By colleen Mccarthy

Online contact lens retailer 1-800 Contacts has long frustrated optometrists with its questionable practice of filling expired contact lens prescriptions, which puts patient safety at risk. The company recently hit the news with a new partnership agreement and an unrelated lawsuit filed by the Federal Trade Commission (FTC).

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Optometry’s rivals team up

1-800 Contacts has begun offering online refraction on its website, branding the partnership as “InstaRx powered by Opternative.” The site invites potential users to “stay home, eat some ice cream, and get a vision exam” to get their “prescription contacts online.”

By Mile Brujic, OD, fAAO, and David Kading, OD, fAAO

As summer winds down and the holidays begin to come into focus, it’s beneficial to take time to reevaluate the goals we set forth months prior. It’s time to take a look at how we’ve progressed in accomplishing them.

It seems like, all of a sudden, the end of the year sneaks up on us. It’s as if the year just began, we set our goals for our practice—

1-800 Contacts partners with Opternative, faces lawsuit from FTC

3 ways to reassess your goals heading into Q4

see Q4 goals on page 6

see 1-800 Contacts on page 7

Blepharitis is an inflammatory condition of the eyelids leading to red, irritated, itchy, and dandruff-like scales that form on the eyelashes. It is a common eye disorder caused by bacteria or a skin condition, such as dandruff of the scalp or acne rosacea.1 No matter the cause, the only way we can beat blepharitis is to determine the location as anterior, posterior, or mixed; differentiate among the causative factors, and treat according to the severity of the condition.

Follow these four steps to accurately diagnose blepharitis, educate patients on the condition, and better treat and manage blepharitis patients.

STEP 1

Differentiate and understand presentation differences

The first step in addressing blepharitis is to differentiate and understand the differences among the presentations. The term “blepharitis” has been referred to as anterior, posterior, or mixed. Determining the location of the blepharitis will help in choosing the correct treatment for the patient.

STEP 2

Differentiate among the causative factors

Once the location of the blepharitis is determined, the different causative factors can be addressed. The most common factors are: Demodex, Staphylococcus, Propionobacterium acnes, and viruses. Each of these factors can be treated differently, so it is important to differentiate among them.

STEP 3

Treat according to the severity of the condition

After the location and causative factors are determined, treatment can begin. Treatments include: Antibiotics, topical medications, and systemic treatments. The severity of the condition will determine which treatment is best for the patient.

STEP 4

Follow-up

After treatment has been started, it is important to follow up with the patient to see how they are doing. This will help in determining if the treatment is effective and if further treatment is needed.

4 STEPS TO BEATING BLEPHARITIS
You won’t find it if you aren’t looking for it

By Walter O. Whitley OD, MBA, FAAO, and Warren J. Whitley, OD

Blepharitis is an inflammatory condition of the eyelids leading to red, irritated, itchy, and dandruff-like scales that form on the eyelashes. It is a common eye disorder caused by bacteria or a skin condition, such as dandruff of the scalp or acne rosacea. No matter the cause, the only way we can beat blepharitis is to determine the location as anterior, posterior, or mixed; differentiate among the causative factors, and treat according to the severity of the condition.

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1-800 Contacts has begun offering online refraction on its website, branding the partnership as “InstaRx powered by Opternative.” The site invites potential users to “stay home, eat some ice cream, and get a vision exam” to get their “prescription contacts online.”

Opternative CEO Aaron Dallek told Optometry Times: “This partnership represents an important step in our efforts to break down the barriers to eye care and vision exams. It’s exciting to partner with a company that is leading the charge in making eye care more accessible.”

3 ways to reassess your goals heading into Q4

By Mile Brujic, OD, FAAO, and David Kading, OD, FAAO

As summer winds down and the holidays begin to come into focus, it’s beneficial to take time to reevaluate the goals we set forth months prior. It’s time to look at how we’ve progressed in accomplishing them.

It seems like, all of a sudden, the end of the year sneaks up on us. It’s as if the year just began, we set our goals for our practice—
For the 75% of dry eye patients worldwide with evaporative dry eye (MGD) symptoms¹...

SYSTANE® BALANCE Lubricant Eye Drops:
Protecting the Ocular Surface by Increasing Lipid Layer Thickness (LLT)

SYSTANE® BALANCE Lubricant Eye Drops forms a protective matrix that is designed to replenish the lipid layer for long-lasting relief from the symptoms associated with evaporative dry eye (MGD). This unique formulation is designed to work on all 3 layers of the tear film, specifically increasing LLT. This helps create a protective environment for the ocular surface.²

SYSTANE® Brand products are formulated for the temporary relief of burning and irritation due to dryness of the eye.

The recent news in our profession was an announced partnership between Opternative and 1-800 Contacts. With InStarRx powered by Opternative, customers can “stay home, eat some ice cream, and get a vision exam” according to the 1-800 Contacts website. The reaction throughout the optometric profession has been what would be expected. Take a look at our recent story.  

What do you expect from a partnership of two companies who have proven by their actions to not give a damn about the eye health of their customers and are out strictly to make a dollar? We’ve known for years that 1-800 will do whatever it takes in an attempt to skirt FDA patient safety device requirements the company sees as a barrier to sales. Opternative is similarly out to provide a service that deliberately misleads the public into thinking they are receiving a comprehensive eye exam when in fact the customer is receiving nothing more than a prescription for glasses or contact lenses, completely oblivious to any underlying ocular pathology. The partnering of these two companies may allow 1-800 to completely circumvent the laws in place to protect the public.

I recommend all optometrists take a look at the “Find a Doctor” page on Opternative’s website. This page allows registered users to enter their ZIP code to view a list of nearby eye doctors, giving users the impression that listed doctors are members of Opternative’s “telehealth team.” The AOA registered a complaint in October 2015 regarding this practice, having noticed a number of doctors on the website “had never sought nor desired inclusion in any Opternative panel.”

The founder of Opternative is on record saying he “remains hopeful that optometrists will someday be willing to partner with Opternative and bring the technology into their own practices.” Look, ODs aren’t afraid of disruptive technology. We realize that change is coming and we as a profession have to be willing to adapt to survive. Yet Opternative’s desire to partner with optometry has been dealt a severe blow by the company’s decision to partner with and be exploited by a company who by its repeated actions put profits above the eye health of the patients we serve.

The moral of an Aesop’s fable is a man known by the company he keeps. With this agreement, Opternative will be linked with 1-800-Contacts and may have torpedoes any intent of working with optometry.

REFERENCES

Interested in dry eye? Start on page 20 to see what we’ve got.
In 2016, Optometry Times is offering blogs from some of the leaders in the optometric profession. Haven’t read them yet? Here’s what you’re missing.

3 ways ODs can combat 1-800-EYE-EXAM
Dr. Carl Spear addresses the recent partnership between Opternative and 1-800 Contacts and offers his insights on what ODs can learn from this partnership and how to learn from it.

Dr. Tracy Schroeder Swartz outlines how many treatments currently in use for dry eye can also help sick corneas. She shares the story of a patient with a corneal abrasion which wouldn’t heal and how she looked to doxycycline, cyclopentolate, and autologous serum for help. Take a look.

Dr. Leslie O’Dell shares a harrowing tale about looking at her smartphone in the middle of the night—then thinking she went blind! After she frantically ran a differential, she realized her vision was gradually returning. Read her blog to find out how science explains this because your patients may experience it too.

By A. Paul Chous, MA, OD, FAAO

Wetiological factors. Patients who exercise at least 30 minutes per week with the goal of losing five to seven pounds per week have a reduced risk of developing diabetes within 15 years of this intervention.

Meaningful economic incentives to exercise. Although some medications decrease the risk of the occurrence of ophthalmic abnormalities associated with diabetes, there is no single magic bullet. Implementing these strategies and changing bad outcomes in real-time can improve the clinical experience.

Wakes up fast to address this multifactorial problem

Diabetes epidemic approaches

Shire OK’d for dry eye, Xiidra
By Gretchyn M. Bailey, NCLC, FAAO

OPTOMETRY TIMES delivers easily digested, practical information by ODs for ODs. This information can be immediately applied to improve the clinical experience of the next patient in your chair as well as your practice performance. In partnering with our readers, Optometry Times provides data, analysis, tools, and resources which are available whenever and wherever our readers want them.

ModernMedicine Network
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Coming soon,
VYZULTA™
(latanoprostene bunod ophthalmic solution) 0.024%

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In Focus

Q4 goals
Continued from page 1

then before we can blink, it’s time to start the process all over again. In some years, we don’t accomplish all the goals we have set for ourselves. When Q4 rolls around, it’s tempting to keep the focus on the upcoming year and simply roll over any unfinished tasks into the next list of goals.

Give yourself a couple of hours to think and create a report card before it’s too late to effect any change for the remainder of the year.

Alleviate end-of-year stresses by these three steps.

1 Stop and reflect
Don’t pull the numbers, don’t poll the team. Just reflect. What did you accomplish this year that you wanted to achieve? What goals have yet to make it to the finish line? These might be such goals as fitting more scleral contact lenses, making a major equipment purchase, or jumping into OCT. These items we can just stop, reflect about, and review if we have or haven’t achieved the desired goals set forth to date.

2 Dig into the numbers
Now that you know what you wanted to happen through the year, it’s time to see what actually happened to date. If you wanted to grow 10 percent from 1,000 exams a year to 1,100 exams per year (numbers are an example) and heading into Q4 you are at 675 exams, you need to see if you are making the necessary changes in order to grow according to the goal you set.

Sign up for a service such as Glimpse or Edge that can help easily track numbers rather than having to a pull big, long report from your electronic health record (EHR). Knowing your numbers can help you quickly and efficiently track set goals.

3 Map it out
Set a date to accomplish the task in Step One, and outline a road map to get there. For example, set up reminders to call the Optovue, Zeiss, or Heidelberg representative to come in to share OCT reports. If the numbers are not matching the set goals, then set a strategy to make it happen.

Next, work with your staff because they are key to helping you achieve your goals. Share the updated goals, review them along with the statistics to date, and set out a strategy to help achieve them together. When we strategize together, we can achieve success together. This ensures that everyone understands where we’re going and is on the same page moving forward.

In our case, our goals shifted. We had a large group of team members leave the practice. We refocused our efforts from our numbers growth to team growth instead, realizing that next year will be better if we invest in ourselves now.

It’s not too late to do the same in your practice. You can alter your course and re-focus your goals now with these three easy steps. End 2016 on a high note.

IN BRIEF

Dr. Brujic is cofounder of Optometric Insights, a service providing career coaching to optometry students. He graduated from the New England College of Optometry in 2002. brujic@prodigy.net
Dr. Kading disclosed speaking, research, or consulting relationships with Alcon, Allergan, Bausch + Lomb, Cantam, CooperVision, Paragon Vision Sciences, SynergEyes, Unilens, Valley Contax, Vistakon, and Visionary Optics. drdave@specialtyeye.com

Allergan acquires peri-ocular glaucoma ring technology

DUBLIN AND MENLO PARK, CA—Allergan plc and ForSight VISIONS, a privately held, clinical-stage biotechnology company focused on eye care, have entered into an agreement under which Allergan will acquire ForSight VISIONS.

Under the terms of the agreement, Allergan will acquire ForSight VISIONS for a $95 million upfront payment and a launch milestone payment related to ForSight’s lead development program, a peri-ocular ring designed for extended drug delivery and reducing elevated intraocular pressure (IOP) in glaucoma patients. The transaction is subject to the satisfaction of customary closing conditions and is expected to be completed by mid-October.

The ring is a preservative-free, non-invasive peri-ocular product that releases bimatoprost over multiple months to lower elevated IOP in glaucoma and ocular hypertensive patients.

According to Allergan, the most common treatment to lower elevated IOP in open-angle glaucoma is topical drop therapies. Many elderly patients experience difficulty with instilling drops, which may lead to poor adherence to medication regimens.

In 2015, ForSight shared results of its first randomized, controlled Phase 2 study comparing the ring to twice-daily timolol eye drops. Data showed that a single administration of the ring provided sustained reduction in IOP for six months with a reduction of 4 to 6 mm Hg at the study’s primary endpoint of 12 weeks. About 90 percent of subjects retained inserts in both eyes for six months.

