisory Board members, who oversee all efforts and ensure they are culturally appropriate and relevant.

"The Transitions Cultural Connections initiative has come so far since we began in 2006—and where we are now is just the beginning," said Manuel Solis, multicultural marketing manager, Transitions Optical.

"With the support of our industry partners and the guidance of our Diversity Advisory Board, we are committed to expanding our multicultural efforts in 2013 and beyond to ensure that growing groups at risk are getting the best possible eyecare," Solis added.

Transitions Optical's multicultural initiative report is available free of charge through Transitions Optical Customer Service at CSservice@Transitions.com or 800/848-1506. A printable PDF version is also available online in the "My Industry" section of *MyMulticulturalToolkit.com* and includes links to useful tools and resources for eyecare professionals.

Ivantis completes \$27M financing for novel glaucoma procedure

Irvine, CA—Ivantis Inc. has closed on \$27M in funding in the first closing of its Series B round led by Ascension Health Ventures (AHV). The round also includes returning investors New Enterprise Associates (NEA) and Delphi Ventures, as well as additional new investors, including MemorialCare Innovation Fund.

These funds will be used to support four randomized, prospective, controlled

multi-center trials at various stages around the world, including the ongoing U.S. trial.

Additionally, Ivantis announced it has surpassed 50% enrollment in its comparative effectiveness trial, called the HYDRUS III Study, which evaluates the company's Hydrus Microstent vs. the iStent Trabecular Micro-Bypass, another leading technology in the emerging micro-invasive glaucoma surgery (MIGS) category.

The HYDRUS III Study is an international, multi-center, randomized, controlled trial, the first of its kind to compare two different MIGS approaches.

Beckman Foundation awards \$3 M for retinal diseases research

Irvine, CA—The Arnold and Mabel Beckman Foundation has awarded a \$3 million grant to the Gavin Herbert Eye Institute, part of University of California, Irvine [UCI] Health, for fellowships and instruments to advance research to prevent blindness caused by diseases such as age-related macular degeneration and retinitis pigmentosa (RP).

The Beckman Foundation grant includes \$1 million for state-of-the-art instruments designed to perform promising medical procedures such as stem cell transplantation for retinal degeneration.

Henry J. Klassen, MD, PhD, associate professor of ophthalmology, and his Gavin Herbert Eye Institute team have shown that stem cells can repair damaged retinal cells in RP.

The other \$2 million from the Beckman Foundation grant establishes fellowships for young researchers to contribute to stem cell studies and other new avenues of eye research.

NECO, MCPHS explore joining forces

Boston—New England College of Optometry (NECO) and Massachusetts College of Pharmacy and Health Sciences (MCPHS) have signed a letter of intent to explore a potential combination.

Officials from both colleges said a natural synergy exists between the institutions to support combining the two schools. The officials also said such a

move would create an opportunity to expand NECO's highly respected brand and expertise in optometry to Worcester.

Steven Manfredi, NECO's board chairman said: "We are confident that our focus on a high quality optometry educational experience will be affirmed and that there will be continuity for current students, faculty, and staff," Manfredi added.

Charles F. Monahan, Jr., MCPHS president, said: "We see a bright and growing future for NECO and the continuation of its position as a leader in optometric education, and an opportunity for MCPHS University to continue to expand its depth and breadth in global health care education."

NECO's campus is located in Boston's Back Bay neighborhood. The college provides a 4-year post-baccalaureate curriculum in optometry to about 475 students. MCPHS has campuses in Boston and Worcester, MA, and also in Manchester, NH.

More than 6,000 undergraduate and graduate students are pursuing degrees in approximately fifty academic programs, including optometry, on MCPHS's three campuses. MCPHS founded its School of Optometry on its Worcester campus on 2011.

M&S Technologies' local service helps provide quality experience

Niles, IL—With technical support and customer service headquartered in Illinois, M&S Technologies Inc. champions an all-around superior experience for the customer.

For more than 20 years, the decision to remain local has removed those barriers to effective communications that are occurring across many industries who have tried to reduce costs by delegating service and support offshore. All of M&S Technologies' service personnel can be reached "live" to provide direct answers and reduce (or eliminate) wait times.

Additionally, the service and technical support personnel have direct access to the research/development and operations departments, a link that, according to the company, has proven invaluable for achieving timely, accurate responses to customers' concerns. **ODT**



ZIOPTAN™
(tafluprost ophthalmic solution)
0.0015%

For patients with elevated intraocular pressure (IOP)
in open-angle glaucoma (OAG) or ocular hypertension (OHT)

START WITH ZIOPTAN

6–8 mmHg
at month 3

5–8 mmHg
at month 6

POWERFUL IOP REDUCTIONS

> Based on clinical studies of up to 24 months in 905 patients with a baseline pressure of 23–26 mmHg.

Once-daily, single-use containers

Preservative-free formulation

ZIOPTAN is indicated for reducing elevated IOP in patients with OAG or OHT.

SELECT IMPORTANT SAFETY INFORMATION

ZIOPTAN has been reported to cause changes to pigmented tissues. The most frequently reported changes have been to the iris, periorbital tissue (eyelid), and eyelashes. Pigmentation is expected to increase as long as ZIOPTAN is administered. Pigmentation of the iris is likely to be permanent and may not be noticeable for several months to years, while pigmentation of the periorbital tissue and eyelash changes may be reversible in some patients. The long-term effects of increased pigmentation are not known.

ZIOPTAN may gradually change eyelashes and vellus hair in the treated eye. These changes include increased length, color, thickness, shape, and number of lashes. Eyelash changes are usually reversible on discontinuation of treatment. ZIOPTAN should be used with caution in patients with active intraocular inflammation (eg, iritis/uveitis) because the inflammation may be exacerbated.

Macular edema, including cystoid macular edema, has been reported during treatment with prostaglandin F_{2α} analogs. ZIOPTAN should be used with caution in aphakic patients, in pseudophakic patients with a torn posterior lens capsule, or in patients with known risk factors for macular edema.

In clinical trials of patients receiving either preservative-containing or preservative-free ZIOPTAN, the most common pooled adverse reaction observed was conjunctival hyperemia, which was reported in a range of 4% to 20% of patients. Please see the adjacent Brief Summary of the Prescribing Information.

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Brief Summary of the Prescribing Information for ZIOPTAN.

INDICATIONS AND USAGE

ZIOPTAN is indicated for reducing elevated intraocular pressure in patients with open-angle glaucoma or ocular hypertension.

DOSAGE AND ADMINISTRATION

The recommended dose is 1 drop of ZIOPTAN in the conjunctival sac of the affected eye(s) once daily in the evening.

The dose should not exceed once daily since it has been shown that more frequent administration of prostaglandin analogs may lessen the intraocular pressure-lowering effect.

Reduction of the intraocular pressure starts approximately 2 to 4 hours after the first administration with the maximum effect reached after 12 hours.

ZIOPTAN may be used concomitantly with other topical ophthalmic drug products to lower intraocular pressure. If more than 1 topical ophthalmic product is being used, each 1 should be administered at least 5 minutes apart.

The solution from 1 individual unit is to be used immediately after opening for administration to 1 or both eyes. Since sterility cannot be maintained after the individual unit is opened, the remaining contents should be discarded immediately after administration.

CONTRAINDICATIONS

None.

WARNINGS AND PRECAUTIONS

Pigmentation

Tafluprost ophthalmic solution has been reported to cause changes to pigmented tissues. The most frequently reported changes have been increased pigmentation of the iris, periorbital tissue (eyelid), and eyelashes. Pigmentation is expected to increase as long as tafluprost is administered. The pigmentation change is due to increased melanin content in the melanocytes rather than to an increase in the number of melanocytes. After discontinuation of tafluprost, pigmentation of the iris is likely to be permanent, while pigmentation of the periorbital tissue and eyelash changes have been reported to be reversible in some patients. Patients who receive treatment should be informed of the possibility of increased pigmentation. The long-term effects of increased pigmentation are not known.

Iris color change may not be noticeable for several months to years. Typically, the brown pigmentation around the pupil spreads concentrically towards the periphery of the iris and the entire iris or parts of the iris become more brownish. Neither nevi nor freckles of the iris appear to be affected by treatment. While treatment with ZIOPTAN can be continued in patients who develop noticeably increased iris pigmentation, these patients should be examined regularly. [See Patient Counseling Information.]

Eyelash Changes

ZIOPTAN may gradually change eyelashes and vellus hair in the treated eye. These changes include increased length, color, thickness, shape, and number of lashes. Eyelash changes are usually reversible upon discontinuation of treatment.

Intraocular Inflammation

ZIOPTAN should be used with caution in patients with active intraocular inflammation (eg, iritis/uveitis) because the inflammation may be exacerbated.

Macular Edema

Macular edema, including cystoid macular edema, has been reported during treatment with prostaglandin F_{2α} analogs. ZIOPTAN should be used with caution in aphakic patients, in pseudophakic patients with a torn posterior lens capsule, or in patients with known risk factors for macular edema.

ADVERSE REACTIONS

Clinical Studies Experience

Because clinical studies are conducted under widely varying conditions, adverse reaction rates observed in the clinical studies of a drug cannot be directly compared to rates in the clinical studies of another drug and may not reflect the rates observed in practice.

Preservative-containing or preservative-free tafluprost 0.0015% was evaluated in 905 patients in 5 controlled clinical studies of up to 24-months' duration. The most common adverse reaction observed in patients treated with tafluprost was conjunctival hyperemia which was reported in a range of 4% to 20% of patients. Approximately 1% of patients discontinued therapy due to ocular adverse reactions.

Ocular adverse reactions reported at an incidence of ≥2% in these clinical studies included ocular stinging/irritation (7%), ocular pruritus including allergic conjunctivitis (5%), cataract (3%), dry eye (3%), ocular pain (3%), eyelash darkening (2%), growth of eyelashes (2%), and blurred vision (2%).

Nonocular adverse reactions reported at an incidence of 2% to 6% in these clinical studies in patients treated with tafluprost 0.0015% were headache (6%), common cold (4%), cough (3%), and urinary tract infection (2%).

Postmarketing Experience

The following adverse reactions have been identified during postapproval use of tafluprost. Because postapproval adverse reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

In postmarketing use with prostaglandin analogs, periorbital and lid changes, including deepening of the eyelid sulcus, have been observed.

USE IN SPECIFIC POPULATIONS

Pregnancy

Pregnancy Category C.

Teratogenic effects: In embryo-fetal development studies in rats and rabbits, tafluprost administered intravenously was teratogenic. Tafluprost caused increases in post-implantation losses in rats and rabbits and reductions in fetal body weights in rats. Tafluprost also increased the incidence of vertebral skeletal abnormalities in rats and the incidence of skull, brain, and spine malformations in rabbits. In rats, there were no adverse effects on embryo-fetal development at a dose of 3 µg/kg/day corresponding to maternal plasma levels of tafluprost acid that were 343 times the maximum clinical exposure based on C_{max}. In rabbits, effects were seen at a tafluprost dose of 0.03 µg/kg/day corresponding to maternal plasma levels of tafluprost acid during organogenesis that were approximately 5 times higher than the clinical exposure based on C_{max}. At the no-effect dose in rabbits (0.01 µg/kg/day), maternal plasma levels of tafluprost acid were below the lower level of quantification (20 pg/mL).

In a pre- and postnatal development study in rats, increased mortality of newborns, decreased body weights, and delayed pinna unfolding were observed in offspring. The no observed adverse effect level was at a tafluprost intravenous dose of 0.3 µg/kg/day, which is greater than 3 times the maximum recommended clinical dose based on body surface area comparison.

There are no adequate and well-controlled studies in pregnant women. Although animal reproduction studies are not always predictive of human response, ZIOPTAN should not be used during pregnancy unless the potential benefit justifies the potential risk to the fetus.

Women of childbearing age/potential should have adequate contraceptive measures in place.

Nursing Mothers

A study in lactating rats demonstrated that radio-labeled tafluprost and/or its metabolites were excreted in milk. It is not known whether this drug or its metabolites are excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when ZIOPTAN is administered to a nursing woman.

Pediatric Use

Use in pediatric patients is not recommended because of potential safety concerns related to increased pigmentation following long-term chronic use.

ZIOPTAN™ (tafluprost ophthalmic solution) 0.0015%

Geriatric Use

No overall clinical differences in safety or effectiveness have been observed between elderly and other adult patients.

PATIENT COUNSELING INFORMATION

See FDA-Approved Patient Labeling (Patient Information).

Nightly Application

Patients should be advised that ZIOPTAN should be administered once-daily dosing since more frequent administration may decrease the intraocular pressure-lowering effect of ZIOPTAN.

Handling the Single-Use Container

Patients should be advised that ZIOPTAN is a sterile solution that does not contain a preservative. The solution from 1 individual unit is to be used immediately after opening for administration to 1 or both eyes. Since sterility cannot be maintained after the individual unit is opened, the remaining contents should be discarded immediately after administration.

Potential for Pigmentation

Patients should be advised about the potential for increased brown pigmentation of the iris, which may be permanent. Patients should also be informed about the possibility of eyelid skin darkening, which may be reversible after discontinuation of ZIOPTAN.

Potential for Eyelash Changes

Patients should also be informed of the possibility of eyelash and vellus hair changes in the treated eye during treatment with ZIOPTAN. These changes may result in a disparity between eyes in length, thickness, pigmentation, number of eyelashes or vellus hairs, and/or direction of eyelash growth. Eyelash changes are usually reversible upon discontinuation of treatment.

When to Seek Physician Advice

Patients should be advised that if they develop a new ocular condition (eg, trauma or infection), experience a sudden decrease in visual acuity, have ocular surgery, or develop any ocular reactions, particularly conjunctivitis and eyelid reactions, they should immediately seek their physician's advice concerning the continued use of ZIOPTAN.

Use with Other Ophthalmic Drugs

If more than 1 topical ophthalmic drug is being used, the drugs should be administered at least five (5) minutes between applications.

Storage Information

Patients should be instructed on proper storage of cartons, unopened foil pouches, and opened foil pouches [see How Supplied/Storage and Handling]. Recommended storage for cartons and unopened foil pouches is to store refrigerated at 2-8°C (36-46°F). After the pouch is opened, the single-use containers may be stored in the opened foil pouch for up to 28 days at room temperature: 20-25°C (68-77°F). Protect from moisture.

For more detailed information, please read the Prescribing Information.

Rx only.

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Compounding pharmacy linked to two fungal endophthalmitis outbreaks

While compounding facilities fill a niche, contaminated products necessitate more regulatory oversight

By Cheryl Guttman Krader

Recent outbreaks of fungal endophthalmitis linked to contaminated products obtained from a single compounding pharmacy should remind clinicians to be aware about the potential risks of using these extemporaneously prepared agents and reinforce the need for more regulatory oversight of the compounding facilities.

Outbreaks, adverse events

Epidemic Intelligence Service Officer for the Centers for Disease Control in Atlanta Rachel M. Smith, MD, MPH, discussed 2 outbreaks of fungal endophthalmitis linked to product obtained from a compounding pharmacy in Ocala, FL.

For each outbreak, a cluster of cases was initially identified in a single practice. Subsequently, epidemiologic investigations were undertaken by the Centers for Disease Control in collaboration with state and local health departments, the FDA, and the American Society of Retina Specialists Therapeutic Surveillance Committee. These efforts identified a total of 43 cases of post procedural fungal endophthalmitis among patients in 9 states. The infections were caused by 2 different pathogenic, ubiquitous environmental molds.

A niche market

"Products obtained from compounding pharmacies fill an important therapeutic niche, especially in subspecialties like ophthalmology. However, the compounding pharmacies are not subject to the same FDA regulations as traditional pharmaceutical manufacturers. A 2011 survey of compounding pharmacies demonstrated highly variable compliance with the document that outlines aseptic standards for their operation," said Dr. Smith.

"Clinicians, especially those who rely heavily on compounded products, should be aware that adverse events and outbreaks have been linked to contaminated 'sterile' product from compounding pharmacies and remain vigilant for infection, including fungal infection. More regulatory oversight of

compounding pharmacies may help prevent future outbreaks," she said.

The initial cluster of cases in the first outbreak involved patients operated on at a single practice in California who underwent vitrectomy surgery with retinal membrane peeling. The infections were traced to use of Brilliant Blue-G dye (BBG) that had been made from nonsterile source material.

Testing of an unopened BBG vial identified contamination with *Fusarium* spp. Epidemiologic investigation linked 21 cases of fungal endophthalmitis across 6 states to BBG exposure. Fungal pathogen was evident in specimens obtained from 7 cases and grew *Fusarium incarnatum-equiseti* species complex that was genetically indistinguishable with *Fusarium* isolates from unopened BBG vials.

'A 2011 survey of compounding pharmacies demonstrated highly variable compliance with the document that outlines aseptic standards for their operation.'

Rachel M. Smith, MD, MPH

The first reports of fungal endophthalmitis for the second outbreak were received from a single practice in New York and involved 4 patients who had received intraocular triamcinolone. The collaborative case finding efforts linked a total of 22 fungal endophthalmitis cases across 4 states to the compounded triamcinolone. Fungal pathogen was evident in specimens obtained from 13 cases that grew *Bipolaris hawaiiensis*. Genetic testing of the fungal isolates suggested common exposure.

Take-Home Message

A total of 43 cases of post-procedural fungal endophthalmitis across 9 states were linked to the use of two products obtained from a single compounding pharmacy.

Poor outcomes

A review of clinical data from the 43 patients showed diagnosis was often delayed, and the infections were associated with significant morbidity despite antifungal treatment in the majority of cases. The mean time from exposure to diagnosis was almost 3 months and ranged up to 6 months.

"Many of the ophthalmologists involved with these cases had never previously seen or treated a case of fungal endophthalmitis, which is extremely rare," Dr. Smith said.

At 6 months post diagnosis, 90% of the BBG-exposed patients had vision loss, and 14% had unresolved infection; in the triamcinolone series, 63% of patients had vision loss, and 31% had unresolved infection at 6 months. Enucleation was required in several cases, she said.

Postscript

A few months after the first triamcinolone-related cases occurred, an FDA investigation of the compounding pharmacy identified microorganisms and fungal growth in the facility's clean room. Soon thereafter, the pharmacy recalled its sterile preparations and ceased all sterile compounding. It closed permanently, about 2 months later, on July 31, 2012. **ODT**

Author Info



Rachel M. Smith, MD, MPH,

E-mail: vih9@cdc.gov

Dr. Smith did not indicate a financial interest in the subject.

Multifocal vs. monovision for your presbyopic patients

Underpromise and overdeliver with these lenses.

I try to stay on the cutting edge, offering my patients the newest in CL technologies. Nowhere is this expanding technology more evident than in the use of multifocal contact lenses (MFCLs). The number of presbyopes worldwide is rising at a staggering rate, expected to reach 2.3 billion by 2020. According to U.S. Census Bureau data, more than 135 million Americans were age 40 and older in 2008.¹ Data gathered from the annual CL fitting surveys demonstrate that fewer than 40% of CL wearers over age 45 (virtually all of whom can be presumed

to suffer partial or complete loss of accommodation) are prescribed a presbyopic correction. In addition, monovision is prescribed as frequently as multifocal lenses.² Worldwide, multifocal and monovision fits vary widely, from 79% of all CL fits in Portugal, to 23% in the Netherlands to none in Costa Rica, Taiwan, and Singapore.^{3,4} Soft multifocal lenses account for 12% of all lens fits in the U.S. in 2012, up slightly from 2011.⁵

One study found that “despite apparent improvements in multifocal design and an increase in available multifocal options in recent years, practitioners are still underprescribing with respect to the provision of appropriate CLs for the correction of presbyopia.”³

An outdated option

I am a firm believer in Grandma’s old adage: “If it ain’t broke, don’t fix it.” Monovision is a long-standing approach to managing presbyopia in CL wearers. For early presbyopes, monovision can provide acceptable vision and is less time consuming. Yet monovision is an outdated mode of correction when so many other options are available to us. Stereoacuity has been found to be significantly poorer with monovision than with MFCLs,⁶ especially as the add power increases. MFCLs provide excellent distance vision and minimally affect stereoacuity⁷ and yields vision that is more natural.

One study comparing multifocal CLs against monovision showed patients subjectively rated better performance was provided by the multifocal correction, partic-

ularly for the vision associated with driving tasks. Patients in this study also preferred MFCLs when watching television and when changing focus from distance to near.⁸ Studies directly comparing monovision to MFCLs have shown that MFCLs are preferred over monovision correction 70% of the time⁹ or more.⁶

First option for presbyopes

Fitting presbyopic CLs successfully is a very rewarding part of a CL practice. It builds patient loyalty, creates more



By Ernie Bowling, OD

Dr. Bowling is in solo private practice in Gadsden, AL, and is chief optometric editor of *Optometry Times*.

word-of-mouth referrals, and you reap the financial benefit of aiding this largely untapped market. With the range of multifocal options available to us, presbyopic CLs represent a huge opportunity to both our patients and to us. Ninety percent of CL wearers in the 35-to-55 age demographic are committed to continuing CL wear.¹⁰

Many of our patients may not be aware that MFCLs are available. Multifocal lenses should be discussed with every CL patient who is approaching presbyopia or has become presbyopic—MFCLs should be the first option for these patients. Get them in the technology early. Waiting until the patient requires a higher add power will re-

quire more adaptation time, and the adjustment will be more difficult for the patient.

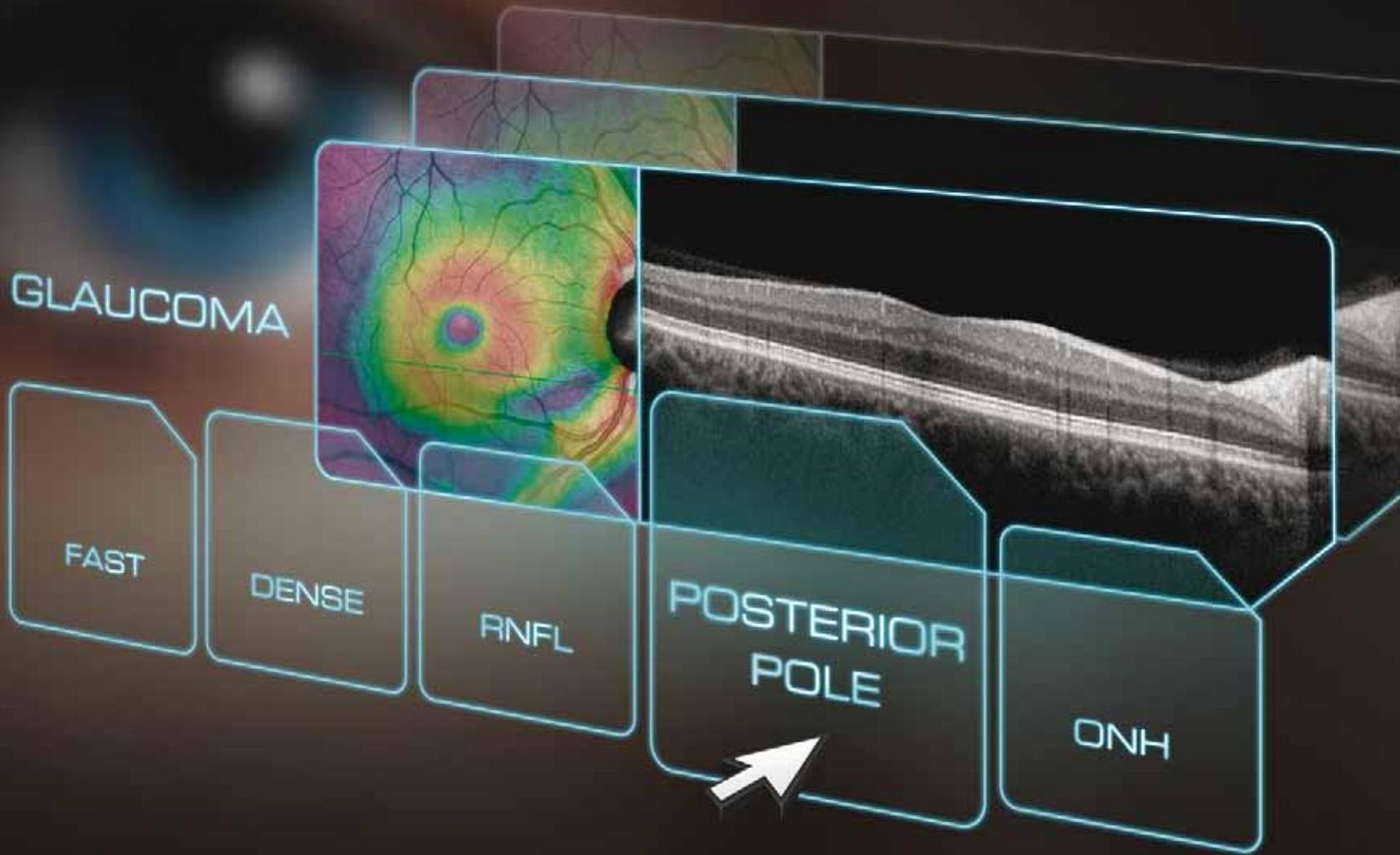
Patient education is the key. The potential multifocal patient has to know what she is in for, both from a visual perspective, by which I mean adaptation time, as well as the cost. Multifocal contact lenses are more expensive than single-vision lenses. No lens is going to work 100% of the time. The patient may still need reading glasses for extremely fine near work. The old saying of “underpromise and overdeliver” really holds true with these lenses.

