By Crystal M. Brimer, OD, FAAO

Which is the problem with contact lenses noncompliance: the recommended return date for prescription renewal or the disposal schedule?

Often the two are indiscernible because most contact lens patients come in for one reason and one reason only—they are out of contact lenses. Why? Because patients tend to overextend the life of their lenses or buy an extra supply online before their prescriptions expired.

Is this stereotyping of our contact lens patients justified, or are the rest of our patients remaining compliant only because...
By Crystal M. Brimer, OD, FAAO

At which point do we decide to stop learning? If you are reading this journal, the answer is likely never because we clinicians are always thinking, deducing, diagnosing, and treating.

A better question would be—when do we decide to stop our formal education? For many, optometry school graduation is the final capstone to our coursework. Some of us forge ahead with residency, fellowship, master’s degrees, or doctorates.

For those of us who plunged forward with a residency, some had life- and career-altering experiences. Here is the story of mine.

By Marta C. Fabrykowski, OD, FAAO

Which is the problem with contact lenses noncompliance: the recommended return date for prescription renewal or the disposal schedule?

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Is this stereotyping of our contact lens patients justified, or are the rest of our patients remaining compliant only because...

By David Mashidas, OD

The destructive effects of diabetes mellitus (DM) are far reaching, and optometrists see patients with diabetes in their chairs every day.

Ocular effects of diabetes include changing vision, dryness, diabetic retinopathy, diabetic macular edema, cataracts and glaucoma. Vision changes may include reduction in visual acuity, refractive error, color vision and accommodative dysfunction. Dryness is usually the end result of a neurotrophic cornea in addition to sluggish glands leading to tear deficiency.

Diabetic retinopathy
Diabetic retinopathy (DR) is a disease of the retina caused by diabetes that involves damage to tiny blood vessels in the back of the eye. Diabetic retinopathy afflicts 93 million people worldwide, and 28 million of these have vision-threatening DR. These numbers are expected to rise significantly over the next several years.

See Managing diabetes on page 25

See Compliance on page 10

By Dr. Shalu Pal

PRACTICING IN CANADA, CONTACT LENSES, AND RIDING MOTORCYCLES
Intraocular Inflammation

Flashes. Eyelash changes are usually reversible upon discontinuation of treatment.

Macular Edema

May be exacerbated.

Treatment with TRAVATAN Z™ may be discontinued in patients who develop adverse reactions to the drug or who discontinue therapy due to either their seriousness, frequency of reporting, possible causal connection to TRAVATAN Z™ or a combination of these factors, include: arrhythmia, vomiting, epistaxis, tachycardia, and insomnia. In postmarketing use with prostaglandin analogs, periorbital and lid changes including deepening of the eyelid sulcus have been observed.

Use in Specific Populations

Use in pediatric patients below the age of 16 years is not recommended because of potential safety concerns related to increased pigmentation following long-term chronic use.

For additional information on TRAVATAN Z™ Solution, please refer to the Brief Summary of Prescribing Information on the following page.

*Study Design: Double-masked, randomized, parallel-group, multicenter noninferiority comparison of the efficacy and safety of travoprost 0.004% preserved with benzalkonium chloride (BAK) and TRAVATAN Z™ Solution after 3 months of treatment in patients with open-angle glaucoma or ocular hypertension. Mean baseline IOPs were 27.0 mm Hg (n=322), 25.5 mm Hg (n=322), and 24.8 mm Hg (n=322) at 8 AM, 10 AM, and 4 PM for TRAVATAN Z™ Solution group. At the end of 3 months, the TRAVATAN Z™ Solution group had mean IOPs (95% CI for the treatment differences) of 18.7 mm Hg (0.4, 0.5), 17.7 mm Hg (0.4, 0.6), and 17.4 mm Hg (0.2, 0.8) at 8 AM, 10 AM, and 4 PM, respectively. Statistically equivalent reductions in IOP (95% CI about the treatment differences were entirely within ±1.5 mm Hg) were demonstrated between the treatments at all study visits during the 3 months of treatment.

BRIEF SUMMARY OF PRESCRIBING INFORMATION

INDICATIONS AND USAGE
TRAVATAN Z® (travoprost ophthalmic solution) 0.004% is indicated for the reduction of elevated intraocular pressure in patients with open-angle glaucoma or ocular hypertension.

DOSEAGE AND ADMINISTRATION

The recommended dosage is one drop in the affected eye(s) once daily in the evening.

TRAVATAN Z® (travoprost ophthalmic solution) should not be administered more than once daily since it has been shown that more frequent administration of prostaglandin analogs may decrease the intraocular pressure lowering effect.

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

TRAVATAN Z® Solution may be used concomitantly with other topical ophthalmic drug products to lower intraocular pressure. If more than one topical ophthalmic drug is being used, the drugs should be administered at least five (5) minutes apart.

CONTRAINDICATIONS

None.

WARNINGS AND PRECAUTIONS

Pigmentation

Travoprost ophthalmic solution has been reported to cause changes to pigmented tissues. The most frequently reported changes have been increased pigmentation of the iris, perilimbal tissue (eyelid) and eyelashes. Pigmentation is expected to increase as long as travoprost 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 travoprost, pigmentation of the iris is likely to be permanent, while pigmentation of the perilimbal 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 pigment around the pupillary spread concentrically towards the periphery of the iris and the entire iris or parts of the iris become more brown. Another rare or freckles of the iris appear to be affected by treatment. While treatment with TRAVATAN Z® (travoprost ophthalmic solution) 0.004% can be continued in patients who develop noticeably increased iris pigmentation, these patients should be examined regularly.

Eyelash Changes

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

Intraocular Inflammation

TRAVATAN Z® Solution should be used with caution in patients with active intraocular inflammation (e.g., uveitis) because the inflammation may be exacerbated.

Macular Edema

Macular edema, including cystoid macular edema, has been reported during treatment with travoprost ophthalmic solution. TRAVATAN Z® Solution should be used with caution in aphacic patients, in pseudophakic patients with a torn posterior lens capsule, or in patients with known risk factors for macular edema.

Angle-closure, Inflammatory or Neovascular Glaucoma

TRAVATAN Z® Solution has not been evaluated for the treatment of angle-closure, inflammatory or neovascular glaucoma.

Bacterial Keratitis

There have been reports of bacterial keratitis associated with the use of multiple-dose containers of topical ophthalmic products. These containers had been inadvertently contaminated by patients who, on most cases, had a concurrent corneal disease or a disruption of the ocular epithelial surface.

Use with Contact Lenses

Contact lenses should be removed prior to instillation of TRAVATAN Z® Solution and may be reinserted 15 minutes following its administration.

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. The most common adverse reaction observed in controlled clinical studies with TRAVATAN (travoprost ophthalmic solution 0.004%) and TRAVATAN Z® (travoprost ophthalmic solution 0.004%) was ocular hyperemia which was reported in 30 to 50% of patients. Up to 3% of patients discontinued therapy due to conjunctival hyperemia. Ocular adverse reactions reported at an incidence of 5 to 10% in these clinical studies included decreased visual acuity, eye discomfort, foreign body sensation, pain and pruritus. Ocular adverse reactions reported at an incidence of 1 to 4% in clinical studies with TRAVATAN or TRAVATAN Z® Solutions included abnormal vision, blepharitis, blurred vision, cataract, conjunctivitis, corneal staining, dry eye, eye irritation, keratitis, lid margin crusting, ocular inflammation, photophobia, subconjunctival hemorrhage and tearing.

Nonocular adverse reactions reported at an incidence of 1 to 5% in these clinical studies were allergy, conjunctivitis, dermatitis, eye pain, glossitis, headache, jaundice, pruritus, rhinitis, Stevens-Johnson syndrome, increased serum alkaline phosphatase, increased serum creatine phosphokinase, increased serum uric acid, increased total serum cholesterol, increased uric acid, increased white blood cell count, increased serum triglycerides, insomnia, lactose intolerance, nasopharyngitis, pain, peripheral edema, postural hypotension, infection, pain, prostate disorder, sinusitis, urinary incontinence and urinary tract infections. In postmarketing use with prostaglandin analogues, periadnexal and lid changes including deepening of the eyelid sulcus have been observed.

USE IN SPECIFIC POPULATIONS

Pregnancy

TRAVATAN Z® Category C

Teratogenic effects: Travoprost was teratogenic in rats, at an intravenous (iv) dose up to 10 mcg/kg/day (250 times the maximal recommended human ocular dose [MRHD], evidenced by an increase in the incidence of skeletal malformations as well as external and visceral malformations, such as fused sternebrae, domed head and hydrocephaly. Travoprost was not teratogenic in rats at iv doses up to 3 mcg/kg/day (75 times the MRHD), or in mice at subcutaneous doses up to 1 mcg/kg/day (25 times the MRHD). Travoprost produced an increase in post-implantation losses and a decrease in fetal viability in rats at iv doses > 3 mcg/kg/day (75 times the MRHD) and in mice at subcutaneous doses > 0.3 mcg/kg/day (7.5 times the MRHD).

In the offspring of female rats that received travoprost subcutaneously from Day 7 of pregnancy to lactation Day 21 at doses > 0.12 mcg/kg/day (3 times the MRHD), the incidence of postnatal mortality was increased, and neonatal body weight gain was decreased. Neonatal development was also affected, evidenced by delayed eye opening, pinna detachment and preputial separation, and by decreased motor activity.

There are no adequate and well-controlled studies of TRAVATAN Z® (travoprost ophthalmic solution) 0.004% administration in pregnant women. Because animal reproductive studies are not always predictive of human response, TRAVATAN Z® Solution should be administered during pregnancy only if the potential benefit justifies the potential risk to the fetus.

Nursing Mothers

A study in lactating rats demonstrated that radioalbated travoprost 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 TRAVATAN Z® Solution is administered to a nursing woman.

Pediadtric Use

Use in pediatric patients below the age of 16 years is not recommended because of potential safety concerns related to increased pigmentation following long-term chronic use.

Geriadic Use

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

Hepatic and Renal Impairment

Travoprost ophthalmic solution 0.004% has been studied in patients with hepatic impairment and also in patients with renal impairment. No clinically relevant changes in hematology, blood chemistry, or urinalysis laboratory data were observed in these patients.

