



**Your AAO  
News Source  
Friday**

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## Fighting Dry Eye's Rising Tide

*At the Joint AAO/AAOphth Symposium, ODs and MDs pooled knowledge from both professions.*

**E**ye care professionals from across the spectrum took center stage at the Arie Crown Theater yesterday afternoon in a coordinated approach to navigating a shared obstacle: dry eye. The speakers each provided an in-depth analysis of an area of dry eye development and therapeutic management. Additionally, the group shared case examples with each other and engaged in a roundtable discussion that highlighted the value of a shared approach.

Presenters included Barbara Caffery, OD, PhD, FAAO, Stephen C. Pflugfelder, MD, Ellen Shorter, OD, FAAO, and Victor Perez, MD. Carolyn Begley, OD, MS, FAAO, wasn't able to attend, but her work was presented by Dr. Caffery.

### The Dry Eye Cycle

Dr. Pflugfelder opened the afternoon lecture by imparting an evolving idea—that dry eye is a multifactorial disease. “Dry eye is a cycle you can enter at a variety of points,” he said, enumerating the extrinsic (e.g., surgery, contact lens wear) and intrinsic (e.g., aging, autoimmunities) factors. And these factors influence each other as well. “Some patients, particularly those with Sjögren’s syndrome, are especially susceptible,” he said. Stress on the ocular surface, he said, can lead to inflammation, which will put in motion a cellular-level adaptive T-cell response that creates barrier disruption. This sets up the conditions necessary for ocular surface dryness, which itself can

cause inflammation—and the cycle begins anew.

Dr. Perez said drug manufacturers must also keep this cycle in mind. Future anti-inflammatories, he said, must be made “smarter.” He also introduced early studies suggesting promise from biologics that may help to create individually curated therapies.

### The Pain Pathways

“Pain is important,” Dr. Caffery explained. In dry eye, pain can be divided into two categories: mechanical and neuropathic. Ocular neuropathic pain results from chronic stress to a particular tissue, which causes abnormal excitability of the nerve terminals and is, therefore, associated with abnormal sensations. Theoretically, she said, there may be a progression from dryness to structural damage of the nerves that register pain. While staining techniques can reveal ocular dryness, some patients have “pain without stain.” Neuropathic ocular pain can be differentiated by a few clues; for instance, if the irritation is increased at the end of the day but recovers in the morning.

Although it’s not always possible to distinguish if the pain is neuropathic, identifying if the suspected neuropathic pain is peripheral or central can guide the clinicians to treat using topical anesthetics or scleral lenses.

### Contact Lens Options

Dr. Shorter went into depth on bandage contact lenses and scleral. “When we think about the



Attendees gathered to hear both optometrists and ophthalmologists explore the nuances of dry eye.

patients who could most benefit from therapeutic lenses, I think the most obvious are those who are symptomatic and have signs on the ocular surface. Another group is those who don't have symptoms, but have signs. Those are neurotrophic conditions. [For those patients] I'll often go first to a scleral lens. And the third group is the one's who have neuropathic pain. It's always worth a trial,” she explained, as “these are patients who have everything” and may find relief in bandage or even scleral lenses.”

### Locating Neuropathic Pain

Dr. Caffery presented on the importance of understanding patients' pain. Once you determine the pain is neuropathic, you have to locate the sensation:

#### Peripheral: early post-LASIK

- Peripheral nerve injury leads to aberrant regeneration, increased sensitivity (peripheral sensitization).

#### Central: one year post-LASIK

- Corneal nerves are healed, but pain still exists.
- Abnormal activity from peripheral neurons lead to increased sensitivity of higher-order neurons.

**Mixed:** presence of both is common.

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# Avoiding Diagnostic Perils in Neuro-ophthalmology

*During yesterday's Lawrence Gray Symposium, experts laid out ways practitioners can better detect neurologic disease.*

**A**voiding pitfalls in diagnosing neuro-ophthalmic disorders was the theme of yesterday morning's "Neuro-ophthalmic Disorders in Optometry SIG: The Lawrence Gray Symposium." Speakers inventoried common—and potentially critical—mistakes that eye care professionals make.

## 10 Evaluation Don'ts

Kicking things off, Valerie Purvin, MD, a neurologist at Indiana University Health Physicians, discussed the top 10 errors practitioners make in evaluating neurologic visual loss.

"Many patients are thought to have neurologic visual loss simply because the eye exam didn't show a cause," Dr. Purvin said. "Somebody looked in the eye, did a thorough exam, and the eye looked OK so [they assumed] it must be the brain."

Dr. Purvin rhetorically asked, "Why might a patient have ocular disease that doesn't show up on exams?" It's possible the disease's signs and symptoms might be subtle, or the condition could be atypical, intermittent or require a specialized test, she said. She stressed that the diagnosis of neurologic disease shouldn't just be one of exclusion.