For the great majority of our patients, multifocal contact lenses represent an improvement in their visual needs. Just as important as patient motivation is doctor motivation. If you’re excited about MFCLs, that enthusiasm will be seen in your patients. **ODT**

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Eye of the beholder

While BTX injections create the illusion of beauty, resulting dry eye can be a beast

Botulinum toxin (BTX) injection (Botox, Allergan) has become a popular method of lessening the appearance of wrinkles. Common injection sites are around the eyes and between the eyebrows. Reports suggest that an unwanted side effect of BTX injection for cosmetic or medical concerns, such as blepharospasm, is dry eye.¹⁻³ Current thinking is that local diffusion of

Botox to structures adjacent to the injection site may contribute to dry eye.⁴

Managing DES due to BTX

Ozgun and colleagues proposed that botulinum neurotoxin chemodenervation of the obicularis oculi leads to a poor blink mechanism, lagophthalmos, or ectropion that may result in corneal dryness.

Subtle early signs of dry eye syndrome (DES) secondary to BTX injection can be assessed via the lid snap-back and distraction tests. The snap-back test, which measures muscle tone, is performed by pulling the lower lid inferiorly while the patient looks straight ahead without blinking. Upon releasing, if lid recovery is not immediate before the next blink, the test is positive. Documented in seconds, the test is graded on a 1+ to 3+ scale. The lid distraction test measures lid laxity and is performed by pulling the lower lid away from the globe. The distance between the globe and central lid margin is measured and graded in millimeters. Because 2 mm is considered normal, 6 mm or more would be graded at 3+. In conjunction with patient symptom inquiry, a proposed guideline was developed so that by recognition of the early signs of DES, injections of BTX can be delayed or discontinued to prevent worsening manifestations of dry eye.⁵

Interestingly, literature suggests that the flip side of the story may also be true—BTX can be used to treat DES. Study authors proposed there is a sphincter-like action exerted by the obicularis oculi pars lacrimalis muscle that compresses and contracts the lower canaliculus, causing tears to move toward the nasolacrimal duct.^{6,7} A medial canthal injection of BTX causes a temporary decrease in lacrimal drainage. This effect may be caused by pharmacologic denervation of the obicularis oculi

pars lacrimalis muscle leading to decreased action of the lacrimal pump and prolonged lubrication of the ocular surface. Similarly, protective ptosis by temporary paralysis of the levator palpebrae superioris muscle may be a useful alternative to tarsorrhaphy in the temporary treatment of DES.⁸

Blepharospasm and BTX

In cases involving Sjögren's patients with DES and blepharospasm, Asbell et al noticed a dramatic increase in tearing and a decrease in signs and symptoms of ocular surface disease in patients who received periorbital injections of BTX for the treatment of blepharospasm.⁹ Asbell proposed that the mechanical effects of the relief of blepharospasm—less sheer pressure on the tear film—resulted in increased tearing. However, an alternate study suggested that

rimation without gland inflammation, establishing a murine dry eye state. This non-autoimmune dry eye model is unique when compared to models in which lacrimal gland inflammation is observed. In this animal model, the localized clinical dry eye state is free from ocular or systemic side effects. Suwan-apichon believed this model could be useful for investigating the pathogenesis of dry eye, preclinical screening of new dry eye therapeutics as well as corneal penetrations of other ocular drugs in ocular surface disease states. **ODT**

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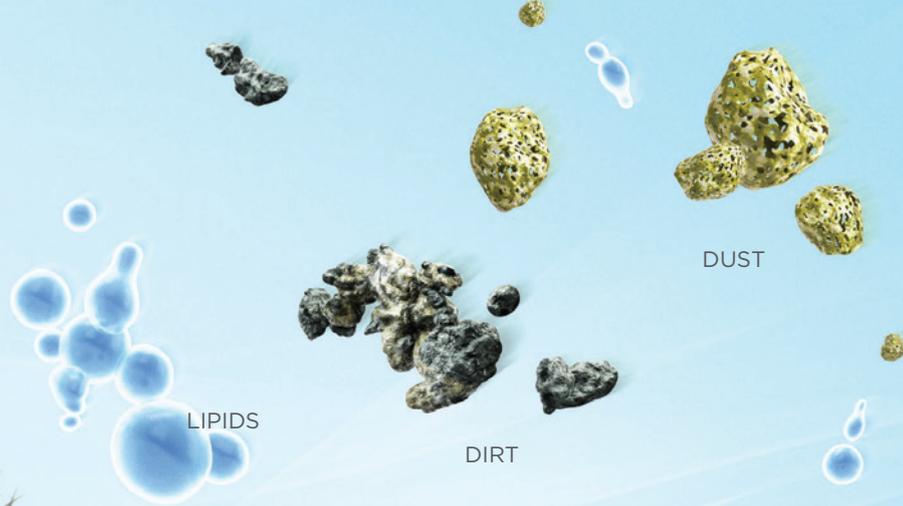


Katherine M. Mastrota, MS, OD, FAO

Dr. Mastrota is center director of Omni Eye Surgery in New York City and associate optometric editor of *Optometry Times*.

although BTX was effective in relieving blepharospasm in study patients, it was not successful in treating DES.¹⁰ Consider that subjects in the latter group were not characterized as Sjögren's patients and that the commercially prepared BTX was not the same as the former group.

How can using BTX help us understand dry eye? Suwan-apichon et al demonstrated that mouse intralacrimal gland BTX injection resulted in persistent corneal fluorescein staining and a significant decrease in aqueous tear production in subject mice.¹¹ Intralacrimal BTX injection suppressed lac-



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Important information for AIR OPTIX® AQUA (lotrafilcon B), AIR OPTIX® AQUA Multifocal (lotrafilcon B) and AIR OPTIX® for Astigmatism (lotrafilcon B) contact lenses: For daily wear or extended wear up to 6 nights for near/far-sightedness, presbyopia and/or astigmatism. Risk of serious eye problems (i.e., corneal ulcer) is greater for extended wear. In rare cases, loss of vision may result. Side effects like discomfort, mild burning or stinging may occur.

Important information for AIR OPTIX® NIGHT & DAY® AQUA (lotrafilcon A) contact lenses: Indicated for vision correction for daily wear (worn only while awake) or extended wear (worn while awake and asleep) for up to 30 nights. Relevant Warnings: A corneal ulcer may develop rapidly and cause eye pain, redness or blurry vision as it progresses. If left untreated, a scar, and in rare cases loss of vision, may result. The risk of serious problems is greater for extended wear vs. daily wear and smoking increases this risk. A one-year post-market study found 0.18% (18 out of 10,000) of wearers developed a severe corneal infection, with 0.04% (4 out of 10,000) of wearers experiencing a permanent reduction in vision by two or more rows of letters on an eye chart. Relevant Precautions: Not everyone can wear for 30 nights. Approximately 80% of wearers can wear the lenses for extended wear. About two-thirds of wearers achieve the full 30 nights continuous wear. Side Effects: In clinical trials, approximately 3-5% of wearers experience at least one episode of infiltrative keratitis, a localized inflammation of the cornea which may be accompanied by mild to severe pain and may require the use of antibiotic eye drops for up to one week. Other less serious side effects were conjunctivitis, lid irritation or lens discomfort including dryness, mild burning or stinging. Contraindications: Contact lenses should not be worn if you have: eye infection or inflammation (redness and/or swelling); eye disease, injury or dryness that interferes with contact lens wear; systemic disease that may be affected by or impact lens wear; certain allergic conditions or using certain medications (ex. some eye medications). Additional Information: Lenses should be replaced every month. If removed before then, lenses should be cleaned and disinfected before wearing again. Always follow the eye care professional's recommended lens wear, care and replacement schedule. Consult package insert for complete information, available without charge by calling (800) 241-5999 or go to myalcon.com.

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OCT charts 30 years of PT history

Using OCT to track three decades of changes in patient's left macula

There has never been such fine resolution of retinal observations as has become available with optical coherence tomography (OCT). Characterization of vitreomacular events and relationships are elucidated to great detail. In this report, we trace changes in the left macula of a patient followed over 30 years. Her OD remained completely stable over the period, but significant changes in appearance—as well as vision—have occurred OS.

The saga begins in the early 1980s with an episode of central serous retinopathy (CSR) OS. This goes by alternative names, such as idiopathic central serous retinopathy (ICSR) or chorioretinopathy (ICSC). The pathophysiology in a nutshell is fluid leakage under the sensory retina. The patient's visual acuity (VA) declined to 20/30 initially, but remained relatively stable over the next decade.

Documented in 1998 was an area of geographic retinal pigment atrophy temporal to the macula (Figure 1). Note the geographic retinal pigment epithelium (RPE) atrophy, as well as the irregularity of the center of the macula. Stereoscopically, there is some evidence of macular hole. Historically, this is in the pre-OCT period. The subsequent progression is not all that surprising because CSR is not an innocuous disorder.

Ten years later in 2008, the geographic atrophy is somewhat larger in extent (Figure 2). VA has declined to 20/80. The macular hole is more distinct and can be observed in the fundus photograph. This is more evident when observed stereoscopically.

When the patient was seen most recently in January 2013, an OCT scan was ordered. The results showed the presence of the well-defined macular hole. These results from OS are represented with two of the five-line raster high-definition segments. The vertical scan lines are through the area of RPE atrophy. The inner retina appears to be intact, but there is evidence of RPE compromise.

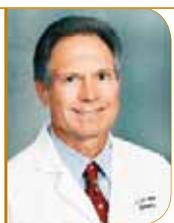
Looking carefully at the horizontal segments, the full-thickness macular hole can be seen distinctly.

OCT offers the ability to understand retinal changes better than stereoscopic observations and fluorescein angiography. The technology is particularly useful for vitreomacular and vitreofoveal relationships. With advances in software, precise and accurate retinal thickness measurements are possible. The specified axial resolution of spectral, or Fourier, domain OCT is approximately 5 μm . Considering the normal foveal thickness is approximately 240 μm , this represents remarkable resolution. Variability is generally thought to be just a few μm .

Application of OCT technology extends beyond the macula and structures on its inner and outer borders. Segmenting out the inner retina that surrounds the center of the macula allows thickness measurements of the so-called ganglion-

By Leo Semes, OD, FFAO

Dr. Semes is a professor of optometry at the University of Alabama-Birmingham. He is a founding member of the Optometric Glaucoma Society and a founding fellow of the Optometric Retina Society.



cell complex. The significance here is that loss of ganglion cells occurs early in neurodegenerative processes, such as glaucoma. OCT is poised to offer an edge for early detection of the progressive changes characteristic of glaucomatous damage. Assaying this follow-

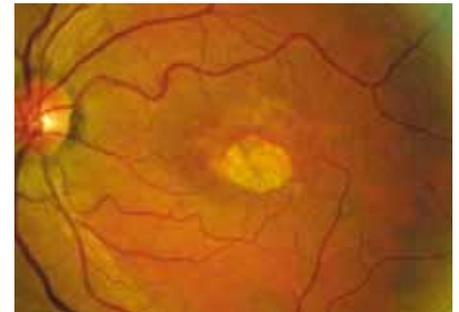


Figure 1. Macular appearance in 1998. The patient's visual acuity is 20/60.



Figure 2. Compare this picture 10 years later to the view documented in Figure 1. VA is now 20/80. (Photos provided by Leo Semes, OD)

ing the development of guidelines may give clinicians another means to follow treated glaucoma patients for progression.

Other capabilities of OCT will allow volumetric measurements of the optic cup that may allow still another dimension of glaucomatous change. Enhanced depth imaging has been reported to show changes in the lamina cribrosa and choroid that may be characteristic or early glaucomatous damage.

It is an exciting time for ophthalmic imaging. Living histology has allowed better characterization of macular diseases and disorders. Retinal layer segmentation is finding its way to application for glaucoma diagnosis and perhaps charting progression. Depth evaluation of the optic cup/laminar contour may also give new insights into glaucoma and other optic neuropathies. Volumetric imaging capability of the macula can be applied to macular scanning as well.

Stay tuned. **ODT**

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Indication and Usage

RESTASIS[®] (cyclosporine ophthalmic emulsion) 0.05% is indicated to increase tear production in patients whose tear production is presumed to be suppressed due to ocular inflammation associated with keratoconjunctivitis sicca. Increased tear production was not seen in patients currently taking topical anti-inflammatory drugs or using punctal plugs.

Important Safety Information

Contraindications

RESTASIS[®] is contraindicated in patients with known or suspected hypersensitivity to any of the ingredients in the formulation.

Warnings and Precautions

Potential for Eye Injury and Contamination: To avoid the potential for eye injury and contamination, individuals prescribed RESTASIS[®] should not touch the vial tip to their eye or other surfaces.

Use With Contact Lenses: RESTASIS[®] should not be administered while wearing contact lenses. If contact lenses are worn, they should be removed prior to the administration of the emulsion.

Adverse Reactions

In clinical trials, the most common adverse reaction following the use of RESTASIS[®] was ocular burning (upon instillation)—17%. Other reactions reported in 1% to 5% of patients included conjunctival hyperemia, discharge, epiphora, eye pain, foreign body sensation, pruritus, stinging, and visual disturbance (most often blurring).

Please see Brief Summary of the full Prescribing Information on adjacent page.

In Brief

Finishing leader marks 40 years of success

Hauppauge, NY—Santinelli International, the lens finishing equipment company, will commemorate its history with the celebration of its 40th anniversary this year.



Santinelli International operated out of this homey office on before moving to their current, more spacious headquarters in Long Island, NY. (Photo provided by Santinelli International.)

While optical pioneer Joseph Santinelli founded the company in 1973, his son Gerard Santinelli has served as president and CEO since 1998. Growth resulted in relocating from the original “closet-sized” home office to a larger 8-room office space, and then ultimately into the current 15,000-sq. ft. facility in Hauppauge, Long Island.

Said Gerard Santinelli: “Being family-owned enables us to be more responsive to our clients and rapidly adapt according to the market’s needs. After 40 years, we’re still just as passionate about the industry and just as devoted to the success of our clients.”

The company plans to celebrate the 40-year anniversary at varying times throughout the year with special associate and client events.

First sunwear to protect without blocking colors

Berkeley, CA—EnChroma Inc. now offers EnChroma Cx-UV450, the first sunglasses that provide extreme protection without blocking colors. The sunwear features color-enhancing lenses (demonstrated in image, above right) that

provide comprehensive protection from solar ultra-violet (UV) and blue light. The Cx-UV450 blocks 100% of solar radiation with wavelengths shorter than 450 nanometers.

The EnChroma Cx-UV450 boosts color vision for people with sensitive eyes, low vision caused by serious eye conditions such as cataracts and glaucoma, and people exposed to high-intensity sunlight, such as aviation, marine, and alpine environments.

Current sunwear options generally block one or two colors, such as blues and greens, distorting the color of everything seen to a dull brown, yellow, and red color. EnChroma’s Cx-UV450 sunglasses feature an optical coating that increases the variety and vividness of colors, while providing extreme UV protection.

EnChroma UV450 sunglasses are designed to provide the highest amount of protection to the senior population, who



experience eye problems and sunlight sensitivity due to medical conditions such as diabetes, glaucoma, macular degeneration, cataracts, multiple sclerosis, and eye cancer.

Santinelli introduces two finishing products

Hauppauge, NY—Santinelli International has extended its consumables product line to include all-new Value-Edge Blocking Pads and Grip-Tight Intermediate Film, two budget-friendly solutions designed to improve lens-finishing quality.

The Santinelli Value-Edge Blocking Pads are made of a specially formu-

lated foam and adhesive combination, designed to improve the edging performance of today’s coated and uncoated lenses. The foam material resists high rotational forces and prevents the pad from “wrinkling.” The adhesive is formulated to bond to all hard coated, standard anti-reflective (AR) coated and many hydrophobic AR coated lenses, making it an all-around pad. These pads are available in several different sizes and shapes.

Grip-Tight Intermediate Film was developed as an added measure against slippage, giving the lens clamp a more secure grip. The intermediate film comes in both Standard and High Curve versions. The High Curve film is thinner and more flexible, and adheres to high curve lenses with better wet-out results and without wrinkles. Grip-Tight works well with any block size and shape.

Eye Designs introduces Muro display system

Collegeville, PA—Muro, meaning wall in Italian, is the new display system offered by Eye Designs. These wall displays (shown below) are designed to serve as a feature piece in the optical and draw attention to frames and brands being showcased.



Muro creates a distinct modern look with LED-illuminated shelves for display-

ing frames, POP materials and signage, cases and modern decorative accents. With elegant visual appeal, Muro allows eyecare professionals to create a focal piece in the optical that highlights luxury frames and top performing brands.

Muro display units are engineered to attach directly to the wall and are available in multiple configurations and sizes.

Safilo renews licensing agreement for Banana Republic eyewear

Padua, Italy—Safilo Group and Banana Republic announce the renewal of their licensing agreement for the design, manufacturing, and distribution of optical frames and sunglass collections through Jan., 31, 2019.

The multi-year agreement strengthens a partnership with Banana Republic, originally forged in 2007, and allows for further development and distribution of elevated design at approachable prices.

Design meets function in Rudy Project's latest

Denver—Designed with the sports enthusiast in mind while still maintaining a laid-back, dynamic look, the Deewhy sunglasses (below) are Rudy Project's



newest addition to its casual line.

The wraparound frame completely protects the eyes from direct and reflected sunlight, with lenses 100% guaranteed for protection against UVA and UVB.

The Deewhy comes in five captivating color combinations: crystal frame with multilaser orange lenses, demi turtle matte frame with brown lenses, anthracite frame with multilaser red lenses, crystal ash frame with smoke black lenses, and black gloss frame with either smoke black or Polar 3FX grey laser lenses.

Rudy Project's multilaser lenses incorporate a mirrored surface treatment to reflect sunlight. Polarized Polar 3FX lenses offer the maximum performance and visual clarity, ideal for driving and eliminating the reflections of the sun on surfaces like water, asphalt and snow.

For those with vision correction needs, Deewhy has a highly refined Rx option and broad parameters.

Prom grooming guides for girls and guys

Jacksonville, FL—Going to prom is a high school milestone for many teenagers, but many are so worried about choosing the right outfit or picking the right accessories that they overlook some of the little things that make a big difference. Now, just in time for the 2013 prom season, Acuvue offers helpful grooming advice for teens with the Girl's and Guy's Grooming Guides for Prom.

The guides are available at www.acuvue.com/prom_girlsguide and www.acuvue.com/prom_guysguide.

With tips on everything from how to get luscious lashes, softer and smoother lips and flawless skin, to switching up your look with contact lenses, the Girl's Grooming Guide for Prom can help teens get ready for prom easily and worry-free.

The Guy's Grooming Guide for Prom helps answer young men's personal care questions about the big day. With tips like how to treat and prevent acne and advice on how to be the guy with great hair and fresh breath, the Guy's Guide for Prom offers solutions to many common grooming problems.

Transitions unveils new consumer Web site

Pinellas Park, FL—Transitions Optical Inc. is providing an enhanced user experience and more in-depth education on the Transitions family of products via its re-launched Transitions.com Web site, www.transitions.com. Applying insights gained through consumer feedback and tracking studies, the site features a detailed breakdown on each Transitions lens product, fresh imagery and greater usability, including a way for consumers to search for an

eyecare professional who carries the lens brands that best fit their interests.

Sections on the various photochromic technologies employed by the family of products, and a feature that enables consumers to compare the products' benefits to choose which will best meet their needs, are designed to give consumers a more comprehensive digital experience before they arrive at their eyecare professional's office.

To further promote the lens choices available to patients, in addition to providing contact information for the nearest Transitions lens dispensing practices, the new eyecare professional locator also details which of the Transitions lens products are carried at each location. More than 125,000—or one in six—visitors to the Transitions site searched for an eyecare professional in 2012.

Other new features include answers to frequently asked questions, search functionality and the ability for consumers to share and read product reviews.

Flash of color for new X-Ide sunglasses

For spring, the young and innovative X-Ide brand by Imagine98 introduces a sunglass capsule collection with bright colors and mirrored lenses.



Porto Cervo (shown above) and Eggert, two of the last few seasons' best-selling frames, are now available in a sunglass version with flash colored lenses.

The *capsule* line includes two squared styles in two sizes, one with larger lenses (Eggert) and the other with a smaller front (Porto Cervo). High-contrast color combinations include black/white, red/black, blue/white, black/blue/green, fuchsia/orange/grey, grey/green, sky-blue/orange and mirrored lenses in red, sky blue, yellow, orange, and purple.

RESTASIS® (Cyclosporine Ophthalmic Emulsion) 0.05%**BRIEF SUMMARY—PLEASE SEE THE RESTASIS® PACKAGE INSERT FOR FULL PRESCRIBING INFORMATION.****INDICATIONS AND USAGE**

RESTASIS® ophthalmic emulsion is indicated to increase tear production in patients whose tear production is presumed to be suppressed due to ocular inflammation associated with keratoconjunctivitis sicca. Increased tear production was not seen in patients currently taking topical anti-inflammatory drugs or using punctal plugs.

CONTRAINDICATIONS

RESTASIS® is contraindicated in patients with known or suspected hypersensitivity to any of the ingredients in the formulation.

WARNINGS AND PRECAUTIONS**Potential for Eye Injury and Contamination**

To avoid the potential for eye injury and contamination, be careful not to touch the vial tip to your eye or other surfaces.

Use with Contact Lenses

RESTASIS® should not be administered while wearing contact lenses. Patients with decreased tear production typically should not wear contact lenses. If contact lenses are worn, they should be removed prior to the administration of the emulsion. Lenses may be reinserted 15 minutes following administration of **RESTASIS®** ophthalmic emulsion.

ADVERSE REACTIONS**Clinical Trials Experience**

Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in the clinical trials of another drug and may not reflect the rates observed in practice.

In clinical trials, the most common adverse reaction following the use of **RESTASIS®** was ocular burning (17%).

Other reactions reported in 1% to 5% of patients included conjunctival hyperemia, discharge, epiphora, eye pain, foreign body sensation, pruritus, stinging, and visual disturbance (most often blurring).

Post-marketing Experience

The following adverse reactions have been identified during post approval use of **RESTASIS®**. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Reported reactions have included: hypersensitivity (including eye swelling, urticaria, rare cases of severe angioedema, face swelling, tongue swelling, pharyngeal edema, and dyspnea); and superficial injury of the eye (from the vial tip touching the eye during administration).

