February 2014
VOL. 6, NO. 2

Optometry Times®
OptometryTimes.com

Sauflon enters U.S. contact lens market

SiHy daily disposable clariti 1day offers low price point

By Gretchyn M. Bailey, NCLC, FAAO

exclusively to *Optometry Times*. "Practitioners

Wells. "We've been working our way through

*AIR OPTIX® NIGHT & DAY® AQUA (lotrafilcon A) contact lenses: Dk/t = 175 @ -3.00D. Other factors may impact eye health. **Extended wear for up to 30 continuous nights, as prescribed by an eye care practitioner.

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

References: 1. In a survey of 284 daily and extended wear contact lens patients. Alcon data on file, 2012. **2.** In a survey of 311 optometrists in the U.S.; Alcon data on file, 2012.

See product instructions for complete wear, care, and safety information.

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Sauflon enters U.S. contact lens market

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

UK-based Sauflon recently announced that it is entering the U.S. contact lens market with clariti 1day (somofilcon A), a daily disposable silicone hydrogel lens.

"The daily disposable market is growing, particularly the U.S. market," says Bradley Wells, managing director of Sauflon UK, speaking exclusively to *Optometry Times*. "Practitioners are upgrading patients into daily disposable products because it's the most convenient and safest way to wear contact lenses. Silicone hydrogel is giving patients the healthiest material. Patients can wear the lenses during the day as long as they want to."

At the same time, Sauflon is launching line extensions to clariti with clariti 1day toric and clariti 1day multifocal. "We are providing a line extension from the beginning," says Mr. Wells. "We've been working our way through FDA approval for our clariti range of products. It just happens that we've been able to bring new products to market quicker—that allows us to bring the family to market at the same time."

According to Sauflon, products are priced to allow eyecare practitioners (ECPs) to sell silicone hydrogel lenses at the same price as conventional hydrogel lenses. "The patient can benefit from silicone hydrogel products without having to pay more for them," Mr. Wells says. "This is what we call affordable innovation. We're looking for as many patients to benefit from silicone hydrogel daily disposable as possible. We have a process that allows us to bring products to market for ECPs to sell them at a very affordable price. Dailies Total 1 (Alcon) and TruEye (Johnson & Johnson Vision Care) are very premium-priced products, whereas clariti 1day is priced to be affordable."

In addition, Sauflon's policy, set in 1985, is to sell contact lenses only to ECPs. The company will locate and close down any channel supplying product to Internet outlets.

Sauflon is a privately owned manufacturer of both contact lenses and solutions. Mr. Wells's father Alan founded the company in 1985. "We started life as a solutions company, and in 2004 started to manufacture our own range of monthly and daily disposable lenses in methafilcon material," says Mr. Wells. The company introduced a range of silicone hydrogel lenses in 2008 and a year later launched clariti 1day, at the time the second daily disposable silicone hydrogel lens.**ODT**

How smart are your glasses?

Wearable tech at CES

Justin Bazan, OD

Wearable technology was the highlight of the recent 2014 Consumer Electronics Show (CES). I saw an increasing variety of fitness trackers, smart watches, and even smart glasses. Vuzix, GlassUp, and Epson had their latest models of smart glasses on display.

Vuzix M100 is an Android-based wearable computer with a monocular display in the form of eyewear. The onboard Android computer can run apps to allow the user to do such things as record and playback still pictures and video, track timed events, and manage a calendar. M100 was awarded the CES Innovations 2013 Design and Engineering Award Best Of Innovation. It is still the most current model available

M100 has the ability to wirelessly connect to other devices, such as a smartphone or inventory scanner. According to the company, it is a "16:9, WQVGA, full-color display that floats in or near your line of sight, providing an image visually equivalent to a 4-inch smartphone screen held at a typical 14 in. distance." It was designed for industrial use and can be mounted onto safety glasses or a headband.

M100 can be controlled via four buttons on the device, traditional smartphone software interface, or a paired Android device.

See **Wearable tech** on page 5

Spotlight on eyewear
The lastest smart eyewear models on display at the Consumer Electronics Show showcased a variety of features and functions, ranging from $299-$999 in price.

Photo: Vuzix

What does an allergiest want optometrists to know about seasonal allergies? Chief Optometric Editor Dr. Ernie Bowling finds out.

SEE PAGE 20

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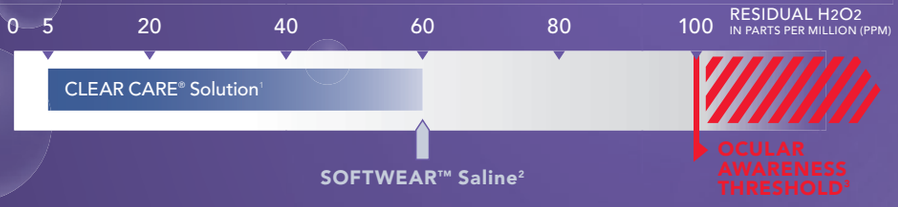

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1. Alcon data on file. 2. SOFTWEAR™ Saline package insert. 3. Paugh J, Brennan N, Efron N. Ocular response to hydrogen peroxide. Am J of Opt & Physical Optics: 1988; 65:2,91-98.

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Production
131 W. First St., Duluth, MN 55802-2065
800/346-0085 • FAX: 218/740-7223, 218/740-6576

OPTOMETRY TIMES (Print ISSN: 0890-7080, Digital ISSN: 2328-3904) is published monthly (12 issues) by Advanstar Communications Inc., 131 W. First Street, Duluth, MN 55802-2065. Subscription rates: $49 for one year in the United States & Possessions; $59 for one year in Canada and Mexico, and $89 for one year for all other countries. Periodicals Postage paid at Duluth MN 55806 and additional mailing offices. **POSTMASTER:** Please send address changes to OPTOMETRY TIMES, P.O. Box 6089, Duluth, MN 55806-6089. Canadian G.S.T. number: R-124213133RT001, PUBLICATIONS MAIL AGREEMENT NO. 40612608, Return Undeliverable Canadian Addresses to: IMEX Global Solutions, P. O. Box 25542, London, ON N6C 6B2, CANADA. Printed in the U.S.A.

Official publication sponsor of International Vision Expo & Conference New York; International Vision Expo & Conference Las Vegas

Optometry Times Mission Statement

Optometry Times is an optometry-driven publication that disseminates news and information of a clinical, socioeconomic, and political nature in a timely and accurate manner for members of the optometric community.

In partnership with our readers, we will achieve mutual success by:

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

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Wearable tech

Continued from page 1

Voice and gesture control are also supported. Users would include mechanics, medical staff and warehouse personnel. They are available for purchase for $999.

GlassUp displays data such as e-mails, text messages, tweets, Facebook messages, and other app updates. Information briefly appears peripherally, without obstructing field of view. The patented display system uses a microprojector fixed on the inside of the frame temple to show the image on the inner surface of the lens. The company hopes to deliver prescription lenses in the future.

GlassUp is a display system only and does not contain an onboard operating system. It is controlled via smartphone through Bluetooth. Built into the device is an accelerometer, compass, and ambient light sensor. The company envisions usage for athletes reviewing performance data, movie-goers reading subtitles, tourists viewing tour information, gamers playing augmented reality games, healthcare professionals reviewing patient data, and warehouse workers taking inventory. Several models are available for pre-order for June 2014 delivery. The basic model lists for $299; prescription, camera, and prescription camera models are also available.

Epson Moverio BT-200 utilizes dual mini LCD projection systems on each side of the frame to provide a binocular display. This allows the user to view digital content overlaid on the real world. Other features include compass, gyro, accelerometer, and front-facing camera. Moverio BT-200 allows for advanced augmented reality capabilities, including gaming and medical diagnostics, and is capable of delivering HD and 3-D video content.

Moverio BT-200 is controlled via Android device. Prescription and tinted inserts are available. The basic model, listing for $699, can be pre-ordered for a March 2014 ship date.**ODT**

In Brief

Quitting smoking may lower long-term cataract risk

Sweden—Smoking raises the risk of developing cataracts, but quitting may turn that around over time, according to a new study from Sweden.

Researchers followed nearly 45,000 Swedish men and found a gradual drop in cataract risk among former smokers—20 years after quitting, their risk had fallen by about half.

Data suggests a link between eye problems, like cataracts, and smoking, but this is one of the first studies to investigate whether quitting smoking makes a difference.

According to Birgitta Ejdervik Lindblad, MD, who led the study at Örebro University Hospital, there was a similar study on the association of smoking cessation and cataract extraction among 35,000 women, ages 49-83 in Sweden. Among the women who smoked 6-10 cigarettes per day, the relative risk of cataract extraction decreased over time and, after 10 years, the risk was not significantly different from the risk among those who never smoked.

But for those who smoked more than 10 cigarettes per day, it took 20 years before the cataract risk was no longer greater than for women who never smoked, Dr. Lindblad said.

To see whether the same held true for men, the research team followed the middle-aged and older men participating in a larger study through surveys and surgery records.

Between 1997 and 2009, the men had more than 5,700 cataract removals.

Men who currently smoked more than 15 cigarettes a day had a 42% greater risk of having cataract surgery than men who had never smoked.

More than 20 years after quitting, however, men who had smoked at that rate were at 20% greater risk for cataract removal compared to men who never smoked.

For men who had been lighter smokers, the increased risk of cataract fell more quickly after quitting, but never reached the level of those who had never smoked.

"It is never too late to stop smoking, but it takes a longer time for the lens to recover with higher smoking intensity," Dr. Lindblad said.

Carl Zeiss buys IOL manufacturer Aaren Scientific

Germany—Carl Zeiss Meditec AG announced it has acquired, through its subsidiary Carl Zeiss Meditec Inc., 100% of the shares in Aaren Scientific Inc., a U.S.-based manufacturer of intraocular lenses (IOLs). Aaren Scientific, headquartered in Ontario, CA, has been manufacturing IOLs for more than two decades.

The majority of shares in Aaren Scientific were owned by a private investment company as well as other investors, including the CEO and co-founder of Aaren Scientific, Rick Aguilera. Aguilera and the management team will remain after the transaction.

Aaren Scientific was the first manufacturer of IOLs in the U.S. to receive a CE registration and is well known for its innovative R&D capabilities. The company currently has 235 employees. In 2012, Aaren Scientific achieved total revenues of approximately $20 million, primarily generated outside of the U.S. The company will be integrated into the Strategic Business Unit (SBU) Surgical Ophthalmology of Carl Zeiss Meditec and complements the existing Zeiss IOL development and manufacturing sites in Berlin, Germany, and La Rochelle, France. The SBU Surgical Ophthalmology has continuously reported above market growth rates for the last 3-4 years driven by strong demand for innovative IOLs.

Ellex acquires iScience Interventional

Adelaide, Australia—Ellex Medical Lasers Limited recently announced that it has recently acquired the canaloplasty business of US-based iScience Interventional, Inc., which comprises the iTRACK 250 catheter and suture device for the treatment of mild to moderate glaucoma.

Canaloplasty is an advanced, minimally invasive procedure for the treatment of mild to moderate glaucoma. Offering significant advantages to traditional trabeculectomy, it can also be used in conjunction with existing laser and drug-based glaucoma treatments.

Clinical studies have shown canaloplasty to be as effective as surgery in lowering intraocular pressure (IOP), with the added benefit of reducing the need for ongoing glaucoma medications. It also offers a high benefit/risk ratio and is quicker to perform, taking approximately 10-25 minutes.

The business will trade as "Ellex iScience, Inc." Production of the iTRACK 250 will continue out of the existing Food and Drug Administration-approved facility at Menlo Park in San Francisco, CA.**ODT**

Of itching and watering and other things

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

This issue is our annual allergy issue. I've often joked that in the spring, a young man's thoughts turns to love, while an old optometrist's thoughts turns to ocular allergy. Treating our patients who present with seasonal allergic conjunctivitis is a large part of a primary-care optometric practice, especially this time of year. We know up to 40% of the global population is affected by allergic conjunctivitis in response to seasonal allergens, such as pollens, animal dander, and other environmental antigens.[1]

I authored articles in this edition: one is a review of the signs, symptoms, and treatment of allergic conjunctivitis. The second is an interview with an allergist in my town. I think you'll find, as I did, that the medical specialists who deal with severe, serious allergic conditions all day, every day, don't look upon allergies the way we do, and perhaps we can learn from their experiences. The allergist spends a tremendous amount of time trying to understand the patient's environment in order to identify what allergens are present that trigger their allergic response, including ocular response.