"There are characteristics of neurologic visual loss that really help you out, and you should be able to tell just from the history, in most cases, whether this is a neurologic problem or not," Dr. Purvin said.

The hallmark symptom of visual loss due to optic neuropathy is loss of brightness, she instructed. Patients report that objects look dimmer or darker, often with desaturation of color perception, she added. On the other hand, aberrations of the ocular media (refractive, corneal and lenticular) produce blurring but not dimming, frequently accompanied by haloes, she explained. Dr. Purvin said that visual distortion of shape or size in one eye is always retinal and never due to optic nerve disease.

Other blunders eye care professionals make when gathering a patient's history to diagnose neurologic visual loss is believing that it is monocular rather than hemifield and failing to ask about non-visual symptoms, Dr. Purvin said.

When examining the eye, practitioners often over-rely on visual acuity assessments,

fail to obtain visual field (VF) testing, don't recognize a bi-temporal VF pattern or miss a relative afferent pupillary defect, she said. Eye care professionals often diagnose migraines based on a first episode, for example, despite the fact that migraines, by definition, have a tendency to be recurrent and accompanied by neurologic and visual symptoms.

Additionally, eye care professionals sometimes fail to move fast enough, Dr. Purvin said. Though there are few true neuro-ophthalmic emergencies, she said, a few diagnoses require prompt detection and treatment to have good outcomes, including giant cell arteritis, pituitary apoplexy and papilledema.

She called out giant cell arteritis, noting that it's commonly missed and can result in severe, bilateral blindness. Hallmark disease characteristics include occurrence in an elderly population and involvement of visual loss that can be permanent.

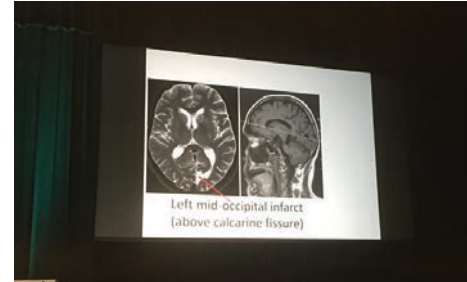
## Visual Field No-No's

In her talk on common slip-ups in evaluating neurologic visual fields, Cherie Farkash, OD, FAAO, clinical instructor of the contact lens, low vision and visual rehabilitation section at the University of Michigan Kellogg Eye Center, highlighted several cases.

In one case, a 70-year-old man was experiencing what he described as "sparkly lights off to the right." A smoker, he had hypertension, a stroke 10 years previous to his appointment and hearing loss in the right ear that had not been explained in the ENT workup. His optometrist did a thorough exam and found nothing abnormal; however, the scintillations were continuing, so the optometrist referred him to a retina specialist.

"The optometrist was rightly concerned [...] that maybe there was some kind of impending retinal detachment or retinal issue," Dr. Farkash said.

The specialist saw him about a week later, and by then the patient's symptoms had resolved. In spite of that, the specialist per-



Dr. Farkash featured the MRI of a patient suspected of having had a stroke. The image highlights the mid-occipital infarct located above the calcarine fissure—correlating with visual field findings—in a 70-year-old man.

formed scleral depression, cataloged his injuries and found posterior vitreous detachment, choroidal nevus OS and drusen, although VFs were not performed, Dr. Farkash said. The specialist instructed him to take vitamins, stop smoking and return in six months.

Six months later, the man returned to the specialist with no new

symptoms, although a technician noted that he was not counting fingers correctly on confrontation fields, so the patient was referred to neuro-ophthalmology. The patient's VFs revealed a right inferior homonymous hemianopia with macular sparing, respecting the vertical and horizontal meridians and localizing to the occipital lobe on the opposite side, Dr. Farkash said.

"The first mistake, obviously, was not getting a visual field," she said. "This macular sparing right inferior homonymous hemianopia originally presenting with scintillations is something that we always think as retina. But [the scintillations] were colorful, they were lasting a long time and he had a history. So it's important to remember to do a visual field in patients with these types of symptoms."

## Diplopia Pitfalls

Rounding out the symposium, Jonathan Trobe, MD, professor of ophthalmology in visual sciences and neurology and co-director of the University of Michigan Kellogg Eye Center, featured the top 10 mistakes in assessing diplopia.

Dr. Trobe organized the errors into categories of "underdiagnosis" and "overdiagnosis," using case examples to illustrate his points. He also argued for the necessity of optometry and ophthalmology to partner to improve patient eye care and outcomes.

"I think we all realize the importance of the close connection between optometry and ophthalmology," Dr. Trobe said. "Our patients will benefit from it, and I think the truth is that many of my patients—and probably also Valerie's—come from optometry, and you see them first."