NONCLINICAL TOXOLICY

Carcinogenesis, Mutagenesis, Impairment of Fertility

Two-year carcinogenicity studies in mice and rats at subcutaneous doses of 10, 30, or 100 mcg/kg/day did not show any evidence of carcinogenic potential. However, at 100 mcg/kg/day, male rats were only treated for 82 weeks, and the maximum tolerated dose (MTD) was not reached in the mouse study. The high dose (100 mcg/kg) corresponds to exposure levels over 400 times the human exposure at maximum recommended human ocular dose (MRHD) of 0.04 mg/kg, based on plasma active drug levels. Travoprost was not mutagenic in the Ames test, mouse micronucleus test or rat chromosome aberration assay. A slight increase in the mutant frequency was observed in one of two mouse lymphoma assays in the presence of rat S-9 activation enzymes. Travoprost did not affect mating or fertility indices in male or female rats at subcutaneous doses up to 10 mcg/kg/day (250 times the maximum recommended human ocular dose of 0.04 mg/kg/day on a mg/kg basis [MRHD]). At 10 mcg/kg/day, the mean number of corpora lutea was reduced, and the post-implantation losses were increased. These effects were not observed at 3 mcg/kg/day (75 times the MRHD).

PAlIENT CuNSULTING INFORMATION

Potential for Pigmentation

Patients should be advised about the potential for increased brown pigmentation of the iris, which may be permanent. Patients should be also be informed about the possibility of eyelid skin darkening, which may be reversible after discontinuation of TRAVATAN Z® (travoprost ophthalmic solution 0.004%).

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 TRAVATAN Z® Solution. 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.

Handling the Container

Patients should be instructed to avoid allowing the tip of the dispensing container to contact the eye, surrounding structures, fingers, or any other surface in order to avoid contamination of the solution by common bacteria known to cause ocular infections. Serious damage to the eye and subsequent loss of vision may result from using contaminated solutions.

When to Seek Physician Advice

Patients should also be advised that if they develop an intercurrent ocular condition (e.g., trauma or infection), have oculic surgery, or develop any ocular reactions, particularly conjunctivitis and eyelid reactions, they should immediately seek their physician’s advice concerning the continued use of TRAVATAN Z® Solution.

Use with Contact Lenses

Contact lenses should be removed prior to instillation of TRAVATAN Z® Solution and may be reinserted 15 minutes following its administration.

Use with Other Ophthalmic Drugs

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

Rx Only

U.S. Patent Nos. 5,631,287; 5,889,052, 6,011,062; 6,235,781; 6,503,497; and 6,849,253
How the public perceives optometry

By Benjamin P. Casella, OD, FAAO

Chief Optometric Editor
Practices in Augusta, GA, with his father in his grandfather’s practice
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I expect that within most professions there exists a certain degree of subjectivity about how one is perceived by the “general public.” ODs may, from time to time, fall out of tune with what our patients are encountering in eye care beyond our own practices.

Finger on the pulse

For this reason, now and then I will peruse the eye care aisle of a pharmacy or grocery store to see what our patients are seeing. I look at over-the-counter readers to see what powers are available, and I look at shelves to see what companies may be paying to get their products placed at eye level. I examine the products available, and I look at shelves of shelf talkers to see which study they correspond.

Of course, any look at what our patients are experiencing would be incomplete without an Internet search. So, every so often I search the news with the keyword “optometry” to see what our patients may be seeing.

Much of what I come across is positive. For example, I recently saw an uplifting article detailing how the Northeastern University College of Optometry has a rich history going back decades of caring for the Cherokee Nation. I also saw a piece regarding a Pacific University College of Optometry alumna publishing a book for children going to the eye doctor—“Buddy Gets His First Pair of Glasses.” I’m considering a copy for my reception area.

Negative perception

However, negative news sells. So, it is not surprising to see an article alleging that management of cataract surgery by ODs is putting African Americans at risk for complications.

ODs are able to read such articles and notice the lack of evidence supporting such claims. However, many patients don’t know what they don’t know, and damage can be done.

Anti-optometry propaganda occasionally shows itself in the media, especially in proposed changes to scopes of practice. This can get ugly, but I am usually pleased with the professional responses on the part of optometry. We do not define ourselves by what we are not, but rather what we are: doctors for the human eye and adnexa. As such, we are responsible for informing the public of what we do. We also expose misinformation for what it is: misinformation.

Media skills

When I was president of the Georgia Optometric Association (GOA), I got a firsthand look at how the GOA informs the public of the good being done by ODs in our state. The GOA uses a media relations firm, which does a tremendous job of making us look and sound, well, presentable in the media.

Media relations firms have relationships with the media, and they can successfully pitch stories. Our firm teaches GOA leadership how to approach media and respond to questions. When an interviewer asks a question that is off-task or intended to get an emotional response, politely acknowledging said question and getting back to one’s talking points can be tricky. That’s one aspect of my job.

Dr. Michael Ohlson gives questions to ask about CE. See page 16.

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FROM THE Chief Optometric Editor

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The Lens with the “Wow” Factor

VARILUX® X SERIES™ LENSES WITH XTEND™ TECHNOLOGY

“Great progressive lens with virtually no peripheral aberrations. It feels like a single vision lens. I describe it to my customers as the lens with the ‘Wow’ factor!” - Medford Optical

SHARPNESS AT ALL DISTANCES
Cosmetic dangers: Part 3—Keep patients informed, report cosmetic problems

In the final part of her three-part series on cosmetic dangers, Tracy Schroeder-Swartz, OD, MS, FAO, explains the importance of keeping patients informed of cosmetic dangers and how to properly report cosmetic problems. OptometryTimes.com/CosmeticDangersPt3

TOP SOCIAL
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1 Like books and e-readers, old and new can live together in harmony. OptometryTimes.com/OldandNew
2 Increase contact lens comfort by paying attention to the lids. OptometryTimes.com/IncreaseCLComfort
3 How to start treating dry eye at your practice. OptometryTimes.com/StartTreatingDryEye

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2 9 things glaucoma patients want to know. OptometryTimes.com/NineGlaucomaPoints
3 Work with patients to combat contact lens obsolescence. OptometryTimes.com/CLObsolescence

Optometry Times blogs
Optometry Times offers weekly blogs from some of the leaders in the optometric profession. Haven’t read them yet? Here’s what you’re missing.

4 technologies that improve patient interactions

Many technologies have hit the scene to help improve the way doctor and patients interact. Melanie Denton, OD, shares the four technologies that have helped her take her doctor/patient interactions to the next level. OptometryTimes.com/NewTech

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Public perception
Continued from page 4

is where professionals come in handy, and I urge other state associations that have not done so to use a media relations company.

It starts with me
So, with all of this in mind, I turn to a more personal task: I want to make a concerted effort to have more of a presence with my local media outlets about who I am as a doctor of optometry and what I do for my patients.

I have been asked to appear on local news shows to talk about children’s vision before school starts, and the GOA, through use of our media relations firm, has gotten me local spots ranging from safety with fireworks to the dangers of illegally sold contact lenses during the Halloween season. However, I am going to approach these outlets more often as I seek opportunities to talk about what I do. The worst thing they can say is “no,” right?

I need to come up with a story, and I’ve got a few in mind:
- There has been (and needs to be) talk about contact lens sales and marketing practices by large retailers around proposed regulations by lawmakers and regulatory entities. This topic has garnered national attention, but I don’t think I’ve seen much (if any) coverage in the greater Augusta, GA, market (my hometown). I could pitch a story that explains how patient care is of the utmost importance regarding the fitting and prescribing of FDA-approved medical devices such as contact lenses and the important role optometry continues to play.
- Too many people think that all progressive addition lenses (PALS) are the same. This could be a perfect opportunity for me to speak about the evolution of PALS, the concept of the progressive corridor, and how the science behind PALS has changed. I may be able to dispel the myth that patients can go elsewhere and get for a fraction of the price the same PALS that I recommend. I could explain how optometry is the profession of vision science. I could manage the conversation to discuss the importance of impact-resistant lenses for children and for sports and expand to include a low vision update.
- Many parents believe that their children reading an acuity chart at the pediatrician’s office is a comprehensive eye exam. I could explain the aspects of an exam, including what we are testing for during each step.

No one else is going to explain what ODs do or how we are important to our communities. We continue to have successful cam-

paigns on a national and state level. So, why not bring this concept into our communities?

If you have success promoting optometry, I’d love to hear about it. If I succeed in my endeavors, I’ll share it with you.

REFERENCES

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Why residency changed my life

Continued from page 1

I wanted more
To rewind, optometry school was illuminating—not just from a basic clinical science perspective but also from an experiential point of view.

We were exposed to such a wide breadth of clinical cases—in pediatrics, binocular vision, contact lenses, low vision, refractive, disease, and more. We learned how to hone in on the major points and the finer points and address them with the patient in an empathetic way.

The cases that personally fascinated me the most had multiple, sometimes confounding, elements. For example, as a third-year student, treating a patient complaining of dryness with simultaneous early cataracts and what seemed like early macular mottling in only one eye posed a true conundrum.

How to make multiple diagnoses and complete a full refraction in under one hour? The odds seemed stacked against me.

The Ohio State University College of Optometry’s program included many fantastic specialty clinical rotations that widened our scope of practice and allowed us to experience real-world tertiary patient management. It was especially after the experience of the focused externships that I wanted to learn to manage tough cases more efficiently. I wanted to be challenged by seasoned clinicians and improve my problem-solving skills.

Jumping into residency
I was lucky enough to be one of four residents to match at Omni Eye Services of New Jersey and New York in ocular disease and surgical comanagement, which boasted of exposure to an extraordinary array of specialties. There was a high-volume artist of a cataract and glaucoma surgeon, a brilliant retinal specialist, two oculoplastics gurus, and even a pediatric/strabismus surgeon. This is not to mention the team of extraordinary ODs that essentially ran the show.

I dove right in with helping to see patients—sometimes encountering up to 60 patients a day. Not only was my work busy during business hours, residents also took after-hours on-call. This required learning how to deductively reason through a patient’s symptoms and gauge the severity and urgency depending on the patient’s words and your own questions.