USE IN SPECIFIC POPULATIONS**Pregnancy****Teratogenic Effects: Pregnancy Category C**

Adverse effects were seen in reproduction studies in rats and rabbits only at dose levels toxic to dams. At toxic doses (rats at 30 mg/kg/day and rabbits at 100 mg/kg/day), cyclosporine oral solution, USP, was embryo- and fetotoxic as indicated by increased pre- and postnatal mortality and reduced fetal weight together with related skeletal retardations. These doses are 5,000 and 32,000 times greater (normalized to body surface area), respectively, than the daily human dose of one drop (approximately 28 mL) of 0.05% **RESTASIS®** twice daily into each eye of a 60 kg person (0.001 mg/kg/day), assuming that the entire dose is absorbed. No evidence of embryofetal toxicity was observed in rats or rabbits receiving cyclosporine at oral doses up to 17 mg/kg/day or 30 mg/kg/day, respectively, during organogenesis. These doses in rats and rabbits are approximately 3,000 and 10,000 times greater (normalized to body surface area), respectively, than the daily human dose.

Offspring of rats receiving a 45 mg/kg/day oral dose of cyclosporine from Day 15 of pregnancy until Day 21 postpartum, a maternally toxic level, exhibited an increase in postnatal mortality; this dose is 7,000 times greater than the daily human topical dose (0.001 mg/kg/day) normalized to body surface area assuming that the entire dose is absorbed. No adverse events were observed at oral doses up to 15 mg/kg/day (2,000 times greater than the daily human dose).

There are no adequate and well-controlled studies of **RESTASIS®** in pregnant women. **RESTASIS®** should be administered to a pregnant woman only if clearly needed.

Nursing Mothers

Cyclosporine is known to be excreted in human milk following systemic administration, but excretion in human milk after topical treatment has not been investigated. Although blood concentrations are undetectable after topical administration of **RESTASIS®** ophthalmic emulsion, caution should be exercised when **RESTASIS®** is administered to a nursing woman.

Pediatric Use

The safety and efficacy of **RESTASIS®** ophthalmic emulsion have not been established in pediatric patients below the age of 16.

Geriatric Use

No overall difference in safety or effectiveness has been observed between elderly and younger patients.

NONCLINICAL TOXICOLOGY**Carcinogenesis, Mutagenesis, Impairment of Fertility**

Carcinogenesis: Systemic carcinogenicity studies were carried out in male and female mice and rats. In the 78-week oral (diet) mouse study, at doses of 1, 4, and 16 mg/kg/day, evidence of a statistically significant trend was found for lymphocytic lymphomas in females, and the incidence of hepatocellular carcinomas in mid-dose males significantly exceeded the control value.

In the 24-month oral (diet) rat study, conducted at 0.5, 2, and 8 mg/kg/day, pancreatic islet cell adenomas significantly exceeded the control rate in the low dose level. The hepatocellular carcinomas and pancreatic islet cell adenomas were not dose related. The low doses in mice and rats are approximately 80 times greater (normalized to body surface area) than the daily human dose of one drop (approximately 28 mL) of 0.05% **RESTASIS®** twice daily into each eye of a 60 kg person (0.001 mg/kg/day), assuming that the entire dose is absorbed.

Mutagenesis: Cyclosporine has not been found to be mutagenic/genotoxic in the Ames Test, the V79-HGPRT Test, the micronucleus test in mice and Chinese hamsters, the chromosome-aberration tests in Chinese hamster bone-marrow, the mouse dominant lethal assay, and the DNA-repair test in sperm from treated mice. A study analyzing sister chromatid exchange (SCE) induction by cyclosporine using human lymphocytes *in vitro* gave indication of a positive effect (i.e., induction of SCE).

Impairment of Fertility: No impairment in fertility was demonstrated in studies in male and female rats receiving oral doses of cyclosporine up to 15 mg/kg/day (approximately 2,000 times the human daily dose of 0.001 mg/kg/day normalized to body surface area) for 9 weeks (male) and 2 weeks (female) prior to mating.

PATIENT COUNSELING INFORMATION**Handling the Container**

Advise patients to not allow the tip of the vial to touch the eye or any surface, as this may contaminate the emulsion. To avoid the potential for injury to the eye, advise patients to not touch the vial tip to their eye.

Use with Contact Lenses

RESTASIS® should not be administered while wearing contact lenses. Patients with decreased tear production typically should not wear contact lenses. Advise patients that if contact lenses are worn, they should be removed prior to the administration of the emulsion. Lenses may be reinserted 15 minutes following administration of **RESTASIS®** ophthalmic emulsion.

Administration

Advise patients that the emulsion from one individual single-use vial is to be used immediately after opening for administration to one or both eyes, and the remaining contents should be discarded immediately after administration.

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InDispensable

Continued from page 19

Eyes of Faith Optical introduces stainless steel retro-chic frames

Sharon, PA—Eyes of Faith Optical announce lightweight, stainless steel versions of popular, retro-chic frames with flat metal styles for its spring 2013 collection.

All four styles offer adjustable nose pads, ultra-comfortable TR-90 temple tip covers, and for the first time on Eyes of Faith brand frames, the Wear & Share logo and inspirational scripture inside each temple.

Frames are available for distribution to independent eyecare professionals throughout the US, accompanied by a branded cleaning cloth and eco-friendly case.



During Transitions Academy, Diversified Ophthalmics Inc. was named the 2012 Transitions Lab of the Year. (Photo provided by Transitions Optical Inc.)

Transitions Academy ignites passion for education, strategic planning

Orlando, FL—The keys to building a successful dispensing operation center around solid education, planning, and marketing. For more than 1,100 eyecare professionals from North and South American, the 17th Annual Transitions Academy provided tools to develop their own action plans for growth.

"This year, Transitions Academy was all about igniting belief, passion and action among our partners," said Brian Hauser, general manager for U.S. and Canada at Transitions Optical Inc., sponsor of the academy.

The Education track began with keynote speaker Drew Dudley, founder of Nuance Leadership Development Services. Dudley encouraged eyecare professionals to discover the leader within themselves. As the Education track continued, attendees were given tools to develop their own action plans for continued growth outside of Transitions Academy forum.

Transitions presented its annual awards including:

- Diversified Ophthalmics Inc. as the U.S. Lab of the Year;
- SVS Vision and National Vision Inc., Regional and National Retailers of the Year;
- Complete Family Vision Care, Eyecare Practice of the Year;
- Anthony Glaub, Vision Benefits Broker of the Year;
- Maurice Evans, Jr. was named the Human Resources Visionary of the Year. **ODT**

Brien Holden Vision Institute is one of the largest and most successful non-profit social enterprises in the history of eye care. By applying commercial strategies to vision research and product development the Institute has generated income for research and public health programs that provide quality eye care solutions and sustainable services for the most disadvantaged people in our world.

The concern for the devastating shortfall in eye care education in developing communities, especially for correction of refractive error, became action in 1998 for those at the Institute. The lack of training institutes and educational opportunities was creating a human resource gap and a critical eye care shortage for hundreds of millions of people in need of services. The concern and willingness to address the issue gave rise to the International Centre for Eyecare Education (ICEE).

Almost 15 years later, and acknowledging that 640 million people are still without access to

permanent eye care, concern has galvanised into action again. To advance the process of addressing the challenge, both ICEE and Brien Holden Vision Institute will more closely align, share one common purpose and one name.

Together, we believe if we harness our efforts and broaden our scope we can achieve much more.

Together, we aim to drive, innovate, educate, collaborate, advocate and negotiate what is needed so that hundreds of millions, even billions, of people worldwide can enjoy the right to sight. Whether it's research to develop the technology to slow the progress of myopia, investment in new systems for diagnosis of disease, delivery of sustainable access to services or provision of eye care education in the most marginalised and remote communities in the world, the Institute will focus on the quality of vision people experience and equity in eye care access worldwide.

We believe in vision for everyone...everywhere.

vision for everyone... everywhere



Share the vision

brienholdenvision.org

The Durban community in South Africa, arrives in hundreds to support the Brien Holden Vision Institute's initiative Drive for Sight, part of the World Sight Day celebrations in October 2012. All attendees were offered free eye examinations, access to free or affordable low cost spectacles and referrals for further eye care where necessary. Photo by Graeme Wylie.



Brien Holden Vision Institute

Education Research Technology Public Health

Brien Holden Vision Institute Foundation (formerly ICEE) is a Public Health Division of Brien Holden Vision Institute

FORM follows FUNCTION

Balance eyewear function with eyewear fashion
—the **best possible vision** in the **best possible form**

By Laurie L. Pierce LDO, ABOM



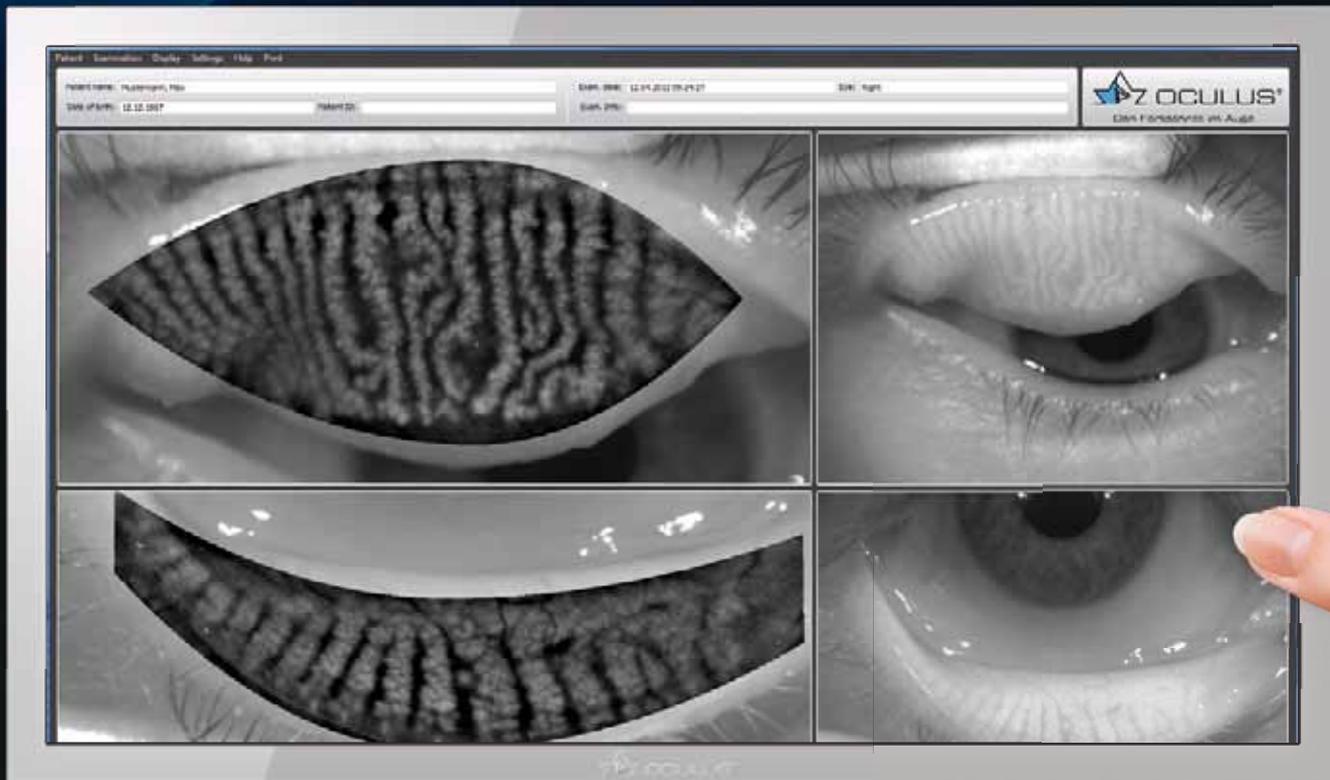
Oliver Goldsmith Lomax
Matte Elephant (top);
Bevel Eyewear (left).

Optical professionals are curators of the rich history of eyewear. Frame fashions and trends have made huge leaps since early products such as the monocle, the lorgnette, the pince-nez, and other frame designs of the day.

At first, the purpose of eyeglasses was strictly to correct eyesight. Function, not fashion, drove the eyewear business. Optical merchants traveled from village to village showing early eyewear options. Marco Polo noted that, while on his visit to China, the people there wore eyeglasses as a look of distinction, even though they had no visual benefits. So eyewear back then had no ophthalmic qualities, just an

See **Style** on page 24

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**Kilsgaard series 44-1
(above); Bevel Eyewear
(left).**

Style

Continued from page 22

attitude. Today, history repeats itself. There is a niche clientele that wishes to wear eyewear for a look of distinction, the ultimate “attitude glasses.”

As America boomed and prospered, the masses started to wear prescription eyewear. Form following function, eyewear trends continued to be mostly practical. (*Think small,*

round eyewires.) The Roaring Twenties glommed onto the round frame design, making the look an instant classic that has stood the test of time. Contemporary frame designers, however, have reinvented the classic look by adding colored plastics and a semi-rimless look to update the visual effect. A perfectly round frame, whether metal or plastic, will always hold a place in the fashion world.

Next came the Fashion Fifties and the Sexy Sixties. Around this time, colored acetate/

Take-Home Message

Identifying and purchasing frame styles to match the demographics of your patients/clients can be simplified by applying The Fashion Triangle as a model for following and tracking fashion trends.

zyl came into the picture, and frame fashion trends started to pop with color and style. Although it must have been exciting to in-

Design forward by looking back

I find it difficult to talk about trends in general without sounding full of yourself and arrogant. Having an opinion on trends reveals only your personal interpretation of taste, translated into general terms.



Kilsgaard

We look back when designing forward. We look at classics, because the classics are called that for a reason—they have worked for decades. When we design our product, we imbue our signature

aluminum concept with the spirit of the classics. Our good luck is that a new, very particular look always turns up, creating the style and the brand of which we are so proud.

I will not comment on whether or not large shapes, red frames, or classic pantos are the most trendy in eyewear look. Our interpretation of trend and design is respecting what has worked for a long time, and keeping it clean and simple. Then you end up with a long-lasting design that might become a classic. Eyewear trends also depend on where you

look, because UK eyewear trends are not the same as U.S. eyewear trends. Therefore, our objective is to keep our “trendy” designs less trendy and more classic. You can argue that our designs and color choices are everything but classic, but they derive from a classic perspective. No bullshit, just passion and aluminum. Oh yes, and “less is more,” except the phrase is overused.

New materials call for a new view on the business. Stores are screaming for something innovative that doesn’t carry a well-known brand name on

a gold-logo temple plate. This forces retailers to learn about new technologies and materials, pushing the boundaries toward products such as ours and many of our colleagues’. More and more consumers are simultaneously looking for something so-not-what-I-bought-last-time, which luckily often means not a branded frame and something less noisy and clean.

So the latest in eyewear trends and fashion is minimalism with maximalist attention.

—Jacob Kilsgaard, founder,
Kilsgaard Eyewear



Fyfe Indigo (top) and Chocolate on Jade (below, left), both from Oliver Goldsmith; Kilsgaard model 44-1.1 (below, right)

roduce new colors in eyewear, the plastics were very thick (5–7 mm stock), and the look was less attractive than contemporary colored zyl. Today, acetates are color-layered to get the pop of color we want without a thick, obtrusive frame.

Cut to the 1970s. Wait—there was no fashion then. Let’s skip that era. The 1980s, however, were bigger than life.

In the new millennium, frame fashion trends take the best of the past and meld it with the present to create unique, fun, frame trends

to which we can all relate. In the 21st century, equally in fashion are bold, heavy Geek Chic zyls and disappear-on-your-face rimless—both extremes, both perfectly in style.

It is our job to help identify which of these looks speaks the loudest to our patients and clients. When both extreme fashion trends are still in play, it leaves a lot of room for all the styles in between. Identifying and purchasing frame styles to meet today’s fashion trends is not as difficult as you may think.

As in many fashion-related industries, there

is a methodical way of knowing how fashion trends disseminate throughout a society. The Fashion Pyramid (see Figure 1) is a great model to follow regarding how fashion trends trickle down.

The Fashion Pyramid

Think of a pyramid, like the food pyramid (or a base-up prism), with the top of the triangle (apex) being the most in-fashion haute couture trends, with other trends closely following.

Innovators

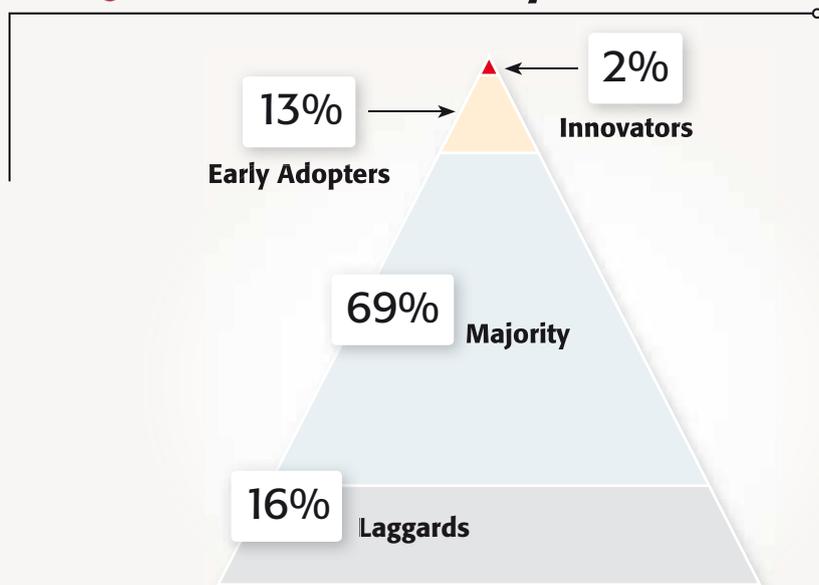
The Innovators are the top 2% of the fashion triangle. This group of patients/clients are fashion-forward, trendsetters, and jet-setting type of people. The moment they see a fashion trend on another Innovator, they will dump it immediately and move on to the next fashion trend:

- **Women Innovators:** Cat eyes (yes, with rhinestones, please), bright colors, and geometric shapes. The ultimate in women’s frame fashion trends today are fun cat-eyes, and glamorous retro-fashions like Audrey Hepburn 1950s glam. Just turn to fashion magazines and you will see women with pin curls and finger-wave type hairstyles mirroring this glamorous time in history. And, tortoise shell colors and leopard prints are a must. Ask yourself, are they *too* Peg Bundy or just Peg Bundy enough?

- **Men Innovators:** Also retro in style. Think Martin Luther King, Jr. and Aristotle Onassis. Young college students are jumping on the fashion bandwagon more than ever. Add

See **Style** on page 26

Figure 1 The Fashion Pyramid



Source line:

Style

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interesting materials, such as wood and buffalo horn, and we have a match made in heaven—retro styles with natural elements.

Early Adopters

Similar to Innovators, Early Adopters are also trendsetters with fashion savvy. The difference here is that they will hold on to a fashion trend a little longer, taking great pride in the fact that they were among the first to wear the particular fashion. This group of patients/clients will also wear the heavy “geek-chic” types of designs, as well as perfectly round metals and zyls. Additionally, they will match up interesting rimless styles with unique lens shapes and edge color treatments. A great way to show our expertise with this group is to custom shape rimless

designs to suit the individual’s face shape and features. (**Style tip:** *Most everyone looks good with a little upward temporal angle in a lens shape.*) Simply draw a line on the demo lens from the cheekbone upward and outward to the outer edge of the eyebrow, and *oo la la*—a custom shape that is not too off the charts, but very distinct from mainstream shapes. A perfect combo for the Early Adopter.

The Majority

The Majority (69%) of our patients/clients must see a frame fashion trend around them before they will embrace the style. They must see it on television, in the movies, in printed media, and on the streets. This group of people tends to hold on to their styles for a longer time, so we must be careful to present fashion trends that will last a couple of years. The Majority of eyewear consumers today will still delight in classic rimless and short “B” dimension frame styles. Thick temples

with extra designs are still on the mark for this fashion demographic. (**Optical note:** *Miss Optical Manners says there is no excuse for not having enough pantoscopic tilt for the best visual optics. If you plan to dispense frame fashions with thick temples, it is important to learn how to file the edges at an angle to give enough pantoscopic tilt, especially for PAL wearers.*) Be sure the fashion does not outweigh the function—we aim for the best possible vision in the best possible form.

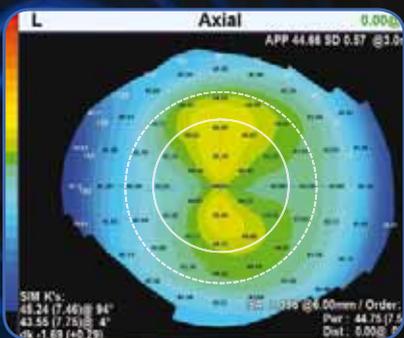
Laggards

The Laggards are not interested in fashion trends; they are not part of this discussion. However, they are part of the fashion triangle and should be noted. Just talk stainless steel and spring hinges and they’ll be happy. If you’re lucky, you will have an engineer laggard, which will give you an opportunity to talk about index of refraction, ABBE value,

See **Style** on page 28

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and specific gravity... all in a day's work. We are in a wonderful place regarding optics and frame fashion trends. New, innovative frame designers are introducing fresh, fun collections that bring back excitement and glamour to eyewear. In counterpoint, lens engineers are calculating enhanced lens designs to accommodate various frame fashion trends while keeping optics stable.

The result is Geek Chic at its best—a win-win for eyewear consumers and fashionistas. **ODT**



Photo provided by Bevel Eyewear.

Author Info



Laurie L. Pierce, LDO, ABOM, is an instructor in the optician program at Hillsborough Community College, Tampa, FL. Pierce also lectures extensively on optical theory and management topics at local, regional, and national conferences. In addition, Pierce is president of the Society to Advance Opticianry. She was named one of the most influential women in optical for 2010. Contact her at 813/253-7433 or lpierce@hccfl.edu.

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Style

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Classic sunwear

The Oliver Goldsmith Sunglasses Classic Collection continues to grow by taking the exact designs from previous collections and combining them with the world's foremost production partners. Think 20th Century icons from the fashion and entertainment worlds, such as Audrey Hepburn and Michael Caine.



Oliver Goldsmith Classics offers 30 retro-inspired sunglasses, including Hex Ivory (from 1966) [above], and Glyn Matte Dark Tortoiseshell (1971) [top].



Uuksuu Royal (from 1964) [left].



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Anti-eyestrain lenses: Optical solutions for our new reality

By Renee Jacobs, OD, MA

As humans embrace handheld technology such as smartphones and iPads, many individuals suffer ocular side effects. The symptoms, common to computer vision syndrome, include dry eyes, tired eyes, and blurry vision. To put it bluntly, eyeballs simply cannot adapt as fast as smartphones can evolve. Accommodative demand is increas-

Take-Home Message

Handheld technologies carry tremendous benefits for our patients. The downside of handheld tools is that they come with side effects—dry eyes, tired eyes, and blurry vision. For individuals troubled by accommodative symptoms, anti-eye strain lenses offer a comfortable alternative to traditional single-vision lenses.

ing, thanks to successful companies such as Samsung, Blackberry, and Apple.

Clearly, handheld tools carry tremendous benefits for our patients. People can check e-mail while they wait, video record their doctor providing medical and prescription advice during the eye examination, scan bar codes and photograph frames in the optical for comparison shopping, and then tweet their friends about the experience.

The downside of handheld tools is that they have side effects, too. With so much attention, literally as close as our fingertips, even young people experience accommodative symptoms. For these individuals, from grade school to young professionals, anti-eye strain lenses offer a comfortable alternative to traditional single-vision lenses. Furthermore, business leaders can embrace this growing class of lenses as a revenue opportunity.