I have to admit that in the course of a normal, hectic clinic day, I am more focused on my patient's chief complaint and alleviating his condition. Thankfully there are a tremendous number of topical medications and some over-the-counter oral medications that are very effective at alleviating symptoms in most of our patients with allergies. But as Dr. Brown points out, treating the signs and symptoms is only scratching the surface of our patient's problem. True resolution requires the eyecare professional to delve deeper to identify the true cause of the patient's reaction., especially in those chronic patients who present regularly and continually.

Like with many systemic conditions such as hypertension and diabetes, allergy presents optometrists with an opportunity to interact and co-manage their severe, chronic cases with other healthcare professionals, such as allergists like Dr. Brown. Allergy is yet another example of where optometrists can integrate with other healthcare professionals to provide contiguous, quality health care for our patients.**ODT**

> Treating the signs and symptoms is only scratchng the surface.

Reference

1. Bielory BP, Perez VL, Bielory L. Treatment of seasonal allergic conjunctivitis with ophthalmic corticosteroids: in search of the perfect ocular corticosteroids in the treatment of allergic conjunctivitis. *Curr Opin Allergy Clin Immunol.* 2010 Oct;10(5):469–77.

Killer app

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

With the January issue, we launched an updated app for *Optometry Times*. Have you seen it yet?

Our previous app allowed you to view all content in a crisp, easy format. It was great.

However, our new app is more than a pretty, page-flipping PDF. You get more.

First, it's set up vertically so you move down the page to see all content. You don't have to flip pages to get to the middle or the end of the publication. Everything is easily accessible so you don't waste time (and finger power) finding what you want. Our digital team calls this an "optimized mobile reading experience," but I think it makes more sense the way I explained it.

Plus, our figures and images are pop-out boxes so you can better see what we're trying to show you—interactive charts and graphics.

We're able to embed video and audio clips right in the app to enhance your experience. Check out the audio of Brien Holden accompanying the inaugural "OD Q&A" feature.

We're also bringing you related content—more retina information linked to our retina department, for example—so you can find more of what you want faster and easier.

If you like something we covered, if you think we missed the mark, or if you'd like to share your feedback, you are able to e-mail the editorial team from within the app. I hope this means we'll hear more from you!

If you have downloaded our previous app, be sure to update it. Haven't downloaded it yet? Take this opportunity to download it via iTunes and check it out!**ODT**

MY FAVORITE APP

LinkedIn

I like LinkedIn because it helps me network with colleagues in both optometry and industry. I can follow specific companies, and I am able to read about and share interesting developments in the field. It's like Facebook but with a purely business-related focus.
—Alan G. Kabat, OD
Memphis

For allergic conjunctivitis[1]

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INDICATION AND USAGE

BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% is a histamine H_1 receptor antagonist indicated for the treatment of itching associated with signs and symptoms of allergic conjunctivitis.

IMPORTANT RISK INFORMATION

BEPREVE® is contraindicated in patients with a history of hypersensitivity reactions to bepotastine or any of the other ingredients. BEPREVE® is for topical ophthalmic use only. To minimize risk of contamination, do not touch the dropper tip to any surface. Keep the bottle closed when not in use. BEPREVE® should not be used to treat contact lens–related irritation. Remove contact lenses prior to instillation of BEPREVE®.

The most common adverse reaction occurring in approximately 25% of patients was a mild taste following instillation. Other adverse reactions occurring in 2%-5% of patients were eye irritation, headache, and nasopharyngitis.

Please see the accompanying prescribing information for BEPREVE® on the following page.

Made by the trusted eye-care specialists at BAUSCH + LOMB

BEPREVE®
(bepotastine besilate ophthalmic solution) 1.5%

Reference: 1. BEPREVE [package insert]. Tampa, FL: Bausch + Lomb, Inc; 2012.

BAUSCH + LOMB

For product-related questions and concerns, call **1-800-323-0000** or visit **www.bepreve.com**.

BEPREVE® (bepotastine besilate ophthalmic solution) 1.5%

HIGHLIGHTS OF PRESCRIBING INFORMATION
These highlights do not include all the information needed to use BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% safely and effectively. See full prescribing information for BEPREVE®.

BEPREVE® (bepotastine besilate ophthalmic solution) 1.5%
Initial U.S. Approval: 2009

----------RECENT MAJOR CHANGES----------
Contraindications (4) 06/2012

----------INDICATIONS AND USAGE----------
BEPREVE® is a histamine H1 receptor antagonist indicated for the treatment of itching associated with allergic conjunctivitis. (1)

----------DOSAGE AND ADMINISTRATION----------
Instill one drop into the affected eye(s) twice a day (BID). (2)

----------DOSAGE FORMS AND STRENGTHS--------
Solution containing bepotastine besilate, 1.5%. (3)

----------CONTRAINDICATIONS----------
Hypersensitivity to any component of this product. (4)

----------WARNINGS AND PRECAUTIONS----------
- To minimize the risk of contamination, do not touch dropper tip to any surface. Keep bottle tightly closed when not in use. (5.1)
- BEPREVE should not be used to treat contact lens-related irritation. (5.2)
- Remove contact lenses prior to instillation of BEPREVE. (5.2)

----------ADVERSE REACTIONS----------
The most common adverse reaction occurring in approximately 25% of patients was a mild taste following instillation. Other adverse reactions which occurred in 2-5% of subjects were eye irritation, headache, and nasopharyngitis. (6)

To report SUSPECTED ADVERSE REACTIONS, contact Bausch & Lomb Incorporated. at 1-800-323-0000, or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.
See 17 for PATIENT COUNSELING INFORMATION

Revised: 10/2012

FULL PRESCRIBING INFORMATION: CONTENTS*

*Sections or subsections omitted from the full prescribing information are not listed

FULL PRESCRIBING INFORMATION

1 INDICATIONS AND USAGE
BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% is a histamine H_1 receptor antagonist indicated for the treatment of itching associated with signs and symptoms of allergic conjunctivitis.

2 DOSAGE AND ADMINISTRATION
Instill one drop of BEPREVE into the affected eye(s) twice a day (BID).

3 DOSAGE FORMS AND STRENGTHS
Topical ophthalmic solution containing bepotastine besilate 1.5%.

4 CONTRAINDICATIONS
Bepreve is contraindicated in patients with a history of hypersensitivity reactions to bepotastine or any of the other ingredients *[see Adverse Reactions (6.2)]*.

5 WARNINGS AND PRECAUTIONS
5.1 Contamination of Tip and Solution
To minimize contaminating the dropper tip and solution, care should be taken not to touch the eyelids or surrounding areas with the dropper tip of the bottle. Keep bottle tightly closed when not in use.

5.2 Contact Lens Use
Patients should be advised not to wear a contact lens if their eye is red. BEPREVE should not be used to treat contact lens-related irritation.

BEPREVE should not be instilled while wearing contact lenses. Remove contact lenses prior to instillation of BEPREVE. The preservative in BEPREVE, benzalkonium chloride, may be absorbed by soft contact lenses. Lenses may be reinserted after 10 minutes following administration of BEPREVE.

5.3 Topical Ophthalmic Use Only
BEPREVE is for topical ophthalmic use only.

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

The most common reported adverse reaction occurring in approximately 25% of subjects was a mild taste following instillation. Other adverse reactions occurring in 2-5% of subjects were eye irritation, headache, and nasopharyngitis.

6.2 Post Marketing Experience
Hypersensitivity reactions have been reported rarely during the post-marketing use of BEPREVE. Because these reactions are reported voluntarily from a population of unknown size, it is not always possible to reliably estimate their frequency or establish a casual relationship to drug exposure. The hypersensitivity reactions include itching, body rash, and swelling of lips, tongue and/or throat.

8 USE IN SPECIFIC POPULATIONS
8.1 Pregnancy
Pregnancy Category C: Teratogenicity studies have been performed in animals. Bepotastine besilate was not found to be teratogenic in rats during organogenesis and fetal development at oral doses up to 200 mg/kg/day (representing a systemic concentration approximately 3,300 times that anticipated for topical ocular use in humans), but did show some potential for causing skeletal abnormalities at 1,000 mg/kg/day. There were no teratogenic effects seen in rabbits at oral doses up to 500 mg/kg/day given during organogenesis and fetal development (>13,000 times the dose in humans on a mg/kg basis). Evidence of infertility was seen in rats given oral bepotastine besilate 1,000 mg/kg/day; however, no evidence of infertility was observed in rats given 200 mg/kg/day (approximately 3,300 times the topical ocular use in humans). The concentration of radio-labeled bepotastine besilate was similar in fetal liver and maternal blood plasma following a single 3 mg/kg oral dose. The concentration in other fetal tissues was one-third to one-tenth the concentration in maternal blood plasma.

An increase in stillborns and decreased growth and development were observed in pups born from rats given oral doses of 1,000 mg/kg/day during perinatal and lactation periods. There were no observed effects in rats treated with 100 mg/kg/day.

There are no adequate and well-controlled studies of bepotastine besilate in pregnant women. Because animal reproduction studies are not always predictive of human response, BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

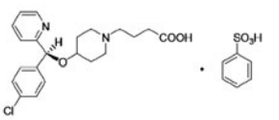
8.3 Nursing Mothers
Following a single 3 mg/kg oral dose of radiolabeled bepotastine besilate to nursing rats 11 days after delivery, the maximum concentration of radioactivity in milk was 0.40 mcg-eq/mL 1 hour after administration; at 48 hours after administration the concentration was below detection limits. The milk concentration was higher than the maternal blood plasma concentration at each time of measurement.

It is not known if bepotastine besilate is excreted in human milk. Caution should be exercised when BEPREVE (bepotastine besilate ophthalmic solution) 1.5% is administered to a nursing woman.

8.4 Pediatric Use
Safety and efficacy of BEPREVE (bepotastine besilate ophthalmic solution) 1.5% have not been established in pediatric patients under 2 years of age. Efficacy in pediatric patients under 10 years of age was extrapolated from clinical trials conducted in pediatric patients greater than 10 years of age and from adults.

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

11 DESCRIPTION
BEPREVE (bepotastine besilate ophthalmic solution) 1.5% is a sterile, topically administered drug for ophthalmic use. Each mL of BEPREVE contains 15 mg bepotastine besilate.
Bepotastine besilate is designated chemically as (+) -4-[[(S)-p-chloro-alpha -2-pyridylbenzyl]oxy]-1-piperidine butyric acid monobenzenesulfonate.
The chemical structure for bepotastine besilate is:



Bepotastine besilate is a white or pale yellowish crystalline powder. The molecular weight of bepotastine besilate is 547.06 daltons. BEPREVE® ophthalmic solution is supplied as a sterile, aqueous 1.5% solution, with a pH of 6.8.
The osmolality of BEPREVE (bepotastine besilate ophthalmic solution) 1.5% is approximately 290 mOsm/kg.
Each mL of BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% contains:
Active: Bepotastine besilate 15 mg (equivalent to 10.7 mg bepotastine)
Preservative: benzalkonium chloride 0.005%
Inactives: monobasic sodium phosphate dihydrate, sodium chloride, sodium hydroxide to adjust pH, and water for injection, USP.

12 CLINICAL PHARMACOLOGY
12.1 Mechanism of Action
Bepotastine is a topically active, direct H_1-receptor antagonist and an inhibitor of the release of histamine from mast cells.

12.3 Pharmacokinetics
Absorption: The extent of systemic exposure to bepotastine following topical ophthalmic administration of bepotastine besilate 1% and 1.5% ophthalmic solutions was evaluated in 12 healthy adults. Following one drop of 1% or 1.5% bepotastine besilate ophthalmic solution to both eyes four times daily (QID) for seven days, bepotastine plasma concentrations peaked at approximately one to two hours post-instillation. Maximum plasma concentration for the 1% and 1.5% strengths were 5.1 ± 2.5 ng/mL and 7.3 ± 1.9 ng/mL, respectively. Plasma concentration at 24 hours post-instillation were below the quantifiable limit (2 ng/mL) in 11/12 subjects in the two dose groups.

Distribution: The extent of protein binding of bepotastine is approximately 55% and independent of bepotastine concentration.

Metabolism: *In vitro* metabolism studies with human liver microsomes demonstrated that bepotastine is minimally metabolized by CYP450 isozymes.

In vitro studies demonstrated that bepotastine besilate does not inhibit the metabolism of various cytochrome P450 substrate via inhibition of CYP3A4, CYP2C9, and CYP2C19. The effect of bepotastine besilate on the metabolism of substrates of CYP1A2, CYP2C8, CYP2D6 was not studied. Bepotastine besilate has a low potential for drug interaction via inhibition of CYP3A4, CYP2C9, and CYP2C19.