“ForSight’s ring technology has been shown to provide long-term IOP reduction through a non-invasive, passive technology for glaucoma and ocular hypertensive patients,” says David Nicholson, chief R&D officer, Allergan. “If approved, this technology could provide an important advance to address the significant challenges of patient compliance and adherence in glaucoma, a disease that is expected to impact more than 80 million people worldwide by 2020 and be a leading cause of blindness globally,” he says. “This technology would also be highly complementary to our ongoing portfolio and development programs that are moving glaucoma treatment toward dropless therapies.”

Such a device may also help those patients for whom surgery may not be an option.

“A safe and effective extra-ocular drug delivery therapeutic option is particularly suitable for the many patients with mild- to-moderate glaucomatous disease in whom more invasive modalities may not be ideal from a risk/benefit standpoint,” says Kuldev Singh, MD, professor of ophthalmology and director of the glaucoma service at Stanford University.
1-800 Contacts
Continued from page 1

Optometry Times that the company has been in talks with 1-800 Contacts for some time, but 1-800 Contacts began reviewing and testing the Opternative technology about a year ago.

“Over the last year, we’ve gotten 1-800 Contacts comfortable with our technology,” he says, “and we’ve worked out a partnership that we feel is going to make eye care services more accessible and affordable to all of their patients.”

The service will be available only in the 36 states in which Opternative can legally operate (see box at right). When using the service, customers are prompted to identify in which state they live.

But as easy as it is to use the system, it’s just as easy to manipulate the system as well.

Theoretically, a patient could say he lives in a different state if the service is banned in his home state. Opternative has no way to prove in which state the customer is located, so the company must rely on its customers telling the truth just like a doctor would have to trust that a patient is being truthful in an exam, Dallek says.

This deal brought together two companies which have plagued organized optometry. The American Optometric Association (AOA) and other optometric organizations have fought both Opternative and 1-800 Contacts at the state and federal level.

Jeffrey Sonsino, OD, FAAO, chair of the AOA Contact Lens and Cornea Section (CLCS), called the partnership unethical and says Opternative and 1-800 Contacts are deceiving patients into thinking they are receiving an eye exam and a contact lens fit.

“Having a practitioner download data gathered by historical contact lens use—the scheme devised by Opternative—is in no way comparable to a doctor’s close inspection of how the contact lens is impacting the physiology of the cornea and conjunctiva, as is done in an actual contact lens examination,” he says.

Dr. Sonsino says the partnership is 1-800 Contacts’ attempt to skirt the rules that it sees as a barrier to completing a sale.

So, what happens if a patient who utilizes the InstaRx service develops a pathology that would have been diagnosed during a comprehensive eye exam? Dallek says the company has medical malpractice insurance to cover their doctors and patients.

Healthy eyes or healthy bottom lines?
Dallek remains hopeful that optometrists will someday be willing to partner with Opternative and bring the technology into their own practices.

“My hope is that we can begin a dialogue,” says Dallek. “That’s been my hope since we started this—and we figure out one way we can work together and make it easier for patients to access eye care services, making sure patients take care of their eyes on a regular basis.”

For now, that optimism may be misplaced because the optometrists who spoke with Optometry Times about the partnership did not have kind words to share about the company or its latest venture.

“It is interesting to see how for-profit enterprises such as 1-800 Contacts and Opternative can put the nation’s population at risk for health problems,” says Optometry Times Editorial Advisory Board member David Geffen, OD, FAAO. “Their desire for profit in the name of consumerism is a sales pitch that is dangerous.”

Optometry Times Editorial Advisory Board member Justin Bazan, OD, agrees that the companies are putting profits ahead of patient safety.

“Providing contact lens prescriptions without performing a contact lens exam is dangerous,” he says. “I make it a point to educate my patients about what I’m doing during their exam and why it’s important to them. Hopefully, the message resonates with them, and they will choose my care instead of an app.”

Dr. Bazan wrote in the June issue why he believes some patients are choosing to get their prescriptions online instead of in your practice. (Visit optometrytimes.com/CLappharmpublic.)

Since its inception, Opternative has faced criticism from the optometric community over the safety of its service. Dallek maintains the company’s main focus is not about taking business away from practitioners but rather providing convenient, inexpensive access to eye care. While ODs have voiced concerns that InstaRx will endanger the ocular health of contact lens wearers, Dallek and Kellen Fowler, director of business development with 1-800 Contacts, argue the opposite.

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In Focus

1-800 Contacts

Continued from page 1

States in which Opternative can legally operate

| - AL | - KS | - NH | - SD |
| - AK | - KY | - NJ | - TN |
| - AZ | - ME | - NM | - TX |
| - CA | - MA | - NY | - UT |
| - CO | - MN | - NC | - VT |
| - CT | - MS | - ND | - VA |
| - FL | - MI | - OH | - WA |
| - ID | - MO | - OR | - WI |
| - IL | - NE | - PA | - WY |
| - IA | - NV | - RI |

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See 1-800 Contacts on page 8

In Focus

A Closer Look At Dry Eye Disease

Findings from the National Eye C.A.R.E. Survey

Did You Know?

More than 8 in 10 (86%) optometrists surveyed feel that dry eye disease is underdiagnosed.1

To learn more about these survey findings and for other useful resources about dry eye disease, visit myeyelove-ecp.com.

The National Eye C.A.R.E. (Current Attitudes Related to Eye Health) Survey was conducted online within the United States by Harris Poll on behalf of Shire in partnership with HealthyStreets, between July 8th and 27th, 2015. The consumer arm of the survey included a total of 1,210 US adults ages 18+ who report dry eye symptoms (“adults with dry eye symptoms”), including 375 adults who have been diagnosed with dry eye disease (or chronic dry eye) by a healthcare professional (“patients”) and 835 adults who have not been diagnosed, but experience dry eye symptoms and have used artificial tears to relieve those symptoms within the past month. The professional arm of the survey included 502 US adults ages 18+ who are optometrists (n=352) or ophthalmologists (n=150) (“patients”). For complete research method, including weighting variables and subgroup sample sizes, please contact Gwen Fisher, Head of Global Portfolio Communications, Shire, at gfisher@shire.com.

1 Shire National Eye C.A.R.E. Survey conducted by Harris Poll – Professional
Finds: Final Data Taberic: O/E Final Period: July 8-27, 2015 - Page 30

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1-800 Contacts
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“We believe that making the prescription renewal process more convenient and affordable can help reduce the incentive for customers to stretch their use of contacts beyond the recommended wear guidelines,” Fowler says, “which should ultimately lead to better eye health.”

But ODs maintain that the companies care more about the health of their bottom lines than the ocular health of those they serve.

“This partnership obviously has nothing to do with health,” says Optometry Times Editorial Advisory Board member Alan Glazier, OD, FAAO. “Updating medical prescriptions at home is in the best interest of only 1-800 Contacts, which has consistently sought ways to commoditize contact lenses, even at the expense of the health of those who wear these products.”

FTC sues 1-800 Contacts—but not for the reasons you’d think
ODs were not the only ones troubled by 1-800 Contacts’ actions—the FTC also had concerns.

The FTC’s lawsuit alleges that 1-800 Contacts orchestrated and maintains a web of anticompetitive agreements with rival online contact lens retailers. These agreements allegedly suppress competition in certain online search advertising auctions to place ads on the search results page generated by online search engines like Google or Bing and restrict truthful and non-misleading Internet advertising to customers.

The FTC claims these practices result in some customers paying higher retail prices for contact lenses.

“1-800 Contacts strongly disagrees with the FTC’s contention that our settlement agreements are anticompetitive,” says 1-800 Contacts General Counsel Cindy Williams. “Our settlement agreements were specifically designed to protect our intellectual property rights.”

The administrative trial is scheduled to begin April 11, 2017.

Following the lawsuit announcement, AOA President Andrea Thau, OD, released a statement commending the FTC for taking action against 1-800 Contacts and affirmed the organization’s commitment to holding online contact lens retailers accountable.

Last fall, the AOA asked the FTC to strengthen its Contact Lens Rule in order to address online contact lens retail abuses, and it has been battling 1-800 Contacts at the state and federal level.

Lawsuit will not address patient safety
The optometric community welcomes the FTC lawsuit, although the suit does not address the community’s primary concern—patient safety.

“First,” says Craig Steinberg, OD, JD, in Agoura Hills, CA, “understand that this lawsuit is not about selling contact lenses without a prescription. There may be a tendency for optometrists to jump to that conclusion because that’s what concerns them the most.”

Dr. Sonsino noted the irony in the situation because 1-800 Contacts has often accused others in the industry of anticompetitive behavior.

“It is quite interesting that 1-800 Contacts has falsely accused the AOA and contact lens manufacturers of anticompetitive practices while the whole time, according to the FTC, allegedly practicing anticompetitive practices itself,” he says.

However, Williams says 1-800 Contacts has a long history of advocating for increased competition and consumer rights, pointing to the company’s support of the Fairness to Contact Lens Consumers Act (FCLCA) of 2004 and its fight against contact lens manufacturers’ unilateral pricing policies (UPP), which she calls “price fixing.”

“1-800 Contacts strongly believes in a competitive contact lens marketplace and will continue to be a leading advocate for providing consumers with more choice, greater convenience, and lower prices,” she says.

What ODs can do
Dr. Steinberg says optometrists should not count on the FTC to make the changes necessary to protect patient health because its primary concern appears to be making sure consumers get the best price—not the best care. He encourages optometrists to support the AOA-backed Contact Lens Consumer Health Protection Act of 2016 (S.B. 2777).

The Senate bill would amend the FCLCA of 2004 to require contact lens retailers to provide a toll-free telephone number and email address that prescribers can use to ask questions about a seller’s prescription verification request. S.B. 2777 is sponsored by Sen. Bill Cassidy, MD (R-LA).

1-800 Contacts strongly opposes the bill, so much so that it formed a coalition with Costco Wholesale and Lens.com—calling themselves the Coalition for Contact Lens Consumer Choice—in order to fight it.

IN BRIEF

Shire’s Xiidra now widely available in U.S.

CHICAGO—Xiidra (lifitegrast ophthalmic solution) 5% is now widely available by prescription in the United States, says the drug’s manufacturer Shire.

Xiidra is a twice-daily prescription eye drop indicated for the treatment of both the signs and symptoms of dry eye disease.

“Shire worked rapidly to bring Xiidra to market following the approval of this new treatment—a first-in-its-class medication and the first prescription treatment to be approved for both the signs and symptoms of dry eye disease,” says Perry Sternberg, head of U.S. Commercial at Shire.

“We have a full range of modern, educational access programs to support the millions of patients across the U.S. living with dry eye disease,” he says. “This delivers on our commitment to showing up differently in ophthalmics.”

As the number of people presenting with the signs and symptoms of dry eye disease increases, the availability of a new prescription treatment option for dry eye is an exciting development, says Eric D. Donnenfeld, MD, FAAO, national medical director of TLC Laser Eye Centers.

“We now have a new prescription eye drop that is specifically indicated for the signs and symptoms of dry eye disease, an often common eye condition that may be progressive,” he says.

With the availability of Xiidra, Shire has patient-focused resources to share information about prescription coverage and savings (subject to eligibility):

—ask iiris, a phone service offering live-person responses to patient questions regarding information about insurance coverage, benefits, co-pays, and availability in pharmacies. To access askiiris, call 1-844-my-iiris.

—Xiidra insider, an optional program that patients can sign up for to receive information and special offers via text message or email.

According to the company, an estimated 16 million adults in the U.S. are diagnosed with dry eye, a disease associated with inflammation that may eventually lead to damage to the surface of the eye.
THIS IS WHY correcting presbyopia will never be the same

The world’s first and only Water Gradient lens designed for presbyopic patients.

**Seamless Vision Correction**
Industry-leading Precision Profile™ Design is built to deliver clear, uninterrupted vision.¹²

**Exceptional Comfort**³
Water Gradient technology creates a cushion of moisture on the eye.⁴

References:
Standards of care in treating glaucoma

As technology and glaucoma care evolves, so must our treatment guidelines.