Recently, I met an optometrist who is excited about anti-eye strain

lenses. Thomas Gosling, OD, is an independent optometrist who has become highly skilled at identifying candidates who could benefit from anti-eye strain lenses. He has developed a “show and tell” presentation for the exam room so that patients can feel comfortable before they buy. Dr. Gosling’s practice is in Littleton, CO; however, patients come from all around the United States to see him.

Target market

For years, we have known that pre-presbyopia begins at birth. The crystalline lens adds layers throughout our lifetime. In the past, patients were labeled presbyopic when they became symptomatic enough to accept add power, typically in their 40s.

Now, we are realizing that pre-presbyopes can benefit from assistance at younger ages, sometimes as early as grade school or college.



Dr. Gosling

You are looking for the patient who complains of intermittent blur, tired eyes, headache, eye strain, fatigue, and lack of mental focus.

Dr. Gosling uses two methods to identify these patients:

Method 1: Media-use questionnaire. Add media-use questions to your current medical history questionnaire, toward better understanding accommodative demand due to lifestyle. Begin a discussion about symptoms.

Method 2: Behavior in the exam room. Dr. Gosling uses a +1.00 D flipper over the patient’s best-corrected distance prescription

while the patient views his smart phone or tablet. He asks, “How does it look? How does it feel? What do you notice?” Many patients immediately experience sharper vision and greater comfort. After about 15 seconds, Dr. Gosling lifts the flipper. If the patient reacts

Patient New Media Use Questionnaire Section I.

Smartphone	Y/N
Tablet (iPad or Android)	Y/N
e-Reader (Kindle, Nook)	Y/N

How many hours a night do you sleep on average? _____

Please note the number of hours per day spend viewing the following devices:

Smartphone	< 1hr	2-4hrs	4-6hrs	6-8hrs	8-10hrs	> 10hrs
Tablet	< 1hr	2-4hrs	4-6hrs	6-8hrs	8-10hrs	> 10hrs
e-Reader	< 1hr	2-4hrs	4-6hrs	6-8hrs	8-10hrs	> 10hrs

How many hours are you spending viewing a computer? _____
[Typical distance is 18-36 inches.]

Section II.

Do you alternate focus between distances? If so, what do you alternate between?
TV & Smartphone? _____ TV & Tablet? _____ TV & e-Reader _____
Computer & Smartphone? _____ Computer & Tablet? _____
Hobbies? _____

Section III.

Do you experience any of the following conditions?

▶ Fluctuation in Vision	Y/N
▶ Tired Eyes	Y/N
▶ Headaches	Y/N
▶ Overall Body Fatigue	Y/N
▶ Decreased Concentration	Y/N
▶ Decreased Night Vision	Y/N
▶ Dry Eyes	Y/N
▶ Light Sensitivity	Y/N
▶ Rubbing of Eyes	Y/N



Dr. Jacobs

by pushing the device further from his eyes and squinting, then Dr. Gosling knows he has identified a candidate for anti-eyestrain lenses.

If your patient does not have her smart phone or tablet with her, then use your nearpoint card. A card is a good target, but not as authentic as a back-lit digital device.

An additional test

When the patient’s behavior indicates benefit from low add power, Dr. Gosling does one additional test. He repeats the use of the flipper while the patient continues viewing the near tool. He instructs the patient to shift his eyes to the distance eye chart as soon as the flipper is raised. If the patient reports comfort at near and clarity at far, again, this is a good candidate for anti-eye strain lenses.

Vendor options

Before choosing your vendor of choice, study all the options. You will discover a variety of technologies. These include prism to aid convergence, tints to improve contrast and adjust color spectrum from computer backlights, filters to decrease high energy visible (HEV) light, wrap to decrease tear evaporation, plus an assortment of low add powers strategically positioned in down gaze (see Figure 1).

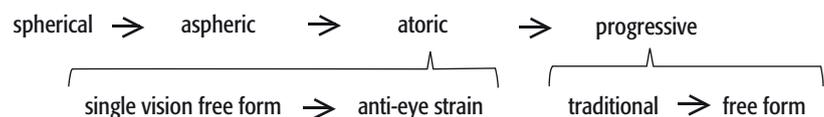
Market forces

When you investigate wholesale price point and vision plan reimbursement, or lack of reimbursement, you might find wide variance among vendors. This occurs because vendors face a big challenge. The low add lenses are similar to progressive lenses. Plus power provides accommodative relief in down gaze, and each brand has a minimum fitting height. However, the target market is young, active, tech savvy people. These patients don’t want the stigma of bifocals—or the expense.

Figure 1: Anti-Eye Strain Vendor Options

Brand	Lens	Add	Min Fit	Web Site (retrieved 14 January 2013)
Essilor	Anti-Fatigue	0.60 D	13 mm	http://www.essilorvisualfatiguesolutions.com/downloads/LESS200268_AF_Spec_Sheet.zip
Hoya	Sync 5	0.55 D	11 mm	thehoyafreeformcompany.com
Hoya	Sync 8	0.88 D	11 mm	thehoyafreeformcompany.com
Shamir	Relax	0.65 D	16 mm	http://www.shamirlens.com/index.php?option=com_k2&view=item&id=710:shamir-relax%E2%84%A2&Itemid=253
Zeiss	Gunnar	NA	NA	http://vision.zeiss.com/eye-care-professionals/en_us/products-and-technologies/lenses/office-computer-lenses.html

Figure 2: Lens Technology Continuum



The atoric option

Successful vendors will differentiate anti-eyestrain lenses from single-vision options without claiming progressive lens status. One strategy is to define a lens technology continuum and expand the category of atoric lenses (see Figure 2).

This method of differentiation can work. However, those who understand optics might quibble. Realize that in Latin, aspheric means

not sphere shaped, and in practice aspheric lenses are symmetric around the optical center (OC). Atoric lenses are simply another kind of aspheric shape with topography that is not symmetric around the OC. Using this logic, progressives can be defined as a kind of atoric, such that lens topography becomes increasingly asymmetric in down gaze.

Furthermore, digital manufacturing is similar for all the lenses. Inside robotics-enabled labs, the real difference boils down to sophistication of proprietary software that calcu-

See **Anti-eye strain** on page 32

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Anti-eye strain

Continued from page 31

lates the topography for each branded lens design.

Because differentiation is complicated, and market forces are at work, you are likely to discover inconsistencies in wholesale price point and vision plan reimbursement. With this understanding, thoroughly research all of your vendor options when you select the anti-eye strain lens best for your patients and your business.

Qualified candidates

Once you select your anti-eye strain lens or lenses of choice, match the patient to the product using methods shown above. Then boost your success rate by evaluating every non-adapt. Review their Media Use Questionnaires and symptoms.

Confirm documented acceptance of add power during show and tell with a plus lens flipper. Finally, interview to determine the reason for non-adapt. Did the patient experience improved comfort and mental focus? *What happened?*



In the Exam Room, Dr. Gosling evaluates candidates who could benefit from anti-eye strain lenses. Above, Dr. Gosling uses a +1.00 flipper over the patient's best-corrected distance Rx, while the patient views his or her smart phone, tablet or, ideally, a back lit digital device.



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Vision Council combats digital eye strain

The Vision Council (TVC) raised awareness of digital eyestrain among those audiences most at risk at the 2013 International Consumer Electronics Show (CES) in January. TVC was on hand to help digital device users protect their eyes from digital eyestrain, a growing health concern for avid electronic consumers.

A 2012 survey by The Vision Council found that nearly 70 percent of U.S. adults experi-

ence some form of digital eye strain while using digital devices. The majority of Americans spend 4 to 6 hours daily in front of electronics—a number steadily on the rise among younger populations. Individuals can easily protect vision, however, through the use of the wide array of computer eye-wear products available today.

“Technology is taking us to fascinating places, and CES is an opportune time to see what in-

novation will look like in 2013,” said Ed Greene, CEO of The Vision Council. “As the largest tradeshow of consumer electronics, CES gives us a platform to reinforce safe eye behavior among those adults and children who most frequently use consumer electronics. We are especially excited to showcase computer eyewear and other eyewear solutions that can help to prevent the risk of digital eyestrain.”

e-mail, game, surf the Web, social network, enjoy videos, and use multiple digital tools simultaneously. To date, however, there is no app to prevent eye fatigue.

You can make a difference. Embrace new technology lenses and differentiate your practice.

With some research and planning, you can develop business strategies as better and better lens products come to market. Achieve success by helping patients and differentiating your business. **ODT**

Success, one patient at a time

Dr. Gosling reports a 95% success rate identifying patients who will love anti-eyestrain lenses. From his experience, 5% will non-adapt, and the most common reason is what you might predict. Even a subtle amount of plus power, positioned in down gaze, alters peripheral vision. Some patients, especially

athletes, prefer the edge-to-edge clarity of single-vision free-form lenses. Dr. Gosling is still learning from case by case evaluation of every non-adapt.

Differentiate your business

Digital devices have revolutionized daily human experience. Today, patients can text,

FYI

Thomas Gosling, OD

E-mail: tgosling@q.com

Dr. Gosling is in practice in Littleton, CO.

Renee Jacobs, OD, MA

E-mail: Renee@MyPMDepot.com

www.practicemanagementdepot.com

Dr. Jacobs is director of Practice Management Depot. She lectures frequently on practice management topics.

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Make the most of digital lenses

Unlock the potential of digital spectacle lenses and use it to benefit your patients

By **Brian P. Dunleavy**

Over the past few years, digital spectacle lenses have taken the optical industry by storm. Lens manufacturers have devoted significant research and development resources to perfecting the technology, which promises truly customized prescription lenses to wearers.

Each new product launch in the category has added to the buzz surrounding it. On-



Dr. Shaw-McMinn

line chat forums and blogs dedicated to eyecare have been busy with comments on the new products and the potential for added sales in the optical they bring with them. Some have also detailed shortcomings with the new technology.

In the end, what makes the lenses unique—and a special opportunity for independent optometrists—is that they transcend the “eyeglasses-in-about-an-hour” culture that has permeated the optical business during the past 25 years or so, thanks to the ever-growing chain-store segment of the market. Indeed, the equipment required to properly process digital spectacle lenses is very expensive, and the technology is highly specialized.

“We essentially have 2 types of lenses now,”

Take-Home Message

Digital, or freeform, spectacle lenses revolutionized the optical industry but created a double-edged sword. Digital lenses are expensive to make, so they cost consumers more to buy. A practice can overcome this challenge by ensuring that optometrists and their optical staffs understand these lenses to create a new profit center.

said Peter Shaw-McMinn, OD, a partner in group practice in suburban Phoenix. “We have the older technology lenses, on which we had to cut a couple of curves on the lens to get the power, and we have the new digital lenses, on which the machine adjusts the blade and cuts the powers based on computer input. The end result with digital lenses is more natural vision, and you won’t see them made ‘in about an hour.’”

As great as these lens products are for practitioners and patients alike, they also present quite a challenge. Because digital lenses are more expensive to make, they also cost more—for the practitioner to sell and for the patient to buy. So how do optometrists and their optical staffs best position these products to maximize sales?

Mixed messages

Martha E. Mijares, an optician and optical director at Southern California College of Optometry in Fullerton, who instructs optometry students on dispensing, said part of the problem is that the marketing messages practitioners receive from lens manufacturers about digital products are confusing.

“The product materials can be convoluted,” Mijares said. “Some designs are semi-digital, while others are fully digital.” For some optometrists, she said, the technology double-speak means that it’s hard to discern where these products fit in their dispensing platform and how to best explain these innovations to their patients.

Dr. Shaw-McMinn also believes the key to successfully dispensing digital lenses is optometrist and staff education. Patients don’t necessarily need to understand all the details about the new technology, but optometrists and their optical staffs do, he said. This may mean attending seminars at trade shows or sitting down with lens manufacturer sales reps.

Bringing understanding

Mijares feels that it’s beneficial for optometrists and their optical staffs to visit wholesale laboratories that process digital and freeform lenses so that they can see—and hopefully understand—the process for themselves.

“For optometrists and staff, understanding higher-order aberrations and aberrometry makes it much easier to understand digital technology,” said Dr. Shaw-McMinn. “As optometrists, our brand is to educate the patient at every opportunity on what we have to offer to improve their lives. At our practice, we develop simple scripts about digital lenses for the receptionist, the technician, and the optician. I don’t think they are used as often as I’d like, but I control what I say as the doctor, so I always reinforce the need for these products with my patients.”

As Mijares noted, all digital lenses differ in terms of design. In short, some lenses are more digital than others, meaning some lens designs are digitally surfaced on one side, such as Essilor Ideal, Ideal Short, and Ideal Advanced; Shamir Autograph; Seiko Succeed; and Zeiss Individual. Others are digitally surfaced on both the front- and back-side of the lens, including Varilux Physio Enhanced; Definity and Definity Short; Varilux 360 Progressives; and Hoyalux ID.

Although digital designs are available in progressive addition (PAL) and single vision, some experts believe the benefits of the technology are more pronounced in PALs, except in single-vision patients with high prescriptions. However, as the technology improves, this may change.

Digital lenses and ocular disease

Digital lenses can help patients with certain ocular diseases or conditions, according to Peter Shaw-McMinn, OD, a partner in group practice in suburban Phoenix and frequent lecturer on dispensing topics.

Conditions include:

- Corneal scarring
- Corneal dystrophies
- Cataracts, macular edema
- Age-related macular degeneration

Regardless of how the digital lenses are surfaced, all of them offer several key benefits to wearers, according to Dr. Shaw-McMinn. With his patients, he emphasizes these points:

- The high-tech nature of the processing equipment and the process. Patients don’t need to know the details, but they should know that the lenses they are buying are made with “multimillion-dollar, computerized equipment” that can process more exact prescriptions and compensate for higher-order aberrations, that is, spherical aberration.
- With this new equipment, lenses can be processed so that each area of the lens—the optical center and the periphery—can be designed with specific fo-

cusing properties. This reduces peripheral distortion and creates lenses with more natural vision than ever before.

- These lenses offer wearers more comfort and more flexibility with their vision, meaning they will see better overall, which will improve their quality of life.

'The end result with digital lenses is more natural vision, and you won't see them made "in about an hour."'

Peter Shaw-McMinn, OD

- Digital and free-form lenses enable optometrists to correct for distortions caused by lens optics, congenital eye conditions, the aging process, or eye disease. Some of the ocular diseases or conditions where Dr. Shaw-McMinn believes patients may

benefit from digital lenses include corneal scarring, corneal dystrophies, cataracts, macular edema, and age-related macular degeneration.

"The driver for selling digital lenses is presenting them as the latest technology in eye-wear," said Mijares.

"Using an aberrometer makes me realize how important digital lenses are to many patients," Dr. Shaw-McMinn said. "We've always known that the eye has potentially millions of different powers, but in the past we could not make lenses to correct for all of them. We can do that now." **ODT**

FYI

Peter Shaw-McMinn, OD

E-mail: pshawmcminn@scco.edu

Dr. Shaw-McMinn has received honoraria from numerous ophthalmic industry partners, including Allergan, Essilor of America, and Novartis CIBA Vision. He serves on many advisory boards, such as Humana National Physician Advisory Board, International Vision Expo, and the Association of Practice Management Educators.

Vistakon halts three Acuvue brands in U.S.

Jacksonville, FL—Vistakon Division Johnson & Johnson Vision Care Inc. will be discontinuing three of its older brands this year.

The brands affected are:

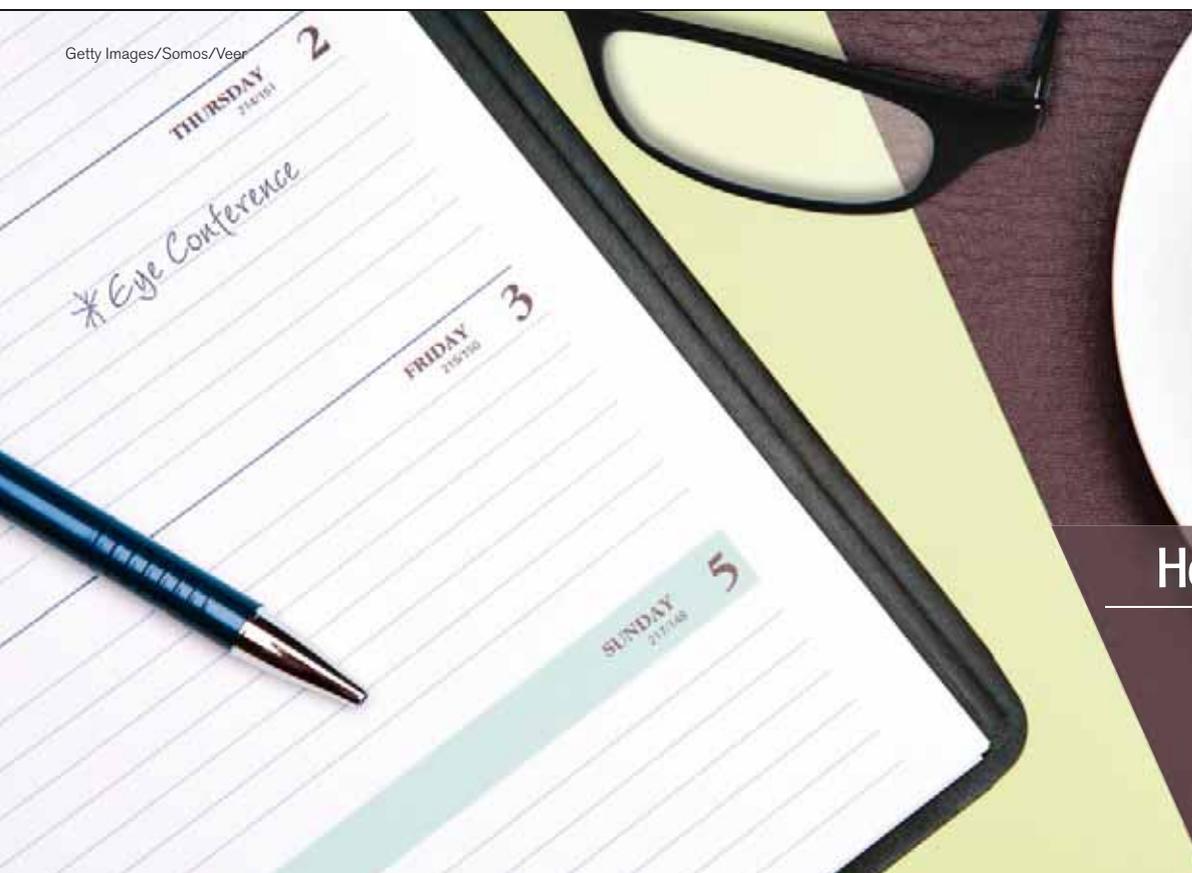
Acuvue brand contact lenses—All 9.1 base curves and 8.4 and 8.8 base curves of parameters from -6.50 to -11.0 are being discontinued in the U.S. as of July 1. However, products with 8.4 and 8.8 base curves and parameters ranging from -0.50 to -6.00 will continue to be available.

Acuvue bifocal and Acuvue 2 Colours contact lenses—All parameters of will be discontinued as of Dec. 31.

"Providing patients the best vision correction product experience is a critical factor in helping eyecare professionals serve their patients and grow their practice.

Eye doctors can easily upgrade patients from these older lenses to more popular and innovative brands that are better poised to help make patients happy about the contact lenses they wear, and the doctor who fits them," said Dave Brown, Vistakon president.

Getty Images/Somos/Veer



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Learning Objectives

- Select the most appropriate topical ocular anti-infective or anti-inflammatory agent for the treatment of ocular infection or post-surgical infection prophylaxis based on risk-benefit data
- Identify existing as well as emerging treatment options for pre- and post-ocular surgery prophylaxis and treatment

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Eric D. Donnenfeld, MD, FACS: Allergan Inc., Bausch + Lomb, Alcon/C

Mark T. Dunbar, OD, FAAO: Allergan, Carl Zeiss Meditec, Inc., Alcon Nutritional, ArtidDX /A, C, SB; Reed Exposition (Vision Expo)/A, C

Marc R. Bloomenstien, OD, FAAO: Allergan Inc., RPS, AMO/A, AOA/E; Bausch + Lomb, Allergan Inc., Odyssey/G; Alcon, Bausch + Lomb, ISNA, RPS, Odyssey, Reichert/SB

Clark Springs, MD: Alcon, Merck/A

Peer Reviewer

Donald L. Budenz, MD, MPH: Alcon, Santen/A, Alcon, Allergan Inc., Alimera/C, Merck, Lumenis/SB

Medical Writer

Dominique W. Brooks has no relationships to disclose.

Activity Development and Management Team

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Infection and Inflammation Associated with Ocular Surgery

A.L. is a 55-year-old man who has noted a gradual decrease in vision in his right eye over the past year. He has no history of any ocular disease or systemic health problems, such as diabetes or high blood pressure. Slit lamp examination shows a moderate nuclear sclerotic cataract in his right eye, and vitreous and retinal examinations are within normal limits. He is interested in cataract surgery. The potential risks of surgery are discussed with him as well as any dangerous symptoms that may occur after the procedure, such as decreased vision, red eye, pain, and discharge. These could all be signs of infection or other potentially dangerous visual complications.