Excretion: The main route of elimination of bepotastine besilate is urinary excretion (with approximately 75-90% excreted unchanged in urine).

13 NONCLINICAL TOXICOLOGY
13.1 Carcinogenesis, Mutagenesis and Impairment of Fertility
Long-term dietary studies in mice and rats were conducted to evaluate the carcinogenic potential of bepotastine besilate. Bepotastine besilate did not significantly induce neoplasms in mice receiving a nominal dose of up to 200 mg/kg/day for 21 months or rats receiving a nominal dose of up to 97 mg/kg/day for 24 months. These dose levels represent systemic exposures approximating 350 and 200 times that achieved with human topical ocular use. The no observable adverse effect levels for bepotastine besilate based on nominal dose levels in carcinogenicity tests were 18.7 to 19.9 mg/kg/day in mice and 9.6 to 9.8 mg/kg/day in rats (representing exposure margins of approximately 60 and 20 times the systemic exposure anticipated for topical ocular use in humans).

There was no evidence of genotoxicity in the Ames test, in CHO cells (chromosome aberrations), in mouse hepatocytes (unscheduled DNA synthesis), or in the mouse micronucleus test.

When oral bepotastine was administered to male and female rats at doses up to 1,000 mg/kg/day, there was a slight reduction in fertility index and surviving fetuses. Infertility was not seen in rats given 200 mg/kg/day oral bepotastine besilate (approximately 3,300 times the systemic concentration anticipated for topical ocular use in humans).

14 CLINICAL STUDIES
Clinical efficacy was evaluated in 2 conjunctival allergen challenge (CAC) studies (237 patients). BEPREVE (bepotastine besilate ophthalmic solution) 1.5% was more effective than its vehicle for relieving ocular itching induced by an ocular allergen challenge, both at a CAC 15 minutes post-dosing and a CAC 8 hours post dosing of BEPREVE.

The safety of BEPREVE was evaluated in a randomized clinical study of 861 subjects over a period of 6 weeks.

16 HOW SUPPLIED/STORAGE AND HANDLING
BEPREVE® (bepotastine besilate ophthalmic solution) 1.5% is supplied in a white low density polyethylene plastic squeeze bottle with a white controlled dropper tip and a white polypropylene cap in the following size:
5 mL (NDC 24208-629-02)
10 mL (NDC 24208-629-01)

STORAGE
Store at 15° – 25°C (59° – 77°F).

17 PATIENT COUNSELING INFORMATION
17.1 Topical Ophthalmic Use Only
For topical ophthalmic administration only.

17.2 Sterility of Dropper Tip
Patients should be advised to not touch dropper tip to any surface, as this may contaminate the contents.

17.3 Concomitant Use of Contact Lenses
Patients should be advised not to wear a contact lens if their eye is red. Patients should be advised that BEPREVE should not be used to treat contact lens-related irritation.

Patients should also be advised to remove contact lenses prior to instillation of BEPREVE. The preservative in BEPREVE, benzalkonium chloride, may be absorbed by soft contact lenses. Lenses may be reinserted after 10 minutes following administration of BEPREVE.

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Letters

To the Editor

Compassionate care

I enjoyed reading Dr. Ernie Bowling's editorial, "A common thread between two extremes" (September 2013) about sharing stories. About 3 years ago, I decided to start practicing low vision exclusively because there is such a great need for this care, and patients are often underserved. It was also an opportunity to spend time with each patient. The stories of low vision patients are priceless, and I love every minute of it!

I had a patient who had not read in more than 5 years and was depressed and withdrawn until her husband brought her in. We were able to get her reading again, and she started crying in my chair. She was a former registered nurse. There are so many more stories like this!

Thank you for sharing this very important reminder that optometry is all about providing compassionate care.

Lisa Limtiaco, OD
Los Angeles, CA

Optometry and the RUC

As Medicare payment and the AMA/Specialty Society RVS Update Committee (RUC) have received much attention over the past several months, your November issue's report on how Medicare payment rates are defined was particularly timely ("Defining Medicare payment rates"). While we appreciate the attention given to this important topic, the AOA must point out one serious inaccuracy that was included in the "Optometric Commentary" section on page 1.

In the commentary it was reported that, "While the RUC may well by the headcount be heavier on specialists than primary-care providers, it does not go unnoticed that optometry does not have a seat at this table. Until we do, we are at the mercy of nameless, faceless individuals who may or may not have any idea about what we do or the value we bring." This statement is false. Contrary to what was stated, optometry has participated in the RUC for the past 27 years in very significant ways.

One of the ways that optometry has participated in the RUC is through the RUC Health Care Professionals Advisory Committee (HCPAC). AOA has had a seat on this committee since 1991. The HCPAC represents physician assistants, social workers, physical therapists, occupational therapists, podiatrists, psychologists, audiologists, speech pathologists, registered dieticians, and optometrists. The HCPAC was formed to allow for participation of non-MD/DO physicians and allied health professionals in the RUC process.

In addition to optometry's position on the RUC HCPAC, it is also important to emphasize the unique position that optometry plays in the RUC due to the fact that optometrists use many of the same codes as ophthalmologists. All of the codes that are reported by both optometrists and ophthalmologists are developed in conjunction with the American Academy of Ophthalmology (AAO) and presented by AOA and AAO to the full RUC. To develop valuation recommendations, the AOA coordinates its survey procedures and develops consensus recommendations with the AAO. This effort with the AAO is critical to ensuring that ophthalmologists and optometrists are not paid differently for performing the same services.

Optometry is not at the mercy of nameless, faceless individuals at the RUC. Rather, optometry is well known and fully recognized at these meetings. Additionally, while there are many disagreements between optometrists and ophthalmologists on various topics, in the RUC setting, the AOA and AAO work closely together to identify fair payment for the services that both professions provide. This work over an almost 30-year time frame has yielded positive results. The hard work of AOA at the RUC in addition to the AOA's efforts with CMS and Congress has resulted in substantial gains for optometry in Medicare payments during the last decade.

Mitchell T. Munson, OD
President
American Optometric Association

Chief Optometric Editor Dr. Ernie Bowling responds:

I appreciate the outstanding work the AOA does in advocating our profession to Congress and those entities that regulate the CMS and subsequently our reimbursement for our services. It is one of the many things our professional organization excels at.

Language and a slippery slope

Once upon a time, near the end of a very long day, I made the faux pas of asking, "Which is best, one or two?" The superannuated grand lady—retired school teacher—pushed the phoropter aside and responded with a horizontal remonstrating shake of the head on better, "Which is better, one or two?" I believe I apologized for the lapse of good grammar.

Every once in a while the Spanish only speaker, comes in with an "interprete'," yet I continue with "¿Cual es mejor, uno o dos?" The longer I go on, the more the patient responds in English.

After instilling an anesthetic for tonometry, warning, "No ta limpia los ojos para media hora" (Don't rub your eyes for a half hour), the patient bristled as though I had issued an insult. Later I learned from my Spanish conversation teacher the five verbs in Spanish equivalent "to rub" each have an alternate very coarse meaning. One must wonder, why, after a very pleasant examination experience, one would be suddenly accused of very gross poor taste.

Caveat: language may communicate or provide a slippery slope.

Albert Nemiroff
Panorama City, CA

Diagnosing and managing ocular allergy

Up to half of your patients may have it

Ocular allergy is one of the most common ocular surface diseases seen in a primary eyecare practice. Allergic conjunctivitis (AC) often exists concurrently with rhinitis and asthma,[1] and patients with allergic rhinitis frequently present with symptoms of AC. AC is often linked to allergic rhinitis and requires co-treatment. The major symptoms of conjunctivitis, such as burning and itching and watery eyes, are the same as for allergic rhinitis.

Ocular allergy is often underdiagnosed[2] and subsequently undertreated. The costs associated with allergic eye disease have increased substantially as more people require treatment for allergies.[3] Studies have estimated the prevalence of allergic conjunctivitis to range between 15%-40% of the population.[2] Mild cases of ocular allergy can produce irritating symptoms, and severe forms of the presentation, such as atopic keratoconjunctivitis, could lead to vision loss.[4]

AC is an inclusive term that encompasses seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC), vernal keratoconjunctivitis (VKC), and atopic keratoconjunctivitis (AKC).[5]

Diagnosis

It can be difficult to differentiate AC from other ocular surface disorders because they may share signs and symptoms. A wide array of disorders can mimic or mask the condition, including: bacterial conjunctivitis, rhinitis, dry eye, meibomian gland disease (resulting in tear film abnormality or insufficiency), and blepharitis.[6]

A diagnosis can usually be made based on the patient history and examination. Slit-lamp examination should focus primarily on the conjunctiva because it is an active immunologic tissue that responds to allergic stimuli. When the signs and symptoms are consistent with SAC and patient history does not indicate other disease, allergy testing is usually not required.[7]

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

Pathogenesis

Allergic signs and symptoms result from a cascade of immune responses through sensitization following the initial exposure of an allergen. The pathogenesis of AC is predominantly an IgE-mediated hypersensitivity reaction in which allergens interact with IgE bound to sensitized mast cells, causing histamine release and resulting in the clinical initial ocular allergic expression. Newly synthesized prostaglandins, leukotrienes, and other inflammatory mediators cause a separate, secondary inflammatory cascade known as the late-phase allergic response. The presence of pro-inflammatory mediators, prostaglandins, and leukotrienes in the tear fluid is associated with the itching, redness, watering, and mucous discharge. AC is characterized by the infiltration of inflammatory cells into the conjunctiva in approximately 25%–43% of patients with the condition.[8]

AC management

Numerous classes of agents, both systemic and topical, have been used to manage the signs and symptoms of AC. Initial treatment involves artificial tears to physically irrigate and remove offending allergens as well as prevent these allergens from reaching the ocular surface. These products are available over-the-counter but do not have direct effect on allergic mediators. They may also contain preservatives that can add insult to an already irritated ocular surface.

Topical decongestants (e.g., tetrahydrozoline [Visine, McNeil], naphazoline [Naphcon-A, Alcon) reduce some SAC signs and symptoms by vasoconstriction. Their action reduces hyperemia, chemosis, and ocular redness through the constriction of blood vessels supplying the eye, as well as some ocular itching. Keep their use to short term—stopping these agents following prolonged use can lead to rebound hyperemia.[9]

Antihistamines block the inflammatory effects of histamine and prevent or relieve the signs and symptoms of SAC that are associated with histamine. Systemic antihistamines may be used to control the symptoms of rhinoconjunctivitis but may have only partial effect on ocular symptoms.[10]

Mast cell stabilizers (e.g., lodoxamide tromethamine [Alomide, Alcon], pemirolast [Alamast, Santen], cromolyn sodium [Crolom, Bausch + Lomb]) address both the early and late phases of allergic response. Mast cell stabilizers prevent the degranulation of mast cells, the release of preformed inflammatory mediators, and the production of more inflammatory mediators. They are most effective when administered before the allergic reaction and should be used prophylactically.[11]

The dual action antihistamine/mast cell stabilizer agents are currently the most commonly prescribed group of agents for ocular allergy.[9] Members of this class include olopatadine (Pataday, Alcon), alcaftadine (Lastacaft, Allergan), and bepotastine besilate (Bepreve, Bausch + Lomb), among others. They provide relief from AC by inhibiting mast cell degranulation as well as competitive H1 receptor binding to block histamine bind-

See **Allergy** page 12

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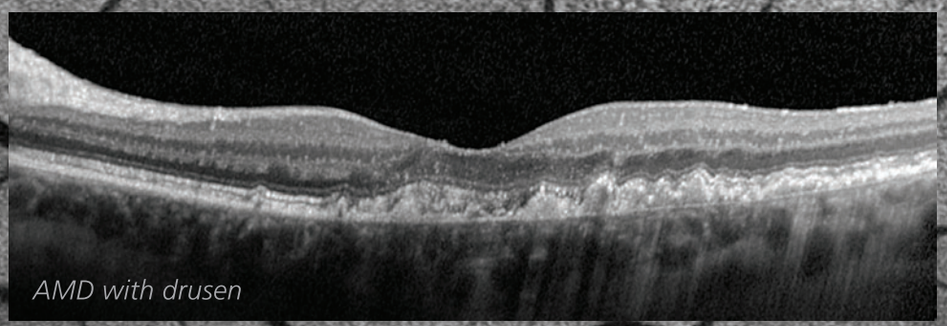

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Allergy

Continued from page 10

ing.[12] These agents have a rapid onset of action and improve patient compliance compared with pure mast cell stabilizers. They are well tolerated and can be used for longer-term treatment. Side effects are mild and include headache, cold-like symptoms, ocular burning and stinging, and possible transient bitter taste.[12]

Nonsteroidal anti-inflammatory (NSAIDs) drugs reduce mucus secretion, cellular infiltration, redness, and swelling, resulting in itching relief; there may be improvement in hyperemia, inflammation, and swollen eyes. Ketorolac tromethamine (Acular, Allergan) has a Food and Drug Administration (FDA) indication for the treatment of SAC.[13]

Corticosteroids are most effective therapeutic agents because they manage all facets of symptoms. Topical ophthalmic corticosteroids can be prescribed in lower doses with negligible systemic adverse events, with potential for ocular side effects.[14] Loteprednol etabonate (LE) (e.g., Alrex, Lotemax; Bausch + Lomb) was specifically studied in patients with signs and symptoms of SAC.[15] Topical steroids can be pulse added to the treatment regimen during the acute phase of an attack. Avoid certain ophthalmic preservatives (i.e., benzalkonium chloride [BAK]) for patients who appear to be sensitive, particularly those suffering from chronic dry eye.