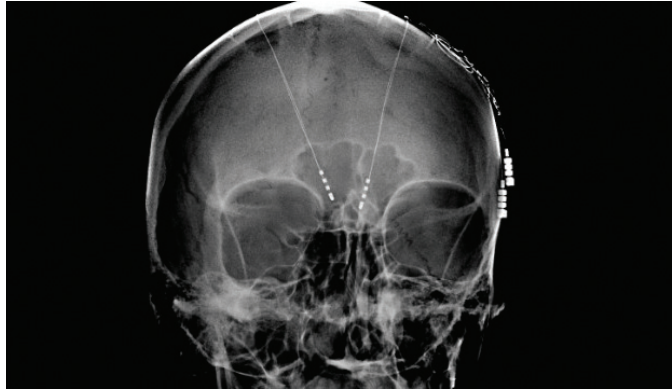
## Deep Thoughts on Parkinson's Disease

Attendees were treated to a succinct update on PD and novel treatments with a huge “wow” factor.

Optometrists keen to learn more about neurodegenerative diseases joined Vondolee Delgado-Nixon, PhD, FAAO, yesterday morning to dig deeper into what we know about Parkinson's disease (PD). “It isn't just one disease—it has many different presentations,” she said. “You have to shift your idea of Parkinson's, because it's not just a motor disease. It's dynamic.”

Dr. Delgado-Nixon, of Ohio State University, started off with a brief review of disease presentation, including prevalence and epidemiology. Research has unearthed a genetic predisposition, but has also linked it to a patient's health risks, such as diabetes, obesity and lack of exercise, and environmental factors such as pesticides and herbicides.

Next, she honed in on the cellular level, detailing the specific mechanisms of action that lead to PD and disease progression from stage one to stage three. “One of the early visual symptoms in stage one is a loss of visuospatial working memory,” Dr. Delgado-Nixon said. “It's like that game ‘Simon,’



Deep brain stimulation, while effective initially, requires invasive surgery, may cause other functional losses and is not effective for stage three PD.

where a device with colored sections lights up in a sequence and you have to remember the colors and the sequence. In office, you could show patients an object in space and then remove it. In the early stage, they will often miss the mark on where that object was in the space.”

Dr. Delgado-Nixon also included the treatment options and their effects. Although stage three has no effective therapy, stage one has several oral medication options such

as levodopa (a dopamine precursor), D2 agonists and inhibition of clearance enzymes. Because stage two patients experience a “wearing off” effect of oral therapy, researchers have developed DuoDopa and apomorphine—both delivered through a pump system for continual treatment.

Deep brain stimulation (DBS) is another stage two option making waves in the neurodegenerative community. Dr. Delgado-Nixon punctuated the DBS discussion with a video of a patient demonstrating the difference in his tremors with and without DBS. The immediacy of the effect had audience members gasping.

With the system turned on, the patient had normal motor skills and could easily touch each finger. Without DBS, he had what he called “the royal wave in one hand and shaking a cocktail in the other.”

Even though more and more patients are opting for this highly effective therapy, “I can't tell you how this affects the visual system,” Dr. Delgado-Nixon explained. “There are no studies, so that remains to be seen.”

**TODAY: 3PM TO 4PM | E271 A-B**

## The Latest on Plaquenil Testing

Learning more about today's guidelines can make caring for this patient base much simpler.

When managing patients taking Plaquenil (hydroxychloroquine), optometrists need to be prepared to identify early signs of macular toxicity, as the risk of progressive vision loss extends even after discontinuation. Those interested can learn about the most recent Plaquenil testing guidelines and how to apply them in everyday practice during a course this afternoon taught by Wendy Harrison, OD, PhD, FAAO, and Kaila Osmotherly, OD, FAAO.

“In this lecture we go over the Plaquenil guidelines that were updated in 2016 and discuss the changes from previous guidelines,” says Dr. Harrison.

“Update on Plaquenil Testing: 2016 Guidelines and Beyond” will start out with a general background review of the medication, including what it's used for, how it works,



Drs. Harrison and Osmotherly will present cases from their own practice that demonstrate Plaquenil toxicity.

cases where it is especially helpful and its alternative options. After that, the course will

turn to some general treatment principles. This will cover why rheumatologists employ Plaquenil, the drug's protective qualities, its effect on cholesterol and its dreaded toxicity issues.

The 2016 guideline recap will highlight who should be screened for toxicity, when a dosage is considered high, how long treatment should last, which procedures to screen and when *not* to screen.

Aside from the updated Plaquenil testing guidelines, Drs. Harrison and Osmotherly will also review the fundamental structural and electrodiagnostic tests that can be helpful in decision-making for Plaquenil patients.

Additionally, the team plans to share “cases from our electrodiagnostic clinic where we see patients who are at high risk for toxicity,” says Dr. Harrison.