If the call was deemed serious enough, it might require seeing the patient after hours or over the weekend to treat or calling the on-call supervising OD with a succinct diagnosis and well-thought-out questions. To say that my diagnostic capabilities sped up is an understatement.

Diagnosis boot camp
The challenges of diagnosing ocular disease is multifactorial—conditions can widely vary in severity, temporal pattern, patient experience, and visual presentation. Residency in ocular disease was a boot camp of sorts.

After my first weekend of being on-call—which included a central retinal artery occlusion with chorioretinal sparing, a leaking trabeculectomy (to my horror, the Goldmann applanation tonometer was not malfunctioning—the intraocular pressure really was around 1 mm Hg), and a florid filamentary keratitis—I was well on my way to learning to think quickly.

The monitored independence was a step between being a student and the real world: there was a cushion of specialists whom I could call on, yet preparing for each call required significant thought toward a differential diagnosis. Much like an emergency room, stabilization and accuracy of diagnosis was key before complete treatment or referral to one of our many specializations.

This organization of multiple subspecialties within one practice was illuminating on a myriad of levels. Not only did it provide the comfort of knowing that the patient would receive a high level of continuous care should it be needed, but it allowed a resident to learn how the different subspecialties interrelate. Comprehending the compartmentalization of the MD specializations and sometimes uncanny overlaps was imperative to working as a team—best learned by being thrown into the fire, so to speak.

Working with MDs
In addition, a very valuable and sometimes challenging aspect was working with and under the MDs. Their lengthy schooling, internal medicine training, and resulting expertise was and remains very inspiring.

For ODs, there is an extraordinary opportunity for learning from and partnering with specialists as they all bring different elements to the table. Residency taught me how to navigate the expanse between us and how to capitalize on common goals and comanagement benefits.

Residency also taught me the benefits of optometrists’ strong training in optics—not just from a glasses or contact lens prescription standpoint. It can be used for calculating the power of intraocular lenses, mapping femtosecond laser arcuate incisions to minimize postoperative astigmatism, and gauging higher-level aberrations pre- and post-LASIK correction. We as ODs receive fantastic optics and refraction training (thank you Dr. Donald Mutti, Dr. Thomas Raasch, and Dr. Mark Bullimore), which can be a true service to ophthalmologists who receive less such focus.

MD-collaboration aside, another invaluable moment was understanding the relationship among ophthalmologic office visits, in-office procedures and outpatient surgeries.

Residency was my first true experience with independently managing peri-operative care. The responsibility of counseling patients before and after cataract surgery

MARTA C. FABRYKOWSKI, OD, FAAO received her Doctor of Optometry in 2011 from The Ohio State University College of Optometry

TAKE-HOME MESSAGE After optometry school externships, one OD determined that she wanted to learn to manage tough cases more efficiently, be challenged by seasoned clinicians, and improve her problem-solving skills. She got that and more: diagnosis boot camp, mentorship by experienced ODs, and partnering with MD specialists. Her career today sprung from her residency.

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Great vision correction can make all the difference in a person’s life. As early as my grade school days, I wanted to impact lives in a positive way by providing unique and individualized eye care. In practice today, I recommend daily disposable contact lenses for patients of all ages and professional backgrounds, including new and current contact lens wearers alike, to meet visual demands, enhance wear comfort and promote convenience.

My patients are probably a lot like yours — they want to offer the best vision correction options available. I am confident prescribing a truly unique contact lens wearing experience that addresses a wide range of patient needs with DAILIES TOTAL1® contact lenses. Combining the convenience and replacement compliance benefits of a daily disposable lens® with Alcon’s one-of-a-kind Water Gradient and SmarTears® Technologies, DAILIES TOTAL1® contact lenses provide exceptional vision and comfort* that can make a true difference in my patients’ lives.

One of my longtime patients is a young actor who previously struggled with contact lens wear due to poor tolerance, and thus relied on glasses full-time. This significantly impacted his career, struggled with contact lens wear due to poor tolerance, and thus had the opportunity to try his first pair, he immediately felt the difference. Being able to comfortably wear his DAILIES TOTAL1® contact lenses all day has positively impacted his personal and professional life, making way for opportunities that were previously out of reach!

The same impact can apply to patients with a wide range of individual needs, from athletes who do not want to be slowed down by a pair of glasses to professionals who spend their days on computers and digital devices, in meetings or traveling. Thanks to the benefits of outstanding vision and all-day comfort offered by DAILIES TOTAL1® contact lenses, these patients can feel more confident, focus on the task at hand and get more out of each experience.

Patients have many options when it comes to eye care. My objective is to provide the best experience to help them achieve their goals in a comprehensive, sensible and comfortable way. The real key to helping patients become DAILIES TOTAL1® wearers is giving them the chance to feel the lenses on their eyes, and educating new wearers about the DAILIES® Choice Program to help address any potential cost concerns. Give your patients the benefits of exceptional vision and comfort that DAILIES TOTAL1® contact lenses offer!

DAILIES TOTAL1® CONTACT LENSES are in a class of their own*

addresses a wide range of patient needs with DAILIES TOTAL1® contact lenses. Combining the convenience and replacement compliance benefits of a daily disposable lens® with Alcon’s one-of-a-kind Water Gradient and SmarTears® Technologies, DAILIES TOTAL1® contact lenses provide exceptional vision and comfort* that can make a true difference in my patients’ lives. One of my longtime patients is a young actor who previously struggled with contact lens wear due to poor tolerance, and thus relied on glasses full-time. This significantly impacted his career, limiting the types of roles he could take. When we discussed the option of DAILIES TOTAL1® contact lenses and he had the opportunity to try his first pair, he immediately felt the difference. Being able to comfortably wear his DAILIES TOTAL1® contact lenses all day has positively impacted his personal and professional life, making way for opportunities that were previously out of reach!

The same impact can apply to patients with a wide range of individual needs, from athletes who do not want to be slowed down by a pair of glasses to professionals who spend their days on computers and digital devices, in meetings or traveling. Thanks to the benefits of outstanding vision and all-day comfort offered by DAILIES TOTAL1® contact lenses, these patients can feel more confident, focus on the task at hand and get more out of each experience. Patients have many options when it comes to eye care. My objective is to provide the best experience to help them achieve their goals in a comprehensive, sensible and comfortable way. The real key to helping patients become DAILIES TOTAL1® wearers is giving them the chance to feel the lenses on their eyes, and educating new wearers about the DAILIES® Choice Program to help address any potential cost concerns. Give your patients the benefits of exceptional vision and comfort that DAILIES TOTAL1® contact lenses offer!
requires accurate and experienced knowledge of all the procedure’s components—from capsulorhexis, to aligning a toric intraocular lens, to the likelihood of developing posterior capsular opacification, and determining who is at risk for developing cystoid macular edema.

This skill, I learned, is also invaluable to ophthalmologists and gives optometrists a great responsibility and respected role. Similarly, learning time-out etiquette and side-side verification—both vital in every ophthalmologic operating room—was something that I experienced solely because of my residency.

OD mentors
Residency was not simply focused on ophthalmology/optometry interactions. The most vital interactions were those with my optometry mentors.

Dr. Katherine Mastrota, who was directing the bustling New York City Omni office, was an invaluable teacher and advisor. Not only was she expert in the various confounding visual field patterns that glaucoma patients who concurrently had suffered a neurological event could exhibit, but she also introduced me to the network of practicing optometrists whom I would soon be calling colleagues.

Dr. Mastrota had answers to my most pressing questions:

- Which local organization to join?
- Which practices or schools offer continuing education lectures?
- To which nearby practices specializing in complicated contact lens fittings can we refer?
- Do you know an after-hours neuro-ophthalmologist I can call with a case?
- What happens if patients lose their medical insurance but are still within their 90-day post-op period?

Not only did Dr. Mastrota have the answers, she also provided the encouragement and wise words that helped me to land my current job at a multi-specialty tertiary-care hospital on the Upper East Side of Manhattan. Mentorship in residency is key because it forges lifelong friendships and demonstrates an example to us newer ODs how we too can all become mentors and teachers.

Residency built my career
To say that residency opened doors to my future is an understatement. Residency helped me to develop confidence in managing complicated diagnoses as well as comprehend the moving parts that is the massive web of optometry and ophthalmology.

The two disciplines are in some ways inextricably partnered. This can be challenging but also very valuable and can result in a fantastic clinical experience. The ophthalmologists who I work with now are some of my most valued partners, advocates, and friends. Residency challenged me academically with case reports and presentations that resulted in American Academy of Optometry Fellowship and gave me the skills to now lecture regularly to societies and at the local and state levels.

Residency gave me the courage and knowledge to work side by side with MDs, it taught me to remain ever curious, and it has translated into current multi-specialty grant-funded clinical research projects.

I have no regrets with spending an extra year with a lower income than my colleagues who went directly into practice, nor do I consider myself less of an optometry advocate by immersing my career alongside MDs.

Every day I am challenged by new manifestations of immunosuppressed patients from our medical retina doctors, complicated intraocular lens calculations (don’t forget to subtract 0.50 D for a sulcus-placed backup lens in the unlikely event that capsule breaks), triaging emergency room patients to the appropriate subspecialty, and feeling comforted that any patient I see will be afforded the proper continuation of care.

Had I not completed a residency, I am not sure that I would be lucky enough to have this challenging career today.

Dr. Fabrykowski completed a residency in ocular disease in 2012 at Omni Eye Services of NJ. Currently, she is on staff at the Manhattan Eye Ear and Throat Hospital Faculty Ophthalmology Practice, under Lenox Hill Hospital. marta.fabrykowski@gmail.com

Residency taught me how to navigate the expanse between ODs and MDs and how to capitalize on common goals and comanagement benefits

AAO launches online CE, Essilor student challenge

ORLANDO—The American Academy of Optometry launches a new online CE and resource platform, Academy Online. Users can find a collection of session recordings from past annual meetings as well as distance learning credits. This initiative is aimed at assisting optometrists and vision scientists in obtaining new knowledge and staying on top of current trends while earning CE hours outside of the annual meeting.