Endophthalmitis

Endophthalmitis is a serious and vision-threatening ocular complication that can occur after a surgical procedure, trauma, or a systemic infection.¹ It is an inflammatory condition of the aqueous or vitreous cavities caused by a bacterial or fungal agent; however, noninfectious endophthalmitis can also be caused by toxic agents, pharmacologic treatments, or post-operative retained native lens material.^{2,3}

While endophthalmitis is always a risk associated with ocular surgery, it is rare and varies with the type of surgery performed¹ (see Table 1). A study by Keay et al found that the overall incidence of endophthalmitis in 2003 was 1.33 per 1,000 surgeries (95% CI, 1.27-1.38) and decreased to 1.11 per 1,000 surgeries (95% CI, 1.06-1.16) in 2004.⁴

Table 1. Incidence of Endophthalmitis by Surgical Procedure

Surgical Procedure	Incidence
Aqueous shunt surgery or trabeculectomy ⁵	1% to 3% and 0.3% to 1.8%, respectively
Pars plana vitrectomy ⁶	0.011% to 0.039%
Cataract Surgery ⁷	0.028%
Penetrating keratoplasty ⁷	0.108%
LASIK ⁸	Post-operative infections are rare
Photorefractive keratectomy ⁹	Rare and usually involves an infectious keratitis, not endophthalmitis

Diagnosing endophthalmitis quickly is important to preserve vision.¹ Obtaining an accurate history – including any surgical procedures or infections, such as endocarditis – is the first step in diagnosis. The course of the condition may vary based on the cause of the infection; for example, bacterial causes generally present more acutely, while fungal infections may take several days before becoming evident.² Symptoms of endophthalmitis include a red and inflamed eye, vision loss, photophobia, eye pain, and ocular discharge. Eyelid swelling and headache may also be present. An ocular examination may show keratic precipitates, anterior chamber cell and flare, and a significant vitritis in the affected eye and/or a hypopyon in the anterior chamber.^{1,2}

Disease progression due to endophthalmitis may lead to corneal perforation, vision loss or phthisis bulbi.¹ Treatment depends upon the causative organism and may include a diagnostic vitreous tap or vitrectomy with intravitreal injections of antimicrobial agents. Treatment may also include systemic antibiotics such as oral fluoroquinolones, vancomycin, a cephalosporin, fluconazole, or amphotericin B. Treatment should begin immediately after cultures are obtained depending on the suspected cause of the condition.² If the condition does not improve after treatment is initiated, clinicians should obtain repeat anterior chamber or vitreous samples to determine the

causative organism, if possible, because knowing the causative organism is essential in directing treatment.^{10,11} Since the outcome of endophthalmitis can be poor, prevention before and after the surgery often serves as the best defense.¹

Toxic Anterior Segment Syndrome

Toxic anterior segment syndrome (TASS) is a post-operative condition caused by an inflammatory reaction to a noninfectious substance that enters the eye during a surgical procedure. TASS typically occurs within 1 to 2 days after cataract or anterior segment surgery; signs are limited to the anterior segment of the eye.¹² Cultures taken from the eye are always negative after gram staining, and blurred vision and ocular pain are often present. On examination, there is usually severe anterior segment inflammation, often with a hypopyon and profound corneal edema. The iris and trabecular meshwork may also become permanently damaged in TASS, which may lead to an irregularly shaped pupil or elevated intraocular pressure.¹³ TASS typically responds to aggressive corticosteroid therapy.¹²

Iritis/Uveitis

Preexisting or undiagnosed uveitis can be exacerbated by ocular surgery. Uveitis is inflammation of the uveal tract, which includes the iris, ciliary body, and the choroid. Most

Refresher

In the previous article on herpetic keratitis, we learned the following key learning points:

- Several ocular conditions may present like herpetic keratitis; thus, it is important to make the appropriate diagnosis to decrease the risk of ocular damage.
- Corticosteroids may worsen active herpetic keratitis and should be administered in conjunction with an antiviral medication and close supervision.
- Trifluridine and gancyclovir can both be effective treatments, but gancyclovir carries less corneal toxicity and may be preferable for long-term use.

cases are idiopathic, but a thorough history is necessary to ascertain whether further work-up is needed. Symptoms of anterior uveitis include pain, blurred vision, and photophobia. Posterior uveitis is associated with blurred vision and is not typically associated with pain or photophobia.¹⁴ Treatment for both types of uveitis consists of corticosteroid use (topical and systemic) and cycloplegics for anterior uveitis.¹⁵ Intravitreal injections of corticosteroids and sustained-release corticosteroid implants are also available. Other immunotherapies, such as anti-TNF alpha agents, can also be used.¹⁶

Other Causes of Vision Loss After Ocular Surgery

In the days after an ocular surgery, other conditions such as post-operative inflammation and vitreous hemorrhage may also present with similar symptoms to endophthalmitis. Surgical trauma can cause an inflammatory cascade that generates prostaglandins, which can influence intraocular pressure, cause miosis, and increase vascular permeability, thereby increasing the levels of protein in the aqueous.¹⁷

Postoperative inflammation usually responds to topical ocular corticosteroids and/or nonsteroidal medications.¹⁷ Large amounts of inflammation can be confused with infectious endophthalmitis and may be treated as such. With vitreous hemorrhage, the patient complains of decreased vision, floaters, photophobia, and images of cobwebs, but generally no pain¹⁸; however, since the patient is postoperative, he or she may actually have some discomfort from the procedure not associated with the hemorrhage. On examination, the clinician will be able to see hemorrhage in the posterior chamber. This may not be the complete diagnosis in every case, as endophthalmitis may have an unusual presentation (such as vitreous hemorrhage), but there are typically other findings, such as a positive smear or culture, that point to the proper diagnosis.¹⁹



Post-surgical endophthalmitis caused by gram-positive bacteria.

Endophthalmitis Prevention Strategies

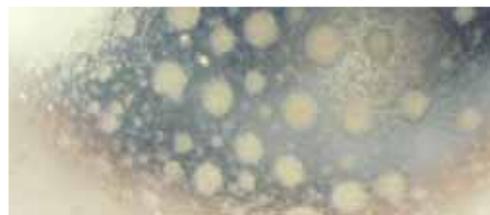
Since treatment of endophthalmitis may not yield positive ocular outcomes, prevention before and after surgery has become a hallmark of ophthalmic treatment regimens.⁵ It is commonly accepted that the patient's personal flora is responsible for most cases of postoperative infection.²⁰ Lid cleaning prior to surgical procedures may lower the amount of bacteria available to cause infection, as evidenced in a study by Bucci and colleagues that found that a combination of lid scrubs and antibiotics lowered the amount of bacteria around the eye prior to cataract surgery.²¹ Lid hygiene prior to surgery can be beneficial in all surgical procedures, especially if the patient has blepharitis or meibomian gland dysfunction, which may increase the levels of bacteria on the eyelids.^{22,23} Application of both preoperative and postoperative topical antibiotics, the use of 5% povidone-iodine in the ocular cul de sac and 10% povidone-iodine on the periocular skin, as well as sterile draping in the operating room, are all potential ways to lower the rates of infection.²³

Many clinicians have preferences for antibiotic use, but newer antibiotics such as fluoroquinolones may have clinical benefit due to a broader spectrum of action.²⁴ Whatever the choice, the selected antibiotic should be active against gram-positive bacteria and have sufficient bioavailability for absorption.²¹ Moxifloxacin, gatifloxacin, besifloxacin, and levofloxacin all reduced ocular flora bacteria levels in nonclinical and clinical trials.^{25,26} Besifloxacin may provide additional coverage for ocular pathogens such as ciprofloxacin- and methicillin-resistant staphylococci.²⁷

Some clinicians start topical antibiotics at least one day before ocular surgery, while others may give multiple drops at the time of the procedure.²⁸ There has been some debate as to whether starting antibiotics days before the procedure eradicates bacterial flora as compared with only one day before the surgery or when compared with use of povidone-iodine alone.^{29,30} Despite this debate, many clinicians use topical antibiotics prior to most ocular procedures and continue antibiotic drops after the procedure. Research has shown that endophthalmitis typically occurs within one week after ocular surgery, so antibiotics are often continued for at least that long.²⁵ Controlled studies evaluating prophylaxis for endophthalmitis have been difficult to complete partly because of the low incidence of the condition and the differences in practice

Key Learning Points

- Endophthalmitis is a rare, but devastating, condition.
- Prevention of endophthalmitis with ocular surgery is the best plan of action.
- Prophylactic antibiotics can be given topically before and after ocular surgery.
- For some surgeries, such as cataract surgery, antibiotics may be given intracamerally during the procedure.
- Lid scrubs can lower bacterial concentrations and may be beneficial for most ocular procedures.



Close-up of the cornea showing large keratic precipitates on the endothelium in a patient with a 4+ anterior chamber reaction due to postoperative endophthalmitis.

patterns among clinicians²³; however, a large, randomized study of the European Society of Cataract and Refractive Surgery by Barry and colleagues evaluated intraocular antibiotics and found that intracameral cefuroxime administered at the time of surgery significantly lowered the risk for developing endophthalmitis after cataract surgery.³¹ Other nonrandomized studies have also evaluated the effectiveness of intracameral antibiotic injections after cataract surgery, and a survey of cataract surgeons in Sweden suggested that intracameral cefuroxime may be responsible for the lower levels of endophthalmitis.³²

Patient Case Conclusion

To lower the risk of endophthalmitis before cataract surgery, we started A.L. on a fluoroquinolone drop one day prior to the cataract surgery. We also started him on a topical nonsteroidal anti-inflammatory drug (NSAID) and steroid drop to lower the risk of inflammation. Prior to the procedure in the operating room, povidone-iodine was used to clean the eyelid skin and was placed in the cul de sac as well. During the cataract extraction, intracameral cefuroxime was administered, and the surgery was a success. A.L. was instructed to continue the fluoroquinolone drop QID for 2 weeks after the procedure in addition to topical NSAIDs and steroid drops.

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Reflecting on AR coating

Optometrists are missing a profit opportunity by not pushing this important add-on for eyeglass wearers

By **Brian P. Dunleavy**

Alan Goldstone, OD, believes in prescribing anti-reflective (AR) coating for all—or at least most—of his patients. For Dr. Goldstone, who practices in Long Beach and Fountain Valley in Southern California, the operative word is “prescribing.” He feels strongly that the approach optometrists use toward premium vision products in their practices makes all the difference in their ability to achieve what should be the goal of all eyecare practitioners: getting patients to use the best possible products—products like AR coating—for their vision.

“I don’t recommend products to patients,” Dr. Goldstone said. “I prescribe them. If I think a patient should be wearing AR-coated lenses—and I think practically all patients should be—I say that when I hand him off to the optician after his exam. I’ll tell the optician, ‘I am prescribing AR coating for this patient.’ I have found that when I take that approach, patients are more likely to follow through.”

So far, the strategy seems to be working. According to Dr. Goldstone, 75% of the eyewear sold in his practices features AR coating.

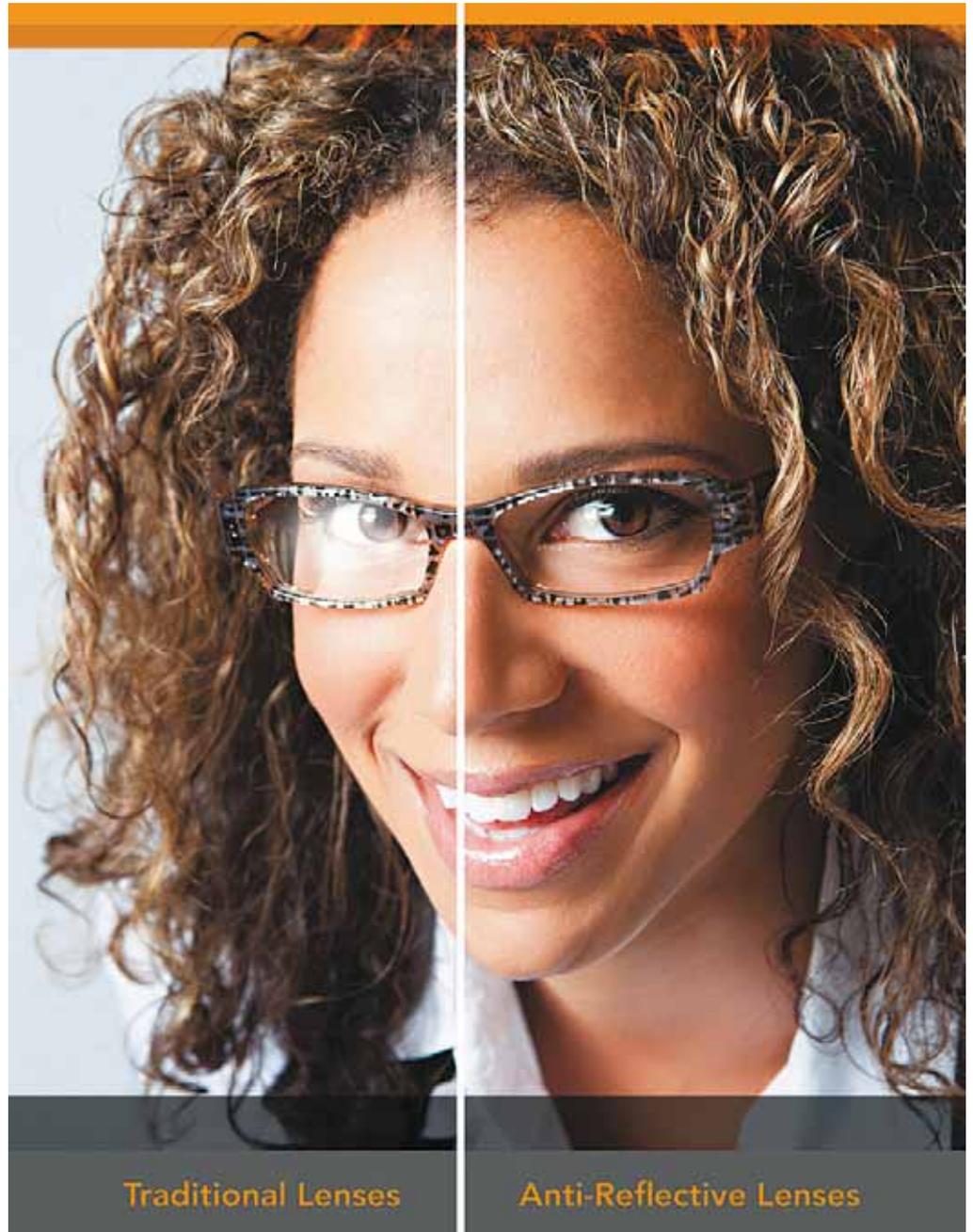
Take-Home Message

Sales of anti-reflective (AR) coating in the U.S. lag behind use in other countries. Professional organizations and practice management consultants want to work with optometrists to take advantage of this revenue stream and rethink the way they position AR to their patients.

The AR average

Of course, this percentage puts Dr. Goldstone’s practices far above the national average for AR sales, which despite significant industry marketing efforts and product innovation during the past 20 years or so still lags significantly behind those of the rest of the world. According to The Vision Council’s (TVC) AR Steering Committee, 28.5% of all spectacle lenses sold in the U.S. are treated with AR coating. In Canada, that percentage is 50%. In Europe, it’s 75%. In Japan, it’s a stunning 99%.

So why do AR sales in the U.S. continue to fall short? Theories abound. At one time,



The above images simulate the effects of traditional spectacle lenses (left) and AR lenses. (Image provided by The Vision Council.)

quality was an issue—some coatings scratched easily and others peeled, but this hasn’t been a concern for decades, thanks to improved coatings and application technology.

In the past, practitioners and patients alike expressed concerns about the turnaround time for AR-coated lenses. Back then it could take several days to fulfill an AR-coated lens order. However, newer, smaller high-tech coating

systems have enabled more labs to offer the service, improving turnaround time because now AR jobs don’t have to be sent out to separate, often far-flung processing facilities.

And, of course, many optometrists themselves have been hindered by patient sticker shock, believing that patients weren’t willing to pay extra for AR coating. Unfortunately, this may still be a concern because ODs often

have to charge as much as \$50 to \$100 extra for a premium add-on like AR coating in order to make a profit on the sale.

But Warren, OH, practice management consultant Richard Kattouf, OD, doesn't buy it. Dr. Kattouf doesn't believe that optometrists and, in turn, coating laboratories, need to adjust their prices; he thinks they need to adjust their attitudes.

"A good AR coating is going to cost patients, if they are private pay, about \$100, so cost is definitely a factor," said Dr. Kattouf. "But when I go into practices and observe optometrists in consultation with their patients, I see too many optometrists who don't use the power they have as doctors. Dentists and primary-care doctors tell us exactly what they think we should do for our health and, of course, most of us listen. But optometrists don't order, direct, and prescribe. They recommend, and then they leave it up to the staff in the optical to make the sale. Clearly, that doesn't work."

Raise awareness, raise the average

Under the auspices of TVC, the AR Steering Committee, which is made up of lens company and coating laboratory executives, is trying to help optometrists and all eyecare practitioners (ECPs) rethink the way they position AR through education. The group has developed a number of educational and marketing programs designed to inform practitioners about the benefits of AR and, in turn, better communicate those benefits to their patients. Several of these initiatives are available online, including:

- The "The Benefits of AR" video presentation narrated by Gregg Ossip, OD
- A series of articles on marketing and positioning AR in the optical and optimal ways of using the coating in tandem with other premium products
- The "See Better, Look Better" patient brochure designed to explain the benefits of AR to patients in a clear and concise way

All of these programs are available online, for free, at The Vision Council's ECP Web site at www.thevisioncouncil.org/ecp/content_1565.cfm. In addition, TVC actively markets AR coating via its communications with the consumer press as well as through its advertising programs in eyewear/eyecare publications for patients.

In the end, though, most optometrists agree that improving AR sales comes down to what the ECP does chairside. In addition to taking Dr. Goldstone's more clinical approach, optometrists could change the way they position AR by creating branded lens

packages—typically known as the "good, better, best" approach—that don't separate the coating as an add-on but rather include it in the base price.

As free-form or digital spectacle lenses become more mainstream, this approach will naturally evolve. In effect, most free-form or digital spectacle lenses are treated with AR coating as a standard part of the manufac-

turing process, whether the patient requests it or not. It is not priced out separately as an add-on with these products either.

"The independent optometrist can't compete with the chain opticals on price," Dr. Goldstone said. "The only way we can compete is to offer patients better lenses. Today's AR coatings make lenses better. It's that simple." **ODT**



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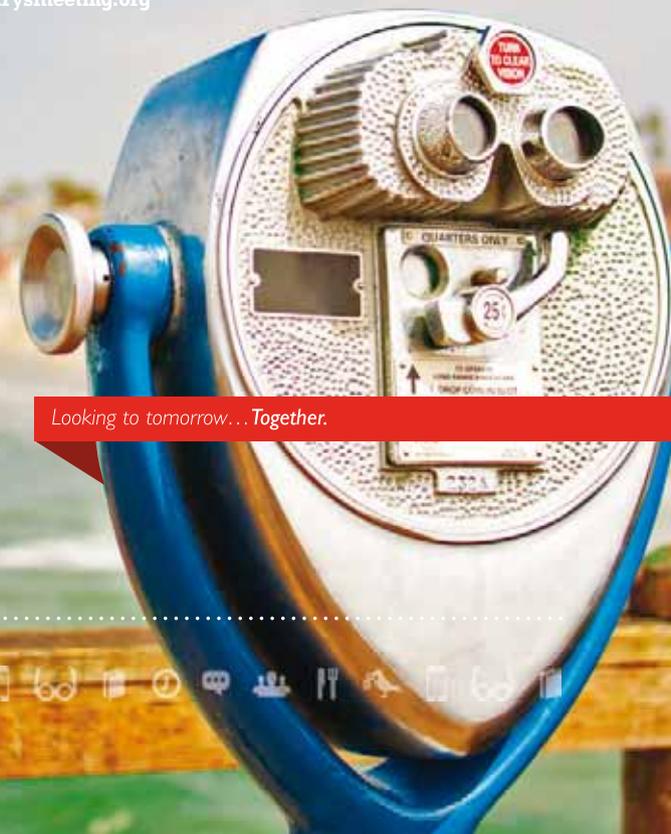
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Decode the alphabet soup of financial adviser options

Different professional certifications come with different qualifications, requirements

By Paul Matheis

Managing Editor/Content Channel Manager

The relationship with one's financial adviser is a true partnership in which both parties are working toward a common goal—your financial stability and independence.

A financial adviser may help manage your investments, perform portfolio evaluations, and serve as an educator to ensure a greater understanding of the investment environment. In addition to registered investment advisers, there are a number of other types of financial professionals who may be in a position to assist you with many financial planning areas.

The following list of professionals, as well as their industry-focused professional designations and educational requirements, serves as a guide in your search for an adviser:

■ **Accredited Asset Management Specialist (AAMS).** These professionals complete a 12-module self-study course. Modules cover asset management, investment policy, risk, return, performance, asset allocation, invest-

ment strategies, tax issues, retirement planning, insurance products, estate planning, ethics, and legal and regulatory issues.

■ **Accredited Tax Preparer (ATP).** The course provides basic background on tax preparation issues for individuals and sole proprietorships.

■ **Chartered Financial Analyst (CFA).** The 3-year program is intensive, with three 6-hour exams. Prerequisites for the designation include a bachelor's degree or comparable work experience and 3 years of investment management experience.

■ **Certified Financial Planner (CFP).** The Certified Financial Planner Board of Standards is a regulatory organization for financial planners. It awards the CFP designation to individuals who meet its requirements. The curriculum covers insurance, income taxation, retirement planning, investments, and estate planning. In addition to self-study programs, there are classroom instruction programs offered at colleges and universities across the United States.

■ **Certified Investment Management Analyst (CIMA).** Three years of investment management consulting experience, an interview, and a preliminary exam are prerequisites for the course. The program covers due diligence, asset allocation, risk management, and other investment management consulting concepts.

■ **Certified Investment Management Consultant (CIMC).** CIMC certification is a two-level, self-study course that covers investment management consulting. It also addresses asset allocation, formalizing investment policy, and active versus passive investment performance evaluation.

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■ **Chartered Life Underwriter (CLU).** The self-study curriculum includes 10 courses—eight required and two electives. Three years of business experience and client service in the financial field are prerequisites for the course.

■ **Chartered Financial Consultant (CHFC).** The

self-study program includes 10 courses—nine required and one elective. Three years of business experience and client service in the financial field are required.

■ **Chartered Mutual Fund Counselor (CMFC).** This nine-module, self-study course is a primer on mutual funds.

Word of mouth, through referrals made by friends and colleagues, is an excellent way to meet potential financial advisers.

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Do your homework

As with all professional designations, having one does not necessarily mean a person is good at what he or she does. Word of mouth, through referrals made by friends and colleagues, is an excellent way to meet potential advisers.

Even though someone may come highly recommended, it is always a good idea to interview several advisers to determine compatibility. That is the only way you can determine who you are most comfortable partnering with to guide you toward reaching, and ultimately, maintaining true financial independence and long-term security. **ODT**

Financial tips

- In addition to registered investment advisers, there are a number of other financial-based professionals who may be able to assist in many financial planning areas.
- Even though they may come highly recommended, it is always a good idea to interview a number of financial advisers to determine compatibility.
- SIMPLE (Savings Incentive Match Plan for Employees) IRAs are required to operate on a calendar year basis, and employer contributions must be funded for the entire year.
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Build a stronger practice by successfully branding your business

Base your strategy on data gathered from patient surveys and feedback

By Carol Patton

Why do patients visit your practice vs. the one down the street? Do they prefer your customer service, inventory, prices, or is it your employees?



Donna Suter

Branding your eye-care practice can work to your advantage, said Donna Suter, who owns Suter Consulting Group in Chattanooga, TN. Inventory and prices are usually similar among local practices, and you may even

serve the same target market.

But there is one area that can never be duplicated: how optometrists and employees treat patients. She said personalized care is often what wins patients over, especially with today's knowledgeable and demanding consumers.

"Branding is a marketing concept that is misunderstood," Suter said. "The challenge is how to make the often generic concept of eye care and glasses into something the consumer is willing to spend their non-health-care dollars to have."

Suter said up to 80% of her clients' patients who schedule eye exams are covered by a managed care plan. She has found that insurance doesn't increase the number of people who get exams. What's more, some patients visit practices with strong brands that appeal to them, even though the practice is out-of-network.

Develop your brand

Suter said the first step in branding your practice should be scheduling an employee brainstorming session that addresses core questions:

- Does the practice look like somewhere patients would go to for eye-health advice?
- How can we show patients we're unique and special?
- Does our tone of voice and behavior demonstrate that we're behaving in a

Take-Home Message

A brand is an important marketing tool to differentiate you from your competitors. When developing your brand, first decide what market you're going after based on patient feedback and community needs. Next, offer their perception of value and quality. Finally, acknowledge employees who demonstrate what your brand represents.

confidant and decisive fashion?

- What do patients say about our practice? What image comes to mind when they hear our name? Is our practice memorable?
- What differentiates our practice from our competition?
- What are our biggest weaknesses?

Suter also suggested that practices host a blog to solicit patient feedback. Typically, patients won't say anything negative directly to the optometrist or staff but will do so anonymously on a blog. (Remember that blogs need to be updated regularly to keep content fresh and encourage visitors.)

Ask patients how long they waited for their exam. Did the optometrist ask if they had any questions? Were they greeted after walking through the door? What was the name of the doctor who examined their eyes?

Years ago, when Suter worked at an optometry practice, she randomly called 20 patients who had their eyes examined within the past 90 days. She said the practice employed two young and attractive optometrists—one male, the other female. Yet, none of the patients remembered which optometrist examined them.

"That meant the optometrists were just OK. They weren't a 'wow,'" Suter said. "If patients can't tell you anything remarkable, a little red flag should go up."

Set targets, focus on perceptions

A brand must reflect the natural personality of your office and stand for an idea you endorse. Don't brand your practice as being high-tech if you don't use state-of-the-art equipment, Suter said.

You need to offer value and quality. Show patients you care, even if you have to initially fake it. Suter suggested using out-of-the-box strategies, such as sending employees to acting school so they can better relate to and communicate with patients. According to data from surveys Suter's clients presented to their patients, she said 85% of patients base their decisions to use professional services on how well staff communicates with them.

Still, you can't hit targets you haven't set. Decide what market you want to go after based on patient feedback and community needs, then offer their perception of value and quality.