The predicted increase in pollen count over the next several years[16] may create a concomitant increase in ocular allergies. As a result, SAC may become chronic in more patients. The majority of patients with AC will self-diagnose and self-medicate.[17] Controlling and managing allergic eye disease includes patient education, lifestyle modifications if necessary, and the appropriate medication regimen.**ODT**

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Protect Eyes from Ultraviolet (UV) Radiation All Day, Every Day

Research has found unexpected risks to the eyes from ultraviolet (UV) radiation. Innovative technology from Essilor can help reduce those at risk and protect eyes from UV 365 days a year.

Eyecare professionals know that the cornea, crystalline lens, and even the retina can be damaged by long-term UV exposure, which has been implicated in a variety of severe ocular conditions, including pterygium, climatic droplet keratopathy, cortical cataract, and possibly age-related macular degeneration. Scientific studies have found additional UV dangers that were previously unknown.

Fortunately, Essilor scientists have found an effective way to counter these hazards, and patients can now buy lenses that give them the most complete protection from UV 365 days a year. What we need going forward is greater public awareness of the dangers of UV and more widespread adoption of lenses with most complete UV protection.

Indirect Risks

One thing we have learned is that UV risk to the eyes isn't greatest when the sun's energy is strongest. Because they are set into the orbit and protected by the upper lid, the eyes are shielded from direct sunlight when the sun is high in the sky, which is when it causes most damage to the skin. For the eyes, the risk is greatest when the sun is a bit lower in the sky—in mid-morning and mid-afternoon—times when people are less likely to wear sunglasses.[1] Thus, the need for UV protection is not limited to sunglasses: people need UV protection in every pair of lenses they wear outside.

Direct UV exposure is not the only danger. Indirect UV (that is scattered by clouds and reflected from the ground and other surfaces) actually accounts for nearly half of an individual's annual UV dose.[2] This UV is a particular threat to spectacle wearers because UV coming from the side and behind the wearer can be reflected into the eye by the back surface of the spectacle lens. Although most higher-quality lens materials do a good job of blocking UV *transmission* (ie, stopping UV from passing through the lens), they can still reflect a significant amount of UV from the back surface of the lens directly into the eye.

The public is fully aware of the risks associated with skin exposure to UV, but the ocular hazards—and how to protect against them—are much less known. The dangers of back surface UV reflection, for example, are not well known. Eyecare professionals have a key role to play in creating awareness of the importance of maximum eye protection from UV.

Technology

Work by Karl Citek, OD, PhD, Professor of Optometry, has established that traditional anti-reflective or No-Glare lenses, although they transmit almost 100% of visible light, actually reflect considerable UV.[3] Some No-Glare lenses reflect up to 50% of incident UV.[3]

This important discovery was the stimulus for development of Essilor's patented Broad Spectrum Technology™, which reduces UV reflection. This technology has been incorporated across the entire portfolio of Crizal® lenses, allowing them to offer the most complete UV protection on No-Glare lenses.

Clear Patient Benefits

To help patients understand the value of this protection, Essilor developed the Eye-Sun Protection Factor (E-SPF®).

Like the well-established index used to rate skin care and sunscreen products' efficiency, E-SPF provides consumers and eyecare professionals with a simple way to select the highest level of complete UV protection. E-SPF is defined as the ratio of UV reaching the cornea with and without a lens in place. E-SPF accounts for both transmission and backside reflection of UV, and higher values of E-SPF indicate greater levels of protection.

Integrating all these factors into a single measure helps eyecare practitioners communicate the importance of ocular UV protection, and lets them (and their patients) compare the protection offered by different lenses.

Talking to patients about the E-SPF will reinforce the message that UV protection is every bit as important for eyes as it is for skin. Discussing UV hazards with every patient as a normal part of the comprehensive eye exam—and recommending glasses that provide the most complete UV protection—are simple and meaningful steps to better ocular health for everyone.

Superior Visual Clarity and UV Protection

Essilor's patented Broad Spectrum Technology™ minimizes reflected UV exposure and maximizes visible light transmission for safe, clear vision all day long. Introduced in all Crizal® lenses, Broad Spectrum Technology adds exceptional UV protection to the features and benefits of all Crizal lenses.

Crizal SAPPHIRE UV™	Crizal Sapphire UV™ lenses provide the best protection against glare and reflections.
Crizal PREVENCIA®	Crizal® Prevencia™ lenses selectively deflect harmful Blue-Violet and UV light, providing improved protection for eyes.
Crizal AVANCÉ UV™	Crizal Avance UV™ lenses are 2x more scratch-resistant than Crizal Alize UV™ lenses.
Crizal ALIZÉ UV™	Crizal Alize UV™ lenses set the bar for smudge resistance.
Crizal easy UV™	Crizal Easy UV™ lenses give you reliable, No-Glare protection that is easy to clean.
Crizal kids UV™	Crizal Kids UV™ No-Glare lens package is specially designed to meet kids' vision needs.

All Crizal® No-Glare lenses provide the most complete daily UV protection, with an Eye-Sun Protection Factor (E-SPF®) of 25.

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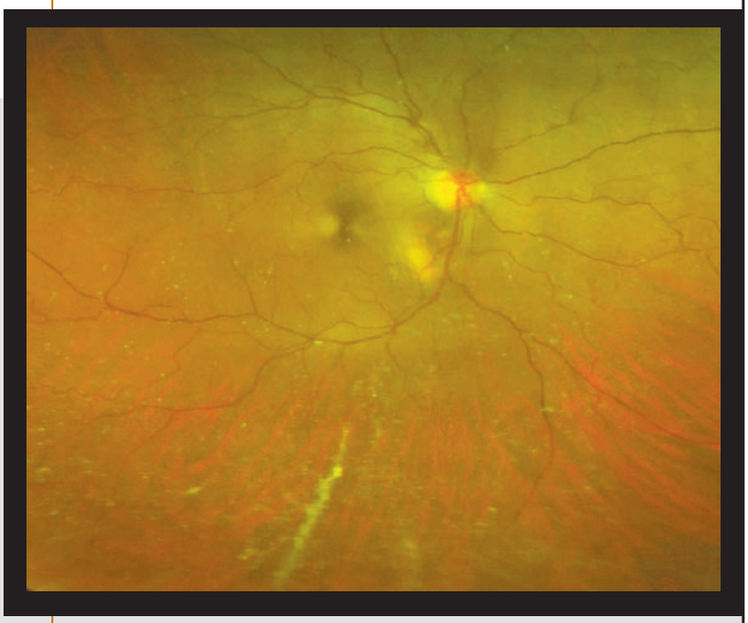

Figure 1. Wide angle view of the right eye. The lesion inferior temporal to the optic disc is the nevus. The artifacts in the inferior portion of the view are asteroid bodies. There is no fluid or pigmentary changes are associated. There is characteristic myopic temporal retinal stretching adjacent to the optic disc.

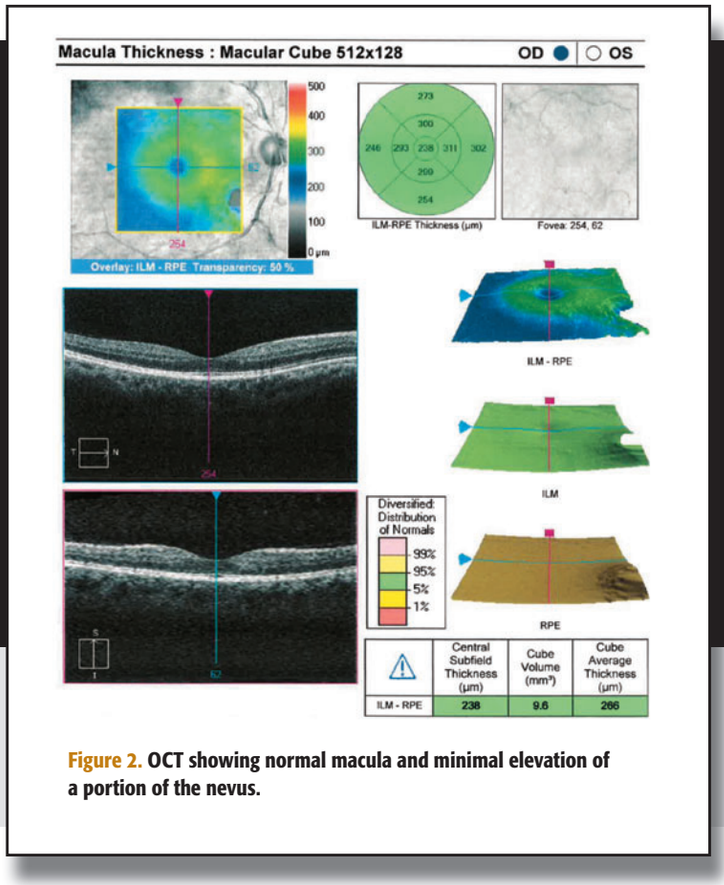

Figure 2. OCT showing normal macula and minimal elevation of a portion of the nevus.

Imaging a choroidal nevus

Baseline and follow-up images guide treatment

A mid-50s female was sent for imaging of a choroidal nevus that had been followed clinically for several years without observation of changes. There was no suspicion of growth or significant elevation. The purpose of the imaging studies was to establish digital baseline characteristics and to add additional documentation. The lesion was not considered high risk clinically based on the To Find Small Ocular Melanoma (TFSOM) criteria.[1,2]

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

The ocular, medical, and family histories of the patient were non-contributory. Visual acuity was correctable to 20/20 in each eye. The patient was a satisfied monovision contact lens wearer.

Figure 1 shows the widefield image of the patient's right eye. Note that there is a lesion that appears to differ in color from the surrounding retina. Based on the optic disc, the nevus appears to be about a 1 DD in size. Using monocular cues, a vessel changes course over the top of the lesion, suggesting minimal elevation.

All of the OCT scans are of high signal strength. Figure 2 is the OCT of the macula, which is grossly normal. The elevation in the lower right portion of the topographic segments represents the slight elevation of the nevus but without loss of integrity of the retinal pigment epithelium (RPE).

A horizontal 5-line raster HD image was obtained through the nevus. Figure 3 shows the elevation from the lesion as well as irregularity of the RPE overlying it and the thickened retina above. Drusen on the surface of a nevus indicates a long-standing lesion and suggests benignity. A different segment (vertically oriented) is

See **Nevus** on page 16

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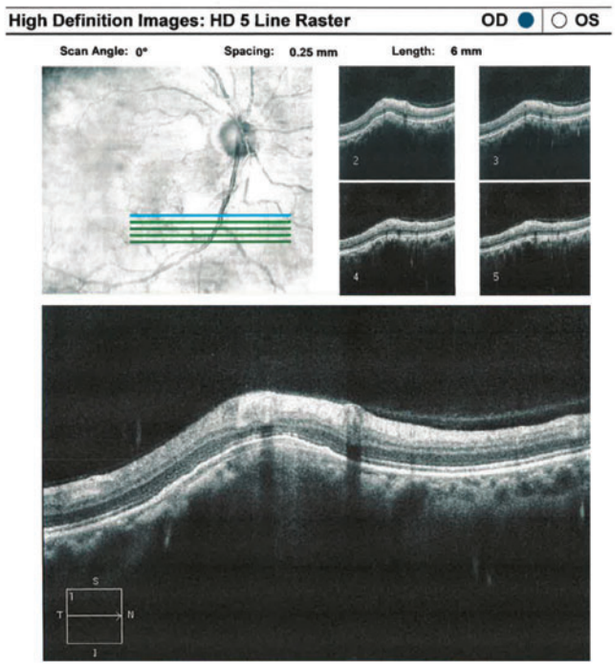

Figure 3. Horizontal 5-line raster HD segment series through the nevus. Note the elevation from the nevus as well as the irregularity of the RPE secondary to drusen.