Content can be viewed at any time using any device that connects to the Internet.


Users can also browse posters from the 2016 Scientific Program and interact with the presenters via discussion threads.

Academy members have complimentary access to Academy Online, and non-members can access the content for a fee. Course tests are also available for purchase online for $25 for select courses, allowing optometrists to claim COPE-approved distance learning CE credits.

To access Academy Online visit http://learning.aaopt.org

In related news, Essilor of America and the American Academy of Optometry are collaborating on a new event for students at the annual meeting, “Essilor Academic Challenge @ Academy Stadium.”

The competition includes digital competition components by teams at each school and college of optometry, culminating in a final showdown at Academy 2018 San Antonio on Thursday, November 8 from 7:00 p.m. to 10:00 p.m. at the Henry B. González Convention Center. School teams will be comprised of three students at varying points in their academic careers and one faculty coach. These academic teams will compete against each other in an entertaining environment to see which team has what it takes to win the coveted title.

Essilor Academic Challenge @ Academy Stadium is planned to be held annually at the American Academy of Optometry meeting.
Focus On CONTACT LENSES

5 methods to drive contact lens compliance

Continued from page 1

we are not asking them to be accountable for something? We have compliant glaucoma and dry eye patients, and we ask a great deal of them. The difference is that these patients are motivated by pain or the threat of blindness.

When I was younger, my ratio of imprudence was higher, and my aversion to risk was lower. Perhaps that is why my multifocal contact lens wearers behave better, but it could also be because they are less tolerant of visual acuity changes when wearing contact lenses.

Aside from the know-it-all attitude, there is also the deterrent of cost. Somewhere along the way, ODs became perceived as bad guys who needlessly require an exam and hold patients’ contact lens prescriptions hostage for no reason.

Patients could wake up with an ulcer that scars their vision and could take their eyesight due to contact lens abuse

As much disdain as optometrists have for online contact lens retailers, cost is a driving force in some patients’ contact lens abuse scenarios. Online retailers deliver the perception that they are cheaper and are on the patient’s side. Perhaps ODs’ gripes should not be aimed at just the online retailer. Instead, it is up to each OD to change each patient’s perception and mindset.

Here are five methods I have incorporated to help drive contact lens compliance in my practice.

**STEP 1 Discipline**
The discipline method relies on the policies you put in place. What is your response when you receive a request for contact lens samples and the patient is overdue for an exam? If you simply require the patient to schedule the appointment, it could lead to a no-show patient and added frustration.

What do you do when you get a fax requesting prescription verification?

**STEP 2 Incentive**
What incentive do you offer to entice the patient to better contact lens compliance? Most of us offer a discount in addition to rebates when patients buy an annual supply. Some offices also offer a free pair of sunglasses with the purchase of an annual supply, while others offer a discount in their optical.

We offer $75 off glasses when an annual supply of contact lenses is purchased. It seems to make a bigger impression to patients than a percentage off. Other simple offers could include free large bottles of lens care solution, an extra trial pair of lenses, or a Starbucks gift card.

**STEP 3 Education**
This method consists of time, scripting, and equipment. Use your anterior segment camera to show patients changes that have already taken place, such as pannus, neovascularization, and corneal or conjunctival staining.

I use my corneal topographer to dive deeper. I show patients a quantitative redness score, tear film dynamic to show them the debris in their tears, interferometry to show them a lack of oil in the tear film, and the non-invasive tear break-up to show its impact on their vision and ocular surface.

IN BRIEF

B+L launches OTC brimonidine for eye redness

BRIDGEWATER, N.J– Bausch + Lomb has launched Lumify (brimonidine tartrate ophthalmic solution 0.025%), the first over-the-counter eye drop developed with low-dose brimonidine tartrate for the treatment of eye redness.

According to the company, in clinical trials Lumify eye drops demonstrated a strong safety and efficacy profile with low risk for rebound redness and 95 percent symptom improvement seen at one minute and lasting up to eight hours.

Lumify is an alpha-2 (α2)-adrenergic receptor (AR) agonist with a method of action that selectively constricts venules while maintaining the availability of oxygen to surrounding tissue. Other redness relievers on the market today are α1- or mixed α1-/α2-AR agonists that constrict the arterioles and venules and may deprive the eye of oxygen, resulting in an increased potential for rebound redness and tachyphylaxis.

Six clinical studies were conducted in over 600 patients, including pediatric and geriatric subjects, to evaluate safety and efficacy. Lumify features a low risk of allergic reactions among all patient groups, according to the company.

Lumify is available for purchase at major retailers nationwide, including Walgreens, CVS, Rite Aid, Walmart, Target, and Amazon. The bottles are available in 2.5 mL and 7.5 mL sizes. Lumify was licensed by Eye Therapies, Inc. to Bausch & Lomb Incorporated or its affiliates.
At this point, patients are usually convinced that there are consequences to contact lens wear. This technique has helped our practice keep 93 percent of our contact lens patients in daily disposables.

Contact lens abuse could lead to many problems. Ensure patients are aware of this. Patients could wake up with an ulcer that scars their vision, and it could take their eyesight.

Optometrists must emphasize and set the expectation that patients’ yearly exams are not about holding their prescriptions hostage. It is about avoiding potential health risks that may accompany contact lens wear.

The more we discuss and show patients their ocular surfaces and the changes induced by contact lens wear, the more we can chisel away at preconceived notions.

It is always important to discuss cost. Talk about the health of the patient’s eye, then correlate the difference in cost to a patient’s expense of less importance. A good example might be comparing their contact lens expenses to a Big Mac once a week, Starbucks twice a week, a nice bottle of wine per month, or a good pair of shoes per year.

Patients spend money on something frivolous every month. Find out what that is and make a comparison.

**STEP 4** Use the tools you have
You can utilize your electronic medical records (EMR) to send a reminder to patients to buy contact lenses when they should be running out or when it is time for an exam. Alert patients ahead of time that they will receive these notifications as well as a reminder for an appointment for one year out. Set the expectation with patients that they will be discarding lenses according to the schedule you provide.

You can also create a prescription notepad with checkboxes to tell the patient how many hours to wear their contact lenses, when to throw them away, what solution to use, and when to return. Ask the patient to sign the form as a commitment, and keep a signed copy scanned into his chart.

**STEP 5** Know what works
Methods used may be different for each patient, and therein lies the difficulty. In a busy practice, we have to put policies in place, pick an exam room method, and run with it.

There are always reasons to make exceptions. Create an office policy and an exam room method to limit frustrations. Customize your methods when you are able to and be flexible when it seems like the right thing to do for a particular patient.

The more you educate your patients, the better they understand and the more compliant they become.

Dr. Brimer has special interests in contact lenses and dry eye. drbrimer@crystalvisionservices.com
The case of the scarred retina

Decades-old blunt trauma uncovered using OCT-A technology

My former ocular embryology teacher, Gilda Crozier, OD, FAAO, reminded her class during every lecture that “phylogenesis replicates ontogeny” is similar to how newer technologies replicate clinical findings. To highlight this, I present an example of a patient who suffered blunt ocular trauma not involving the macula several decades prior to his exam.

Milky vision
This case highlights a 62-year-old male. At the time of the incident, he recalled his vision becoming milky, but it cleared within a week. He said his central vision was not affected permanently.

The patient described being evaluated by a general practitioner who did not create a management plan. He then followed up some months later with a general ophthalmologist who diagnosed him with a “scarred retina.”

A stable absolute visual-field defect corresponding roughly to the area of insult had been documented.

Exam shows drusen
A decade following the trauma, he was observed to have a superior-temporal retinal hole that was prophylaxed with cryotherapy. The result of the blunt trauma was obvious above the optic disc and visible when observing the wide-angle photo.

The repaired retinal hole was captured in the superior temporal region (Figure 1).

In the intervening years, the patient had been a successful contact lens wearer and subsequently underwent successful cataract removal with intraocular lens (IOL) implantation nine years ago.

Visual acuity in this eye was 20/20 with -2.25 D refractive correction, which serves as his near eye in a monovision paradigm. The patient also presented with visible age-appropriate drusen in the macula.

OCT-A may make the greatest impact on clinical practice in early progressive situations of capillary loss

At the present evaluation, optical coherence tomography angiography (OCT-A) was performed (Figure 2). The OCT portion of the scan showed a thinned retina in the region of the retinal remodeling and peri-macular drusen consistent with the clinical observances.

The angiography component of the scan showed that the inner retinal layers were absent, and the layers through the inner retina failed to demonstrate evidence of capillary presence.

OCT-A helps with diagnosis
OCT-A is a distinct technology from fluorescein angiography (FA). FA looks at the integrity of the circulatory systems of the retina and choroid. OCT-A may make the greatest impact on clinical practice in early progressive situations of capillary loss.

With further research, we may be able to correlate reduced retinal blood flow as sentinels of neurodegenerative diseases.

Dr. Semes is a founding member of the Optometric Glaucoma Society and a founding fellow of the Optometric Retina Society.

Figure 1.
Wide-angle color fundus photograph. Note retinal pigment epithelium (RPE) remodeling superior to the optic disc and the additional reactive RPE hyperplasia superior temporally. Drusen is evident at the macula.

Figure 2.
The lower frames show the OCT cross-section through the affected area. The upper frames from left to right show capillary layers from inner to outer retina. Photos courtesy of Lee P. Semes, OD, FAAO

BY LEO SEMES, OD, FAAO, is professor of optometry at the University of Alabama-Birmingham
How registries can help optometry

Joining a registry can help ODs transition, embrace new technologies

ODs have debated the question, “With technology, is optometry changing for the better?” The amount of time spent on coding and paperwork seems to take time away from caring for our patients. Except for those few ODs who operate on a cash-only basis, ODs and other healthcare providers are no longer responsible only for their individual patients, but for a network of patients.

We have heard our colleagues publicly say they are not going to concern themselves with understanding the Merit-Based Incentive Payment System (MIPS) and Medicare Access and CHIP Reauthorization Act (MACRA). Many think they are too complicated, and they would rather pay a penalty and see a few more patients a day to make up for the lost income.