Standards of care are just that: standards. They are what we as clinicians are required to abide by, at the very least, with respect to our duty to care for our patients. Many of us often go above and beyond what is minimally required of us. The field of ocular surface disease is an excellent example of this notion, with many of us incorporating modern dry eye tests that haven’t yet made it into the dry eye standards of care regimen. I say “yet” because standards of care, almost by definition, change over time.

State by state

With that being said, let us turn to standards of care with respect to glaucoma. While high intraocular pressure (IOP) is often the number-one risk factor for the development and progression of glaucoma, it also happens to be just about the only risk factor we can modify. We can’t change race, family history, or tonic central corneal thickness, but we can lower IOP. On the medical side of IOP treatment, prostaglandin analog eye drops taken at bedtime are typically the first-line therapy of choice.

Eye drops may likely become less commonplace in the face of sustained release formulations

Most optometrists in the U.S. practice in areas in which they are able to prescribe glaucoma medications, such as prostaglandin analogs. However, a minority of states have laws allowing optometrists to use injectable medications as well. This statement is somewhat skewed by the fact that some of those states allow for the use of injectable medications only in the case of anaphylaxis, such as Texas and California.

Therefore, the whole notion of which states allow what is underscored by the fact that optometry is a legislative profession. Until we can all unify in a truly “learned” sense that we should be able to practice how we were trained no matter where we live, we will remain a legislative profession—at least for the time being. Taking the legislative approach is costly and time-consuming, but it is what we currently have as the most promising means of giving our patients the care they deserve (and we deserve to be able to give). Most other professions do not bear such a burden.

Glaucome standards of care

So, what does any of this have to do with glaucoma standards of care? We know that standards of care change over time as novel concepts provide for new diagnostic and therapeutic approaches. With that said, at least one company, Allergan, is working to get FDA approval for an injectable sustained release prostaglandin analog implant (Bimatoprost SR) to lower IOP.

FDA approval could happen within a few years and could have the potential to shake up the notion of defining first-line therapy. Medication compliance would essentially be a nonissue, potentially leading many patients and doctors alike to choose this route of delivery. In the coming years and decades, eye drops may likely become less commonplace in the face of sustained release formulations, be they in the form of an injectable, a contact lens, a membrane, or some other modality which hasn’t yet been invented.

Along a similar line, new and novel glaucoma therapies that exist such as eye drops are likely to become part of our medication artillery as well. Rho kinase inhibitors (so-called ROCK inhibitors) seem especially promising as a new means of facilitating aqueous outflow via direct targeting of the trabecular meshwork and Schlemm’s canal.

On the other hand, there could come a time when injectable medications such as anti-VEGFs are available in an eye drop formulation. This may be a bit more far-fetched, but it would make sense to avoid penetrating the globe with a needle.

Regarding standards of care and scope of practice, we must not think only in the present. We must continuously look and think to the future about what we do and for whom we care. It may be difficult to prevent the onset of glaucoma, even with the recent strides we have made in the area of diagnostic devices. We currently have excellent means of therapy available to treat the “silent blinder” that is glaucoma. However, as we look to new ways of improving patient compliance and decreasing patient burden, we, by definition, must look to new classes of medications or new delivery methods—or both.

We must, therefore, keep a pulse on our state laws and an eye out for those who want them changed. This could mean anything from looking into doing away with itemized formularies to augmenting state laws to allow for novel drug delivery mechanisms (and anything in between).

Health care is constantly evolving, and glaucoma care is no different. If we are going to remain America’s primary care eye doctors, we must evolve as well. It’s the most logical thing to do with our patients’ care in mind.

REFERENCE


bpc81@aol.com
Nidek & Marco introduce the AFC-330, a 30-year pedigree of research and development that redefines the science of non-mydriatic Fundus Cameras. The AFC-330 combines quantum leaps in operator/patient interface, functional simplicity, applied automation, and operational efficiency. You simply must experience how intelligently designed a Retinal Camera can be. The Difference is Marco.
Don’t rule out HSV patients for refractive surgery

The longer the time since the patient’s last viral outbreak, the better

I am a staunch supporter of refractive surgery. In fact, in my evaluation of potential candidates for refractive surgery I boldly express that every patient can have refractive surgery. Yes, I said it. Everyone can lie down, expose the stromal tissue, and have a laser reshape the tissue for the betterment of visual acuity—or not.

Not every patient is going to get a great result. The caveat to the “everyone is welcome to the refractive party” is that not everyone is an ideal candidate. When we preselect these patients, it is important to filter out those patients who are potential high risk. Through the years, we have really honed in on those patients.

However, we are wrongly biased against one subset of our population—those with herpes simplex virus (HSV). I am speaking to my patients who have any type of ocular herpetic virus. Let’s support those patients who have herpetic secondary glaucoma, and corneal thinning and perforation.

Research has shown that strictly having the dormant virus does not prompt the activation process. The causes of reactivation are uncertain, but several potential triggers have been documented. Changes in the immune system during menstruation may play a role in HSV-1 reactivation. Concurrent infections, such as viral upper respiratory tract infection or other febrile diseases, can cause outbreaks. Reactivation due to other infections is the likely source of the historic terms “cold sore” and “fever blister.” Other identified trig-asymptomatic and no longer experience outbreaks, though they may still be contagious. Immunocompromised individuals may experience longer, more frequent, and more severe episodes. Outbreaks may occur at the original site of the infection or in proximity to nerve endings that reach out from the infected ganglia.

The herpetic eye and surgery

This erratic and inconsistent activation lends this condition to a proceed with caution approach. Clinicians can institute a protocol to prophylactically prepare the eye for the insult that surgery may initiate. However, with modern advancements in anti-viral medications and the profound positive effect that refractive surgery has on patients, there needs to be a risk/reward evaluation. There is a small but growing body of literature that seems to support my theory that the judicious use of oral antivirals prior to surgery and the initiation of topical antiviral medications during the post-operative period could lend itself to avoidance of any activation and significantly reduces the risk of HSV reactivation in both animal models and in clinical practice.

Twice daily injections of acyclovir, beginning one day prior to LASIK surgery and extending seven days, were found to significantly reduce the incidence of HSV reactivation and the number of days of viral shedding in rabbits. In several small case studies of LASIK in patients with a history of herpetic keratitis, perioperative antiviral treatment was administered, and no patient developed reactivation of ocular HSV. All patients had been free of ocular symptoms for at least one year at the time of surgery. In a retrospective study of 48 LASIK patients with a history of ocular herpes infection, 13 received a perioperative antiviral therapy. None developed reactivation of HSV keratitis during the follow-up window.

Managing a herpetic refractive patient is not much different than managing a diabetic patient undergoing cataract surgery—you prepare for the worst and hope for the best. Recently, a 67-year-old post-cataract patient was evaluated for an uncorrected myopic astigmatism. The patient had a Tecnis (Abbott) lens
Clinicians can institute a protocol to prophylactically prepare the eye for the insult that surgery may initiate.

and was disappointed that he was unable to utilize its full functionality. After evaluating the patient, he was deemed a great candidate to undergo PRK. At his one-day follow-up, the eye was following the typical PRK redness, abrasion, and reduced acuity of 20/80 with a bandage contact lens applied.

However at the one-week follow-up, traditionally a visit filled with anticipatory optimism, I was treated with an angry red eye of 20/200 vision (see Figure 1). The patient clearly had a reactivation of a dormant virus. When questioned again about any previous infections, the patient still was unaware that he had ever been diagnosed or previously had a viral infection. A good rule of thumb, as stated earlier, follows that the greater lapse of time between active viral events should prove to be a good deterrent of activation of the latent virus. This patient continued the steroid; however, I was aggressive in adding Zirgan (gancyclovir ophthalmic gel) 0.15%, Bausch + Lomb) every two hours and copious artificial tears. The dendrite healed without any sequelae, and acuity after three weeks was 20/25 without correction.

Having a previous viral infection should not limit you from considering refractive surgery for a patient; rather, it should allow you to manage the patient more efficiently. Adopt a regimen with your surgeon, start the process before the procedure (oral antivirals, topical prophylaxis, or a combination of both), and be watchful. Any viral infection could rear its ugly head following refractive surgery—or cataract surgery for that matter. Talk to the patient about the risks and benefits, engage him in the process, and allow him to make the ultimate decision.

REFERENCES
Focus On

LENS CARE

5 lens care tips for traveling patients

Keep your patients in safe and comfortable contact lens wear while on the road

Many of our patients travel for both business and pleasure. They are traveling across the country and abroad, often spending more time outdoors, in the pool, by the lake or ocean, and in the dry air of an aircraft. Are you talking with your patients about best practices for contact lens wear and care while they travel?

The annual exam is the perfect opportunity to discuss additional contact lens care and hygiene that may not normally apply while at home. For example, if your patient is traveling to a developing country, it might be best for her to leave her contact lenses at home and just wear glasses. The water quality and other risks of infections could potentially be dangerous for our contact lens-wearing patients. However, we know that most patients want to continue wearing their contact lenses during travel. We need to help them do that safely.

Here are five tips to help keep your patients safe and comfortable when wearing contact lenses. Share them with all of your patients so they’re ready for when- ever or wherever they travel.

Discuss the benefits of purchasing and packing larger solution bottles in checked bags

Want to continue wearing your contact lenses during travel? Keep your patients in safe and comfortable contact lens wear while on the road. Many of our patients travel for both business and pleasure. They are traveling across the country and abroad, often spending more time outdoors, in the pool, by the lake or ocean, and in the dry air of an aircraft. Are you talking with your patients about best practices for contact lens wear and care while they travel?

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Here are five tips to help keep your patients safe and comfortable when wearing contact lenses. Share them with all of your patients so they’re ready for whenever or wherever they travel.

1. **Pack contact lens gear in a carry-on bag, not checked baggage**

This includes glasses, back-up pairs of contact lenses, lens care solutions, and rewetting drops. If all of these items were in checked bags and the patient’s luggage was lost, your patient would be facing the challenge of contacting your office for additional trial contact lenses or to have a copy of the prescription sent to her location. This huge hassle can be prevented by recommending patients to carry their eyecare necessities on the plane with them. Be sure to offer trial-size bottles of lens care solutions and rewetting drops.

2. **Recommend patients travel with daily disposables**

Even if your patients wear only monthly or two-week lenses, recommend a 30-day supply of daily disposables in conjunction with their current lenses when purchasing. Having a supply handy just in case a lens is lost down the drain or rips can save an annoying situation. In addition, wearing daily disposables for activities such as swimming, hiking, biking, and more makes lens wear and care much easier. Patients won’t need to carry solutions or worry about infection or contamination while trying to clean lenses outdoors.

3. **Give patients a copy of their Rx to carry with them**

Recommend your patients carry a copy of their prescription for both glasses and contact lenses in case of emergency. Patients won’t be able to get new glasses made or additional contact lenses without a written Rx. This makes life easier with time zone changes or if the emergency happens over a weekend and the assisting doctor can’t reach your office.

4. **Provide trial-sized products for ease of travel**

Offer for sale or provide trials of lens care solution and rewetting drops for patients who travel. Full-sized products will need to be stored in checked baggage, and offering the smaller sizes will discourage patients from transferring solutions from a big bottle into a smaller container. Patients may not understand that pouring solutions from one bottle to another may lead to significant clinical concerns or infections.

In addition, discuss with your patients the benefits of purchasing and packing larger bottles in checked bags if they will be gone for an extended period of time. Putting off the purchase of lens care products until they reach their final destination may result in purchasing a different product or brand. Switching products could lead to noncompliance or adverse results.

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Dr. Brittany Mitchell practices in Birmingham, AL, in an OD/MD setting. She is a graduate of the University of Alabama at Birmingham School of Optometry. She is a consultant for Bausch + Lomb and member of B+L’s speaker’s bureau. She also consults for Shire.
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Why accountable contact lens fitting matters

Take responsibility for the ocular surface of your contact lens-wearing patients

I’m a firm believer that contact lenses can enhance my patients’ quality of life. My commitment is to ensure that in offering contact lenses I also remain accountable for the changes induced on the ocular surface by the contact lens. It does no good to offer the patient momentary freedom from glasses at the sacrifice of his long-term ocular comfort. In order to properly care for our contact lens patients, we have to take responsibility for the changes that are occurring in the tear film under the lens.