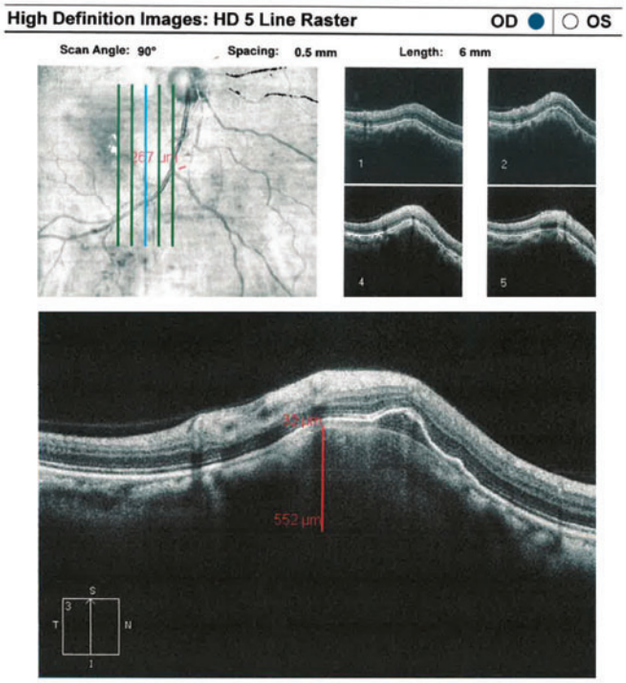

Figure 4. A vertical cross-section allows measurement of the thickness of the nevus (552 microns).

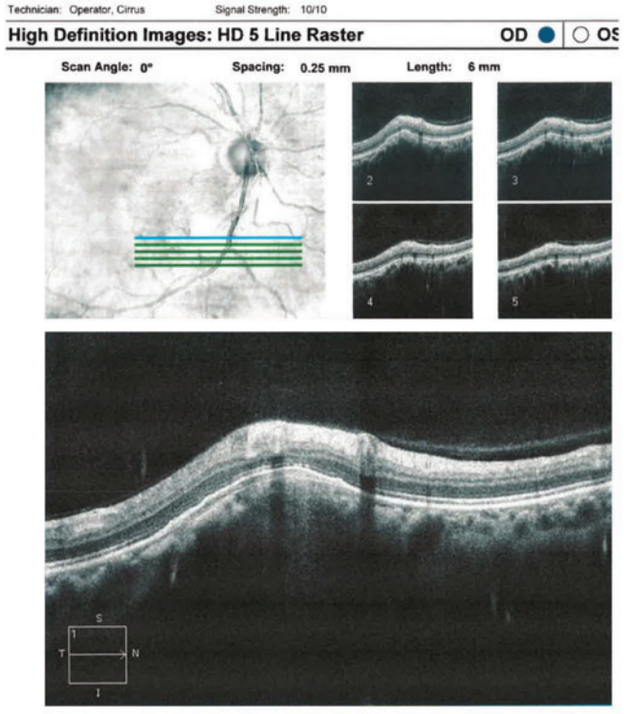

Figure 5. Another horizontal HD scan helps to visualize the three-dimensional extent of the nevus.

Nevus

Continued from page 14

shown in Figure 4, demonstrating a small amount of fluid under a portion of the RPE. This segment was used to measure the apical height (thickness) of the nevus. The threshold for suspicion among nevi is generally 2 mm. So, this lesion is well under that dimension, which supports the benign nature of it. Another horizontal HD section helps to visualize the three-dimensional shape of the lesion. (Figure 5).

Drusen on the surface of a nevus indicates a long-standing lesion and suggests benignity.

The interested reader is referred to a recent description of the OCT characteristics of choroidal nevi.[3] This case is consistent with published findings.**ODT**

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CES left me feeling blue

As technology use increases, so should HEV light protection

It was me and over 150,000 other tech enthusiasts, gawking over all things electronic. The 2014 Consumer Electronics Show (CES) was impressive on scale and new technology. It was never more apparent how tightly electronic devices (EDs) have woven themselves into the modern fabric of our lives. In fact, the buzz tech of CES was tech "wearables." Think Google Glass, fitness monitors, and smart watches that we wear on the body or on our clothes.

However, as a spokesperson for The Vision Council, I was most interested in raising awareness about computer glasses. As eyecare providers (ECPs), it's important to consider the impact of these EDs and educate our patients on the effects on their visual system and ocular health. CES 2014 showcased many ocularly impactful pieces of tech that will be hitting shelves shortly. There was a plethora of ultra HD OLED displays and a marked explosion in the tablet landscape. The ocular implications are there, albeit often outshined by the cool factor of images so real that they truly look better than life.

By Justin Bazan, OD, is a 2004 SUNY grad and the owner of Vision Source Park Slope Eye in Brooklyn. Reach him on his Facebook page.

My eyes were saccadically skipping from 4k display to 4k display, from "i" device to "i" device, when they fixated on something truly new. There was a booth for a device named the "iBaby." The iBaby, interesting. It was that term that made me really contemplate this pixel menagerie. It's irrelevant what the device actually does. What is relevant is what this ED represents—a new generation of ED exposure from near-birth for potentially close to 100 years! Think about it. We start using EDs at earlier ages, we use them more frequently, spend more time on them, have multiples of them and will be using them for many years because we are living longer. The amount of lifetime screen use is staggering.

Blue light hazard

Should we as ECPs have a professional concern for this increased lifetime exposure? The answer is probably yes if we have sworn to protect our patients' vision and ocular health. At CES, new ophthalmic lens treatment technology was presented that addresses the effects of high energy visible (HEV) light (~380 to 530nm), also known as blue light, which is emitted from EDs in particular the LCD, LED, and OLED displays. Due to research and ethical study design limitations, we will probably never see a direct significant clinical association between HEV light and macular degeneration; however, there is a growing body of evidence of laboratory studies that have shown evidence that HEV light will damage the retina.[1-3] It appears to do so in ways consistent with the damage clinically observed in human macular degeneration. The basic concept is that the retinal cells are dying because the HEV light leads to the formation of damaging toxic reactive oxygen species.

Not your grandparents' "blue blockers"

It is up to you as an ECP to determine if these studies are adequate enough for you to initiate action in your prescribing habits. If so, the question becomes, "What can we do about minimizing our risk to HEV light?" Well, we can all pull out our 1980s blue blockers and make sure we are using them anytime we are looking at our EDs. If that is not practical or desired, we may consider the advances made in lens technology.

Several manufacturers have developed lenses that will help prevent the accumulated damage of HEV light. The new generation of "blue blockers" is a significant improvement over the yellow-tinted lenses of the past. Those yellow-tinted lenses reduced HEV light, but it was at a cost of altering the color of what we see. The new lens technology allows for HEV light protection without using a colored lens. The lens reduces what is believed to be the most harmful transmittance range of HEV light by reflecting a critical amount of it off the front surface of the lens, preventing it from reaching the eye. Potentially harmful HEV light is bounced off the front of the lens, helping to keep the eye protected.

The world I have grown up in is one of UV awareness. Science and medicine have converged on the public to increase the importance of UV protection. But the public and its healthcare providers were not always aware of the dangers of UV radiation. I propose that HEV light protection will take a similar, if not quicker, path to ubiquity, especially considering many of us spend more time staring at a screen than basking in the sun. Although there may be subtle variations in the technology from manufacturer to manufacturer, we have it available to prescribe to our patients in the form of computer glasses.**ODT**

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Is your patient healthy enough for LASIK surgery?

Know your patient's health history for an educated decision

A patient's systemic health can affect the safety and efficacy of refractive surgery. Any systemic condition or associated medication can affect the stability of the patient's refraction by altering the cornea's ability to heal normally—which may increase the risk of a complication. Most refractive surgeons base their patient candidacy decisions on the criteria described in the original FDA approval of LASIK (see Table 1).

FDA warnings

Autoimmune disease occurs when the body's autoimmune system attacks its own tissues. Examples include Crohn's disease, myasthenia gravis, psoriasis, and ulcerative colitis. Nearly all autoimmune diseases are associated with ocular and corneal complications, such as corneal thinning, LASIK flap melts, persistent epithelial defects and keratitis, scleritis, and scleral thinning.[1] The classification of autoimmune disease as an absolute contraindication has been questioned. A study of 49 eyes of 26 patients with a history of autoimmune disease concluded LASIK was an option in patients with well-controlled or inactive autoimmune disease.[2]

Collagen vascular diseases are a subtype of autoimmune disorders in which the body's immune system attacks its connective tissues and blood vessels. Examples include systemic lupus erythematosus, rheumatoid arthritis, scleroderma, and Sjögren's syndrome. The primary concern regarding collagen vascular disease is the body's altered ability to heal and resulting corneal complications. A study of 42 eyes of 22 patients who underwent LASIK with known rheumatoid arthritis reports excellent visual outcomes with no vision-threatening complications.[1]

Immunodeficiency diseases include both primary immunodeficiency, such as AIDS, and secondary immunodeficiency, such as immunosuppression due to organ transplant or cancer treatment. Many surgeons would feel comfortable if an HIV-positive patient has CD4 or T-cell count >500.

Pregnancy and nursing, due to associated hormone changes, frequently cause unpredictable refractive instability. Most surgeons recommend waiting 3-6 months post-pregnancy and lactation to ensure stability of refraction and corneal/tear film.

Diabetes is a relative contraindication, but reports in the literature suggest otherwise. A recent review concluded that LASIK may be safe in diabetics with tight glycemic control and no ocular and systemic complications.[3] Refractive stability, A1C of ≤ 6.0, and healthy macular with OCT are common requirements.

Severe allergies are associated with ocular and systemic inflammation with the potential for significant refractive instability, poor corneal healing, and increased protracted dryness.

Keloid scars are hypertrophied scars produced by excessive collagen deposition at tissue trauma sites. While some have suggested an association of dermatologic keloids with corneal keloids, many refractive surgeons doubt this. Several studies suggest both corneal procedures are safe, effective, and predictable.[4,5]

William Tullo, OD
Dr. Tullo is the vice president of clinical services for TLC Vision and adjunct assistant clinical professor at SUNY College of Optometry.

Medications are known to affect corneal healing after surgery. Of concern are immunosuppressants and anti-inflammatories because they increase the risk of corneal infection and persistent epithelial defects (see Table 1). All medications with ocular side effects can potentially prevent a good outcome and should be considered when evaluating patient candidacy. LASIK can usually be safely performed after medication is discontinued, providing the cornea and tear film are healthy.**ODT**

TABLE 1 Original FDA approval of LASIK

Absolute contraindications	Relative contraindications
Autoimmune disease	Diabetes
Collagen vascular disease	Severe allergies
Immunodeficiency disease	Keloid scars
Pregnancy or nursing	Medications (Imitrex [sumatriptan, GlaxoSmithKline])
Medications (Accutane [isotretinoin, Hoffmann-La Roche], and Cordarone [amiodarone, Pfizer)	

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An allergist talks allergy

What does an allergist want optometrists to know?

By Ernie Bowling, OD, FAAO

Spring is the time of year for seasonal allergies. The annual renewal of plant life brings along with it the onslaught of pollen—the heavy coat of yellow on our vehicles is as predictable as the uptick of patients in our chair with itchy, watery eyes.

Articles about seasonal allergies and allergic conjunctivitis are also just as predictable this time of year, but how about we skip the standard talk about the different types of allergic conjunctivitis, the pathogenesis, and myriad treatments, and take a different approach? Let's hear the thoughts and wisdom from an allergy specialist, a physician who has spent his entire career focusing on systemic allergies and their effects, before this allergy season starts.