While this short-term strategy may work for the time being, in the long run it is a flawed approach to improving your practice’s patient outcomes and maximizing your practice’s profitability.

Let’s look at how optometrists can use technology to navigate the growing clinical data landscape.

Ways to measure performance

In 2000, the American Medical Association (AMA) created the Physician Consortium for Performance Improvement (PCPI) as a physician-led program to develop clinical performance measures.

The PCPI has evolved into a more diverse organization that has in partnership with its members developed more than 350 measures, many of which are used in the Physician Quality Reporting System (PQRS) and meaningful use, as well as private health plan payment models.

The American Optometric Association (AOA) was a charter member and an integral part of the PCPI, which now includes other diverse membership organizations. The AOA also partnered with Prometheus Research to create and maintain AOA’s Measures and Outcomes Registry for EyeCare (MORE).

In 2011, the PCPI and a group of volunteer leaders established the National Quality Registry Network (NQRN), a national, multi-stakeholder network of clinical registry stewards and other professionals interested in clinical registries. NQRN has designed tools and educational programs and raised the visibility and perceived value of clinical registries as both reporting and improvement systems. In 2016, NQRN was merged into the PCPI as a core program.

In-person conversations are perhaps the best way to learn about the growing clinical data challenges

Registries and interoperability

A major project to solve the interoperability problem, the growing gap between clinicians and medical informaticists, was started by Duke University Health System’s James Tcheng, MD, at a recent PCPI meeting to help bridge the gap between the two.

The appropriate implementation of MIPS and registries is not occurring because electronic health record (EHR) systems are not synchronized well with registry data entry (clinical data is not flowing into clinical registries properly). It begins with registries on Fast Healthcare Interoperability Resources (FHIR), and a move from concepts to implementation and success.

The Office of the National Coordinator for Health Information Technology (ONC) oversees the concerns around the Common Clinical Data Set (USCDI) and the Interoperability Standards Advisory. We have an interoperability problem between clinical end users (e.g., optometrists) entering data into EHR, and registry stewards involved in registry data entry.

ODs need the two to work cohesively so that information can better flow into clinical registries, allowing for optometry to become a more integral part of the healthcare system in this country.

To solve this dilemma, registries on FHIR were created as a project of NQRN’s interoperability work group. The work group was launched in collaboration with Dr. Tcheng, Duke Clinical Research Institute (DCRI), the Medical Device Epidemiology Network (MDEpiNet), and Health Level Seven International (HL7) and hopes to show the value of common clinical data elements in registries to improve interoperability.

The Centers for Medicare and Medicaid Services (CMS) is committed to working with registries on FHIR to solve this problem, but no one knows what the future will bring.

Join a registry

This information can be confusing to ODs who are not involved in the administration of these programs and services. I suggest connecting with optometry colleagues in your area who have more knowledge and experience with industry registries.

In-person conversations are perhaps the best way to learn about the growing clinical data challenges.

For ODs to truly understand and become part of the growing clinical data landscape, they must join a registry and fully become part of the growing health-care system.

Dr. Wong is a Diplomate of the American Board of Optometry and a member of the AOA Ethics committee and ASCO Ethics SIG. tw@georgetown.edu
How to calculate the value of your practice

Many ODs want to know what their practices are worth. As private equity continues a frantic pace in practice acquisition, this question will likely be asked more often.

So, what is your practice worth?

Calculating value

No exact science or calculation exists to determine the value of your practice. Numerous factors come into consideration, such as location, facilities, existing doctors, and whether the selling OD is staying after the sale. Other factors include key staff, gross sales, net sales, existing contracts, and suppliers.

The buyer also plays a large role in practice valuation. Buyers are buying for a financial reason or a strategic reason. Typically, buyers purchasing practices for strategic reasons will offer a higher dollar amount.

One of the easiest numbers to use as a benchmark is sales price as a percentage of collections. In the past 18 months, I have seen this range from 35 percent to 125 percent of a practice’s one-year gross collections.

The other number used is multiple of earnings. In this category, we see a range from 4 to 7 times earnings before interest taxes depreciation and amortization (EBITDA).

Prepare accordingly

Practices that have sold for higher percentages or multiples are well run and have a strategy to increase their value. It is important to have a plan in place before deciding to sell a practice.

Many practice owners wait until they must sell to start asking questions on how to prepare and sell their practices. Waiting late to begin preparing to sell can lead to a bad situation and may result in a lower selling price. Everyone will exit their practices at some point—the sooner you set the exit plan and strategy, the better.

Financial performance key

The primary driver of practice valuation is financial performance. Unfortunately, this is an area that many ODs do not fully understand, and they are often disappointed in the valuations determined for their offices. Without getting into detail on EBITDA and calculations, here is a quick look at two practices with different financial performances.

Practice 1. Total collections are $1 million, and total EBITDA for the practice is $240,000. If we assume that the doctor will be paid $150,000 in salary after the sale, it leaves $90,000 in earnings. With a multiple range of 4 to 7 times of $90,000 in earnings, the practice valuation would be between $360,000 to $630,000.

Practice 2. Total collections are $1 million and the total EBITDA for the practice is $350,000. If we assume that the doctor will be paid $150,000 in salary after the sale, it leaves $200,000 in earnings. With a multiple range of 4 to 7 times the $200,000 in earnings, the practice valuation would be between $800,000 and $1,400,000.

As you can see, the range of possible purchase prices can be dramatically different based on the financial performance of the practice. Both examples above would typically be in the 4 to 5 times multiple range unless the buyer has a strategic need to buy the practice.

All the other factors mentioned earlier will also impact the final purchase price.

Increase your practice’s value

It is critical to start early to build the value of the practice by working to improve all value drivers. When I work with practices, we use a “foundation of eight” value-building principles that are areas to consider and help increase the worth of a business (see box below). John Warrillow mentions these eight principles in his Value Builder System, a guide for selling any business.

These areas of driving value are not unique to optometry but are universal across all small businesses. By focusing on areas that help drive value, you will naturally increase financial performance and enhance the other factors taken into consideration when determining the final purchase price.

Ultimately, your practice is worth what someone is willing to pay. Instead of asking, “What is my practice worth,” the question you should be asking is, “What am I doing to increase the value of my practice?”

8 value-building principles

1. Financial performance: How are you doing financially?
2. Growth potential: What are the opportunities for growth?
3. Switzerland structure: Are you too dependent on one customer, supplier, doctor, staff, or vendor?
4. Valuation teeter-totter: How is your cash flow?
5. Recurring revenue: Do you have any subscription recurring revenue streams?
6. Monopoly control: Do you have control over a geography or service in your area?
7. Customer score: How do your customers rate you?
8. Hub and spoke: How dependent is the business on the owner for services or decisions?

REFERENCE


Dr. Spear is commander of the 919th Special Operations Medical Squadron at Duke Field in Florida and chairman of the American Academy of Optometry Exhibits Committee. He consults for Alcon and Vision Source.

spear@gmail.com
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Images representative of clinical trial results, individual results may vary.

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8 questions to ask before your next CE class

Consider how education advances your learning before registering

By Michael W. Ohlson, OD, FAAO

Optometrists choose continuing education (CE) for a variety of reasons, all of which have merit. (See box on page 18 for a list of common factors.) Rather than choosing CE based on cost or location, ODs should be asking how each CE instance advances their learning or their practices.

Traditionally, CE requires mandated “seat time” or passive education. Doctors travel to meetings for live lectures, listening to topics and speakers selected by meeting committees. These events allow access to topical information, pleasant and useful interaction with lecturers and colleagues, contact with vendors in exhibit halls, and attendance in meetings held for other purposes.

Regulatory agencies require a number of hours to be completed over one to three years, depending on state scope of practice. Some states require ODs attain CE on certain topics, such as ethics, dependent abuse, ocular disease, and other categories. Credentialing entities (certifications) and institutions often require other specified or additional hours of CE; such hours may or may not cross over to licensure requirements, an understandable concern for physician learners.

ODs should ask these eight questions before signing up for CE.

1. **What do I seek to learn?**

Optometric practices can vary dramatically in practice setting, patient populations, and doctor interests or specializations. This breadth of care provides richness and variety to our practices.

However, such developments necessitate a variety of curricula aimed at specified target audiences. Individual interests and concerns vary as well. A doctor seeking new information on pediatrics and vision therapy may be poorly served by attending 20 hours of CE devoted to contact lenses and disease, for example, if the goal is only to punch a paper card.

2. **What do I need to learn?**

The obvious answer is that doctors need to attain knowledge and skills relevant to their individual practices; however, it can be problematic to effectively address such needs.

While physician learners strongly believe they can correctly assess their own weaknesses and strengths, research demonstrates that to be unlikely; a systemic review found that physicians are quite limited in their abilities to self-assess competencies.¹

In addition, those physicians performing the least well via external assessment generally assess their competencies with the least accuracy, an inverse relationship.² Lately, physician learning efforts are evolving toward increasing self-awareness, better educational techniques, and a focus on outcomes.²

Although negligence and malpractice are low occurrences in optometry,¹ the profession’s systemic nature of care and expanding scopes of practice require awareness of trends in continuing professional development, educated reflection, and professional behaviors/strategies.

ODs are held to medical standards of care for diagnosis and treatment. Thus, strong knowledge and performance in practice is required with regard to clinical optometry, systemic disease, ocular disease, and principles of diagnosis.