Dropping out of lens wear
Not only will this type of accountability create better outcomes for our patients, it will ultimately benefit our bottom lines. If you have attended any contact lens dinner in the past several years, you have likely heard about the dropout rate. It has been quoted to be 16 percent to 22 percent depending on the study—this number has not decreased over the past 20 years despite advances in technology.

Why?
Every study seems to point to discomfort as the main reason patients discontinue lens wear. Specifically, we know that 50 percent of contact wearers have concomitant dry eye disease. Moreover, up to 90 percent of contact lens wearers report experiencing dry eye symptoms at some point.2,3

Do you think you have contact lens patients dropping out? Whenever this question is asked, most doctors don’t see it as a significant problem within their practices. However, one easy way to conceptualize this is to ask yourself if your contact lens numbers have been pretty steady since this date from last year and the year before. Most doctors will agree that they are. That may sound like a reassuring thought, but it is actually far from it.

We all have new fits on our schedule weekly, even daily in some offices. So how is it that our numbers are flat-lined? It’s because of the “revolving door” within our contact lens practice. While we aren’t usually involved in the exit, it is certainly happening. We constantly search for new marketing and promotional ideas and incur expenses to drive new patients through the door. But logistically we know it’s more cost effective to keep an existing patient than to recruit a new one.

If only we could predict which patients are more likely to drop out (without our knowledge).

Maybe we can. Let’s shift our focus to why patients leave and how to better equip them to stay.

It is critical to understand that once meibomian glands are shortened or atrophied, they cannot be restored

Ocular surface and lid function
When the tears of contact lens wearers were tested, there was an upregulation of multiple inflammatory mediators, including IL-6, IL-8, and TNF-a, as well as a significant reduction in both tear volume and tear film break-up time (TBUT).4 More importantly, there is an increased risk for meibomian gland dysfunction (MGD).5,6 It is critical to understand that once meibomian glands are shortened or atrophied, they cannot be restored.

In addition to these compromises to the ocular surface, we have to consider what they might do to the patient’s lid function. In my office, we experimented (with a sample size of one!) by performing LipiView (TearScience) on a staff member over his contact lenses one afternoon. The next morning we repeated LipiView after he had been out of lens wear for about 15 hours. While his lipid layer thickness did increase without contact lenses, it increased by only approximately 16 nm.

Conversely, we were shocked at the change we saw in the both the blink frequency and the partial blink rate. Over his lenses, he had four out of five partial blinks OD and three out of four partial blinks OS. Without the lenses, he had zero of nine partial blinks OD and zero of seven blinks OS. Of course, this is an isolated case, but it should at least serve to raise awareness that contact lenses are foreign to the eye and can potentially change the ocular surface as well as lid function.

Contact lens exams should be different
We can start by making our contact lens exam a truly different evaluation as compared to our routine eye exam.

In every exam, but especially with our contact lens patients, we should evaluate tear visual consistency, volume, chemistry, and quality; meibomian gland function and structure; and tissue damage, lid function, and systemic health. We should prioritize spending time examining the lid for edema, hyperemia, telangiectasia, and meibomian gland stasis. Then use lissamine green and fluorescein to look at possible lid wiper epitheliopathy and...
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Focus On CONTACT LENSES

Accountable lens fitting

Continued from page 16

the Line of Marx and potential corneal or conjunctival staining.

We should be astutely aware of any appearance of allergy or inflammation, incorporating osmolarity testing when possible. Measuring tear meniscus height or doing a phenol red thread test will help us keep tabs on patients’ tear volume over time.

Check for partial blinks with the aid of LipiView, Keratograph 5M (Oculus), or by slowing down any video you take with an anterior segment camera. If trying to catch the partial blink manually, it helps to use fluorescein and a cobalt blue filter.

Finally, ask the patient how her comfort is in the mornings, and check for lagophthalmos.

Making it work

Maybe before we even see the clinical signs—but definitely afterward—we should be asking more specific, open-ended questions to our contact lens wearers. Never ask them, “How are you doing with your contact lenses?” But ask, “On a scale of one to 10, what is your comfort at the end of the day?” or “If you could change one thing about your contact lenses, what would it be?” Not only does this give us valuable information, it opens the door for us to introduce them to another lens material or wear modality.

Ideally, at the first clinical sign of any ocular surface concern we convert the patient into daily disposables by creating a sense of value based on ocular health. Too often when a patient is having problems, we immediately jump into changing the lens, occasionally the lens care, and stop there.

While that may be in order and may help short term, we should also be implementing ocular surface treatments to keep them wearing their lenses long term. After all, if we change only the material or lens care and the patient continues to have problems, he is even more likely to drop out of lens wear and even less likely to tell us.

Maybe it’s not as hard as we thought to predict future contact lens intolerance through better assessment of patients’ current clinical presentations. When you see a clinical sign implicating a water or oil insufficiency; or if you see signs of allergy, inflammation, bacteria, or lid function problems, implement treatments immediately. Sometimes we get so caught up in the contact lens portion of the exam that it can be easy to overlook simple pathology or put off treatment.

There are a handful of treatments I find myself using over and over with my contact lens patients. Plugs, of course, can come in handy to increase the tear volume but only in the absence of inflammation.

When there are signs of allergies, I proceed with an allergy drop, even if the patient denies itching.

When there are signs of inflammation, I intervene with Restasis (cyclosporine, Allergan). This can be a good solution to aid in preventing contact lens dropout and secondary tissue damage from inflammation and evaporative stress. Contact lens wearers are often on board because with its bid dosing they can instill the drops before and after contact lens wear.

I’ve found that Lipiflow can make a difference in allowing patients with MGD wear their lenses longer and more comfortably.

I also discuss the importance of blinking with every contact lens patient, especially those logging in hours of device use.

We know patients drop out of lens wear. We know they drop out because of discomfort. However, because they don’t always get the opportunity to intervene. If we want to make a difference in the outcome for the patient (and our bottom line), the key is timing.

Practice preventative medicine instead of reactive medicine. Intervene early, as soon as the signs manifest, with or without patient symptoms. Of course, in order to induce patient compliance in the absence of symptoms, you must thoroughly educate the patient. Use your anterior segment camera, Keratograph 5M, LipiView, Tear Lab Osmolarity System, or whatever you currently have, to spend time helping the patient understand. If you commit to accountable contact lens fitting, not only will your patients likely stay in contact lenses longer, they’ll likely remain loyal to your practice longer.

Sometimes we get so caught up in the contact lens portion of the exam that it can be easy to overlook simple pathology or put off treatment

Contact lenses are foreign to the eye and can potentially change the ocular surface as well as lid function

REFERENCES


Dr. Brimer has special interests in contact lenses and dry eye. She has received study or sponsor support from Alcon, Aliden, Allergan, Bio-Tissue, BlephEx, iCare, and PRN. drbrimer@crystalvisionservices.com
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By Scott B. Han, OD, FAAO

Sjögren syndrome is a systemic multi-organ autoimmune disease that results in chronic inflammation. Eyecare providers may be the first to identify Sjögren patients. Early diagnosis is important—coordination of care can begin with primary care, eye care, oral care, and rheumatology. Most clinicians see only a small part of the full picture of Sjögren, making diagnosis difficult.

Sjögren overview

Primary Sjögren syndrome is found in isolation while secondary Sjögren syndrome is in association with another systemic autoimmune disease. The most commonly associated autoimmune diseases are rheumatoid arthritis and systemic lupus erythematosus. The exact pathogenesis of Sjögren still remains unknown. Viruses have been implicated as triggers, particularly Epstein-Barr, Coxackie, hepatitis C, and HIV. Other potential etiologies include genetics, environment, and hormones—all resulting in chronic stimulation of the immune system.

Sjögren syndrome is the second most common rheumatic disease after rheumatoid arthritis. About 2 to 4 million Americans have Sjögren. Most cases are undiagnosed because the clinical findings are nonspecific and span across many specialties. The condition targets women more than men with a female-to-male ratio of 9:1, primarily affecting middle-aged women.

Diagnosing the disease

The diagnosis of primary Sjögren can be made with different classification criteria. The most commonly used criteria is the American-European Consensus Group (AECG) classification (see Table 1). This classification system requires at least four of the signs and symptoms in addition to biopsy or antibody findings. If the patient has no symptoms, three out of four objective criteria must be met.

Secondary Sjögren is diagnosed when a symptom criteria is accompanied by one of the sign criteria in the presence of a connective tissue disease (see Table 2).

The Sjögren International Collaborative Clinical Alliance (SICCA) classification requires two out of three criteria be met (see Table 3). This system attempts to eliminate subjectivity by removing symptom criteria and using only objective tests.

Both classifications rely on traditional biomarkers for anti-Ro/SSA and anti-La/SSB. New antibodies have been identified to occur earlier and even in the absence of traditional biomarkers anti-Ro/SSA and anti-La/SSB. Salivary gland protein 1 (SP-1), carbonic anhydrase 6 (CA6), and parotid secretory protein (PSP) antibodies may identify Sjögren earlier and even without anti-Ro/SSA and anti-La/SSB.

Sjögren as a systemic disease

Along with the classic lacrimal and salivary gland involvement, Sjögren can commonly affect the parotid gland and many extraglandular tissues and organs. Musculoskeletal joint disease is typical. Primary Sjögren can be misdiagnosed as rheumatoid arthritis, while secondary Sjögren patients may have underlying rheumatoid arthritis.

Other organs involved include the skin, lungs, and kidneys. Dry skin is found in more than half of Sjögren patients. Other cutaneous findings include rash, burning, vasculitis, ulcers, and discoloration. These findings can also be

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**TAKE-HOME MESSAGE** Sjögren syndrome is more than just dry eye—the autoimmune disease that results in chronic inflammation affects the skin, lungs, kidneys, and mouth. Early diagnosis the key to better treatment and management and quality of life for the patient. Lymphoma is the main complication of Sjögren with a 10 to 50 times great risk.

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**TABLE 1** American European Consensus Group criteria for the classification of Sjögren Syndrome

<table>
<thead>
<tr>
<th>I. Ocular symptoms: a positive response to at least one of the following questions:</th>
<th></th>
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<tbody>
<tr>
<td>1. Have you had daily, persistent, troublesome dry eyes for more than 3 months?</td>
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<tr>
<td>2. Do you have a recurrent sensation of sand or gravel in the eyes?</td>
<td></td>
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<tr>
<td>3. Do you use tear substitutes more than 3 times a day?</td>
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<tr>
<th>II. Oral symptoms: a positive response to at least one of the following questions:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1. Have you had a daily feeling of dry mouth for more than 3 months?</td>
<td></td>
</tr>
<tr>
<td>2. Have you had recurrently or persistently swollen salivary glands as an adult?</td>
<td></td>
</tr>
<tr>
<td>3. Do you frequently drink liquids to aid in swallowing dry food?</td>
<td></td>
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<tr>
<th>III. Ocular signs—that is, objective evidence of ocular involvement defined as a positive result for at least one of the following two tests:</th>
<th></th>
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<tbody>
<tr>
<td>1. Schirmer’s I test, performed without anaesthesia (&lt;5 mm in 5 minutes)</td>
<td></td>
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<tr>
<td>2. Rose bengal score or other ocular dye score (&gt;4 according to van Bijsterveld’s scoring system)</td>
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| IV. Histopathology: | In minor salivary glands (obtained through normal-appearing mucosa) focal lymphocytic sialoadenitis, evaluated by an expert histopathologist, with a focus score >1, defined as a number of lymphocytic foci (which are adjacent to normal-appearing mucous acini and contain more than 50 lymphocytes) per 4 mm2 of glandular tissue18 |

<table>
<thead>
<tr>
<th>V. Salivary gland involvement: objective evidence of salivary gland involvement defined by a positive result for at least one of the following diagnostic tests:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unstimulated whole salivary flow (&lt;1.5 ml in 15 minutes)</td>
<td></td>
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<tr>
<td>2. Parotid sialography showing the presence of diffuse sialectasias (punctate, cavitory or destructive pattern), without evidence of obstruction in the major ducts19</td>
<td></td>
</tr>
<tr>
<td>3. Salivary scintigraphy showing delayed uptake, reduced concentration and/or delayed excretion of tracer20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VI. Autoantibodies: presence in the serum of the following autoantibodies:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Antibodies to Ro(SSA) or La(SSB) antigens, or both</td>
<td></td>
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</tbody>
</table>
found in lupus and scleroderma, so they must be carefully differentiated.