Take-Home Message

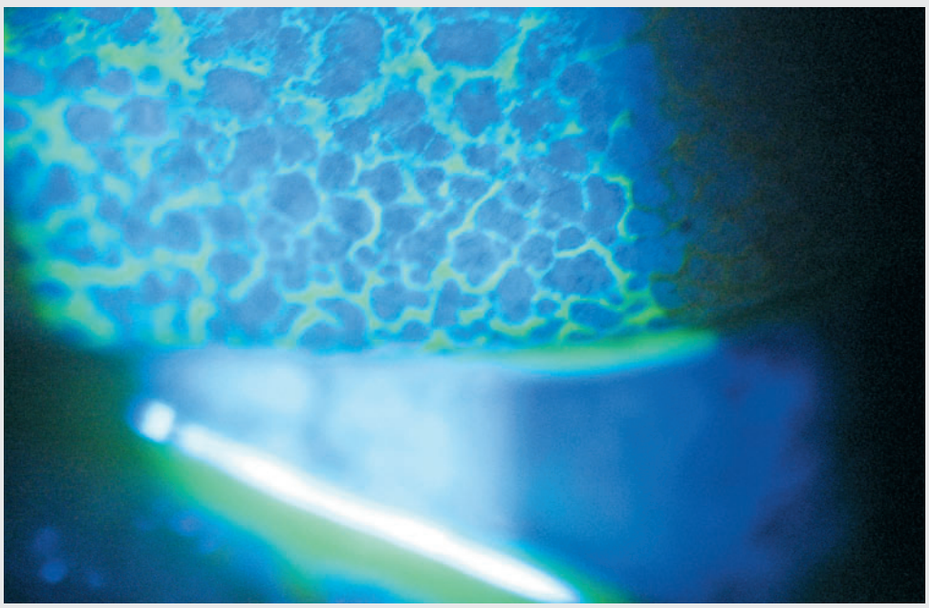
Allergist Andrew Brown, MD, advises ODs to remember that allergies change over seasons and over time, testing can help drive treatment, antihistamines aren't always the best choice, finding the appropriate treatment takes time and work, hygiene plays a role in allergies, and remember that allergies can affect refraction

Andrew M. Brown, MD, is an allergist and immunologist with 47 years of experience and practices in otolaryngology, allergy, and immunology, and has been in practice in Gadsden, AL for the last 40 years. He graciously took time from his extremely busy practice, the largest allergy practice in the area, to talk with me. I started with the question: What would you like to tell an in-the-trenches optometrist about allergy?

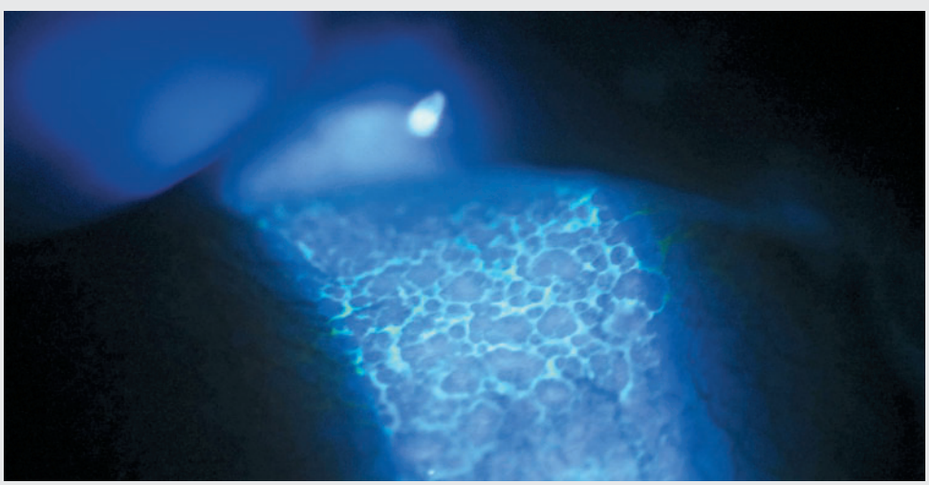
Allergies change

Remember that allergic disease changes. "The running joke in our profession is that allergists earn their reputation in the spring and lose it in the fall when another set of allergens erupt," said Dr. Brown.

He advised optometrists to avoid thinking of allergy as a straightforward static condition, like a railroad track. "Think of it as a winding, curving road," he said. "You may think you have the patient's condition under control, then something in his environment changes.



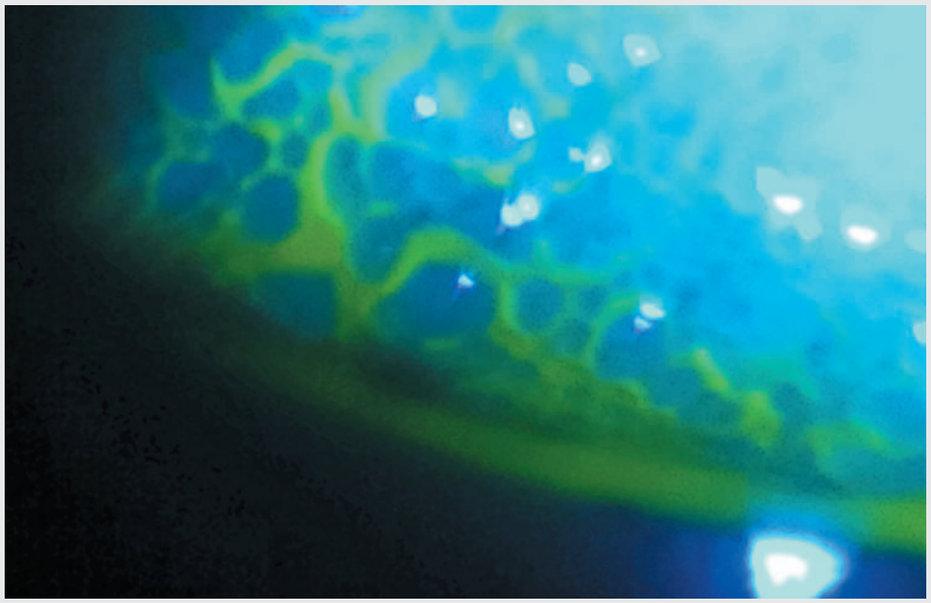
Large papillae in SAC.



Uniform papillary reaction in SAC.

Keeping the patient's environment—big and small—in mind is key to discovering the offending allergen. "In our area we have a lot of lakes, so I see a lot of allergies to molds," said Dr. Brown. "There is a lot of agriculture in our area, and I see a lot of pesticide allergies. A new cat moves next door, a new plant blooms, or something presents that the patient is sensitive to, and her symptoms return. You can also look at the prevailing weather patterns. Again, here in our area the winds blow from southwest to northeast. I'll start seeing tree pollens from the gulf coast initially before I see allergies from the tree pollens in our region."

He reminded us that allergy is the body's way of building up a defense against an assault. "One great example you hear about all the time is about a patient who moves to the desert southwest," he said. "Lo and behold, his allergies clear up. He loves it. Then the tumbleweed blooms, the patient develops a



Large papillae in SAC. (Photos courtesy Gregg Russell, OD, FAAO)

sensitivity, and his allergies return. The patient's own natural sensitivity is the problem. An allergy is the body's way of letting it know what's coming."

Allergy testing

How does allergy testing fit into the mix? Testing is a large part of Dr. Brown's day.

"Most MDs consider allergy a diagnosis of exclusion—they treat the symptoms but don't look at the cause," he said. "Asthmatic patients are a good example of this, and to be clear, I don't treat asthmatic patients. Most asthmatic patients have allergies, but pulmonologists by and large don't consider allergies as part of the patient's differential diagnosis. They are missing an opportunity to discover the patient's true problem. Yet appropriate long-term therapy requires that we flesh out the cause. This is especially important in immunotherapy. First, you have to know what you're defending against."

In the ophthalmic arena, the conjunctival provocation test is available. This test is a human model of ocular allergy that has been used to study the ocular response to allergenic stimuli and to evaluate therapy. The conjunctival provocation test allows investigators to recruit allergic individuals who are challenged with the conjunctival administration of allergen. Observations of the eye are made before and after challenge, and cells and mediators may be sampled from the ocular surface. In addition, the effectiveness of potential therapies can be evaluated, usually by pretreating the two eyes with different forms or doses of drug. Dr. Brown considers this test to be a bit drastic.

> Allergies will cause fluid retention in the eye and therefore change the focal point of the eye. Optometrists must recognize that the patient's refraction will change during allergy season.
>
> —Andrew Brown, MD

Allergy treatments

Antihistamines are frequently a go-to treatment for allergies. I asked Dr. Brown his opinion of antihistamines. He said he has two reasons for staying away from them.

"First , they affect the outcome of allergy testing.," he said "Second, the most effective antihistamines make the patient drowsy. Benadryl (diphenhydramine, Johnson & Johnson) is the worst. Except in cases of mild allergies, antihistamines that don't make patients drowsy don't work especially well.

Knowing what treatments target which allergies, and knowing how much to prescribe for each patient is important. "With any treatment, you have to find the optimal dose," Dr. Brown said. "It may take weeks to months to find an optimal therapeutic level."

Allergy epidemiology

Anecdotally, many practitioners think that allergy is on the rise. Numbers back that up. Older population studies estimate a prevalence of 15%–20% of allergic conjunctivitis, but more recent studies implicate rates as high as 40%.[2] Dr. Brown said he's seeing more cases than he has in the past.

"People definitely recognize allergy more that they did in the past, and now they're seeking treatment," he said. "Children in particular stay inside more than they did a generation ago—they aren't exposing themselves to outdoor allergens."

Dr. Brown believes a link exists been hygiene and allergies. The better the patient hygiene, the more the patient will suffer from allergies. The worse your patient's hygiene, the fewer allergies he seems to have.

Final advice to ODs

Dr. Brown cautions optometrists to keep allergies in mind even during a simple refraction. "Allergies will cause fluid retention in the eye and therefore change the focal point of the eye. Optometrists must recognize that the patient's refraction will change during allergy season," he said.

His observation regarding refractive error and allergies has been proven. In a 2009 study,[3] the spherical equivalent and spherical power were significantly lower in patients with allergic conjunctivitis than in patients without allergic conjunctivitis.

Dr. Brown makes great points about our need to be vigilant in the care of our patients. Just because we may have helped the patient with one episode doesn't mean the patient won't return with another as the seasons change. His point about vision and refractive error in our patients with the condition should especially strike home. The patient's transient vision changes in an episode may not be just from his watery eyes. It may represent a subtle change in their refractive correction as well.**ODT**

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Retinal vascular disease and its underlying etiology

A case of the canary in the coal mine

By Mohammad Rafieetary, OD, FAAO

Retinal vaso-occlusive disorders are common causes of vision loss and blindness in the world. Diabetic retinopathy, the most prevalent retinal vascular disease, is a leading cause of blindness in patients between 20 to 74 years of age in the U.S.[1]

Other conditions such as retinal vein and artery occlusions and hypertensive retinopathy are also commonly encountered conditions with their share of visual morbidity. The circumstances that lead to retinal vaso-occlusive disease can be described by three principles. These are conditions that alter the rate of blood flow, conditions resulting in physical alteration of blood vessels, and conditions that result in the consistency of the blood itself. The end result to the retinal function can be solely caused by one or all these mechanisms.

Take-Home Message

In order to effectively manage these patients, we have to consider both the underlying factors as well as the effect of the disease and assess the best course of action to achieve the best visual and lifespan outcomes.

For example, hyperglycemia caused by diabetes results in vascular endothelial damage as well as increased blood viscosity, which in turn decreases blood flow. The cascading consequence of these mechanical and/or chemical alterations is increased vascular permeability, resulting in excessive extravascular leakage. The other catastrophic consequence is hypoxia, which directly reduces tissue function and ultimately results in neovascularization and its sequelae.

There are a number of considerations when assessing and managing posterior segment vascular diseases. One such consideration is to avoid overlooking choroidal circulations—while these disorders are usually lumped under "retinal vascular diseases," the choroidal circulations also play an imperative role in both normal retinal function and its vascular disease state. Another consideration is the body as a whole. Although there are a handful of primary chorioretinal vascular diseases, the majority of these conditions have an underlying systemic etiology (see Table 1). The end organ toll is not only the visual system, and ocular signs are potential warnings of underlying conditions and other co-morbidities.

With this in mind, the eye then can be compared to the canary's death in a coal mine as an indicator of gas poisoning. Optometrists involved in the care of patients suffering with these disorders have to properly manage ocular findings as well as direct the patient to care of the underlying systemic condition(s).

The following is a case exemplifying the complexity of posterior segment vascular disease.