In addition, ODs in academic and healthcare institutions can benefit from CE aimed at creating change, such as engaging clinicians and staff in organizational priorities, functional team-building, and increased well-being.³

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**TABLE 1** Continuing education methods

<table>
<thead>
<tr>
<th>METHOD</th>
<th>CHARACTERISTICS</th>
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</thead>
<tbody>
<tr>
<td>Audience response</td>
<td>Type of interaction with live/discussion group</td>
</tr>
<tr>
<td>Case-based learning</td>
<td>Actual/authored cases highlighting learning objectives</td>
</tr>
<tr>
<td>Disorders of visual fixation</td>
<td>Vision loss, seesaw nystagmus, drug toxicity</td>
</tr>
<tr>
<td>Discussion group</td>
<td>Shared readings or experiences</td>
</tr>
<tr>
<td>Feedback</td>
<td>Provision of information about individual performance</td>
</tr>
<tr>
<td>Lecture</td>
<td>Presents information, addresses knowledge</td>
</tr>
<tr>
<td>Mentor</td>
<td>Developmental relationship, the more experienced helps those of less experience</td>
</tr>
<tr>
<td>Point of care</td>
<td>Decision-making information provided at time of clinical need</td>
</tr>
<tr>
<td>Problem-based learning</td>
<td>Collaboratively solve problems/scenarios and reflect upon experiences</td>
</tr>
<tr>
<td>Readings</td>
<td>Addresses knowledge/background</td>
</tr>
<tr>
<td>Simulation</td>
<td>Decision-making and skill improvement via standardized patient, computer simulation, virtual reality</td>
</tr>
<tr>
<td>Standardized patient</td>
<td>Communication and physical examination skills</td>
</tr>
<tr>
<td>Writing</td>
<td>Knowledge skills or assessment</td>
</tr>
</tbody>
</table>

3 Is the CE evidence based and free of bias?

Evidence-based medicine (EBM) has become a common paradigm in health care. However, the idea of practice based on research-based evidence free of bias is straightforward. While EBM can present dilemmas, such as misappropriations or distortions via other interests, overestimations of potential treatment benefits via trial design, or overemphasis on algorithmic rules, it’s likely the focus on high-quality evidence will continue. In primary care, Ebell found 18 percent of recommendations to be based upon high-quality, patient-oriented (improved health outcomes, morbidity, mortality, quality of life, symptom reduction) evidence. In eye care, Lai et al found that randomized controlled trial (RCT) evidence supported about 43 percent of ophthalmology interventions. Concern for rational thought and elimination of bias is not unreasonable. In the U.S., only about 55 percent of needed care is delivered.

See CE questions on page 18

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**TABLE 2** Framework for planning and assessing CME

<table>
<thead>
<tr>
<th>FRAMEWORK</th>
<th>DESCRIPTION</th>
<th>SOURCE OF DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>Number of learners</td>
<td>Attendance records</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>Expectations met?</td>
<td>Questionnaires</td>
</tr>
<tr>
<td>Declarative knowledge</td>
<td>State what to know</td>
<td>Pre- and post-tests, self-reporting (Knows)</td>
</tr>
<tr>
<td>Procedural knowledge</td>
<td>State how to do</td>
<td>Pre- and post-tests, self-reporting (Knows how)</td>
</tr>
<tr>
<td>Competence</td>
<td>Show how to do</td>
<td>Observation, self-reporting (Shows how)</td>
</tr>
<tr>
<td>Performance</td>
<td>Do in practice</td>
<td>Charts, databases, self-reports (Does)</td>
</tr>
<tr>
<td>Patient health</td>
<td>Patient health status improves</td>
<td>Charts, databases, patient reports</td>
</tr>
<tr>
<td>Community health</td>
<td>Health status of community improves</td>
<td>Epidemiological data</td>
</tr>
</tbody>
</table>

while 30 percent of services are deemed unnecessary; physician decision-making plays a significant role in costs.³

Even when RCTs contradict highly-cited observational studies (such as vitamin E for cardiovascular disease), changes in practice can be slow due to defense of the observational associations, delays in reduction of citations, or favorable citations of the contradicted articles (“wish bias”).²⁶

### Is the CE free of industry influence?

- Removing commercial influence from CE would appear to be common sense, but many regulatory agencies accept unaccredited CE with assumptions of quality. Such decisions may be unwise in an era of accountability, transparency, and high expectations. The literature describes the effectiveness of CE on the alteration of physician prescribing habits.¹

The public, physician learners, and the profession do not benefit from a lack of standards for commercial support of CE. The Senate Finance Committee Report of 2007, critical of medicine’s continuing medical education (CME), specified expectations for commercial support.¹² CME/CE accreditation entities of medicine, followed by nursing, pharmacy, and optometry, implemented revised or new standards for commercial support of CME/CE shortly thereafter. This common interprofessional standard has also gained international recognition with the standards for commercial support having been adopted by accredited in Europe, Canada, Oman, and Qatar.¹¹

### Is the delivery method appropriate for the learner, topic, goal?

Lectures offer convenience, and this method will likely continue as an element of CE. However, learning procedures require supervised practice. For topics such as scleral contact lenses, vision therapy, lasers, gonioscopy, and scleral depression, there is no substitute for supervised training, demonstrating competency, and following up with performance in practice.

Online learning may be a viable method for CE. Casebeer found that physicians participating in online, case-based, interactive were more likely to make evidence-based clinical choices than non-participants.²⁴ A pilot study using a needs-based, online module on managing hand trauma appeared to be effective at increasing knowledge.²⁵ Ryan reported that online CME appeared to be equally effective as face-to-face delivery in the treatment and management of opioid dependence given the utilization of sound educational principles.²⁶

### How do I learn?

According to Knowles’ six principles, adult learners:²³

- Are results-oriented
- Are autonomous and self-directed
- Need to connect life experiences and knowledge to the new content
- Require motive or need to learn
- Learn best with realistic or real-life contexts
- Are best motivated when they can solve significant problems in their work

ODs would certainly fall into this category of learner. Along these lines, self-directed learning in the clinic via point-of-care information services (such as UpToDate or eMedicine) may have promise for a differing type of learner-centered, effective CE.²⁷

### Factors to consider in choosing CE

- Topics
- Lecturers
- Time away from the practice
- Expense of fees, travel, and housing
- Convenience
- Location
- Networking opportunities
- Contact with vendors
- Social and vacation activities
- Needed support for local, state, regional, and national associations or other professional groups

### Table 3 Interprofessional education benefits and barriers

<table>
<thead>
<tr>
<th>BENEFITS</th>
<th>BARRIERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Works to improve quality of care</td>
<td>Differences in histories, cultures, languages, jargon</td>
</tr>
<tr>
<td>Promotes collaboration</td>
<td>Interprofessional, intraprofessional rivalries</td>
</tr>
<tr>
<td>Encourages professions to learn with, from, and about one another</td>
<td>Differences in requirements, regulations of professional education</td>
</tr>
<tr>
<td>Respects integrity and contributions of each profession</td>
<td>Fears of diluted professional identity</td>
</tr>
<tr>
<td>Increases professional satisfaction</td>
<td>Concerns regarding clinical responsibility</td>
</tr>
</tbody>
</table>


### Is the CE effective in increasing knowledge, performance in practice, patient outcomes?

Simple information transfer does not represent the goal of modern CE. The Internet provides quick access to information to both physicians and patients. In addition, the amount of medical literature is growing at an exponential rate; keeping up on more information may be impossible. While the time to double medical knowledge in 2010 was estimated at 3.5 years, the doubling time may be 73 days by 2020.²⁷

To be effective, CE should be based on well-designed educational needs assessments of target audiences via discrepancy or “gap” analysis (current conditions, topics, or dilemmas in practice vs. ideal practice or situation).²⁸ Several trends are consistent in the literature.

The evidenced-based educational guidelines of the American College of Chest Physicians recommended live and multimedia approaches with multiple instructional techniques and multiple exposures to improve practice performance; single print media was found to be ineffective.²⁹

Cervano and Gaines stated CE could be effective in improving physician performance and patient outcomes when activities are interactive, involve multiple exposures, take place over time, and are focused on outcomes considered important by physicians.²²

To assure ongoing competence, performance, and improved patient health, Moore et al developed an approach for CME/CE providers using integrated and continuous planning and assessment focused on outcomes, recognizing the importance of engaging learners, reinforcing activities and materials, and developing a supportive framework to develop skills.²⁴
CME planning and assessment has been formulated (Table 2). This learner-and outcomes-based approach has become the standard for CME/CE in medicine, pharmacy, nursing, and other medical specialties. In short, CE should be focused on the achievement of attaining specified, desired, positive outcomes.

Is the CE team based? The current trend of interprofessional collaboration (IPC) may provide an opportunity to further such recognition while improving patient outcomes, bettering public health, and decreasing costs. Improved communication and teamwork, good working relationships, coordination of care, and patient-centered approaches are trends unlikely to diminish.

Looking ahead
The accredited CE of optometry is evolving along with the CME/CE of other healthcare professions. Since the implementation in 1993 of the Council on Optometric Practitioner Education (COPE) Standards for Commercial Support of Optometric Continuing Education, two other notable accomplishments have occurred.

In 2017, COPE was recognized for substantial equivalence with the accredited CME of the Accreditation Council for Continuing Medical Education, an important step for optometry.

CE should be focused on the achievement of attaining specified, desired, positive outcomes

In 2018, COPE was included in Joint Accreditation for Interprofessional Continuing Education, alongside medicine, nursing, pharmacy, and physician assistants. This provides unified application processes and accreditation standards to CE providers; the opportunity to learn with, from, and about other professions to enable collaboration among all learners; and improved health care delivery and outcomes to patients.

There is little doubt that the opportunities of more effective and interprofessional CE involve new challenges for stakeholders such as physician learners, CE providers, and regulatory agencies. As an aspect of professionalism, all ODs have the duty to take active roles in their continuing competence and a reflective attitude toward contemporary CE.

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Dr. Ohlson practices in Minnesota with Avera Medical Group and across Iowa as the low vision consultant to the Iowa Educational Services for the Blind & Visually Impaired. He maintains Diplomate status in the Comprehensive Eye Care Section of the American Academy of Optometry and certification by the American Board of Certification in Medical Optometry. He enjoys spending time with his wife Joleen and their daughter Samantha. Michael.Ohlson@avera.org.
How students learn perioperative care

Mandatory rotation exposes students to business, clinical aspects of

By Kyle A. Sandberg, OD, FAAO

At the Rosenberg School of Optometry (RSO) at the University of the Incarnate Word (UIW) in San Antonio, all fourth-year students participate in a mandatory perioperative care rotation—to my knowledge, the only such program in the country. The goal is to expose 100 percent of optometric interns to the clinical and business concerns involved in comanaging surgical care.

Knowledge of perioperative care is essential for those who want to practice full-scope optometry or plan to work in an OD-MD group practice. At minimum, a primary-care optometrist should be able to advise patients on their options and make a referral to a good surgeon. It is even better if the optometrist can actively participate in their patients’ perioperative care.