Dry cough is common, but clinically significant respiratory manifestations affect only 10 percent of patients.9

The kidneys are often involved, with distal renal acidosis the most frequent clinical presentation, but interstitial nephritis is the most damaging and may occur prior to symptoms of dryness. Clinical renal disease is detectable in approximately 5 percent of patients.10

About 70 percent of patients exhibit symptoms of fatigue. In primary Sjögren, the physical aspects of fatigue are more severe and frequent.12 For some patients, the fatigue may be more bothersome than the drying symptoms. The thyroid is a plausible cause or contributor. Autoimmune thyroiditis occurs in about 20 percent of Sjögren patients, including Hashimoto and Graves. Subclinical hypothyroidism is present greater than 50 percent of the time.12

Gastrointestinal manifestations can involve the entire tract. Dryness of the pharynx and esophagus with esophageal dysmotility and gastritis can cause nausea, dysphagia, or epigastric pains. Lymphoid infiltration results in chronic atrophic gastritis. Lab testing shows mild autoimmune hepatitis and pancreatitis.11

Neurologic disease in Sjögren occurs in two to 60 percent of patients, with the most common in the peripheral nervous system with sensory involvement.13 This includes sensorimotor polyneuropathy and polyradiculopathy, mononeuropathy multiplex, autonomic neuropathy, and trigeminal and other cranial neuropathies. Central nervous system involvement is much less common—manifestations include multiple sclerosis-like changes, seizures, transverse myelitis, aseptic meningitis, optic neuritis, diffuse encephalopathy, and dementia.13

The main complication of Sjögren syndrome is development of lymphoma. Sjögren patients have a 10 to 50 times greater risk compared to the general population. Non-Hodgkin’s lymphoma occurs in two to 9 percent of Sjögren patients. The mean time from diagnosis of Sjögren to lymphoma is 7.5 years.14

**Testing for Sjögren**

Early diagnosis and management are important in Sjögren syndrome. A long delay may occur before diagnosis due to vagueness of symptoms, mimicking of various conditions, and symptoms being considered minor.

New diagnostics tests like Sjö (Bausch + Lomb) may help identify these patients. Timely treatment and management will improve quality of life and reduce complications.●

**REFERENCES**


**TABLE 2**

**Rules for classification**

<table>
<thead>
<tr>
<th>For primary SS</th>
<th>For secondary SS</th>
<th>Exclusion criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>In patients without any potentially associated disease, primary SS may be defined as follows:</td>
<td>In patients with a potentially associated disease (for instance, another well defined connective tissue disease), the presence of item I or item II plus any 2 from among items III, IV, and V may be considered as indicative of secondary SS</td>
<td>– Past head and neck radiation treatment</td>
</tr>
<tr>
<td>a. The presence of any of the 6 items is indicative of primary SS, as long as either item IV (Histopathology) or VI (Serology) is positive</td>
<td></td>
<td>– Hepatitis C infection</td>
</tr>
<tr>
<td>b. The presence of any of the 4 objective criteria items (that is, items III, IV, V, VI)</td>
<td></td>
<td>– Acquired immunodeficiency disease (AIDS)</td>
</tr>
<tr>
<td>c. The classification tree procedure represents a valid alternative method for classification, although it should be more properly used in clinical-epidemiological survey</td>
<td></td>
<td>– Pre-existing lymphoma</td>
</tr>
<tr>
<td>d. Central nervous system involvement is present greater than 50 percent of the time.</td>
<td></td>
<td>– Sarcoidosis</td>
</tr>
<tr>
<td>e. Parotid swelling in patients with parotid enlargement.</td>
<td></td>
<td>– Graft versus host disease</td>
</tr>
<tr>
<td>f. Dry cough is common, but clinically significant respiratory manifestations affect only 10 percent of patients.9</td>
<td></td>
<td>– Use of anticholinergic drugs (since a time shorter than 4-fold the half life of the drug)</td>
</tr>
</tbody>
</table>

**TABLE 3**

**SICCA criteria for classification of Sjogren Syndrome**

The classification of Sjögren’s syndrome, which applies to individuals with signs/symptoms that may be suggestive of SS, will be met in patients who have at least two of the following three objective features:

| 1. Positive serum anti-SSA (Ro) and/or anti-SSB (La) or (positive rheumatoid factor and ANA > 1:320) |
| 2. Labial salivary gland biopsy exhibiting focal lymphocytic sialadenitis with a focus score ≥ 1 focus / 4 mm² |
| 3. Keratoconjunctivitis sicca with ocular staining score ≥ 3 (assuming that individual is not currently using daily eye drops for glaucoma, and has not had corneal surgery or cosmetic eyelid surgery in the last 5 years) |

Prior diagnosis of any of the following conditions would exclude participation in Sjögren’s syndrome studies or therapeutic trials because of overlapping clinical features or interference with criteria tests:

- History of head and neck radiation treatment
- Hepatitis C infection
- Acquired immunodeficiency Syndrome
- Sarcoidosis
- Amyloidosis
- Graft versus host disease
- LG4-related disease
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5 ways to go beyond baby shampoo for lid hygiene

A variety of lid hygiene products offer different benefits to your patients

By Whitney Hauser, OD

More than 20 years ago, personal computers ran Windows 95, everyone was doing the Macarena, and optometrists were recommending baby shampoo for blepharitis. Lid hygiene has come a long way in two decades—but have all practitioners bought in, or do some still cling to the good ol’ days?

What’s the harm?
First do no harm is fundamental to medical professionals. Certainly, one would assume that nothing could be safer than a product designed for use with children. Television commercials with smiling, happy babies covered in frothy bubbles imply the product is harmless. Ubiquitous marketing alone creates a subconscious sense of safety for both doctor and patient.

Baby shampoo contains mild detergent due to children’s limited sebum production. However, baby shampoos also contain an abundance of other ingredients, some of which are benign and others that have proven to be potentially dangerous. In 2013, Johnson & Johnson removed formaldehyde and 1,4-dioxane from its No More Tears baby shampoo. While formaldehyde occurs naturally in many products, there are risks associated with both acute and long-term exposure. Though most risk associated with exposure is caused by inhalation, eye irritation can occur. Concerns about long-term exposure are not unlike daily teeth brushing resulting itch and inflammation.

In an effort to provide patients with an inexpensive mild cleanser, doctors may not only be recommending something less effective but also potentially irritating of being named “Allergen of the Year” by the American Contact Dermatitis Society. Prevalence of contact sensitization due to CAPB or manufacturing impurities is between 3 and 7 percent.

Baby shampoos were not designed for application to the eyes nor as lid hygiene products. In an effort to provide patients with an inexpensive mild cleanser, doctors may not only be recommending something less effective but also potentially irritating. However, lid scrubs with baby shampoo continue to be recognized by the American Optometric Association and the American Academy of Ophthalmology as a viable lid hygiene option.

Better alternatives
Baby shampoo—along with hot rice in a sock or baked potatoes—are effective for a warm compress, but eye care practitioners are able to offer more in today’s market of lid cleansers and warming masks. There are a variety of lid hygiene products on the market. Each one offers different benefits. Here are four options.

1. **Lid wipes** offer a simple alternative to baby shampoo. Reasonable in cost and easy to find, pre-moistened wipes are designed specifically for use around the eyes. They are effective at removing debris and environmental impurities such as pollen. Unlike baby shampoo, these products are formulated to be beneficial to the eyes rather than harm them.

2. **Hypochlorous acid solutions** mimic the human body’s endogenous response to pathological organisms. Neutorophils naturally release hypochlorous acid when insulted by bacteria. These products not only remove debris, but they also relieve chronic irritation and decrease the body’s own inflammatory mediators.

3. **Tea tree oil (TTO) formulations** are useful in the battle against demodectis. Waxy cylindrical dandruff at the lash base is pervasive and tends to increase significantly with age. TTO has proven to be effective in eliminating demodex and the resulting itch and inflammation.

4. **In-office procedures** are another viable option. Conventional lid hygiene recommendations are not unlike daily teeth brushing in the dental model. Physical debridement by an implement like a spud can provide a
basic removal of debris from the lid margin. However, microblepharoexfoliation such as BlephEx from RySurg more closely parallels teeth cleaning provided by the dentist.

Warming masks or compresses are widely recommended by eyecare providers and may present a compliance challenge. Conventional compresses tend to be messy and lose heat quickly, often leaving patients frustrated and unwilling to continue with regularity. Using a silicone-beaded mask offers a sustained, moist heat. They can be used over and over without loss of effectiveness.

**Lid hygiene products offer more benefits**

Research suggests that compliance is higher with prescription drug instructions rather than over-the-counter (OTC) recommendations and are often taken more seriously. While most lid hygiene products are not sold behind the pharmacy counter, “prescribing” a specific OTC regimen rather than baby shampoo may encourage better patient buy-in and compliance.

Offering various lid hygiene products in your practice can build a new revenue stream too. While you’re unlikely to have a bottles of baby shampoo displayed in your office, providing merchandise designed for lid hygiene allows the patient to make an immediate in-office purchase not unlike what takes place in the optical.

Lid hygiene products have moved out of the ’90s and out the baby care aisle. Giving patients problem-specific recommendations, detailed direction, and immediate availability serves both patient and practice.

REFERENCES

Dr. Hauser graduated in 2001 from Southern College of Optometry, where she completed a residency in primary care optometry. She is the founder of Signal Ophthalmic Consulting. whitneyhauser@sco.edu

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Contact lenses and dry eye: Cause or remedy?

Three example cases show how contact lenses affect comfort

By Langis Michaud, OD, M.Sc. FAAO (Dipl), FSLS, FBCLA

On any given day of your practice, you may meet with one or more of the three following contact lens patient examples. When you do, consider what they have in common and how they differ. Is there a logical link among these clinical entities? If yes, what can we learn from their management? While these questions are important, the one question that should be asked every time is: Are contact lenses a cause or a remedy for these patients?

Case 1

M.H. is a 24-year-old African-American male. He is a manual laborer who is exposed to dust and particles daily. He presents for contact lens discomfort, which has been lasting for several months but increasing in recent weeks. He has been buying his contact lenses from an online contact lens retailer and is wearing biweekly disposable lenses on a monthly basis.

Case 2

S.Y. is a 34-year-old Caucasian female who works on a computer eight hours per week. She had been fitted with contact lenses four years ago. Everything had been going well except that in the last six months she reported recurrent episodes of contact lens intolerance. Since the beginning, she had been wearing sefnilcon A (Acuvue Oasys, Johnson & Johnson Vision Care) lenses and she had never cleaned them with anything other than a Polyquad-based lens care solution.

Case 3

S.P. is a 39-year-old Latino male who underwent LASIK surgery 10 years ago. He resumed contact lens wear

TAKE-HOME MESSAGE Contact lens wearers are dropping out for comfort and vision reasons. Contact lenses can be considered a significant cause of these symptoms if they contribute to an unstable tear film or trigger inflammatory reactions. Conversely, they can help to restore ocular surface condition by regenerating a friendly and moist environment for the cornea and the conjunctiva. Three cases show by example.

Figure 1. In Case 1, noncompliance may lead to the development of chronic inflammation mimicking symptoms of eye dryness.

See Contact lenses and dry eye on page 28
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Contact lenses and dry eye
Continued from page 26

one year ago to improve intermediate and near vision. At this visit, he is complaining of not being able to tolerate his contact lenses for more than four hours per day. What’s the common link among these patients?

These patients are not wearing the same type of contact lenses, do not share the same care regimen, do not live in similar environments, and their age, gender, and ethnic background vary. However, they are all complaining about discomfort and/or ocular dryness. While the circumstances are different for each patient, contact lenses can be considered a cause or a remedy to fix their problems.