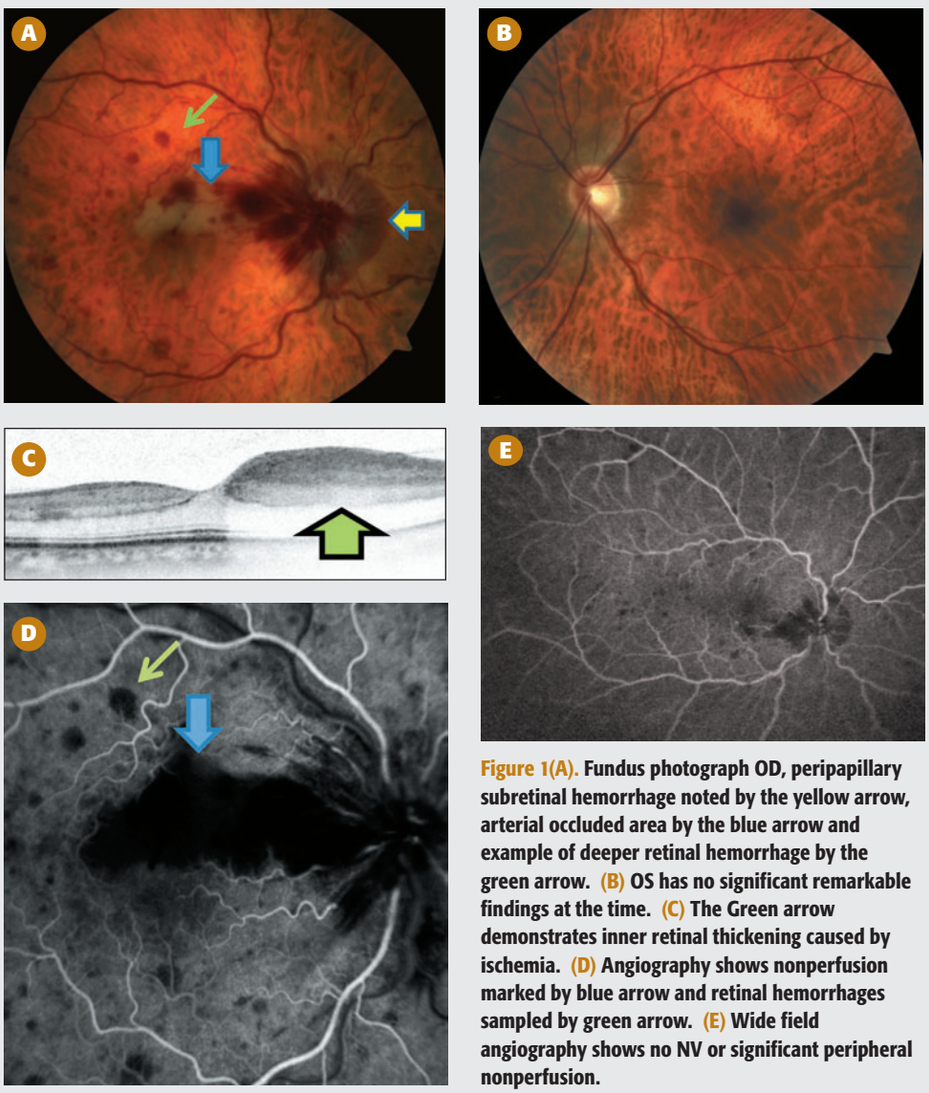

Figure 1(A). Fundus photograph OD, peripapillary subretinal hemorrhage noted by the yellow arrow, arterial occluded area by the blue arrow and example of deeper retinal hemorrhage by the green arrow. (B) OS has no significant remarkable findings at the time. (C) The Green arrow demonstrates inner retinal thickening caused by ischemia. (D) Angiography shows nonperfusion marked by blue arrow and retinal hemorrhages sampled by green arrow. (E) Wide field angiography shows no NV or significant peripheral nonperfusion.

Case report: considering underlying factors

A 58-year-old white male was referred by his optometrist for evaluation of retinal hemorrhages of the right eye. He was complaining of sudden onset loss of vision and seeing a "sun spot" OD since that morning. Patient ocular history was remarkable for non-complicated LASIK in both eyes 8 years ago. His medical history was remarkable for well-controlled systemic hypertension for 10 years, as well as history of hyperlipidemia and heart disease for which he was being treated by his cardi-

TABLE 1 Chorioretinal vascular conditions

Specific entities	Arterial occlusive	Venous occlusive	Systemic vascular syndrome and miscellaneous *	Developmental and genetic disorders
Diabetic retinopathy	Ocular ischemic syndrome	Retinal vein occlusion (branch and central)	Hypercoagulable states	Retinopathy of prematurity
Hypertensive retinopathy and choriodopathy	Ophthalmic artery occlusion	Venous stasis retinopathy	Anemias	Coats' disease
Sickle cell retinopathy	Retinal artery occlusion (branch and central)	Papillophelebitis	Collagen vascular disease	Macular telangiectasias
	Cilioretinal artery occlusion	Periphlebitis	Autoimmune disorders	Eales' disease
	Combined retinal artery/ vein occlusion		Infectious disease (e.g., syphilis)	Polypoidal choroidal vasculopathy (may be a subset of neovascular AMD)
	Cotton-wool spots		Radiation retinopathy*	
	Acquired retinal macroaneurysm			

ologist. His medications included niacin 50 mg, simvastatin (Zocor, Merck) 40 mg, metoprolol (Lopressor, Novartis) 25 mg, lisinorpil (Zestril, AstraZeneca) 5 mg, aspirin 81 mg, and folic acid. Additionally, he underwent surgery for a herniated disc 1 year ago and was taking naproxen (Aleve, Bayer) 500 mg and hydrocodone/acetaminophen (Vicodin, Abbott) on an as-needed basis.

Patient examination was remarkable for visual acuities OD: 4/200, OS: 20/25. Intraocular pressures were 14 mm Hg each eye. Patient pupils were dilated at the time of arrival; therefore, they could not be properly evaluated. Motilities and confrontation fields were normal. Slit-lamp examination was remarkable for 1^{+} nuclear sclerosis in each eye. Funduscopic examination OD was remarkable for peripapillary subretinal hemorrhage—view of the optic nerve head was obscured by retinal hemorrhage, retinal whitening superior to macula indicative of a branch arterial occlusion, and scattered intraretinal and blot hemorrhages associated with the deeper retinal capillary plexus. (This is more commonly seen in retinal vasculopathy associated with hematologic disorders). OS fundus examination was remarkable for very mild arteriosclerosis (see Figure 1Aand B). Optical coherence tomography (OCT) OD showed hyperreflectance and thickening of inner retinal segment associated with arterial occlusive disease in the region of the retinal whitening (see Figure 1C). Fluorescein angiography was normal OS; however, OD showed significant arterial nonperfusion of the superior aspect of the papillomacular bundle and multiple foci of "masking hypofluorescence" caused by the deeper retinal hemorrhages. There was no significant leakage or sign of retinal neovascularization or peripheral nonperfusion (Figure 1D and E).

Diagnosis of combined retinal arteriovenous occlusion OD was made. The patient was referred to his cardiologist for re-assessment of his cardiovascular disease. Additionally, it was requested that the patient undergo carotid artery evaluation and hematologic studies to rule out blood dyscrasia and hypercoagulability. No ocular treatments were administered. Subsequently, the patient was evaluated by cardiology, neurology, and hematology. He was cleared of any active cardiovascular or neurologic disorders but was found to have an excess of Factor XII of the coagulation cascade. The patient was placed on ciopidogel (Plavix, Bristol-Myers Squibb) as a precautionary measure.

Two weeks later on follow-up examination, OD vision measured at 5/200. There was evidence of resolving both arterial and venous aspect of the retinal findings (Figure 2A). There was reduced reflectance of inner retina on OCT (Figure 2B).

See **Retinal vascular** on page 24

Retinal vascular

Continued from page 23

Because it was postulated that most of the visual loss was caused by the arterial occlusive disease and that specific ocular treatment would have limited benefit in the overall visual prognosis OD, therefore none was administered. The patient was encouraged to follow up with the hematologist as well as the cardiologist and was asked to adhere to current systemic therapy.

On 1-month follow-up, visual acuity had recovered to 20/30, although the patient continued to have subjective visual complaints consistent with the damage due to the arterial occlusive event. Fundus exam showed further resolution of the retinopathy with evidence of mild optic disc pallor (Figure 2C). OCT exhibited reduced reflectance but early typical ischemic inner retinal atrophy (Figure 2D).

The patient was followed 3 months later. Vision remained at OD 20/30 and OS 20/20. A complete resolution of retinal hemorrhages and further atrophy of the retina was noted on fundus and OCT exam (Figure 2E and F). OS examination remained unremarkable.

At the 4-month follow-up visit, all findings were stable. The patient was asked to follow up with his local optometrist in 6 months and return in 1 year or as needed.

Some 10 months later, he returned with vague visual complaints OS. Although the visual acuities at OD 20/30 and OS 20/20, and all other findings, including the fundus exam OD (Figure 3A), remained unchanged, the funduscopic findings OS resembled the initial presentation OD without any significant arterial component (Figure 3B). The patient's cardiologist and hematologist were consulted to assess his current cardiovascular and hematologic status. Additionally, the neurologist was consulted to consider a magnetic resonance venogram (MRV). This was to determine if cerebral venous sinus thrombosis could be associated with the retinal presentation. The MRV results revealed an absence of flow within the left transverse and sigmoid sinus, confirming the venous thrombosis. Based on this and the retinal findings, the hematologist altered the anti-coagulation regimen.

Two weeks later, which was 1 day after the hematologist's new anticoagulation therapy, the patient returned. The visual acuity and his symptoms had remained the same. However, the funduscopic appearance had worsened (Figure 3C). Based on the spontaneous resolution of OD hemorrhages following the initial systemic therapy and the fact that additional anticoagulant were just added, the decision was made with the consent of the patient to closely monitor the retinal findings without any ocular intervention, such as anti-VEGF therapy. The patient returned 2 weeks later with some degree of subjective relief, and the fundus examination revealed improvement as well (Figure 3D). At the time of this report, the patient is soon due for a 1-month return.

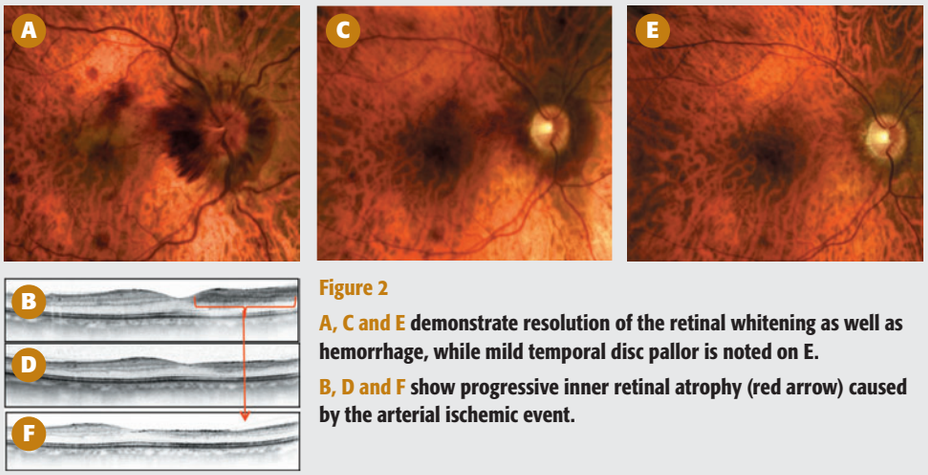

Figure 2

A, C and E demonstrate resolution of the retinal whitening as well as hemorrhage, while mild temporal disc pallor is noted on E.

B, D and F show progressive inner retinal atrophy (red arrow) caused by the arterial ischemic event.

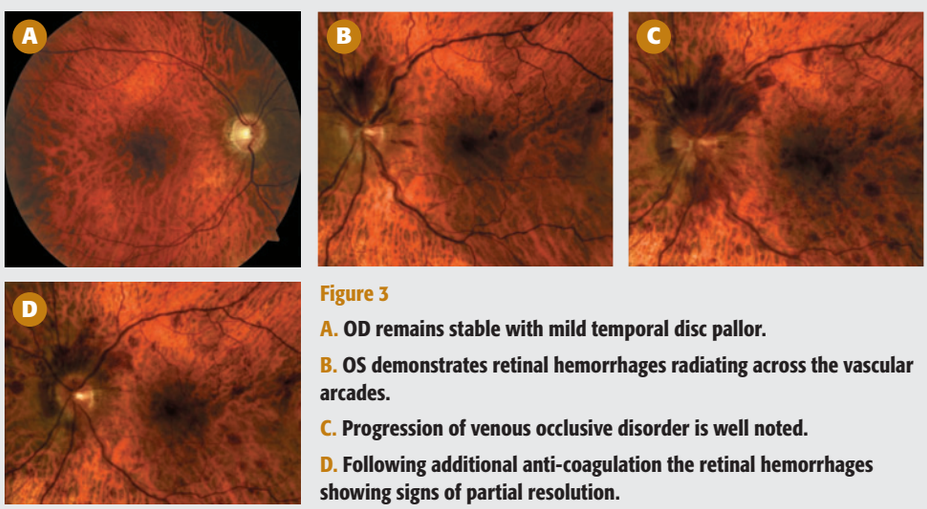

Figure 3

A. OD remains stable with mild temporal disc pallor.

B. OS demonstrates retinal hemorrhages radiating across the vascular arcades.

C. Progression of venous occlusive disorder is well noted.

D. Following additional anti-coagulation the retinal hemorrhages showing signs of partial resolution.

Assess for best course of action

Optometrists in various clinical settings frequently encounter patients suffering from posterior segment vascular diseases. With an increasing incidence of risk factors for retinal and choroidal vascular disease, such as the aging population, obesity, diabetes, and cardiovascular disease, we will face a bigger challenge dealing with this potentially devastating group of ocular diseases. In order to effectively manage these patients, we have to consider both the underlying factors as well as the effect of the disease and assess the best course of action to achieve the best visual and lifespan outcomes.**ODT**

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Author Info

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In Brief

Santinelli introduces new LE-700 edging station

Hauppauge, NY—Santinelli International introduces its most compact and economical lens finishing system, the LE-700 Edging Station.