The rotation

During their fourth year, students participate in two external clinical rotations as well as one semester in-house, which includes the perioperative rotation at Parkhurst NuVision, an independent cataract and refractive surgery practice that leases space inside the UIW Eye Institute (see Figure 1).

During the four-week perioperative rotation, students have the opportunity to observe cataract surgery, laser vision correction (including the new small-incision lenticule extraction [SMILE] surgery), as well as other forms of refractive surgery, such as corneal inlays and phakic intraocular lenses (IOLs).

Students may also participate in the care of patients undergoing Nd:YAG capsulotomy, phototherapeutic keratectomy (PTK), corneal crosslinking, selective laser trabeculoplasty (SLT), or implantation of a trabecular microbypass system for the treatment of glaucoma. The practice is a busy clinical trial site, so students sometimes get to work with new technologies prior to U.S. Food and Drug Administration (FDA) approval.

With the supervision of RSO faculty and Parkhurst NuVision Greg Parkhurst, MD, and Bobby Saenz, OD, interns conduct preoperative and postoperative exams, which allows them to hear directly from patients about concerns and motivations prior to surgery. Postoperatively, interns see firsthand the impact of surgery and patients’ reaction to their new vision. I am convinced this experience is far more valuable than watching hours of surgical procedure videos.

Parkhurst NuVision is a referral-based surgical practice that doesn’t offer primary care or optical services. Here, students are exposed to elective refractive patients who are often paying out of pocket, have high expectations, and have been referred by private-practice optometrists. When those same students rotate through RSO’s outpatient surgery service, they have the chance to see patients in another location, an underserved part of the city with patients exhibiting advanced cataracts and complex disease states.

For many students, the perioperative rotation is their first exposure to new technologies revolutionizing cataract surgery, such as multifocal and extended-depth-of-focus IOLs and precision surgical tools like femtosecond lasers. Faculty stresses the importance of learning perioperative care, as it prepares students to manage relationships with MDs after graduation.
Perioperative care
Continued from page 21

tance of primary-care optometrists learning about these technologies so ODs can better counsel patients and set expectations for the surgery center.

The rotation may also be the first time students have been required to have a “medical mindset.” Students must be available for patient questions or emergencies in the evenings and must set aside time on a Saturday morning to see Friday’s surgical patients, rather than limit appointments to traditional business hours.

Patient communication is a huge part of what we teach students and one of the most valuable lessons they take with them from the program. I tell students that their foremost role at every postoperative appointment is to reassure the patient. What is routine to us as practitioners is a once-in-a-lifetime event for the patient, who may be extremely anxious.

For example, we saw a patient who had 20/20/1 vision one week after implantation of a presbyopia-correcting IOL but was worried that something might still go wrong. She breathed a sigh of relief when the doctor told her, “Everything looks great.” That is why it is important to reassure patients that their eyes look good and their symptoms (if any) are normal. If anything is not normal, we want the patient to know we can identify the problem and have a plan for managing it.

The business of comanagement
Helping young optometrists understand the ins and outs of the business relationships they may have with surgeons is just as important to the program as imparting clinical knowledge.

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Figure 2. Students observing a LASIK surgery in the on-campus surgical suite.

Figure 3. Dr. Parkhurst marking an eye before cataract surgery as a student intern looks on.
I tell students to keep in mind that they cannot legally be compensated for a referral alone, but they absolutely should be compensated for legitimate perioperative care.

The most important criterion for a surgical partner is the ability to perform excellent surgery with state-of-the-art technology. In a sparsely populated area, the optometrist may not have a lot of choices. The patient’s well-being has to come first—whether the surgeon is “OD-friendly” or not. But in most markets, optometrists should seek out fruitful relationships with surgeons who respect optometry’s role, support ODs by returning patients to them, and achieve first-rate surgical outcomes (see “Characteristics of the ideal comanagement partner” box).

It is important for ODs to know what range of procedures their comanaging surgeons perform and what technologies they believe in. Understand why they choose the IOLs they implant most frequently and what their laser vision correction results are. Price is important to patients, but the cheapest price does not mean good value if patients don’t get the outcomes they desire.

Communication and respect are important. Our surgical partners should be willing to provide education on new procedures and technologies, welcome ODs to their surgery centers to observe surgery, and answer questions about patient symptoms or postoperative regimens. There should be a clear understanding of when patients will be returned to the referring optometrist.

In my experience, ophthalmologists who care about their OD relationships put systems in place to generate notes back to the referring doctor and to ensure a smooth handoff for postoperative care. In addition, ODs must have systems in place to ensure MDs receive postoperative notes.

Comanagement a net positive
My colleagues at RSO and Parkhurst NuVision agree that comanagement helps optometrists become financially more independent and moves them up the ladder from providing not just vision correction but also medical eye care and integrated surgical care. In our experiences, this provides the practice with a higher return on investment and greater patient loyalty.

We look to instill a philosophy that is consistent with the optometric oath, which states that the optometrist will “place the treatment of those who seek care above personal gain” and “advise patients fully and honestly of all which may serve to restore, maintain, or enhance their vision and general health.”

Today, a full and honest discussion with most patients has to include refractive surgery. Procedures are now available with excellent results for patients at every age and level of refractive error. For some patients, including contact lens abusers, athletes, those with extreme ametropia, military combat personnel, and heavy travelers, refractive surgery may be the

See Perioperative care on page 24

Characteristics of the ideal comanagement partner

- Excellent surgical outcomes
- Consultative demonstrations
- State-of-the-art technology
- Support for optometry
  - Returns patients
  - No optical
  - Training and communication
- Patient experience
- Cost/value

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Perioperative care
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best solution for their vision needs. Beyond the ethical reasons for discussing surgical options, doing so makes good business sense. Optometrists can derive significant revenue from participating in surgical care and can then continue to see patients for regular examinations and medical eye care.

In addition, not discussing surgical options only hurts the optometrist. In a 2012 survey of contact lens wearers, 46.8 percent of respondents said they were at least considering refractive surgery. Certainly, not all of those patients will go on to have surgery. But those who do rank refractive surgery among their top life experiences—the kind of thing they post on social media and tell all their friends. Comanaging optometrists can reap the rewards of patient satisfaction and word of mouth when they participate actively in that surgical experience.

At RSO, we are excited about our perioperative rotation and what it means for our graduates’ understanding of surgical options, surgical care, and the benefits of comanagement during their optometric careers.

REFERENCE

Dr. Sandberg is chief of refractive surgery and laser services and chief of the outpatient surgery service at the Rosenberg School of Optometry. He enjoys golf and travel, and he is the drummer for the all-OD rock band The Spectacles. Dr. Sandberg serves as a consultant to Shire. ksandber@uiwtx.edu
I believe, after years of study and personal experience, that my future success in business and in patient outcomes depends on my commitment to creating a "practice of distinction". A key element to creating a practice of distinction is providing patients with the highest level of eye care possible – this includes contact lens care. I’ll be the first to admit that lens care solutions didn’t always rank high on my list of priorities in creating a practice of distinction, because so few of my patients expressed any enthusiasm about the different solutions. However, now that I've started strongly recommending CLEAR CARE® PLUS Cleaning & Disinfecting Solution, my patients regularly say that their lenses are comfortable and their lenses feel like new every day. They’re also saying something that makes my day every time: “Thanks, Advanced Eyecare Specialists!”

What makes my patients so happy about CLEAR CARE® PLUS? First, CLEAR CARE® PLUS is easy for them to use. Many eye care professionals, myself included, formed our initial impressions of peroxide solutions based on older formulations that were difficult to use. Today, my patients let me know how intuitive and easy it is to incorporate CLEAR CARE® PLUS into their daily lens care routine; the bubbling action provides an unmistakable signal that the solution is working. Recently, a mom told me that since her son switched to CLEAR CARE® PLUS, he’s become much better at cleaning his contact lenses every single day, and that she feels reassured knowing that her son is properly caring for his lenses and his eyes.

I have found that when my patients are compliant with proper lens care, they are more likely to have a comfortable lens-wearing experience. This is of particular importance given that nearly 6 million people in the U.S. discontinue wearing contact lenses every year. One of the major reasons is discomfort. Unfortunately, of the more than 40 million contact lens wearers in the U.S., 99% report at least one poor contact lens hygiene behavior, such as topping off their multi-purpose solution (MPS) rather than fully replacing it. My experience has also shown me that patients are more compliant with CLEAR CARE® than with MPS, and this is consistent with a study which found that CLEAR CARE® users are more compliant with directions for use as compared to MPS users.

Further contributing to a positive lens-wearing experience for my patients, CLEAR CARE® PLUS includes HydraGlyde® Moisture Matrix, which helps to provide long-lasting moisture and outstanding end-of-day comfort. CLEAR CARE® PLUS provides triple action cleaning, which loosens dirt, deep cleans, and has bubbles to enhance protein removal. CLEAR CARE® PLUS also offers unsurpassed disinfection, killing 99% of microorganisms on contact lenses, including Acanthamoeba cysts and trophozoites.

Overall, the ease of use, comfort, and disinfecting efficacy of CLEAR CARE® PLUS is not only beneficial for my patients, but also for my practice. Alcon has developed a range of great educational resources such as online videos that can help you educate patients on the benefits of CLEAR CARE® PLUS, and how to use it.

I have been so impressed with CLEAR CARE® PLUS that I even have my family using it. Like so many patients in my practice, my family members tell me how this solution helps make their contact lenses feel like new. I am confident that you will get the same kind of enthusiastic reaction from your own patients, helping to set your practice apart as one of distinction!

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How diabetes affects your patients

Continued from page 1

pected to increase as the prevalence of type 2 diabetes (T2DM) continues to climb. DR is a major cause of blindness in the United States. Diagnosis and treatment of DR focus on vascular abnormalities that appear at later stages of the disease.

DR is diagnosed in five stages. The first stage is “no apparent retinopathy.” As the name implies, there are no diabetic fundus changes.

The second stage is “mild non-proliferative retinopathy” (NPDR). This stage is characterized by the presence of a few microaneurysms.