If you target consumers who want good value, call patients by name, offer payment options, and provide the largest selection of economy frames in your area paired with customized spectacle lens options.

If you focus on consumers who prefer to be served in a high-end setting, offer a representative selection of hot designer frames, upgrade your furnishings, or offer complimentary gourmet coffees and teas. Regardless of your brand's direction, Suter said treating patients courteously and respectfully starts off any patient encounter on the right foot.

Keep staff in mind

Finally, acknowledge employees who demonstrate what your brand represents. If it's excellent customer service, reward employees when patients speak positively about them. Avoid disconnects between employee recognition and building a dominant brand, she said. As the practice owner or manager, realize that there must be continued leadership by encouraging brand-consistent innovations.

"Talk about what barriers stand between you and creating your brand," Suter said. "There's always that challenge to improve." **ODT**

FYI

Donna Suter

Phone: 423/545-4562

E-mail: suter4pr@donnasuterconsulting.com

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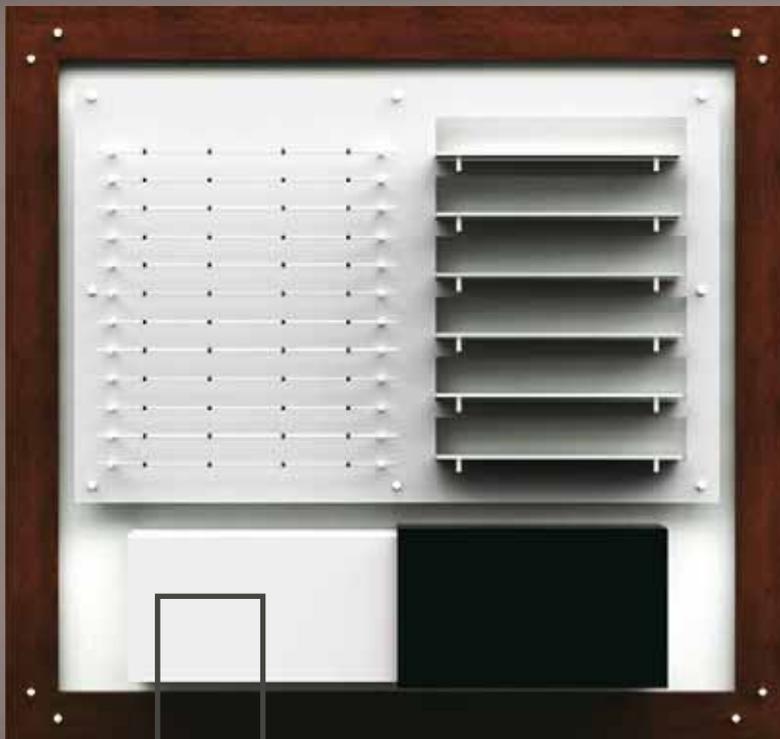


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“Race cars require a fair amount of maintenance,” Dr. Downs said. “Tires are good for maybe 1 or 2 hours. The engine needs to be rebuilt maybe once every 2 years. They’re pretty fickle cars.”

Racing

Continued from page 50

100%,” and you can’t think about anything else except that race,” he explained. “Technically, your only worry is going as fast as you can without crashing. You have to shut off all other fears and distractions.”

High-priced hobby

Out of all his wins, his most satisfying happened in 2009 at the Sebring International Raceway in Florida. He captured first place in the 45-minute race by a fair margin—42 seconds.

Despite the opportunities for fame, this type of car racing doesn’t offer much fortune. First-place winners don’t receive cash prizes, just a trophy and bragging rights. Still, the list of expenses for the sport can be quite long: the price of the car, shipping fees for transporting it to different venues around the country, hotel charges, and entry fees—usually \$1,000 per race—not to mention the cost of a crash helmet and a flame-retardant suit and gloves.

“Race cars also require a fair amount of maintenance,” he said. “Tires are good for maybe 1 or 2 hours. The engine needs to be rebuilt maybe once every 2 years. They’re pretty fickle cars. They don’t last forever.”

When the expenses are added up, Dr. Downs said car racing can easily become a six-figure

hobby. So he and his father pursue sponsors and have contracted with several, such as Hormel, to help offset the costs.

Around the curve

If Dr. Downs had one fantasy related to car racing, it would be to compete with his brothers in the 24 hours of Le Mans, the most prestigious endurance race held each year near Le Mans, France. The race is by invitation only, he said, adding that three drivers trade off time behind the wheel, driving around the same eight-mile course for 24 hours.

However, shipping a race car to France isn’t cheap. Neither are the hotel rooms he and his brothers would have to stay in for 3 weeks before the race. Win or lose, Dr. Downs said the Le Mans experience would still be unbelievable.

For now, though, he’ll continue racing, staying alert and focused.

“It’s such a different field than optometry,” he said. “It allows me to bust out and do something different.” **ODT**

FYI

Matt Downs, OD

Phone: 507/345-5087

E-mail: dr.downs@carlsontillisch.com

Dr. Downs considers himself lucky. He once crashed into a wall at 70 mph, and walked away with just a few scrapes and bruises.



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Matt Downs, OD, will climb into an Elan DP-02 racecar, strap himself in the driver's seat using a six-point seatbelt system, and take a deep breath. Then, he fires up the engine, shifts gears, and roars down the track.

When he's not practicing optometry in Mankato, MN, Dr. Downs races cars. For the past several years, he has competed in the Cooper Tires Prototype Lites Championship at tracks around the United States and in Canada, winning five races, finishing second in 2009, and third in 2010. Despite the dangers involved, he has no plans of stopping anytime soon, believing the sport satisfies his appetite for life in the high-speed lane.

Like father, like sons

While growing up, Dr. Downs and his younger brothers watched their father compete in numerous car races.

"On weekends, I'd watch him race and learned a lot through osmosis," Dr. Downs said, adding that his father has since retired from the sport. "When I graduated from college, he gave me the opportunity to race by sponsoring me."

Dr. Downs attended two racing schools, including 4 days at the Skip Barber Racing School—Road America in Elkhart Lake, WI. His first race was in 1996 at an oval track in Phoenix; he was 23 years old.

"It was kind of funny," he said. "I out-qualified my dad, who had been racing for 20 years. That was an especially satisfactory moment for me."

Each race usually lasts between 30 and 45 minutes. Although Dr. Downs' average speed is 115 mph, his top speed was clocked at 150 mph.

His brothers also race cars in their spare



'You can't think about anything else except that race.' Matt Downs, OD

time and are indeed competitive—with other drivers and each other. While Dr. Downs believes he is a decent racer, he said that after competing for nearly 20 years his best racing days are behind him.

Meanwhile, he said his biggest racing challenge was never other competitors. With a wife, three children, and a thriving practice, Dr. Downs said every time he climbs into the driver's seat, he realizes that he's placing his health and his life in jeopardy. So far, though, he's been lucky—even when he crashed into a wall at 70 mph, he walked away with just a few scrapes and bruises.

"You really have to turn on a switch in your head and say, 'OK, I'm taking this risk, going

See **Racing** on page 49



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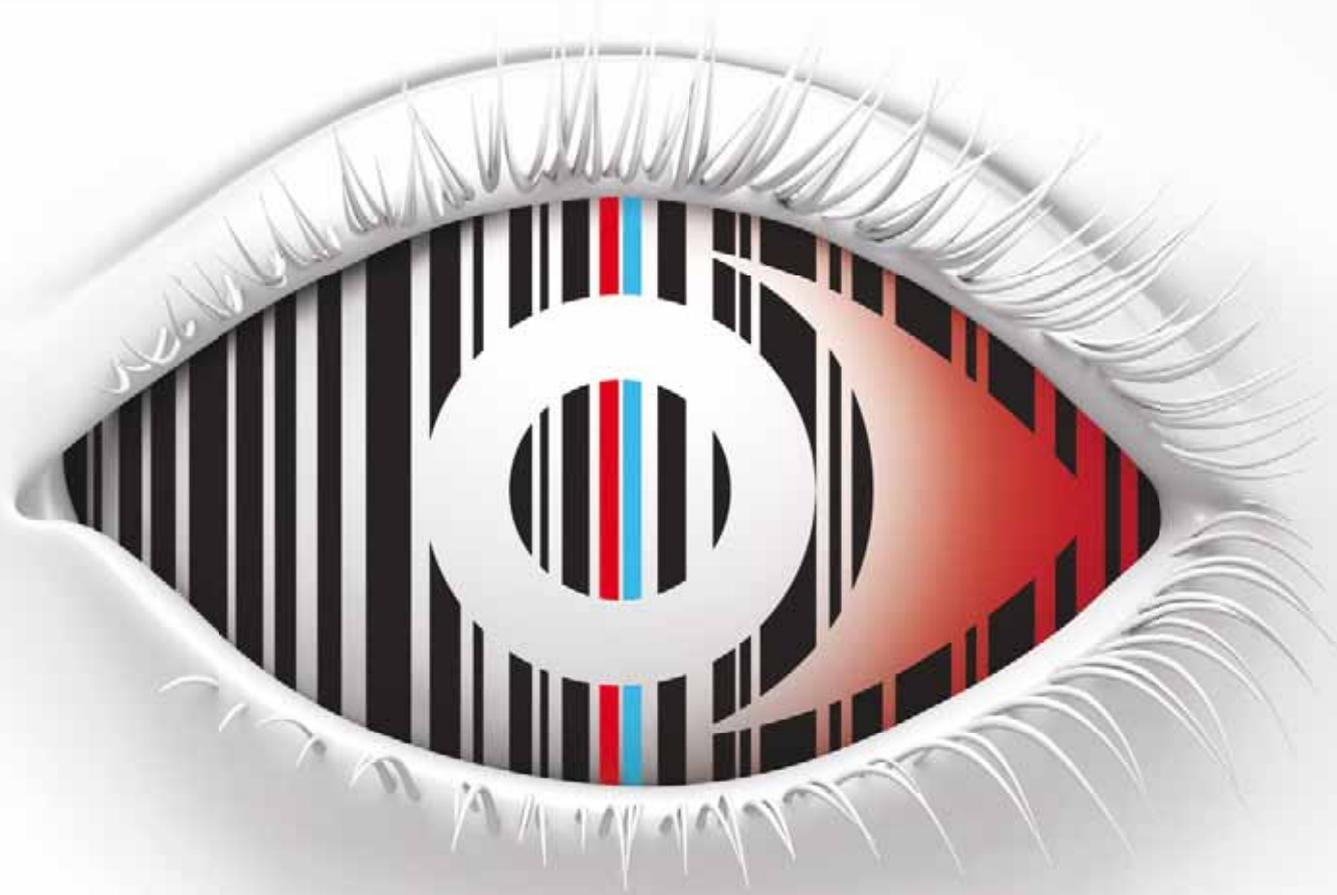
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iTech

BUILDING THE OPHTHALMIC TECH'S COMMUNITY OF PRACTICE

HIPAA—WHAT YOU NEED TO KNOW

Safeguarding your patients' rights is serious business

By Mark E Tafoya, OD, MD

Respect. I respect my patients. I respect their right to privacy. But the Health Insurance Portability and Accountability Act (HIPAA) of 1996 has taken patient privacy to a whole new level. Add to that the ARRA (American Recovery and Reinvestment Act) of 2009, which makes things even more complicated.

I try my best to be in compliance. *Are you in violation?* If so, you and your employer—the doctor—could be liable for upward of a million dollars in fines and even prison time. I recently heard of one doctor who was not only sued by many patients whose privacy had been breached but also lost his practice.

This is serious business.

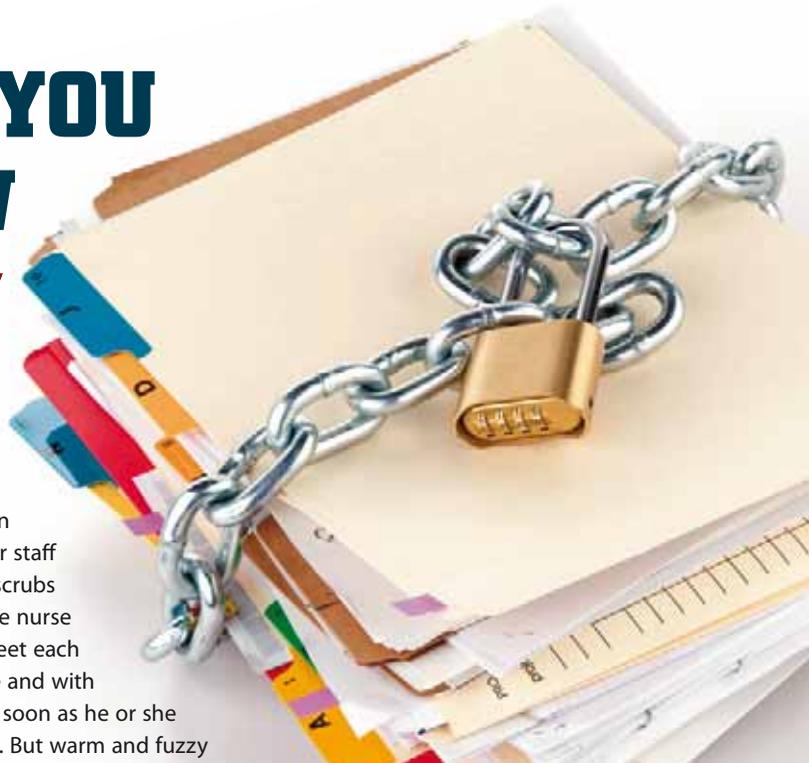
Having a retina-exclusive practice means that in many cases my patients have seen more than one eyecare provider. The thought of potentially going blind is a scary ordeal. My staff and I strive to give undivided attention and care to each and every

patient. Our walls are warm tones rather than sterile white. Our staff members wear scrubs rather than white nurse uniforms. We greet each patient by name and with a warm smile as soon as he or she enters the office. But warm and fuzzy does not mean that we are casual and relaxed about conversation.

Patient engagement

When patients enter our office for an appointment, they are directed to write their name on our HIPAA-compliant sign-in sheet. The patient has the option of taking the number next to his or her name. A staff member removes the patient's name shortly after it is written. If the patient has chosen the number, then we will address the patient by number and not name. Otherwise, when our assistant calls a patient to begin the visit, he or she is called by first name.

See **Patient privacy** on page 4



INSIDE:

History taking

Gathering information from patients is a subtle skill

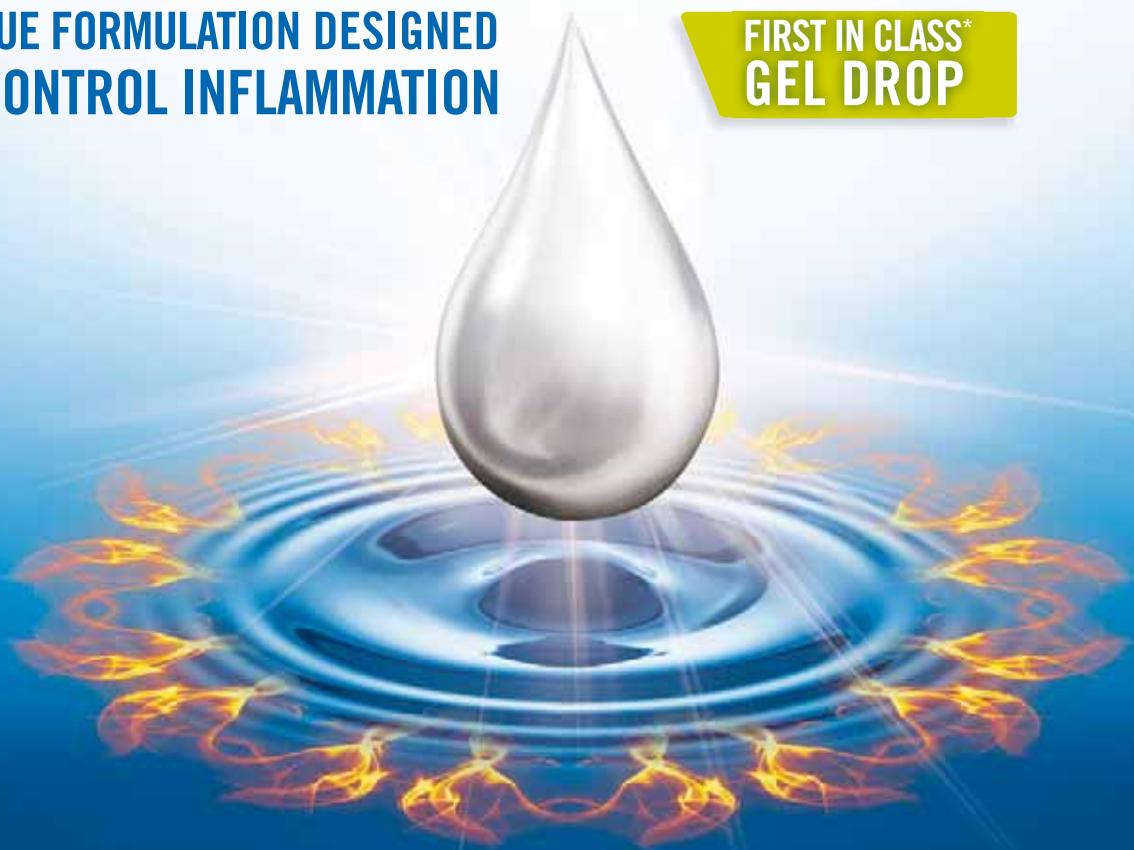
Taking a patient history may seem deceptively simple. After all, it's basically asking questions and recording answers. However, experts say gathering information about the patient's situation is one of the most important tasks in medicine. Experts also say the skill can take years to master. The goal is to lay the groundwork for the practitioner to be able to accurately diagnose the patient's problem and to give consideration to the patient's overall well being.

PAGE 8

NOW AVAILABLE LOTEMAX® GEL

UNIQUE FORMULATION DESIGNED
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GEL DROP



Indications and Usage

- LOTEMAX® GEL is a corticosteroid indicated for the treatment of post-operative inflammation and pain following ocular surgery

Important Risk Information about LOTEMAX® GEL

- LOTEMAX® GEL is contraindicated in most viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and also in mycobacterial infection of the eye and fungal diseases of ocular structures
- Intraocular pressure (IOP) increase—Prolonged use of corticosteroids may result in glaucoma with damage to the optic nerve, defects in visual acuity and fields of vision. If this product is used for 10 days or longer, IOP should be monitored
- Cataracts—Use of corticosteroids may result in posterior subcapsular cataract formation
- Delayed healing—Use of steroids after cataract surgery may delay healing and increase the incidence of bleb formation and occurrence of perforations in those with diseases causing corneal and scleral thinning. The initial prescription and renewal of the medication order should be made by a physician only after examination of the patient with the aid of magnification

- Bacterial infections—Prolonged use of corticosteroids may suppress the host response and thus increase the hazard of secondary ocular infection. In acute purulent conditions, steroids may mask infection or enhance existing infections
- Viral infections—Use of corticosteroid medication in the treatment of patients with a history of herpes simplex requires great caution. Use of ocular steroids may prolong the course and exacerbate the severity of many viral infections of the eye (including herpes simplex)
- Fungal infections—Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local steroid application. Fungus invasion must be considered in any persistent corneal ulceration where a steroid has been used or is in use
- Contact lens wear—Patients should not wear contact lenses when using LOTEMAX® GEL
- The most common ocular adverse drug reactions were anterior chamber inflammation (5%), eye pain (2%) and foreign body sensation (2%)

Please see brief summary of full prescribing information on adjacent page.

*Ophthalmic corticosteroid.

References: 1. LOTEMAX GEL Prescribing Information, September 2012. 2. Fong R, Leitritz M, Siou-Mermet R, Erb T. Loteprednol etabonate gel 0.5% for postoperative pain and inflammation after cataract surgery: results of a multicenter trial. *Clin Ophthalmol*. 2012;6:1113-1124. 3. Data on file, Bausch & Lomb Incorporated.

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Brief Summary: Based on full prescribing information.

To report SUSPECTED ADVERSE REACTIONS, contact Bausch & Lomb at 1-800-323-0000 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch

INDICATIONS AND USAGE

LOTEMAX is a corticosteroid indicated for the treatment of post-operative inflammation and pain following ocular surgery.

DOSAGE AND ADMINISTRATION

Invert closed bottle and shake once to fill tip before instilling drops.

Apply one to two drops of LOTEMAX into the conjunctival sac of the affected eye four times daily beginning the day after surgery and continuing throughout the first 2 weeks of the post-operative period.

CONTRAINDICATIONS

LOTEMAX, as with other ophthalmic corticosteroids, is contraindicated in most viral diseases of the cornea and conjunctiva including epithelial herpes simplex keratitis (dendritic keratitis), vaccinia, and varicella, and also in mycobacterial infection of the eye and fungal diseases of ocular structures.

WARNINGS AND PRECAUTIONS

Intraocular Pressure (IOP) Increase

Prolonged use of corticosteroids may result in glaucoma with damage to the optic nerve, defects in visual acuity and fields of vision. Steroids should be used with caution in the presence of glaucoma. If this product is used for 10 days or longer, intraocular pressure should be monitored.

Cataracts

Use of corticosteroids may result in posterior subcapsular cataract formation.

Delayed Healing

The use of steroids after cataract surgery may delay healing and increase the incidence of bleb formation. In those diseases causing thinning of the cornea or sclera, perforations have been known to occur with the use of topical steroids. The initial prescription and renewal of the medication order should be made by a physician only after examination of the patient with the aid of magnification such as slit lamp biomicroscopy and, where appropriate, fluorescein staining.

Bacterial Infections

Prolonged use of corticosteroids may suppress the host response and thus increase the hazard of secondary ocular infections. In acute purulent conditions of the eye, steroids may mask infection or enhance existing infection.

Viral Infections

Employment of a corticosteroid medication in the treatment of patients with a history of herpes simplex requires great caution. Use of ocular steroids may prolong the course and may exacerbate the severity of many viral infections of the eye (including herpes simplex).

Fungal Infections

Fungal infections of the cornea are particularly prone to develop coincidentally with long-term local steroid application. Fungus invasion must be considered in any persistent corneal ulceration where a steroid has been used or is in use. Fungal cultures should be taken when appropriate.

Contact Lens Wear

Patients should not wear contact lenses during their course of therapy with LOTEMAX.

ADVERSE REACTIONS

Adverse reactions associated with ophthalmic steroids include elevated intraocular pressure, which may be associated with infrequent optic nerve damage, visual acuity and field defects, posterior subcapsular cataract formation, delayed wound healing and secondary ocular infection from pathogens including herpes simplex, and perforation of the globe where there is thinning of the cornea or sclera.

The most common adverse drug reactions reported were anterior chamber inflammation (5%), eye pain (2%), and foreign body sensation (2%).

USE IN SPECIFIC POPULATIONS

Pregnancy

Teratogenic Effects: Pregnancy Category C.

Loteprednol etabonate has been shown to be embryotoxic (delayed ossification) and teratogenic (increased incidence of meningocele, abnormal left common carotid artery, and limb flexures) when administered orally to rabbits during organogenesis at a dose of 3 mg/kg/day (35 times the maximum daily clinical dose), a dose which caused no maternal toxicity. The no-observed-effect-level (NOEL) for these effects was 0.5 mg/kg/day (6 times the maximum daily clinical dose). Oral treatment of rats during organogenesis resulted in teratogenicity (absent innominate artery at ≥ 5 mg/kg/day doses, and cleft palate and umbilical hernia at ≥ 50 mg/kg/day) and embryotoxicity (increased post-implantation losses at 100 mg/kg/day and decreased fetal body weight and skeletal ossification with ≥ 50 mg/kg/day). Treatment of rats with 0.5 mg/kg/day (6 times the maximum clinical dose) during organogenesis did not result in any reproductive toxicity. Loteprednol etabonate was maternally toxic (significantly reduced body weight gain during treatment) when administered to pregnant rats during organogenesis at doses of ≥ 5 mg/kg/day.