Defining and tracking contact lens discomfort
According to the Tear Film and Ocular Surface Society (TFOS) Workshop, contact lens discomfort (CLD) is characterized by “episodic or persistent adverse ocular sensations related to lens wear, either with or without visual disturbance, resulting from reduced compatibility between the contact lens and the ocular environment, which can lead to decreased wearing time and discontinuation of contact lens wear.”

This clinical entity affects over 50 percent of contact lens wearers and is considered the primary reason for dropping out of lens wear in patients under 45 years old. It is crucial to track signs and symptoms of CLD before symptoms reach the threshold where the benefits to wear contact lenses decrease. When this happens, patients simply decide to drop out, not knowing that other options exist.

Simple key questions to ask during case history can help to track the process.
- When are you applying and removing your lenses?
- When would you like to remove them?
- How is your vision in the morning, during the day, while doing computer work, driving at night?
- Usually the most powerful question to ask is the last: If you could improve one aspect related to your contact lens experience, which one would it be? This answer is very important and must be addressed by the practitioner.

The quest for CLD continues with the identification of clinical signs, especially those that could be related to subclinical chronic inflammation:
- Telangiectasia of the lower lids
- Posterior blepharitis
- Conjunctival redness
- Chemosis or staining
- Engorgement of the blood vessels and loss of corneal transparency at the limbus
- Lower-third corneal staining
- Lid wiper epitheliopathy (lissamine green staining)
- Conjunctival papillary reaction

A combination of signs and symptoms should raise a red flag and prompt the practitioner to address these challenges.

Many intolerant contact lens wearers are marginal dry eye patients. This means that, without contact lenses, they present with an unstable tear film, driving symptoms when exposed to a specific and challenging environment. The same individuals, fitted with contact lenses, become rapidly symptomatic of eye dryness and lens intolerance. Contact lenses should then be perceived as a cause that contributes moving an episodic condition to a chronic stage.

Treat the ocular surface first
Most practitioners will try switching patients from chemical multi-purpose care solutions to a hydrogen peroxide system as a first step. This can help for a short period, but symptoms will recur in the long term. The next step will be to eliminate the use of any solution by refitting the patient into contact lenses and dry eye

See Contact lenses and dry eye on page 30
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Contact lenses and dry eye

Continued from page 28

daily disposable lenses. Again, a short-term victory will be celebrated, but in some cases symptoms will remain. A better pathway would be to take sufficient time to evaluate accurately the ocular surface, restore it, and then consider refitting the patient with ocular-friendly contact lens options.

Managing our example patients

Let’s go back to the three example patients. How can we best manage these patients?

Case 1

The real cause of the patient’s symptoms here is not contact lenses per se. In fact, the patient’s inherent risk factors and noncompliance are contributing to degrade contact lenses and to lower their clinical efficacy (Figure 1).

In such cases, it is very difficult to change many bad habits at the same time. A step-by-step approach with proper patient education, is the basis for a successful long-term rehabilitation. This patient is stretching lenses for up to a month of wear. Logically, it is preferable to fit him in a monthly disposable instead of a biweekly one. Because it is preferable to fit lenses to a patient rather than trying to fit a patient in a lens modality, high-Dk monthly disposable lenses can work. Alternatively, refractive surgery can represent a valid alternative.

Case 2

This is a typical contact lens-associated infiltrative keratitis (CLAIK) case (Figure 2). This type of adverse event is not related to the contact lenses but rather an interaction between the lenses and the care regimen. It has been characterized by wax and wane symptoms of lens intolerance, low conjunctival hyperemia, the presence of multiple non-infectious infiltrates associated with limited corneal staining and no haze around the infiltrates.

This reaction is an inflammatory response to trapped debris and toxins under the lenses. Mostly associated to the combination of se-noficon A lenses and Polyquad-preserved contact lens solution, it can also be seen with several other lens-solutions combinations. During lens wear, if the lens is not moving and tear mixing is not sufficient, bacterial toxins remain trapped and trigger an immune response clinically seen as the infiltrative keratitis. This keratitis will resolve in a few days with lubrication of the ocular surface only or even before if steroids are used.

As with other immune responses, recurrence is common, especially if the same lenses and the same solutions are resumed. It is mandatory to refit the patient with a lens that is moving. It is even better to consider daily disposable lenses to eliminate use of solutions to limit the deposition on the lens surface and its contamination by pathogens.

A fair number of post-refractive surgery patients are showing eye dryness symptoms because of a chronic alteration of the feedback loop, originating from the sensory nerves of the cornea. This chronic aqueous-deficient eye dryness impacts visual acuity, comfort, and ocular health. Soft contact lenses dehydrate due to evaporation, which contributes to increased symptoms.

Aqueous-deficient dry eye should be treated aggressively by increasing lubrication, prescribing topical cyclosporine A (Restasis, Allergan) to enhance tear production, and finding contact lenses able to restore visual acuity. Scleral contact lenses maintain a hydrated environment over the cornea and the conjunctiva, they do not dehydrate, and they are very effective to protect the eye from allergen exposure. Consequently, in this case, scleral contact lenses can be considered a remedy.

Take a closer look at your patients

Contact lens wearers are dropping out of this modality for reasons related mainly to comfort and associated dryness. Contact lenses can be considered a significant cause of these symptoms if they contribute to an unstable tear film or if they challenge the immune system to the point of triggering inflammatory reactions. On the other hand, contact lenses, including scleral lenses, can help to restore ocular surface condition by regenerating a friendly and moist environment for the cornea and the conjunctiva.

Practitioners should proactively track potential contact lens dropout. Once found, these patients should be considered as marginal dry eye patients or very sensitive to the presence of deposits, pathogens, chemicals, or other elements able to trigger immune reaction. It is important to reinforce the fact that any concern with the ocular surface should be treated before considering contact lens wear or as a first step to improve the contact lens wearing experience.

Figure 3. In Case 3, the severe eye dryness hallmark is the presence of diffuse corneal staining located in the lower third of the cornea.

**REFERENCE**


Dr. Michaud is president of College of Optometrists of Quebec. langis.michaud@umontreal.ca
Understanding and defining MGD

The TFOS MGD workshop established standards for better diagnosis and treatment

By Leslie E O’Dell, OD, FAAO

Meibomian gland dysfunction (MGD) is now known to be the leading cause of dry eye disease (DED) in more than 86 percent of patients. This knowledge has caused a paradigm shift in our understanding. Prevalent symptoms may include blurry vision, discomfort, excess tearing, lid irritation, or even burning sensations. There are about 31 meibomian glands within the superior lid and 26 glands in the lower lid. These large sebaceous glands were discovered in 1666 by Heinrich Meibom and release meibum, a clear oily substance into the tear film to protect the ocular surface from evaporation of the aqueous layer and to provide stabilization of the tear film by lowering surface tension.

TFOS establishes standards

Until recently, a global consensus on the definition, classification, diagnosis, or therapy of MGD didn’t exist. The nonprofit Tear Film and Ocular Surface Society (TFOS) tackled this lack of knowledge with its International Workshop on Meibomian Gland Dysfunction.

The objectives of the MGD Workshop were to:
- Conduct an evidence-based evaluation of meibomian gland structure and function in health and disease
- Develop a contemporary understanding of the definition and classification of MGD
- Assess methods of diagnosis, evaluation, and grading of severity of MGD
- Develop recommendations for the management and therapy of MGD
- Develop appropriate norms of clinical trial design to evaluate pharmaceutical interventions for the treatment of MGD
- Create a summary of recommendations for future research in MGD

The MGD Workshop required more than two years to complete. A team of 50 of the world’s clinical and basic research experts participating were separated into subcommittee dedicated to different areas of focus (Table 1).

As practitioners, we need to regularly update our skills and knowledge about ocular surface diseases

The MGD Workshop was tasked to sort through the literature to determine proper terminology of conditions affecting the lid margin. Review the terminology, gland anatomy, gland expression classifications, and treatment strategies.

### TAKE-HOME MESSAGE

The Tear Film and Ocular Surface Society’s Meibomian Gland Workshop was tasked to sort through the literature to determine proper terminology of conditions affecting the lid margin. Review the terminology, gland anatomy, gland expression classifications, and treatment strategies.

### TABLE 1. TFOS MGD workshop subcommittees

<table>
<thead>
<tr>
<th>Definition and classification</th>
</tr>
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<tbody>
<tr>
<td>Anatomy, physiology, and pathology</td>
</tr>
<tr>
<td>Tear film lipids</td>
</tr>
<tr>
<td>Epidemiology and associated risk factors</td>
</tr>
<tr>
<td>Diagnosis</td>
</tr>
<tr>
<td>Management and treatment</td>
</tr>
<tr>
<td>Clinical trials</td>
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### TABLE 2. MGD condition definitions

<table>
<thead>
<tr>
<th>Blepharitis</th>
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<tr>
<td>A general term describing inflammation of the lid as a whole; marginal blepharitis is inflammation of the lid margin and includes both anterior and posterior blepharitis</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Anterior blepharitis</th>
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</thead>
<tbody>
<tr>
<td>Inflammation of the lid margin anterior to the gray line and concentrated around the lashes. It may be accompanied by squamous debris or collarettes around the lashes, and inflammation may spill onto the posterior lid margin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marginal blepharitis</th>
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<tbody>
<tr>
<td>Inflammation of the lid margin and includes both anterior and posterior blepharitis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Posterior blepharitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflammation of the posterior lid margin, which may have different causes, including MGD, conjunctival inflammation (allergic or infective), and/or other conditions, such as acne rosacea</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Meibomian gland dysfunction (MGD)</th>
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</thead>
<tbody>
<tr>
<td>A chronic, diffuse abnormality of the meibomian glands, commonly characterized by terminal duct obstruction and/or qualitative/quantitative changes in the glandular secretion. It may result in alteration of the tear film, symptoms of eye irritation, clinically apparent inflammation, and ocular surface disease</td>
</tr>
</tbody>
</table>
Dry Eye

posterior blepharitis.” Posterior blepharitis is caused by four factors: MGD, infection, allergy, and systemic origins, such as rosacea. The TFOS MDG Workshop defined MGD as “a chronic, diffuse abnormality of the meibomian glands, commonly characterized by terminal duct obstruction and/or qualitative/quantitative changes in the glandular secretion. This may result in alteration of the tear film, symptoms of eye irritation, clinically apparent inflammation, and ocular surface disease.”

Gland anatomy review
Meibomian glands are composed of a series of secretory acini lined with secretory cells called meibocytes connected to smaller ductule and then to a straight central duct extending throughout the tarsal plate and opening posteriorly on the lid margin. With the blink, the relaxation and constriction of the muscle of Riolan excretes meibum to the ocular surface and limits unwanted outflow of meibum. In the absence of blinking, such as during sleep and extended computer or smartphone use, there is an excess buildup of meibum in the ductal system. Muscular action through thoughtful blinking significantly increases the lipid layer thickness and can be therapeutic in patients with mild obstruction.

The superficial location of the glands allows for imaging of the glands with transillumination at the slit lamp and with meibography. Due to this growing area of understanding, new technologies make meibography more affordable and both user and patient friendly. Most commonly used devices for meibography are the Oculus Keratograph 5M, TearScience LipiView II, and a new portable version TearScience Lipiscan. The images captured thru meibography not only serve as a great diagnostic for the practitioner but also a valuable tool in educating patients to MGD.

Classification of gland expression
MGD is diagnosed based on expression of the meibomian glands and classified into two major types based on the meibomian secretion:
- Low delivery states, the most frequent cause
- High delivery states

Low delivery or obstructive MGD is caused primarily by terminal duct blockage, often from hyperkeratinization of the ductal epithelium, keratinized cell debris, and increased meibum viscosity. Cicatricial changes can be noted with obstructive MGD. The process of low delivery is influenced by both endogenous factors (age, sex, hormones) and exogenous factors (contact lens wear, retinoids, systemic disease).

High delivery or hypersecretion and seborrhea are increases in lipid at the lid margin and are primary or secondary in origin as the case of acne rosacea.

Lipid-based artificial tear supplements improve tear film stability and signs and symptoms of MGD

To have successful patient outcomes, a standardized exam is needed. Before the TFOS MGD Workshop, treatment of MGD was widely underdiagnosed and treatments varied greatly from one practitioner to the next.