The space-saving unit introduces "tracer-free" technology, measuring demo lenses and patterns within the processing chamber. In addition to tracing the demo lens circumference, its front curve is measured to obtain 3-D tracing data and perform accurate 3-D edging. The option to add-on a front-loading frame tracer, which handles high-wrap frames, is also available. Its low measurement pressure minimizes frame distortion, assuring accuracy.

Gulden introduces the Bishop Dual Prism System for large angle strabismus

Elkins Park, PA—Gulden Ophthalmics recently introduced the Bishop Dual Prism Alignment System, a tool developed to provide advantages in measuring large-angle strabismus prior to correction. Large-angle strabismus refers to the angle of deviation between the line of sight of the straight eye and that of the misaligned eye.

Accurately measuring the degree of strabismus using prisms is important when preparing for strabismus correction. Less than ideal results in strabismus surgery may be due in part to errors in the measurement of strabismic deviations. Because plastic prisms are available with a maximum of 50 prism diopters (PD), deviations larger than this require the simultaneous use of 2 prisms. However, stacking 2 prisms in the same direction in front of the same eye often leads to measurement errors. Large deviations are best measured by dividing the prism power between the 2 eyes, holding each of the 2 prisms in the frontal (coronal) plane. But holding 2 prisms in front of the eyes requires 2 hands or considerable dexterity—and still errors can result.

With Gulden's Bishop tool, 2 base-in or base-out prisms are held in place using magnetic fixation to a metal plate with a ferrous surface. The tool with the 2 prisms can be positioned using one hand, freeing the other hand. The prisms can be placed base in, base out, spaced for the patient's PD, and are held correctly in the horizontal and frontal planes by magnetic fixation to the plate.

A portion of each sale of the Bishop Dual Prism Alignment System is donated to the Children's Eye Foundation.

Zyloware's MaxStudio.com collection introduces 2014 line

Port Chester, NY—Zyloware Eyewear MaxStudio.com recently introduced its new eyewear line for January 2014.

After the initial MaxStudio.com launch in May 2013 and additional style launches last September, MaxStudio.com further expanded the collection with 5 styles and 11 SKUs. The iconic MaxStudio.com globe logo is incorporated in every style, branding the collection.

LX 106M is a combination frame with a full-rim metal front, an inlaid metal plaque on the curved zyl temples, and wrapping metal temple leads to the epoxy-filled trademark globe logo. Colors are Black and Shiny Mink in size 51-17-135.

LX 122Z, seen above, is a full rim zyl frame offered in Cream Tortoise and Eggplant colors. A metal logo treatment unites the front with beveled temples. Size 50-16-140

LX 123Z, seen above, is a modified cat-eye frame offered in three elegant colors. Colors are Red Swirl, Light Blue, and Black Tortoise, with size 53-16-140.

LX 124Z seen above, has rounded, beveled corners. Colors are Black/Grey and Tortoise/Sage, with size 51-14-135.

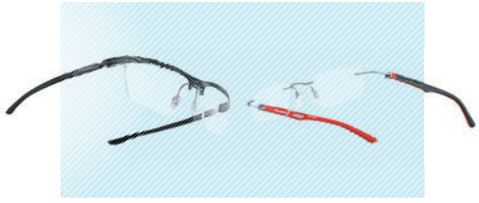
LX 125M is a full-rim milled metal frame featuring beveled metal temples globe logo plaque. This feminine, clean-lined rectangular frame in available in colors Eggplant and Mocha, with size 51-15-135.

SaltCityOptics.com hits cyberspace with outdoor active niche

Salt Lake City, Utah—SaltCityOptics.com announced its entrance into the online optics arena with a focus on the outdoors and active lifestyles. With brands such as Oakley, Smith, Electric, Von Zipper, SPY, RAEN, IVI, Zeal and Arnette, SaltCityOptics.com is providing its customers with simple experience while matching it with its passion for the great outdoors.

Previously, athletes had limited choices on where to get eyewear that met their rigorous physical demands. The SaltCityOptics.com staff is focused on providing options to an audience that has been largely ignored in the past.

Rudy Project introduces 2 versatile RX styles



Denver, CO—Rudy Project recently released 2 new RX models–the Indyo and DNA|carbon.

The sport utility frame of **Indyo** serves up an eyewear solution that adapts to different contexts: from cycling to running, from tennis to golf, from the office to a night out on the town. The Sport Utility Frame has patented, removable optical direct clips, which allow opticians to mount many types of Rx lenses, without a wide range of parameters. This style also has 360° fully adjustable temple tips and adjustable ultra-light optical nosepiece.

The **DNA|carbon** is available in full, half, and frameless models, this sleek eyewear combines well-known Rudy features such as fully adjustable temple tips, with a beta titanium chassis, compression mounts (rimless models), and Carbon/AluTech fiber inserts. The DNA|carbon is available in Gun Red, Chrome Grey, or Gun Lime.

Carrera releases Jimmy Choo capsule sunglass collection

London—Carrera recently released a new Jimmy Choo sunglass collection.

Carrera's latest best-seller, the Carrera 6000, is dressed by Jimmy Choo in 5 finishes. These designs are made possible by manufacturing techniques of Optyl, using a high-performance material, which is ultra-lightweight, strong and hypoallergenic. A thin silk sheet inserted inside the frame enhances the premium effect of the new sunglasses, boosted by the finish of the metal logo on the temple.

Glitter, seen above in black and nude glitter, is also available in dark gold.

Leopard features black and gold camouflage.

Limited Edition, seen above, features gold plated lenses in contrast to the leopard graphics lining the Optyl frame.**ODT**

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Janice M. Jurkus, OD, MBA, FAAO
Director of Residency Programs, Illinois College of Optometry

Career-changing frogs and ziplining

Where did you grow up?
I grew up in Cudahy, WI. It's a suburb of Milwaukee, and my 97-year-old mom still lives there. Now I live in Chicago. I'm looking out my window, and it's snowing.

What is your favorite place?
Cabo San Lucas, Mexico. My very best friend lives there.

Tell me about the frog that changed yoru career choice.
[Laughs] When I was in high school, my father was one of the very first people in the state of Wisconsin to have open heart surgery. At that point I decided, "I'm going to become a heart surgeon." And then I took my first biology class and had to cut open a live frog. Maybe not! Let's go into some profession that doesn't involve blood.

You became interested in optometry when you were in high school getting contact lenses.
It took me three visits to my optometrist's office to learn how to put contact lenses on and take them off. They were so patient with me. The optometrist, Dr. Tom Sekey, said, "So, you want a job here? You can answer the phone." I got to see what he was doing, and it was so cool because it was really wonderful to be able to make people see. So, I decided to be an optometrist. I was incredibly fortunate that both my parents, who I have to give huge credit to, and Dr. Sekey, never told me I couldn't do something.

What went through your mind when you first saw that all of your optometry classmates were men?
[Laughs] I remember vividly walking into the classroom and looking around, thinking, "What a backward school this is that they're segregating men and women in to different classrooms." I walked into the dean's office and said, "Where's the women's classroom? There's only men in that room." He said, "Well, that's because you're the only woman." And I'm going —You gotta be kidding! So, I walked back and sat down.

What was the most daunting part of your educational experience?
I had to be better than everyone else because everyone knew my grades. I was told at the time that I was taking the place of a man who got drafted and had to go to Vietnam, so I better be good at what I do because I could be killing someone. It was a challenge.

What was your first year like out of school as an optometrist?
My first job was working with an OD/MD practice, and my first patient had a gun shot wound to the eye. It was at the hospital that Richard Speck, back in the 60s, had murdered a number of nurses and kind of a rough part of town. And I sat back and said, "I don't think this is what I want to do. I want to make people see." So, I stopped back at ICO to see if there were any leads I could get, and they said, "Why don't you teach here for a year to figure out what you want to do in life."


Jan Jurkus, OD

You drifted into teaching. What kept you there?
It is so much fun to change people's lives. Right now I'm the director of the residency program. To be able to work with these incredibly smart and very ambitious residents and watch them excel in their different areas is like, "Wow! I'm really making a difference in somebody's life!" And that's fun.

You have encouraged networking, mentoring, and leadership development. Why is it important to encourage this among women?
I think it's important to encourage all optometrists. When I was doing my training, I was one of the guys. I don't in my own mind necessarily look at optometrists as men and women optometrists—they're optometrists, period. But, with that said, women sometimes will not be as assertive as their male counterparts will be. There are times when women's networking is not quite as efficient. To be in a position where I am right now where I know a lot of people, it's so exciting to introduce someone who needs to know somebody else and say, "Maybe you two can work out this problem and come up with a solution."

What is the craziest thing you've ever done?
In the past 10 years or so, I've decided to do dangerous stuff. I've been parasailing in Cabo San Lucas, I've been zip-lining in Costa Rica and I went zorbing in New Zealand. Zorbing is most excellent! There is this 14-foot Plexiglas ball, they put a little water in it and you jump in the center of it, they zip you in and roll you down a hill. You have no control of anything. You just float. Of course, I did the zigzag hill instead of the straight-down hill because that was more fun.

What would you change if you had it to do it over?
Learn to play golf. A lot of camaraderie, a lot of friendships, and a lot of getting to know people can happen on the golf course. Back in the day when many companies would offer golf sponsorships, not knowing how to golf didn't fit me in with the people, especially being the only woman around. So while I went shopping, those guys went golfing, and they had something to talk about afterwards.

What advice would you give to women entering optometry?
Oh, believe in yourself. You're better than you think you are. And…make sure you have fun every single day. Enjoy what you do, you make people see. There's just nothing better than that.**ODT**

—Vernon Trollinger

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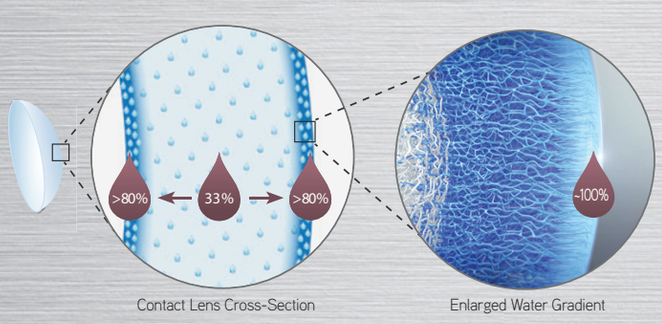
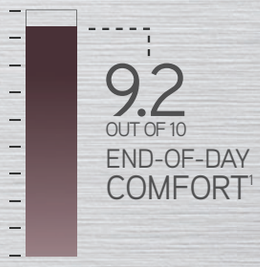


Contact Lens Cross-Section

Enlarged Water Gradient



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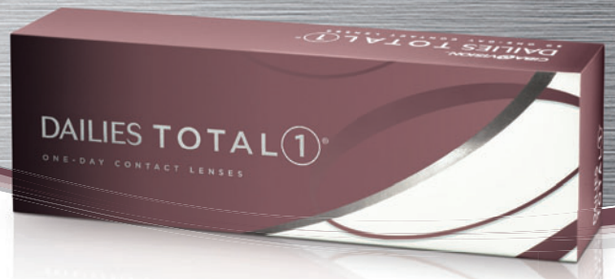

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1. In a randomized, subject-masked clinical study, n=40. Alcon data on file, 2011.
2. Based on an ongoing survey in Europe of 24 ECPs fitting 280 customers in DAILIES TOTAL1® contact lenses. Alcon data on file, 2012.
3. Angelini TE , Nixon RM, Dunn AC, et al. Viscoelasticity and mesh-size at the surface of hydrogels characterized with microrheology. ARVO 2013; E-abstract 1614872.

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