Oral exposure of female rats to 50 mg/kg/day of loteprednol etabonate from the start of the fetal period through the end of lactation, a maternally toxic treatment regimen (significantly decreased body weight gain), gave rise to decreased growth and survival, and retarded development in the offspring during lactation; the NOEL for these effects was 5 mg/kg/day. Loteprednol etabonate had no effect on the duration of gestation or parturition when administered orally to pregnant rats at doses up to 50 mg/kg/day during the fetal period.

There are no adequate and well controlled studies in pregnant women. LOTEMAX should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers

It is not known whether topical ophthalmic administration of corticosteroids could result in sufficient systemic absorption to produce detectable quantities in human milk. Systemic steroids appear in human milk and could suppress growth, interfere with endogenous corticosteroid production, or cause other untoward effects. Caution should be exercised when LOTEMAX is administered to a nursing woman.

Pediatric Use

Safety and effectiveness in pediatric patients have not been established.

Geriatric Use

No overall differences in safety and effectiveness have been observed between elderly and younger patients.

NONCLINICAL TOXICOLOGY

Carcinogenesis, Mutagenesis, Impairment Of Fertility

Long-term animal studies have not been conducted to evaluate the carcinogenic potential of loteprednol etabonate. Loteprednol etabonate was not genotoxic *in vitro* in the Ames test, the mouse lymphoma tk assay, or in a chromosome aberration test in human lymphocytes, or *in vivo* in the single dose mouse micronucleus assay. Treatment of male and female rats with up to 50 mg/kg/day and 25 mg/kg/day of loteprednol etabonate, respectively, (600 and 300 times the maximum clinical dose, respectively) prior to and during mating did not impair fertility in either gender.

PATIENT COUNSELING INFORMATION

Administration

Invert closed bottle and shake once to fill tip before instilling drops.

Risk of Contamination

Patients should be advised not to allow the dropper tip to touch any surface, as this may contaminate the gel.

Contact Lens Wear

Patients should be advised not to wear contact lenses when using LOTEMAX.

Risk of Secondary Infection

If pain develops, redness, itching or inflammation becomes aggravated, the patient should be advised to consult a physician.

FOR MORE DETAILED INFORMATION, PLEASE READ THE PRESCRIBING INFORMATION.

Bausch & Lomb Incorporated

Tampa, Florida 33637 USA

US Patent No. 5,800,807

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If a patient asks you to e-mail his or her medical records to them, can you?

Patient privacy

Continued from page 1

We then ask the patient how he or she prefers to be addressed. This patient's preference is recorded in our electronic practice management (EPM) system for future reference.

Because many of my patients are elderly, and most of my staff members are 20-something, I preferred that staff address our patients using title and last name. Unless the patient agrees to the use of title and last name, this can be considered a HIPAA violation. So now we use first name unless instructed otherwise by the patient.

Safeguarding information

In any interaction with our patients, our staff pays special attention to release of information (ROI). We can share information only with people specified by the patient. For example, if Mary's daughter calls the office wanting information about Mary's macular degeneration, we cannot and will not share information unless she is listed on Mary's ROI. If we notice that other people have accompanied the patient to the office, we ask if we can add the person or persons to the ROI list in our EPM. This way, we simply check Mary's ROI tab while on the telephone with her daughter. If Mary's daughter is on the list, we can tell her about Mary's eye condition and treatment. Otherwise, we do not share.

Secure phone communication

Staff members must be cautious on the telephone, too. When leaving messages, the staff and

I are very careful not to divulge private patient information to others. Our patient registration form asks patients if and where we can leave messages. If left blank, our staff is instructed to ask. Even with permission to leave a message, we might say only that this is a reminder of an upcoming appointment. We are careful not to say that this is a reminder of the patient's appointment for severe proliferative diabetic retinopathy.

Let's say Mary's last name is Honolulu. Shortly after Mary leaves, John Honolulu comes in for his appointment. Can you ask John if he knows Mary? No. Let's say you meet Sue Honolulu at church. Can you ask her if she knows Mary? No. Let's say Sue comes up to you and tells you that Mary is her sister, and she is very worried about Mary's eyes. Can you talk to her about Mary? No. See how careful you must be to protect patient privacy?

Transferring information securely

With the introduction of electronic health records (EHR), the Department of Health and Human Services decided to add even more patient protection requirements. This act covers mobility of patient records and reiterates patients' rights to access. If a patient asks you to e-mail his or her medical records to them, can you? You must consult your employer.

At my office, we will not e-mail records. Even if requested by a patient, we do not feel comfortable sending records via e-mail. Encryption programs are available for purchase; however, we are such a small office that

time and resources would be depleted trying to keep up with encryption keys and records. We will, however, burn records to a CD provided by us. To protect our server, computers, and other patient records, we do not allow foreign external devices to be inserted into our equipment. We will share information via Hawaii's Health Information Exchange. This is a secure network accessible by local doctors; unfortunately, there are only a handful of us taking advantage of it at this time.

Physical protection

At my practice, protecting our patients' privacy does not stop there. We have locked doors between the main waiting area and the clinic. All patients must be escorted beyond those doors. We have privacy filters on all computer monitors within sight of the public. Our computers lock to our screen saver when not in use. Each staff member has a personal user ID and password to access our computers.

Every new hire receives HIPAA training and subsequent updates when deemed necessary by my administrator. In fact, due to social media and the tendency to want to share, not only do we prohibit our staff from mentioning the practice name on social media, but we also have banned cell phones from patient areas. Our staff members must agree to secure phones in their lockers and use them only in our staff room. Although this is a new policy, staff members abide by our request because they respect our patients and their right to privacy. ▀



Dr. Tafoya is in private practice in Waipahu, HI.

VALIDATION THROUGH CERTIFICATION

Qualified, competent techs can be proud of their roles in eye care

By **Liz Meszaros**

"Optometric assisting is not just a job; it is a career," said Darlene Leuschke, who is administrator/registrar with the Commission of Paraoptometric Certification (CPC), St. Louis, MO.

Did you know that as an optometric or ophthalmic technician, you can become certified at what you do? *What is certification?* It is a professional distinction or recognition that you have met a national set of standards as a qualified and competent technician.

"Certification provides a formal declaration of education and skill achievement in the profession of optometric assisting that often results in greater responsibility and reward incentives. The certification maintenance process ensures that those who are credentialed stay up-to-date with trends and innovations to better serve the patients," Leuschke said.

To highlight the future need for qualified techs, she cited the following statement from the Bureau of Labor Statistics:

"Employment is projected to grow much faster than average, ranking medical assistants among the fastest growing occupations over the 2008–18 decade. Job opportunities should be excellent, particularly for those with formal training or experience, and certification."¹

Credentialing specifics

It is important to note that certifications are not state licenses; rather, they are recognized by each

state as well as in many foreign countries. In non-licensing states, certification can be especially important for opticians because it may be their only credential.

Benefits of certification can include:

- Public recognition
- Increased earning power
- Broader employment opportunities
- Enhanced job mobility

Seeking certification

If you are interested in becoming certified, consider obtaining contact lens or optician (or both) certification. Accrediting bodies are the American Board of Opticianry (ABO) and the National Contact Lens Examiners (NCLE).

Formed in 2009 to oversee the certification process, the ABO certifies opticians. The NCLE certifies ophthalmic dispensers fitting and working with patients and contact lenses.

Statistics from a recent survey of employers² completed by the ABO-NCLE on the benefits of certification show some of the positive results and ways in which certification is viewed by employers:

- 28% of employers required certification of employees
- 75% gave preference in hiring certified applicants
- 75% paid higher starting salaries to certified applicants
- 40% gave preference for promotions to ABO or NCLE certified employees
- After 10 years in dispensing, certified employees earned approximately \$6,000 more

each year than noncertified employees

Nearly all state licensing boards (90%) use the ABO and NCLE exams as the basis for state licensing. Also, according to the ABO/NCLE, 23% of licensing states require current ABO/NCLE certification for move-ins who apply for licensing.

ABO-NCLE certifications

Basic certification for competency in ophthalmic (spectacle related) dispensing consists of the National Opticianry Competency Examination (NOCE), given by the ABO. In addition, the Contact Lens Registry Examination (CLRE) is given by the NCLE for certification in contact lens dispensing. Both exams are psychometrically developed.

Both exams are given twice each year at more than 250 exam sites throughout the U.S. Each exam consists of 250 items and a set of developmental questions, which will not count toward your total scores. Both tests are given only in English, via computer, and take 2.5 hours to complete. To qualify to take these exams, you must be at least 18 years old, with a high school diploma or GED. The cost for each exam is \$225.

Questions for the NOCE exam cover the following areas:

- Analyzing and interpreting prescriptions
- Fitting and dispensing spectacles and other ophthalmic devices
- Using standard ophthalmic equipment

The NCLE exam consists of

See **Certification** on page 6

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Advanced certification opens up the number of practice settings a tech can work in to include all settings that provide eyeglasses and contact lens services to patients.

Certification

Continued from page 5

questions that focus on the following skills:

- Prefit, preparation, and evaluation
- Diagnostic fit and evaluation
- Lens dispensing, patient education, and delivery procedures
- Follow-up visits with patient
- Administrative concerns

For more information, visit the ABO-NCLE Web site at <http://www.abo-ncle.org/>. While there, you can download an application for both exams. This site also provides information about a handbook, test specifications, and a list of providers of review courses. Certification must be renewed every 3 years by completing the continuing education requirements.

ABO/NCLE Advanced Certifications

Two advanced certification designations are also possible: ABOC-AC and NCLE-AC. These require several years of experience, completion of a specific curriculum of advanced education, and a passing score on the exam. Test specifics are posted on the ABO-NCLE site.

Advanced certification opens up the number of practice settings a tech can work in to include all settings that provide eyeglasses and contact lens services to patients. These include independent optician practices, ophthalmology practices, universities, hospitals, commercial offices, HMO/managed care offices, optometric offices, large clinics, and optical product manufacturers.

Display proudly

Upon passing the exam, techs will receive a certificate for display.

More certificates can be ordered at the ABO-NCLE Web site, if needed. Promote your certification by displaying your certificate prominently at your work place. Wear your ABO or NCLE certification lapel pin (also available) at work, and use the ABO- or NCLE-certified logos when making up business cards, letterhead, or displays. Use your designations (ABOC, NCLEC, ABOC-AC, NCLE-AC, or ABOM) when signing your name, on your business cards and when registering for conventions and conferences.

Different types of certification

Paraoptometric technicians have several certification options available to them as well. Certified paraoptometric (CPO), certified paraoptometric assistant (CPOA), and certified paraoptometric technician (CPOT) certification exams are accredited by the National Commission for Certifying Agencies. Here, we explain each certification briefly:

- **CPOs** perform a variety of front desk tasks, including scheduling appointments, recalling patients, handling insurance forms, accepting payments, and screening telephone calls. CPOs can also be trained in frame repair and adjustment, office materials purchasing, and other non-technical duties.
- In conjunction with an optometrist, **CPOAs** can perform technical duties including taking detailed patient histories, measuring visual acuity, keratometry, glaucoma screening, blood pressure testing, and measuring the distance between the pupils of the eyes.
- Under the supervision of the optometrist, the **CPOT** performs the same duties as a CPOA, with

the additional tasks of ordering prescription eyewear, modifying contact lenses, explaining CL care regimens, photographing the eye's interior, supervising the staff, and other duties delegated by the optometrist.

In addition, techs can also become a certified paraoptometric coder (**CPOC**). These staff members are responsible for accurately and completely recording all patient information regarding diagnoses and procedures.

For more information on paraoptometric certification, the American Optometric Association (AOA) has a handbook, available at <http://www.aoa.org/documents/2012%20CPO%20Handbook.pdf>, or for more general information from the AOA, go to <http://www.aoa.org/x4931.xml>.

"Healthcare professions have a general obligation to perform due diligence in ensuring the competency of the personnel providing the service," said Leuschke. "Certification confirms that the credential holder has demonstrated a certain level of job-related knowledge, skills and abilities. It provides a documented level of assurance that employees are competent in safe work practices. Certification provides concrete evidence to patients that the practices is staffed with people who know what they are doing and are competitive in any comparison of quality of service." ▀

References

1. Bureau of Labor Statistics, U.S. Dept. of Labor, *Occupational Outlook Handbook, 2010-2011 Edition*, Medical Assistants.
2. Why Be Certified?, American Board of Opticianry/National Contact Lens Examiners, on the Internet at http://www.abo-ncle.org/ABO/Why_Be_Certified/ABO/WhyCertify/Why-Certify.aspx?hkey=a966a1f9-ddce-47a1-bd72-b9e0bb52cdf7. Accessed March 5, 2013.

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TAKING A PATIENT HISTORY

Gathering information from patients is a very subtle skill

By Frank Celia

Over the past 15 years, one of the most prevalent trends in medicine has been the growing importance of the subjective patient experience. Practitioners are now trained to put as much emphasis on quality of life as on healthy biological function. The patient's life, happiness, and freedom from suffering are as important as his or her bodily health.

This trend has special importance for eye care because human beings are primarily visual creatures. Sight is our most central sense, and it plays an enormously important role in quality of life.

Many subjective problems can be red flagged before the physical examination even begins—during the very important stage of history taking. Taking a history may appear deceptively simple. After all, it is basically just asking questions and jotting down answers, but experts say it can take years to master. It is one of those subtle abilities that can be obtained by any support staffer who possesses determination and a modicum of social skills.

The goal is to lay the groundwork for the practitioner to be able to accurately diagnose the problem and to give some consideration to the patient's social, psychological, and behavioral profile as well. As one textbook puts it: "Good doctors have always known this, but there is now increasing emphasis in medical history taking that it should be geared to exploring not just the symptoms of the body's dysfunction but also the individual's

perspective of the symptoms. Models of history taking are becoming increasingly patient-centered and seek to assess both the main components of ill health—the biomedical component and the psychosocial component."¹

Communication

The first step is to develop a rapport with the patient. This has as much to do with your manner and dress as it does with what words you ask the patient. "How we communicate is just as important as what we say. The patient needs to feel sufficiently at ease to disclose any problems and express any concerns, and to know they have been understood."¹

- Don't keep your head buried in your chart while you ask questions. Remember to make eye contact and smile frequently.
- Don't put a table between you and the patient. Sit close to him or her but not so near as to invade the patient's space. Lean forward when you speak and listen.
- Don't interrupt to correct him or her. Often a patient will make an obvious error in what he or she is saying, and your instinct will be to correct him or her. Now is not the time for that. Let the patient finish his or her thought. Mistakes in patient thinking can be corrected later, perhaps in the presence of the doctor.

Although it is important to establish a rapport with the patient, it is also important to remain in control of the conversation and keep it moving forward. In her

book on the subject, *The Complete Guide to Ocular History Taking*, Janice K. Ledford, COMT, writes that this can sometimes be a challenge. "Sometimes the history becomes a tug-of-war between the technician and the patient. The patient does not run the history—you do! You've got to be in control, otherwise your history will take 30 minutes."²

Patients usually won't mind being put back on track, Ledford advises. "You are the detective here; you are the one trained in eyecare; you have the best notion of what the doctor needs to know. The patient realizes that he or she is there for an eye exam and won't mind tactful interruptions when you steer the conversation back on track with specific questions about vision or eyes."

Confidentiality

Keep in mind that anything the patient tells you is considered by law confidential information. You are not permitted to discuss it with anyone not directly involved in the patient's care, which includes non-medical staff within your office.

This rule also applies to people that patients may bring along to the office. Ledford advises that you first determine who the patient is and then ask if the patient wants the companion to join him or her in the exam room. "This gives the patient the option to say yes or no, relieving you of the responsibility of a third person hearing the patient's history (albeit known to the patient). Most patients who bring

See **History** on page 12

MAKE YOUR OFFICE PEDIATRIC FRIENDLY

Helping children see better starts with a positive experience at your practice

By Janet L. Carter, OD, FAAO

Implementation of the Affordable Care Act, popularly known as "Obamacare," means that many children will have access to routine eye health and vision care, perhaps for the first time. These children will be coming to your offices with an optometric history that may include only a school screening.

Your job is to make sure these children and their parents have a safe and enjoyable experience and look forward to returning for many years to come.



Put the child at ease

Making a child's visit to your practice a positive experience starts with the waiting area. Children like bright colors and smiling faces. A special area just for children is nice if you have the room. One practice I visited recently has a glassed-in waiting area with children's chairs and games. Parents can watch their children through the windows, and the rest of the waiting room is shielded somewhat from the noise. Make the toys and games fun. Consider something that kids can play with together even if they are different ages. Foam blocks are good, as are magnets that can be used to make sculptures. Put the magnets on a metal table.

Children are afraid of the unknown, and doctors' offices can be scary places. Be sure to explain anything that you are doing before you do it. Try to look the child in the eye. Kneel down to the child's

level if necessary; try to avoid bending over to talk to him.

When it's time for pre-testing, you want the child to be comfortable and feel at home. Ask if she needs a restroom break or a glass of water before you start. Have booster seats ready for shorter children. I put the youngest children at ease by playing a game with the chair. I keep my foot discreetly on the lift pedal and tell them the chair is "magic" and will go up if they touch their nose and down if they pull on their ear. Just warn them that the magic will wear off if used too much, or the child will want to go up and down all through the exam.

Use pictures or numbers for acuity testing to start. Remember that children might be embarrassed by not knowing certain letters or if the visit to your office is due to difficulty in school. Better to

let the child think that all patients are shown the pictures.

Ask questions such as, "What's your favorite part of school?" You can learn a lot about the child just by the enthusiasm—or lack thereof—when he answers.

Never ask a child to read a line of the acuity chart. Children are very literal creatures, and they will try hard to make a word out of FZBDE. Your instructions after the child completes the acuity should be, "Please tell me out loud the letters you see over there, one at a time, starting with the F." Give the child lots of encouragement, and don't dwell too long on any missed letters. Let the child know it's OK if she can't see the letters.

If the child will have to wait in the exam room for the doctor, wait with him if possible. At least explain to the child and the parent how long it

See **Pediatrics** on page 12

You want the child to be comfortable and feel at home.



Dr. Carter is in private practice in Reno, NV.

CONTACT LENSES 101: APPLICATION AND REMOVAL

Getting it right takes practice, practice, practice . . .

If you wear contact lenses, you may even want to demonstrate proper technique yourself.

By Liz Meszaros

As an ophthalmic technician, one of the most important tasks you undertake is teaching new patients proper contact lens application and removal. Take time to properly educate yourself first. Then you can move on to properly educating your patients.

Education overview

Before teaching patients, you as the technician must fulfill a few important requirements. First and most importantly, always make sure the working area you will be using is clean. Emphasize this to the patient as well, and set a good example from the start.

Have a mirror available, preferably a magnification mirror, so patients can easily observe themselves while applying and removing the contacts themselves.

Tell new patients what to expect ahead of time. Run through a full explanation of the process before letting patients try themselves. If you wear contact lenses, you may even want to demonstrate proper technique yourself. If not, consider showing the patient an educational video.

Remain patient, calm, and professional at all times. Some patients are ultrasensitive and can be extremely difficult to teach. No matter what happens, always show patience and consideration to help them master this task.

Some patients may at first be afraid of touching their eyes. If this is the case, try to do a run-through of

the application process without the contact lens. Some experts suggest that with very fearful patients, you can place a drop of artificial tears on the finger and have them touch the sclera. Once they can do this, try to have them very lightly touch the cornea. Once they see that no pain is involved, the lens application process may go a little easier.

The right way to teach

Once you have perfected your responsibilities in teaching patient contact lens application, removal, and care, you can move on to helping patients perfect their role. The cornerstone of success here is proper education and practice with each patient.

Set aside a full hour for new contact lens patients. It's not uncommon for patients to need another contact lens lesson. Some patients need more practice before they go home with their contact lenses. Also, don't hesitate to take a break during the lesson if patients are frustrated with their inability to apply or remove the lens. Take a 10-minute break and try again. If patients are still frustrated, cut the lesson short and schedule the patient to return. Reassure them that they're not stupid and that many people require another try. Keep it positive.

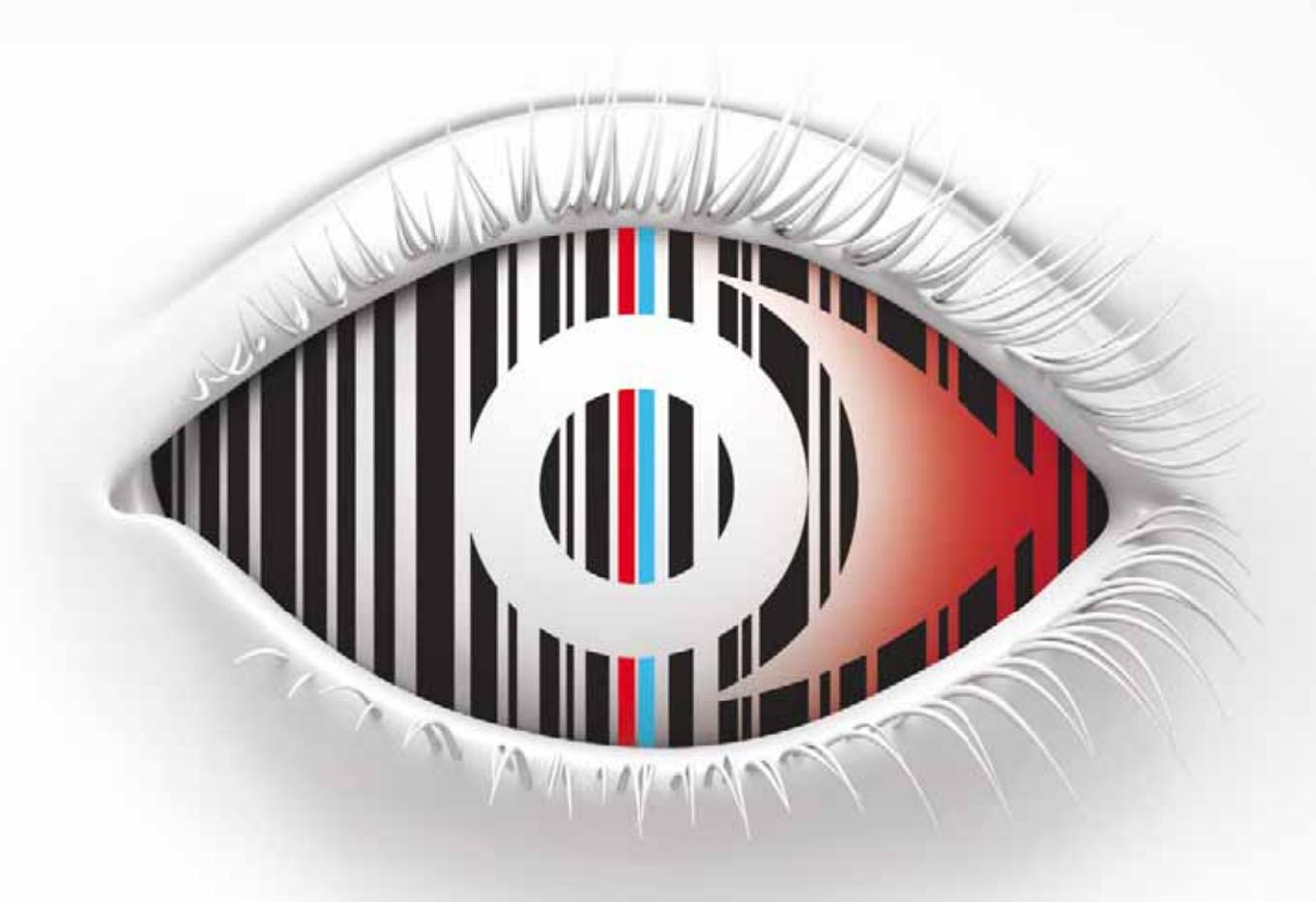
During that hour, have all patients follow these steps—in order—each time they apply their lenses:

- Wash hands thoroughly with non-moisturizing soap. Rinse hands before handling lenses, whether

applying or taking them out. Dry hands with a lint-free towel.