Table 3: Diagnosing MGD

<table>
<thead>
<tr>
<th>Symptom questionnaire (SPEED)</th>
<th>Blink rate</th>
<th>Tear meniscus height</th>
<th>Tear osmolarity</th>
<th>Tear break-up time</th>
<th>Fluorescein staining of conjunctiva and cornea</th>
<th>Schirmer test or phenol red thread test</th>
<th>Meibomian gland evaluation (lid features, gland expression, meibography)</th>
</tr>
</thead>
</table>

Table 4: MGD grading scale

<table>
<thead>
<tr>
<th>Level 0 Normal</th>
<th>Level 1 Subclinical</th>
<th>Level 2 Symptomatic Minimal</th>
<th>Level 3 Symptomatic Mild</th>
<th>Level 4 Symptomatic Moderate</th>
<th>Level 5 Symptomatic Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptoms</td>
<td>None</td>
<td>Asymptomatic or occasional symptoms</td>
<td>Some of the time, precipitated by environmental factors</td>
<td>Half of the time, some limitations of activity</td>
<td>Most of the time, frequent limitation of activity</td>
</tr>
<tr>
<td>OSDI (0-100)</td>
<td>0</td>
<td>0-12</td>
<td>0-12</td>
<td>13-22</td>
<td>23-32</td>
</tr>
<tr>
<td>MGD Grade</td>
<td>Clear</td>
<td>Non-obvious MGD, no gland loss</td>
<td>Minimally altered quality of expressed meibum from scattered glands, none to minor loss of glands</td>
<td>Mildly altered meibum quality; occasional lid margin sign: mild gland loss</td>
<td>Moderately increase opacity and viscosity of meibum. Plugging, increase vasculature, loss of glands</td>
</tr>
<tr>
<td>Quality of expressed meibum grade range 0-3 of 8 glands (0-24)</td>
<td>0</td>
<td>1-5</td>
<td>6-10</td>
<td>11-15</td>
<td>16-20</td>
</tr>
</tbody>
</table>
next. One of the goals for the Workshop was to look at evidence-based treatments and develop diagnostic testing and preferred practice guidelines. The TFOS MGD workshop created a sequence of tests to more systematically diagnose MGD (Table 3). Once a solid diagnosis with staging of MGD is made, we can refer to the treatment recommendations, which provide the practitioner with an evidence-based approach for the management of MGD (Table 4).

**Before the TFOS MGD workshop, treatment of MGD was widely underdiagnosed and treatments varied greatly from one practitioner to the next**

Treatments for MGD vary and include topical artificial lubricants, topical lipid supplements, eyelid warming at home and in-office, mechanical lid hygiene, topical and oral antibiotics, omega-3 fatty acids, and demodex mite management. Studies have shown that lipid-based artificial tear supplements improve tear film stability and signs and symptoms of MGD. Eyelid warming and lid hygiene was found to be commonly recommended but poorly standardized.

At the time of the report, demodex mite blepharitis was not found to be a cause of MGD. And in conclusion of the evidence review it was determined that further randomized controlled masked clinical trials of patients with well-defined MGD are needed to determine efficacy across disease severity.

Use the TFOS Meibomian Gland Dysfunction Workshop report as your how-to guide for diagnosis and treatment of MGD. Remember that in the early stages of the disease, patients are often asymptomatic; if left untreated, MGD can cause or exacerbate dry eye symptoms. While MGD is chronic and progressive, it can be effectively treated if diagnosed early.

**REFERENCES**

Blepharitis

Continued from page 1

to as a single disease state; however, there are multiple presentations which are not the same at all. To complicate things, there is inconsistency in terminology in addition to challenges related to overlap with other ocular surface diseases such as dry eye disease and allergic conjunctivitis. All three may present with similar signs and symptoms which, if not properly identified, will not be optimally treated.

Anterior blepharitis is an inflammation of the eyelid margin anterior to the gray line and concentrated around the lashes. The condition is typically associated with gram-positive bacteria, most commonly staphylococcal infections (Staphylococcus aureus and Staphylococcus epidermidis).

Other causes include dry eye disease, Demodex mite infestations, rosacea, seborrheic dermatitis, isotretinoin, and giant papillary conjunctivitis. Typical clinical findings include debris or collarettes at the base of the eyelashes, erythema, and edema of the lid margin. Symptoms and presentation can be acute or chronic.

The most common forms of anterior blepharitis:

- **Staphylococcal blepharitis** exhibits mildly sticky eyelids, thickened lid margins, and missing/misdirected eyelashes. This presentation also includes the hallmark signs of lid swelling—erythema of the lid margins, scaly collarettes at the base of the lashes, and possible skin ulceration. The three possible mechanisms underlying staphylococcal blepharitis include direct bacterial infection, a reaction to bacterial exotoxins, or a cell-mediated hypersensitivity response to bacterial antigens.

- **Seborrheic blepharitis** presents with foamy, greasy flakes or scales around the base of eyelashes and a mild redness of the eyelids. It is part of a dermatologic condition that includes the scalp, face, and eyebrows (seborrheic dermatitis) and may be associated with rosacea and acne vulgaris.

- **Ulcereative blepharitis** presents with matted, hard crusts around the eyelashes. Eyelash loss, distortion of the front edges of the eyelids, and chronic tearing are frequently associated.

- **Demodex blepharitis** is an inflammatory reaction to a common mite that inhabits the eyelash follicles. Demodex mites are the most common microscopic ectoparasite found in the human skin. Classic symptoms include itching, burning, foreign body sensation, crusting and redness of the lid margin, and blurry vision. In addition to cylindrical dandruff found in Demodex blepharitis, persistent inflammation of the lash follicles may lead to malalignment, trichiasis or madarosis.

Posterior blepharitis, or meibomian gland disease, is a chronic, diffuse abnormality of the meibomian glands, commonly characterized by terminal duct obstruction, and qualitative and quantitative changes in the glandular secretion. Meibomian gland dysfunction may result in alterations of the tear film, symptoms of eye irritation, clinically apparent inflammation, and ocular surface disease.

Patients may be asymptomatic or symptomatic and may present clinically or subclinically. The diagnosis is made via the number of meibomian gland expression, quality of meibomian gland secretion, and loss of gland structure and function.

As the disease progresses, symptoms develop and lid margin signs may include inflammatory reaction to bacterial antigens.

**TABLE 1** Treatment algorithm for anterior blepharitis.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>TREATMENT</th>
</tr>
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</table>
| Asymptomatic and mild (signs/symptoms) | Patient education  
Warm compresses  
Lid scrubs  
+/- Artificial lubricants (topical emollient lubricants) |
| Moderate (signs/symptoms) | Patient education  
Warm compresses  
Lid scrubs  
+/- Artificial lubricants (topical emollient lubricants)  
Topical antibiotic  
+/- topical steroid (2 weeks maximum) |
| Severe (signs/symptoms) | Patient education  
Warm compresses  
Lid scrubs  
+/- Artificial lubricants (topical emollient lubricants)  
Topical antibiotic  
+ topical steroid (2 weeks maximum) |

spissated meibomian glands, telangiectasia, and thickened eyelid margins. At this point, an MGD-related posterior blepharitis is present. The end result is a decrease in the quality of the lipid layer of the tear film resulting in evaporative dry eye disease.

With many presentations of blepharitis, there is a need to identify and classify the condition to allow for a clinically straightforward diagnostic and treatment algorithm.

**STEP 2 Understand the prevalence and who is affected**

The second step in addressing blepharitis is to appreciate why it matters and who is affected. As optometrists, we are judged by the ocular comfort and quality of vision for our patients. We understand that ocular surface disease, including dry eye disease, ocular allergy, and both anterior and posterior blepharitis, plays a role. So the question remains, who gets blepharitis?

According to a 2009 survey, ophthalmologists and optometrists reported that 37 percent and 47 percent of patients, respectively, present with some form of blepharitis whether symptomatic or asymptomatic. MGD (may be a form of posterior blepharitis) is considered to be the most common cause of evaporative dry eye disease. According to Venturino et al, in patients seeking an eye examination because of ocular discomfort or irritation, the prevalence of posterior blepharitis was 24 percent, dry eye disease 21 percent, and anterior blepharitis 12 percent. Nonetheless, symptomatic patients are typically the easiest to identify and treat with available treatment options.

The key to Step Two is to understand the high prevalence of this condition and to identify patient whether asymptomatic or symptomatic.

**STEP 3 Listen to patient complaints and look for the disease**

The third step in blepharitis management is listening to our patients’ complaints and looking for the disease—even if they do not present with symptoms. Whether patients present for a routine evaluation, contact lens fitting, surgical evaluation, or something else, a thorough evaluation is needed.

**4 steps to beating blepharitis**

1. Understand the differences among presentations
2. Know the prevalence and who is affected
3. Listen to patients and look for this disease
4. Treat and manage appropriately

See **Blepharitis** on page 36

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Blepharitis
Continued from page 35

tion of the lids and the ocular surface must be performed in order to promote and address the ocular health and surface.
Blurred and fluctuating vision can affect all of our patients and can lead to remakes of glasses. Contact lens wearers want to wear their lenses comfortably throughout the day, and all forms of blepharitis can lead to contact lens dropouts due to this discomfort. Blepharitis can also lead to the increased risk of ocular infections and inflammatory conditions such as contact lens-related red eye, marginal keratitis, and corneal ulcers.

What about our surgical patients? With the rise of our cataract population, we need to be concerned about the risk of endophthalmitis due to bacteria on the lid flora. According to the Endophthalmitis Vitrectomy Study, 70 percent of isolates were gram-positive, coagulase-negative organisms (primarily Staphylococcus epidermidis), 24 percent were other gram-positive organisms, and 6 percent were gram-negative organisms. A diagnostic algorithm for blepharitis includes a comprehensive eye evaluation and thorough history. Age and associated skin disorders (dermatitis, rosacea, and acne vulgaris) must be considered.

For anterior blepharitis, looking for symptoms of morning lid stickiness or crusting, burning, and acute/chronic may be clues to the diagnosis as well as the signs of lid erythema, edema, and debris.

For MGD and posterior blepharitis, symptomatic or asymptomatic patients present with some form of blepharitis, whether symptomatic or asymptomatic

TABLE 2 Treatment algorithm for MG

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CLINICAL DESCRIPTION</th>
<th>TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No symptoms of ocular discomfort, itching, or photophobia Clinical signs of MGD based on gland expression No ocular surface staining</td>
<td>Patient education (impact of diet, work/home environments, systemic medications) Consider eyelid hygiene including warming/expression</td>
</tr>
<tr>
<td>2</td>
<td>Minimal to mild symptoms of ocular discomfort, itching, or photophobia Minimal to mild MGD clinical signs None to limited ocular surface staining</td>
<td>Patient education (Improving ambient humidity, optimizing workstations, omega-3 supplementation) Institute eyelid hygiene with warming followed by firm massage and expression All the above, plus: Artificial lubricants Topical atropine spray Topical emollient lubricant or liposomal spray Consider oral tetracycline derivatives</td>
</tr>
<tr>
<td>3</td>
<td>Moderate symptoms of ocular discomfort, itching, or photophobia with limitations of activities Moderate MGD clinical signs Mild to moderate conjunctival and peripheral corneal staining</td>
<td>All the above, plus: Oral tetracycline derivatives Lubricant ointment at bedtime Anti-inflammatory therapy for dry eye as indicated</td>
</tr>
<tr>
<td>4</td>
<td>Marked symptoms of ocular discomfort, itching, or photophobia with definite limitations of activities Severe MGD clinical signs Increased conjunctival and corneal staining Increased signs of inflammation</td>
<td>All the above, plus: Anti-inflammatory therapy for dry eye</td>
</tr>
</tbody>
</table>

IN BRIEF
CenterVue gets OK for low vision platform

FREMONT, CA, AND PADOVA, ITALY—CenterVue Inc. has received 510(k) clearance for FXision Training for the MAIA platform, a technology designed to help patients rehabilitate from vision loss using audio feedback. The designation will permit CenterVue to initiate clinical trials of the device and to continue development of a technology that may help patients improve vision.