The third stage is “moderate NPDR,” which is characterized by the presence of microaneurysms, intraretinal hemorrhages, or venous beading (VB) that do not reach the severity of the standard diabetes photographs 2B, 6A and 8A.

The fourth stage—severe NPDR—is the key level to identify. Data from the Early Treatment Diabetic Retinopathy Study (ETDRS) has shown that eyes in patients with T2DM that reach severe NPDR have a 50 percent chance of developing high risk characteristics if laser treatment is not instituted.

The diagnosis of severe NPDR is based on the 4:2:1 rule of the ETDRS. Using standard diabetes photographs 2B, 6A and 8A to compare with fundus findings, optometrists can easily diagnose severe NPDR.

If hemorrhages of at least the magnitude of standard diabetes photograph 2B are present in all four quadrants, then by definition severe NPDR is present. If two or more quadrants have venous beading (VB) of the same magnitude or greater than standard photograph 6A, then by definition severe NPDR is present. If one or more quadrants has intraretinal microvascular abnormalities (IRMA) of the same magnitude or greater than standard diabetes photograph 8A, then by definition severe NPDR is present.

The final stage is “proliferative diabetic retinopathy” (PDR). PDR is characterized by neovascularization of the disc, neovascularization of the macula, presence of microaneurysms, intraretinal hemorrhages, or venous beading (VB) that do not reach the severity of the standard diabetes photographs 2B, 6A and 8A.

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By the numbers

Globally, **347 million** people have diabetes mellitus (DM) and more than **80%** of diabetes deaths occur in low and middle income countries.**1** Around **366 million** people are estimated to have diabetes mellitus by 2030 and the increase in adult diabetes is estimated to be far more (69 percent) in developing countries than in developed countries (20 percent).**1,2** Overall, **21.7 million** U.S. adults aged 18 and over (9.2 percent) have diagnosed diabetes and the percentage increases with age.**3** One in five adults aged 65 and over (20.5 percent, or 8.7 million) has diagnosed diabetes, compared with **11%** (11.3 million) aged 40–64 and **1.9%** (1.7 million) aged 18–39.**4**

Managing diabetes

Continued from page 25

Many of these agents, in the form of intraocular injections or sustained delivery devices, have already undergone clinical trial testing for safety and efficacy and others, such as avacincaptad (Zimura, Ophthotech) are currently being evaluated.

Gestational diabetes

Gestational diabetes is a type of diabetes that is first seen in a pregnant woman who did not have diabetes before she was pregnant. Gestational diabetes usually manifests itself in the middle of a pregnancy. Doctors test for it between 24 and 28 weeks of pregnancy.

Women who have had gestational diabetes have a 35 percent to 60 percent chance of developing T2DM in the next 10 to 20 years. Updated criteria for diagnosing gestational diabetes will increase the proportion of women diagnosed with gestational diabetes. Using these criteria, an international, multicenter study of gestational diabetes found that 18 percent of the pregnancies were affected by gestational diabetes.**1**

Gestational diabetes may be an independent risk factor for cataracts later in life, although the risks are greatest for women who subsequently develop T2DM.

Cataracts

The number of people with DM is increasing,**13** and cataracts are one of the most common causes of visual impairment in these patients.**13** The incidence of cataracts in insulin-dependent, non-insulin-treated, and insulin-treated non-insulin-dependent diabetics were 7.1, 11.7, and 17.8 per 1000 person-years, respectively. Cataract was four times more common in diabetics and twice more frequent in men.**13** It was found that the risks for cortical cataracts (CC) and posterior subcapsular cataracts (PSC) were elevated for patients with T2DM.**14** Advances in cataract surgical techniques and instrumentation have improved outcomes; however, surgery may not be safe and effective in certain individuals with pre-existing retinal pathology or limited visual potential, according to the Wisconsin Epidemiologic Study of Diabetic Retinopathy.**13**

Glaucoma

The relationship between diabetes and open-angle glaucoma (the most common type of
glaucoma), has intrigued researchers for years. People with diabetes are twice as likely to develop glaucoma as are non-diabetics, although current research is beginning to call this into question.17

Neovascular glaucoma, a rare type of glaucoma, is always associated with other abnormalities, diabetes being the most common. Neovascular glaucoma can occur if these new blood vessels grow on the iris close off the fluid flow in the eye and raise intraocular pressure (IOP).17

The number of patients with DM is increasing, and the need for proper diabetic eyecare will only escalate in the future, which presents an opportunity for ODs.

Dry eye
Patients with DM have an increased risk of dry eye. The diabetic patient has decreased tear break-up time, Schirmer’s test values, and corneal sensitivity as well as increased fluorescein and lissamine green staining.18,19

In diabetes, damage to the microvasculature feeding the lacrimal gland together with autonomic neuropathy of the lacrimal gland—both of which occur early in the course of diabetes—may contribute to impaired function of the gland.20

Sorbitol accumulation within cells can lead to cellular edema and dysfunction, which causes lacrimal gland damage and dysfunction and decreased tear secretion.21

Decreased corneal sensitivity is a clinical manifestation of diabetic keratoplasty. Furthermore, reduced corneal sensation can also lead to a reduced blink rate and increased tear evaporation.22 These potential mechanisms induce DED in diabetic patients.

Diabetes and eye care
A comprehensive eye examination by an optometrist or ophthalmologist annually or biannually at minimum to identify changes in the blood vessels of the retina is recommended for persons with diabetes.3

The number of patients with DM is increasing, and the need for proper diabetic eyecare will only escalate in the future. This situation presents an opportunity for optometrists to serve as primary eyecare providers for these patients. Optometrists need to be proactive in keeping up with new technology and treatment so they can serve these patients with the most up-to-date options.

See Managing diabetes on page 28

By the numbers
Diabetes was the 7th leading cause of death in the United States in 2013 (and may be underreported). Diabetes is the leading cause of kidney failure, lower-limb amputations, and adult-onset blindness. More than 20% of health care spending is for people with diagnosed diabetes.

The total estimated cost of diagnosed diabetes in 2012 was $245 BILLION, including $176 BILLION in direct medical costs and $69 BILLION in decreased productivity.

Decreased productivity includes costs associated with people being absent from work, being less productive while at work, or not being able to work at all because of diabetes.
Managing diabetes
Continued from page 27

REFERENCES

Dr. Mashida practices medical eye care and launched the Diabetic Eye Center in Utah in 2000. He spends time golfing, enjoys photography, and likes to tink with cars.
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Shalu Pal, OD, FAAO  
Toronto, Ontario, Canada

Practicing in Canada, contact lenses, and riding motorcycles

Q: What got you into contact lenses? At Southern California College of Optometry, Dr. Sunny Sanders worked with prosthetics, and I loved what she was doing. So, I went in on weekends to spend time with her, and I saw the impact she had on her patients. I hung out more with my faculty members who were strong in contact lenses, and the passion grew.

Q: Why are you interested in gas permeable (GP) contact lenses? Because of how they can transform vision. When patients are unable to get good correction with glasses and surgery is their only option, they are able to achieve better results with a GP lens. We reshape the cornea and transform the optics, saving someone from needing a corneal transplant. So, for someone post-surgery or post-trauma or with corneal disease who has been told, “There’s not much we can do”—GP s can change his life.

Q: What’s something your colleagues don’t know about you? Years ago, my dad had a motorcycle. One day, I was on the bike of friend, and I said, “The next time we go out riding, I’m going to be driving.” He laughed at me. I started taking lessons the next weekend, and I was hooked. Being out on the road is liberating. Right now I’m riding a Suzuki GSX-R750. It does everything I need it to do.

Q: What inspired you to get involved with leadership? During my first week of optometry school, I was approached about becoming American Optometric Student Association (AOSA) Trustee-elect. One of my biggest influences was Dr. Harue Marsden, who was a big advocate for our profession. She showed me how much we can achieve when we work together and the benefits of giving back. So, I continued to stay involved even after I graduated and after I moved back to Canada; I am still involved with U.S. associations.

Q: What do you advise OD students wanting to get involved in leadership? We can each give something back. You can contribute in many ways; it doesn’t need to be financial or time. It can also give you so much back in networking and helping to protect what people before us created us. Say “yes” to opportunities, but realize the value of why we are helping to secure our future. There are different levels—local, state, or national level, and provincial or national level in Canada. Give back any way you can to make the workload easier by having more people contribute.

Q: How does practicing in Canada differ from the U.S.? Billing is the big difference. It’s much simpler up here because we don’t have as many insurance difficulties. Most of our billing is direct billing to the patient, so it’s easier. From an optometry standpoint, we can do the exact same things as ODs in the U.S.

Q: What is your guilty pleasure food? I’m a salty person. Sour cream and onion chips with old cheddar cheese. That sounds crazy, but it is so good. [Laughs]

Q: Why did you move back to Canada? That was a hard decision. A lot of Canadian students studying in the U.S. go through same struggle. But it came to beyond my career—what’s going to make me happy? And thinking about it, I knew I needed to be close to my family, I wanted to live close to water, and I wanted to be close to an airport because I love to travel. I tried to bring my parents to California, but they wouldn’t budge. You get tired of missing birthdays and hearing things on the phone instead of being there in person. I knew that with the foundation I had in optometry, I was going to be able to set up something no matter where I went.

Q: What are the three best practices of an optometry practice? Number one is always do what’s best for the patient. When I make recommendations, I’m not thinking about costs; I’m thinking about what is the right thing to do? Number two is good customer service—I have filled my practice with happy people. We enjoy coming to work. Third is I do everything honesty and ethically.

Q: What’s the craziest thing you’ve ever done? Last January, I finally took a vacation. Two friends were getting married in Jamaica, and we went cliff diving. The adventure park has a series of little jumps, and we felt great that we did them. The highest was 10 feet. The guide came to the last jump, we looked down, oh no! My friends said I had to go first, but I wasn’t sure. A relative of the bride or groom, about age 65, just ran and jumped. I looked at my friends, said “OK,” and just did it. It was scary, but I felt incredible after I did it.

—Vernon Trollinger

To hear the full interview with Dr. Pal, listen online: optometrytimes.com/ShaluPal
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