- Use your finger pad (not finger nail) to handle the lenses. Keep nails shorter to avoid any problems in gripping the lens.
- Check the lens to make sure it is clean and undamaged.
- Balance the lens on the tip of your finger to determine if it is inside out. If it flares out at the edges, it is inside out. If it looks like a bowl with straight sides and no flare, it is right side out. Practice how to determine the difference with the patient a few times until you are sure that she can see and understand.
- Always start with the same eye to avoid mixing up the contact lenses. Open the right or left side of the case, and leave the other side closed to avoid confusion.
- Place the clean, right lens of the tip of the index or middle finger of which your dominant hand is; pull down the lower lid of the right eye with the middle or ring finger of that same hand. Use the other hand to hold the upper lid of the eye firmly open.
- Either look directly at the lens, or directly into a mirror in front of you. Place the lens directly onto the cornea.
- Slowly let go of both the upper and lower eyelids. If any air bubbles form underneath the lens, close your eye and roll it gently, or massage the eyelid very lightly. Never rub the eyes.
- To remove the lenses, look up, and with the middle finger

See **Instruction** on page 13



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Children are afraid of the unknown. Explain the what and why of things, and you will win the child's trust.

Pediatrics

Continued from page 9

will be. For medico-legal reasons, it's best to have the parent in with the child. Remember—some parents will be nervous to start.

Preview the exam

Take a few minutes to explain to the child what will happen during the exam and that the doctor is there to help. Reassure the child that the exam won't hurt. Children should be discouraged from touching the equipment, but remember that the phoropter looks big and intimidating to a child. Demonstrate the phoropter and explain what it does, then tell the child not to touch it because touching will smear the lenses. Children are afraid of the unknown. Explain the what and why of things, and you will win the child's friendship and trust.

If you are the lucky one who instills the dilating drops, try to make it as easy as possible. The drop will sting a little; don't lie to the child by saying, "You won't feel a thing." Instead, keep it positive: "If you laugh out loud when I put this drop in, you won't feel it as much." Then laugh loudly right along with the child. Reassure the child that she will feel it for a only few seconds. Again, remember that children fear the unknown. Knowing that the worst is over is a big comfort for the child.

If you work in a dispensing practice, the most important part of the entire experience just might be the eyewear selection. Children are afraid of being teased about wearing glasses (yes, it still happens, even with today's stylish frames). You might say something like, "Wow, now comes the fun part. Let's pick something that everyone

in your class will love." Be sure to check first with the parents about any limitations on cost or insurance coverage—nothing is worse than having the child find the frame he absolutely loves only to find out that the parents won't pay for it.

Allow the child be as involved as possible in the selection process. Ask her about her favorite colors and shapes, and look for selections accordingly. Don't overwhelm the child, but rather offer a few choices you know will work and let him choose among them. Be sure and praise him; let him know how great he looks in his selection.

In short, if your practice is a friendly place, it can't help but be pediatric friendly. Address children's fears and misgivings by being open, knowledgeable, and fun to be around. Enjoy being with your pediatric patients, and they will enjoy being with you. ▀

History

Continued from page 8

someone with them do so out of a need for moral support or, in some cases, for an interpreter."

It is also important to remember that a patient has the right to view his or her medical records. Never write anything you would not want the patient or the patient's family to read. If you have something negative to convey to your practitioner, you can do so by attaching a note to the chart, Ledford suggests.

Anatomy of a history

There are four basic elements of history taking.

- **The Chief Complaint (CC)**—The main problem for which that patient has visited your office. It is where the conversation between you and the patient begins.
- **History of Present Illness**

(HPI)—Once you've narrowed down the CC, you will need more information about it. This usually involves finding out things like the location of the problem, the severity, and how long the condition has endured.

- **Review of Systems (ROS)**—The ROS is how the rest of the patient's health may relate to his or her vision. Here you will be looking for symptoms rather than established diseases. For example, instead of asking if the patient has cardiovascular problems, you would ask about chest pains or irregular heartbeat.
- **Past Medical and Family History**—Here is where you search for established diseases and those of close relatives. Ask specifically about eye surgeries such as cataract, refractive, or retina. A family history of glaucoma, macular degeneration, retinal tears or

detachments, strabismus, and diabetes are very important in eyecare. Diabetes and hypertension are also important in eye care, and patients are not always forthcoming about them.

Remember that even negative answers must be written down. The rule of thumb is simple: If it wasn't written down, then it may as well not have been asked.

Although these skills aren't easy to learn, they are extremely valuable. "Gathering information on the patient's problems is one of the most important tasks to be mastered in medicine."¹ ▀

References:

1. Epstein O, Perkin GD, Cookson J, de Bono D. *Clinical Examination*. 3rd ed. Edinburgh: Mosby, 2003.
2. Ledford, Janice K. *The Complete Guide to Ocular History Taking*. Thorofare, NJ: Slack Inc., 1999.

Instruction

Continued from page 10

of your dominant hand, hold down your lower lid. With your forefinger, slide the lens to the lower part of the eye. Pinch the lens with your thumb and forefinger and remove without excessive folding.

Finally, and most importantly, practice these steps with the patient, and do not end the lesson until she has demonstrated several times to you that she can successfully do this herself. It is not unusual to have patients come back several times to perfect their contact lens techniques. This is important so patients don't hurt themselves at home.

Special care for children, teens, and the elderly

Infants, toddlers, and teens learn and handle this learning process differently than adults. The first rule of thumb is to never talk down to young patients. Try to explain what needs to be done in words they understand easily. Some children may need to be separated from their parents at first. With very young patients (aged 3 to 6 years), however, begin by teaching the parents.

With toddlers and infants, for example, the parent is always responsible for application, removal, and care. The good news is that teaching them to do so will not be difficult, and the process will not be difficult in infants because they are not coordinated enough yet to resist.

Here are some tips to follow with parents of infants:

- Have the parent place the baby on a flat surface.
- Place the contact case on the surface close by.
- Show the parent how to hold the infant's head and secure the

eyelids. Take special care to be gentle. Also, small tight eyelids have a tendency to invert, so remember to use smaller lens diameters on these patients. Have the parent practice a few times to make sure the eyelids do not invert.

Unfortunately, toddlers are perhaps the hardest age group for contact lens application and removal. They will resist when someone holds them down, they can squeeze their eyelids tightly shut and, more likely than not, they will probably be screaming when anyone does this to them.

Begin by assuring the parents that nothing you are doing will hurt the child. The main goal with toddlers is proper head control. This usually takes two adults—one holds the child securely while the other applies or removes the lenses. Tell parents to move quickly and deliberately, and always have everything prepared beforehand so they can do everything as quickly as possible.

Thankfully, teaching teens will not be so difficult. In fact, most teens are very quick learners for lens application and removal. Talk to and teach teens as if they are adults, but remember that they will retain only part of what you say. To compensate, make detailed instruction sheets for teen patients to take home, and review them before you let the patient leave. Teach teenaged patients first without their parents. Many parents, especially if they are contact lens wearers themselves, offer advice and suggestions during the contact lens lesson. This can be annoying at best and contradictory to your instructions at worst. If the parents wish to come in at the end of the session for a brief summary and review of the process, let them.

Finally, with incapacitated, elderly patients, be sure that whoever is responsible for the patient's care is present. The caregiver will be responsible for lens application, removal, and care. Be sure to include the elderly patient fully, however, in your explanation and demonstrations. Fortunately, the eyelids of these patients are easy to grasp because they are flaccid. Have the caregiver grasp the patient's eyelids, and tell the patient to direct his gaze on a certain point. Show the caregiver as well as the patient how to apply and remove the lenses.

Remember to send all new contact lens wearers home with instruction sheets to reinforce what you taught them. Lens application and removal can be daunting to these new wearers, so a handy listing of the necessary steps can be helpful. Be sure this sheet includes the prescribed contact lens cleaning regimen. ▶

Instructions for patients who wear cosmetics

Patients who use cosmetics need to take special care because many cosmetics can cause irritation of the eyes. Here are some helpful hints:

- Apply your makeup—including moisturizers—only after applying your contact lenses.
- Always take off all of your eye makeup; fine bits of makeup can get into your eyes and cause irritation.
- Consider using disposable mascara wands if you have frequent problems with irritation around your eyes.
- Stick to hypoallergenic make-up formulas. Avoid eyeliner that contain shimmer; the mica that makes the shimmer can scratch skin and cause irritation.
- Use waterproof mascaras and eyeliners, especially if you have problems with smearing after using eye drops, or tearing up easily.
- Do not line the inner rims of your eyes with eyeliner; this can block glands in your eyelids and cause irritation.



BRIEF SUMMARY OF FULL PRESCRIBING INFORMATION

INDICATIONS AND USAGE

EYLEA® (afibercept) Injection is indicated for the treatment of patients with Neovascular (Wet) Age-Related Macular Degeneration (AMD) and Macular Edema following Central Retinal Vein Occlusion (CRVO).

DOSAGE AND ADMINISTRATION

FOR OPHTHALMIC INTRAVITREAL INJECTION ONLY. EYLEA must only be administered by a qualified physician.

Neovascular (Wet) Age-Related Macular Degeneration (AMD). The recommended dose for EYLEA is 2 mg (0.05 mL or 50 microliters) administered by intravitreal injection every 4 weeks (monthly) for the first 12 weeks (3 months), followed by 2 mg (0.05 mL) via intravitreal injection once every 8 weeks (2 months). Although EYLEA may be dosed as frequently as 2 mg every 4 weeks (monthly), additional efficacy was not demonstrated when EYLEA was dosed every 4 weeks compared to every 8 weeks (see *Clinical Studies*).

Macular Edema Following Central Retinal Vein Occlusion (CRVO). The recommended dose for EYLEA is 2 mg (0.05 mL) administered by intravitreal injection once every 4 weeks (monthly).

Preparation for Administration

EYLEA should be inspected visually prior to administration. If particulates, cloudiness, or discoloration are visible, the vial must not be used. Using aseptic technique, the intravitreal injection should be performed with a 30-gauge x ½-inch injection needle.

The glass vial is for single use only. Remove the protective plastic cap from the vial. Clean the top of the vial with an alcohol wipe. Remove the 19-gauge x 1½-inch, 5-micron, filter needle from its pouch and remove the 1-mL syringe supplied in the carton from its pouch. Attach the filter needle to the syringe by twisting it onto the Luer lock syringe tip. Push the filter needle into the center of the vial stopper until the needle touches the bottom edge of the vial. Using aseptic technique withdraw all of the EYLEA vial contents into the syringe, keeping the vial in an upright position, slightly inclined to ease complete withdrawal. Ensure that the plunger rod is drawn sufficiently back when emptying the vial in order to completely empty the filter needle. Remove the filter needle from the syringe and properly dispose of the filter needle. **Note:** Filter needle is **not** to be used for intravitreal injection. Remove the 30-gauge x ½-inch injection needle from the plastic pouch and attach the injection needle to the syringe by firmly twisting the injection needle onto the Luer lock syringe tip.

When ready to administer EYLEA, remove the plastic needle shield from the needle. Holding the syringe with the needle pointing up, check the syringe for bubbles. If there are bubbles, gently tap the syringe with your finger until the bubbles rise to the top. To eliminate all of the bubbles and to expel excess drug, SLOWLY depress the plunger so that the plunger tip aligns with the line that marks 0.05 mL on the syringe.

Administration

The intravitreal injection procedure should be carried out under controlled aseptic conditions, which include surgical hand disinfection and the use of sterile gloves, a sterile drape, and a sterile eyelid speculum (or equivalent). Adequate anesthesia and a topical broad-spectrum microbicide should be given prior to the injection.

Immediately following the intravitreal injection, patients should be monitored for elevation in intraocular pressure. Appropriate monitoring may consist of a check for perfusion of the optic nerve head or tonometry. If required, a sterile paracentesis needle should be available.

Following intravitreal injection, patients should be instructed to report any symptoms suggestive of endophthalmitis or retinal detachment (e.g., eye pain, redness of the eye, photophobia, blurring of vision) without delay (see *Patient Counseling Information*).

Each vial should only be used for the treatment of a single eye. If the contralateral eye requires treatment, a new vial should be used and the sterile field, syringe, gloves, drapes, eyelid speculum, filter, and injection needles should be changed before EYLEA is administered to the other eye.

After injection, any unused product must be discarded.

No special dosage modification is required for any of the populations that have been studied (e.g., gender, elderly).

DOSAGE FORMS AND STRENGTHS

Single-use, glass vial designed to provide 0.05 mL of 40 mg/mL solution for intravitreal injection.

CONTRAINDICATIONS

EYLEA is contraindicated in patients with

- Ocular or periocular infection
- Active intraocular inflammation
- Known hypersensitivity to afibercept or any of the excipients in EYLEA. Hypersensitivity reactions may manifest as severe intraocular inflammation

WARNINGS AND PRECAUTIONS

Endophthalmitis and Retinal Detachments. Intravitreal injections, including those with EYLEA, have been associated with endophthalmitis and retinal detachments (see *Adverse Reactions*). Proper aseptic injection technique must always be used when administering EYLEA. Patients should be instructed to report any symptoms suggestive of endophthalmitis or retinal detachment without delay and should be managed appropriately (see *Dosage and Administration* and *Patient Counseling Information*).

Increase in Intraocular Pressure. Acute increases in intraocular pressure have been seen within 60 minutes of intravitreal injection, including with EYLEA (see *Adverse Reactions*). Sustained increases in intraocular pressure have also been reported after repeated intravitreal dosing with VEGF inhibitors. Intraocular pressure and the perfusion of the optic nerve head should be monitored and managed appropriately (see *Dosage and Administration*).

Thromboembolic Events. There is a potential risk of arterial thromboembolic events (ATEs) following intravitreal use of VEGF inhibitors, including EYLEA. ATEs are defined as nonfatal stroke, nonfatal myocardial infarction, or vascular death (including deaths of unknown cause). The incidence in the VIEW1 and VIEW2 wet AMD studies during the first year was 1.8% (32 out of 1824) in the combined group of patients treated with EYLEA (see *Clinical Studies*). The incidence in the COPERNICUS and GALILEO CRVO studies during the first 6 months was 0% (0/218) in patients treated with EYLEA 2 mg every 4 weeks compared with 1.4% (2/142) in patients receiving sham treatment (see *Clinical Studies*).

ADVERSE REACTIONS

The following adverse reactions are discussed in detail in other sections of the labeling:

- Endophthalmitis and retinal detachments (see *Warnings and Precautions*)
 - Increased intraocular pressure (see *Warnings and Precautions*)
 - Thromboembolic events (see *Warnings and Precautions*)
- The most common adverse reactions (≥5%) reported in patients receiving EYLEA were conjunctival hemorrhage, eye pain, cataract, vitreous detachment, vitreous floaters, and increased intraocular pressure.

Injection Procedure. Serious adverse reactions related to the injection procedure have occurred in <0.1% of intravitreal injections with EYLEA including endophthalmitis, traumatic cataract, increased intraocular pressure and vitreous detachment.

Clinical Studies Experience. Because clinical trials are conducted under widely varying conditions, adverse reaction rates observed in the clinical trials of a drug cannot be directly compared to rates in other clinical trials of the same or another drug and may not reflect the rates observed in practice.

A total of 2042 patients treated with EYLEA constituted the safety population in four phase 3 studies. Among those, 1441 patients were treated with the recommended dose of 2 mg.

Neovascular (Wet) Age-Related Macular Degeneration (AMD). The data described below reflect exposure to EYLEA in 1824 patients with wet AMD, including 1223 patients treated with the 2-mg dose, in 2 double-masked, active-controlled clinical studies (VIEW1 and VIEW2) for 12 months (see *Clinical Studies*).

Table 1: Most Common Adverse Reactions (≥1%) in Wet AMD Studies

Adverse Reactions	EYLEA (N=1824)	Active Control (ranibizumab) (N=595)
Conjunctival hemorrhage	25%	28%
Eye pain	9%	9%
Cataract	7%	7%
Vitreous detachment	6%	6%
Vitreous floaters	6%	7%
Intraocular pressure increased	5%	7%
Conjunctival hyperemia	4%	8%
Corneal erosion	4%	5%
Detachment of the retinal pigment epithelium	3%	3%
Injection site pain	3%	3%
Foreign body sensation in eyes	3%	4%
Lacrimation increased	3%	1%
Vision blurred	2%	2%
Retinal pigment epithelium tear	2%	1%
Injection site hemorrhage	1%	2%
Eyelid edema	1%	2%
Corneal edema	1%	1%

Less common serious adverse reactions reported in <1% of the patients treated with EYLEA were retinal detachment, retinal tear, and endophthalmitis. Hypersensitivity has also been reported in less than 1% of the patients treated with EYLEA.

Macular Edema Following Central Retinal Vein Occlusion (CRVO). The data described below reflect exposure to EYLEA in 218 patients with macular edema following CRVO treated with 2 mg dose in 2 double-masked, controlled clinical studies (COPERNICUS and GALILEO) for 6 months (see *Clinical Studies*).

Table 2: Most Common Adverse Reactions (≥1%) in CRVO Studies

Adverse Reactions	EYLEA (N=218)	Control (N=142)
Eye pain	13%	5%
Conjunctival hemorrhage	12%	11%
Intraocular pressure increased	8%	6%
Corneal erosion	5%	4%
Vitreous floaters	5%	1%
Conjunctival hyperemia	5%	3%
Foreign body sensation in eyes	3%	5%
Vitreous detachment	3%	4%
Lacrimation increased	3%	4%
Injection site pain	3%	1%
Vision blurred	1%	<1%

Less common adverse reactions reported in <1% of the patients treated with EYLEA were cataract, eyelid edema, corneal edema, retinal tear, hypersensitivity, and endophthalmitis.

Immunogenicity. As with all therapeutic proteins, there is a potential for an immune response in patients treated with EYLEA. The immunogenicity of EYLEA was evaluated in serum samples. The immunogenicity data reflect the percentage of patients whose test results were considered positive for antibodies to EYLEA in immunoassays. The detection of an immune response is highly dependent on the sensitivity and specificity of the assays used, sample handling, timing of sample collection, concomitant medications, and underlying disease. For these reasons, comparison of the incidence of antibodies to EYLEA with the incidence of antibodies to other products may be misleading.

In the wet AMD and CRVO studies, the pre-treatment incidence of immunoreactivity to EYLEA was 1% to 3% across treatment groups. After dosing with EYLEA for 52 weeks (wet AMD), or 24 weeks (CRVO), antibodies to EYLEA were detected in a similar percentage range of patients. Both in the wet AMD and in the CRVO studies, there were no differences in efficacy or safety between patients with or without immunoreactivity.

Postmarketing Experience. The following adverse reaction has been identified during postapproval use of EYLEA: intraocular inflammation. Because these reactions are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

USE IN SPECIFIC POPULATIONS

Pregnancy. Pregnancy Category C. Afibercept produced embryo-fetal toxicity when administered during organogenesis in pregnant rabbits at intravenous doses of 3 to 60 mg/kg. A series of external, visceral, and skeletal malformations were observed in the fetuses. The maternal No Observed Adverse Effect Level (NOAEL) was 3 mg/kg, whereas the fetal NOAEL was below 3 mg/kg. At this dose, the systemic exposures based on C_{max} and AUC for free afibercept were approximately 2900 times and 600 times higher, respectively, when compared to corresponding values observed in humans after an intravitreal dose of 2 mg. There are no adequate and well-controlled studies in pregnant women. EYLEA should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers. It is unknown whether afibercept is excreted in human milk. Because many drugs are excreted in human milk, a risk to the breastfed child cannot be excluded. EYLEA is not recommended during breastfeeding. A decision must be made whether to discontinue nursing or to discontinue treatment with EYLEA, taking into account the importance of the drug to the mother.

Pediatric Use. The safety and effectiveness of EYLEA in pediatric patients have not been established.

Geriatric Use. In the clinical studies, approximately 85% (1728/2034) of patients randomized to treatment with EYLEA were ≥65 years of age and approximately 58% (1177/2034) were ≥75 years of age. No significant differences in efficacy or safety were seen with increasing age in these studies.

Patients with Renal Impairment. Pharmacokinetic analysis of a subgroup of patients (n=492) in one Phase 3 study, of which 43% had renal impairment (mild n=120, moderate n=74, and severe n=16), revealed no differences with respect to plasma concentrations of free afibercept after intravitreal administration every 4 or 8 weeks. No dose adjustment based on renal impairment status is needed for either wet AMD or CRVO patients.

PATIENT COUNSELING INFORMATION

In the days following EYLEA administration, patients are at risk of developing endophthalmitis or retinal detachment. If the eye becomes red, sensitive to light, painful, or develops a change in vision, the patient should seek immediate care from an ophthalmologist (see *Warnings and Precautions*).

Patients may experience temporary visual disturbances after an intravitreal injection with EYLEA and the associated eye examinations (see *Adverse Reactions*). Patients should be advised not to drive or use machinery until visual function has recovered sufficiently.

REGENERON

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Regeneron U.S. Patents 7,306,799; 7,531,173; 7,608,261; 7,070,959; 7,374,757; 7,374,758, and other pending patents

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IMPORTANT PRESCRIBING INFORMATION FOR EYLEA

- †EYLEA[®] (aflibercept) Injection is indicated for the treatment of patients with neovascular (Wet) Age-related Macular Degeneration (AMD). The recommended dose for EYLEA is 2 mg administered by intravitreal injection every 4 weeks (monthly) for the first 12 weeks (3 months), followed by 2 mg once every 8 weeks (2 months). Although EYLEA may be dosed as frequently as 2 mg every 4 weeks (monthly), additional efficacy was not demonstrated when EYLEA was dosed every 4 weeks compared to every 8 weeks.
- EYLEA is indicated for the treatment of patients with Macular Edema following Central Retinal Vein Occlusion (CRVO). The recommended dose for EYLEA is 2 mg administered by intravitreal injection every 4 weeks (monthly).

IMPORTANT SAFETY INFORMATION FOR EYLEA

- EYLEA is contraindicated in patients with ocular or periocular infections, active intraocular inflammation, or known hypersensitivity to aflibercept or to any of the excipients in EYLEA.
- Intravitreal injections, including those with EYLEA, have been associated with endophthalmitis and retinal detachments. Proper aseptic injection technique must always be used when administering EYLEA. Patients should be instructed to report any symptoms suggestive of endophthalmitis or retinal detachment without delay and should be managed appropriately. Intraocular inflammation has been reported during the post approval use of EYLEA.
- Acute increases in intraocular pressure have been seen within 60 minutes of intravitreal injection, including with EYLEA. Sustained increases in intraocular pressure have also been reported after repeated intravitreal dosing with VEGF inhibitors. Intraocular pressure and the perfusion of the optic nerve head should be monitored and managed appropriately.
- There is a potential risk of arterial thromboembolic events (ATEs) following use of intravitreal VEGF inhibitors, including EYLEA, defined as nonfatal stroke, nonfatal myocardial infarction, or vascular death (including deaths of unknown cause). The incidence of ATEs in the VIEW 1 and VIEW 2 wet AMD studies in patients treated with EYLEA was 1.8% during the first year. The incidence of ATEs in the COPERNICUS and GALILEO CRVO studies was 0% in patients treated with EYLEA compared with 1.4% in patients receiving sham control during the first six months.
- The most common adverse reactions (≥5%) reported in patients receiving EYLEA were conjunctival hemorrhage, eye pain, cataract, vitreous detachment, vitreous floaters, and increased intraocular pressure.
- Serious adverse reactions related to the injection procedure have occurred in <0.1% of intravitreal injections with EYLEA including endophthalmitis, traumatic cataract, increased intraocular pressure, and vitreous detachment.

Please see brief summary of full Prescribing Information on the following page.

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