The MAIA Microperimeter is used to assess a patient’s visual function and fixation stability, according to CenterVue. FXision Training can be utilized if the area of fixation within a patient’s retina is inadequate to provide stable vision. A projected stimulus is moved to a different position and an auditory tone is used to signal to the patient that stable vision has been achieved. By repeated test and response using the auditory signals, the patient learns to reposition his or her eye to achieve improved fixation stability.

Improved fixation stability can allow a patient to regain the ability to read, recognize faces and achieve an overall improved quality of life, according to the company. “With the development of Fixation Training for the MAIA, CenterVue is demonstrating its commitment to the growing number of individuals around the world living with low vision,” says William Burnham, OD, CEO of CenterVue, Inc.

“Te number of patients with decreased vision due to macular disease, glaucoma, and diabetes will likely double in the next 15 years,” he says. “It will be critically important to ensure that these individuals have the best ability to live fulfilling lives with no trade off in quality of life due to visual compromise.”

Fixation stability is a critically important element to successful vision rehabilitation, according to Samuel N. Markowitz, MD, FRCS(C), director of the low vision rehabilitation program in the department of ophthalmology at the University of Toronto.

“This modality would add to the already powerful clinical utility of the MAIA Microperimeter,” he says. “I look forward to the outcomes of research with the Fixation Training module and the potential it offers to my patients.”

CenterVue products are sold in over 70 countries worldwide.

Symptoms will include burning, stinging, and fluctuating vision due to a poor lipid layer of the tears. Signs can be identified with meiboscopy (transilluminator), meibography (Lipiview II, TearScience) and diagnostic manual expression, using a Q-tip, fingertip, or Meibomian Gland Evaluator (TearScience), which will identify the number of secreting glands and the quality of secretions.

For chronic conditions, cultures of the eyelid margin may be indicated for patients who have recurrent anterior blepharitis or who are not responding to therapy. Another consideration is microscopic evaluation of epilated eyelashes may reveal Demodex mites, which have been implicated in cases of chronic blepharoconjunctivitis.

Prior to initiating treatment, providers must remember that both conditions may present concurrently; however, once correctly identified, treatment can be instituted. We must remember that we can’t find it if we aren’t looking for it.

**STEP 4** Treat and manage accordingly

Goals for the treatment and management of all forms of blepharitis include reducing the symptoms and signs, minimizing structural damage, and preventing loss of visual function. To accomplish these goals, providers must identify the condition, determine the severity, and treat accordingly.

Patient education is key to treatment for any ocular or medical condition, including blepharitis. Patients must understand that this is their condition and there is no cure; however, we are going to help them manage it.

Warm compress, eyelid hygiene, nutraceuticals, topical/oral antibiotics, and topical anti-inflammatories have been the traditional mainstay of treatment. Showing patients how to properly use each treatment will help with compliance and adherence.

See Blepharitis on page 38
Blepharitis
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Basic treatment
The basic treatment regimen for all forms of blepharitis utilize a combination of warm compresses, lid scrubs, and nutraceuticals. For both anterior and posterior blepharitis, warm compresses are used to promote meibomian gland secretion and loosen eyelid scurf prior to lid hygiene.

Eyelid scrubs, which include diluted baby shampoo or detergent-based products, are available in foam surfactant cleansers (such as Ocusoft Foam Plus or TheraTears Steril-lid), which remove debris and excessive oils from the lid margin.

In the last several years, hypochlorous acid (HOCI) has been become a popular treatment for blepharitis. HOCI prescription (Adenova, NovaBay) and non-prescription (Hy-pochlor, OcuSoft) eyelid cleaners incorporate 0.01% and 0.02% HOCI, respectively, which is found in our innate immune system. HOCI is produced by our bodies’ neutrophils, which can help kill bacteria, block bacterial derived toxins, and slow the effects of human cell-derived pro-inflammatory mediators.

Anterior blepharitis is an inflammation of the eyelid margin anterior to the gray line and concentrated around the lashes

For patients who present with demodex blepharitis, tea tree oil has become the mainstay of treatment. Cliradex (BioTissue) lid wipes have become the primary treatment for patients with Demodex blepharitis. The active ingredient, 4-terpineol from tea tree oil, has been identified as the most potent demodicidal element. It is prescribed twice daily for several weeks, then at bedtime to maintain coverage throughout the life cycle of the mite.

Topical/oral antibiotics and anti-inflammatories
The severity of the condition and the presence of inflammation will determine the utilization of antibiotics and anti-inflammatories (see Table 1). Most current topical antibiotics are not sufficient for the treatment of blepharitis because of the inability to penetrate and remain active in the lid tissues.

Erythromycin ointment is a cost-effective option which provides both antibacterial coverage as well as anti-inflammatory effects. It can also be beneficial for patients who suffer from concurrent nocturnal lagophthalmos.

Azithromycin 1% ophthalmic solution (AzaSite, Inspire Pharmaceuticals) has been shown to be antimicrobial to common eyelid bacteria as well as address inflammation by inhibiting pro-inflammatory cytokines and matrix metalloproteinases (MMPs).

In several studies, AzaSite has shown improved bioavailability in the target tissues without continuous dosing, which is significant in the treatment of this chronic blepharitis. AzaSite is applied by rubbing or massaging the medication onto the lid margins one to two times daily.

For patients with moderate-to-severe or unresponsive posterior blepharitis, oral antibiotics such as tetracycline derivatives and loteprednol etabonate 0.5%/tobramycin 0.3% ophthalmic suspension (Zylet, Bausch + Lomb) These options allow us to address inflammation while reducing the bacterial load on the ocular surface. However, with any corticosteroid treatment, we must be cautious of the effects of long-term use. Due to the concurrent nature of blepharitis and dry eye, cyclosporine 0.5% (Restasis, Allergan) can be used to treat inflammation, especially for posterior blepharitis, meibomitis, or chronic rosacea.

There have been multiple innovations in blepharitis treatment which has helped manage patients’ chronic condition. Devices such as BlephEx (Rysurg), Lipiflow (TearScience), and Mibo Thermoflo (Mibo Medical Group) have improved our ability to fully address the underlying causes of blepharitis for both anterior and posterior blepharitis.

In our experience, we utilize a combination of treatments to reduce the bacteria load and biofilms while improving MG secretions and symptoms scores.

BlephEx is an in-office tool that allows an eyecare provider to safely microblepharoexoliate, or deep clean, the eyelid margin and the base of the eyelashes. It is a painless procedure that can be performed by an optometrist or technician to clean both the anterior and posterior lid margins. In addition to mechanical debridement, the cleaning agent used for the procedure will help kill bacteria. This procedure effectively removes bacteria, biofilm, and debris from the patient’s eyelids.

TearScience’s LipiFlow is a thermal pulsation treatment that combines heat with physical massage to liquefy and express the meibomian gland contents. LipiFlow is a 12-minute procedure that is FDA-approved to restore gland function in patients with meibomian gland dysfunction.

The device consists of activators that are placed beneath the eyelids and vault over the globe. The activator produces heat, up to 109°F, outward to the glands while utilizing rubber pads that apply pulsatile pressure to the eyelids to remove gland obstructions and express contents of the glands.

| Posterior blepharitis, or meibomian gland disease, is an inflammation of the posterior lid margin, which can have different causes | 47% of optometry patients present with some form of blepharitis, whether symptomatic or asymptomatic |

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Patients may be asymptomatic or symptomatic and may present clinically or subclinically

In a three-year study, meibomian gland secretion scores and the Standard Patient Evaluation of Eye Dryness (SPEED) scores showed improvement continued at three years. Tear film break-up time (TBUT) and the average Ocular Surface Disease Index (OSDI) score both showed improvement at one month but were no longer statistically significant at one year and two years, respectively.21

Intense Pulsed Light Therapy (IPL) is a laser treatment designed to heat the meibomian glands in patients with MGD and evaporative dry eye disease. Originally used to treat conditions such as rosacea, sun damage, and hair removal, IPL is now used to direct high intensity bursts of light along the lower eyelids and upper cheek to liquify the hardened secretions that plug the meibomian glands.26 IPL closes irregular blood vessels to reduce telangiectasia of the eyelids.

Take steps for accurate diagnosis

With up to 50 percent of our patients presenting with some form of blepharitis, it is important that we take a step-by-step approach to accurately diagnose blepharitis, educate and address our patients’ complaints, and treat and manage accordingly. This process includes identifying our asymptomatic patients and those who do not associate their symptoms with blepharitis.

Despite its prevalence, blepharitis is still often overlooked, misdiagnosed, and therefore suboptimally treated, which is why it is so important for practitioners to be cognizant of the condition.

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Aaron Tarbett, OD
Optometrist, WG Hefner VA Medical Center, Salisbury, NC

Optometry in the White House, TBI, and military lingo

What drew you to practicing in the military?
When I graduated optometry school, I moved to Virginia Beach in the Norfolk area without a job, with nowhere to live, and I decided that was the place I wanted to start. I was unemployed only a few months—I got to the Walter Reed Army Medical Center because a classmate of mine was stationed there.

What were some of the day-to-day battlefield injury cases you treated?
Most of the major stuff is going to be managed by ophthalmology. For optometry, the big stuff we would see would be traumatic brain injury (TBI). Of course, we’d see the fallout from globe injuries, whether it be corneal perforations or open globes. We did have scarred corneas—we fit a lot of medical contact lenses to help patients see better following their recovery.

Did your research into blast-induced mild TBI find any civilian applications?
We were looking at technology to pre-screen new guys before they were exposed to blasts and then do the same tests as pre-deployment. Nothing has been implemented as far as I know. TBI is everywhere—you hear it not only with our soldiers returning from the battlefield but with sports-related injury, particularly chronic traumatic encephalopathy (CTE). The level of TBI is much greater, and we’re dealing with fallout that we hadn’t recognized in the past. Everyone has become more aware.

What was it like as White House optometrist to both the Bush and Obama administrations?
It was pretty stressful when I first saw those guys. You’d hear his voice on TV, and I’d be waiting in my exam room hearing him come in. Wow, that’s the voice I’ve heard so many times, especially with Bush after 9/11. The initial examinations with them and meeting them was a little nerve-wracking, but we ended up having a great rapport. Taking care of them was really a pleasure.

What was your biggest challenge as a military OD?
There were challenges day to day with everything from the wounded soldier and family members who come through to all the government training to provide care in the clinic. Having to know all the military terms and everything else that goes along with it. As far as a civilian optometrist in the military, I think you need to be pretty flexible and pretty engaged to keep up with everything because things do change quite a bit. You have to deal with “up tempo,” as they say; you have to deal with furloughs and things come with lack of government funding. There’s a lot of things that you can’t control. That’s probably the biggest challenge in the military: lack of control.

What was the biggest challenge coming from a civilian practice and joining Walter Reed?
[Laughs] Probably getting all the ranks correct for Navy and Army. Being able to delineate a staff sergeant from a sergeant major. Getting used to the time change, 1500 hours instead of 3 o’clock. Those were the big things in acclimated to the military and not having gone through boot camp for an introduction.

Why should young ODs consider working with patients in the military?
I think the military is fantastic, whether they take a DOD position as a civilian with military patients or they go into the military themselves. I had great colleagues and phenomenal doctors at the military facilities. Plus the most appreciative, polite, respectful patients you’ll ever encounter. And they actually do what you say. They are used to following orders, being active duty, so they’ll actually follow your recommendations. If not, their commander will lay it on them. I can’t imagine a better place to work.

Was it a relief to leave the White House?
[Laughs] Because I was a civilian in a position typically held by military, I would never have to leave unless they made a change themselves. I always told myself I was never going to stay indefinitely, except it’s a great opportunity for another OD to be White House optometrist. It was kind of a relief because not only are you the president’s OD, you’re also there for the White House, which means all the Cabinet members, all the staff, etc. Any time they have a question, they’re calling you. I was on-call quite a bit. To finally give that up wasn’t the worst thing in the world.

What do you do for down time?
I have way too many hobbies. I’m always getting yelled at for all the equipment I have around. I like a lot of activities. I play a lot of chess, read a lot books, a lot of different things.

—Vernon Trollinger

To hear the full interview with Aaron Tarbett, listen online: optometrytimes.com/AaronTarbett

Photo courtesy Aaron Tarbett, OD

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