**TODAY: 4PM TO 6PM E253 A-D**

## Vision Science SIG Symposium: Mapping Out the Blood Flow

**B**lood flow can serve as a key to achieving a better understanding of retinal diseases and glaucoma, so it's vital for ODs to develop the ability to monitor it. Today, this is more feasible than ever through technologies such as adaptive optics scanning laser ophthalmoscopy and OCT angiography techniques that allow users to map blood flow noninvasively.

For those interested in learning how to incorporate this into their practices, a Friday afternoon Vision Science SIG symposium, "Blood Flow in Retinal Disease and Glaucoma Measurement, Understanding Tissue Oxygenation and Clinical Applications,"

will provide a comprehensive look at the use of retinal imaging to monitor ocular blood flow.

Through a review of existing and new research, this course will introduce attendees to the world of retinal imaging of blood flow while providing updates on topics such as ocular oxygenation and its relation to retinal eye diseases, and new ocular health assessment techniques that may soon be available.

Speakers include Ann Elsner, PhD, FAAO, Dean VanNasdale, OD, PhD, FAAO, Robert Linsenmeier, PhD, Hao Zhang, PhD, Mahnaz Shahidi, PhD, David Huang, MD, PhD, and Brett King, OD, FAAO.

### CONTINUING EDUCATION WITH EXAMINATION (CEE) CREDITS

The courses listed below will be presented with an option to take an exam, administered by the University of Houston College of Optometry. All CEE exams are offered by mail or online. All are welcome to attend the courses without taking the exam. Instructions to request the exams are available at the Education Desk.

Friday, October 13			
Time	Course	Lecturer(s)	COPE ID
8am	Wake Up - Sleep Disorders and Eye Care	Stuart Richer, Alexander Golbin	54346-SD
8am	Lab Testing in Optometric Practice: The Basics	Blair Lonsberry	53983-SD
9am	Evaluation and Management of Special Populations	Catherine Heyman	54694-FV
10am	Innovations in Ocular Drug Delivery Systems	Justin Schweitzer, Walter Whitley, Derek Cunningham	54002-PH
2pm	Anatomical Considerations in Neuro-ophthalmic Management	Kelly Malloy, Lorraine Lombardi	53988-NO
3pm	Optical Coherence Tomography: Posterior Segment Applications	Nancy Wong, Nicholas Beaupre	53987-PD
4pm	Case Based Approach to Ophthalmic Ultrasound	Peter Russo, Charles Kinnaird	54004-PD
Saturday, October 14			
Time	Course	Lecturer(s)	COPE ID
8am	Minor Surgical Procedures (Blades and Radio-Waves)	Jason Duncan	54692-SP
9am	Contemporary Retinal Care: Evidence-Based vs. Real World	Diana Shechtman, Jeff Gerson	53984-PS
10am	My Doc Told Me to Get an Eye Exam Because...	Bruce Onofrey	54003-PH
2pm	The Herpes Group	Joseph Shovlin, Greg Caldwell, Michael DePaolis, Andrew Mick	53995-AS

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**TODAY: 2PM TO 4PM** E253 A-D

# Pediatric Primer: Ins and Outs of Visual Development

*Ezell Fellows Present: Managing the Consequences of Abnormal Visual Development*

This afternoon, three optometrists—aided early in their careers by the American Academy of Optometry Foundation Ezell Fellowships—will share their expertise on normal and abnormal visual development.

Join Ruth E. Manny, OD, PhD, FAAO, as she moderates presentations by T. Rowan Candy, MCOptom, PhD, FARVO, Susan Cotter, OD, MS, FAAO, and Heather Anderson, OD, PhD, FAAO.

Dr. Candy will kick off the session with an in-depth discussion of recent research on binocular function development in infants and young children. Not only will she cover the basics of development, but also the challenges of overcoming immaturities in interocular distance and refractive error. She will touch on the implications for both typical and atypical development, including hyperopia, amblyopia, anisometropia and refractive strabismus.

“We have known for a long time that abnormal visual experience during infancy and early childhood disrupts visual development and is associated with amblyopia,” says Dr. Candy, a professor at Indiana University’s School of Optometry. “This session addresses the question of how the young brain controls its own visual experience by aligning and focusing the eyes during the dynamic period when the head



Photo: Caitlin Kelley

With a firm grasp of typical visual development, clinicians can better spot atypical development and initiate treatment to avoid long-term complications.

is growing and refractive error is typically changing. Research suggests this motor control is actually more competent than we might have assumed, and in the presentation, attendees will learn more about how young patients derail into abnormality.”

After this refresher, Dr. Cotter, a professor of optometry at the Southern California College of Optometry at Marshall B. Ketchum University, will present on amblyopia and the implications of the Pediatric Eye Disease Investigator Group randomized clinical trial results.

Dr. Anderson, an associate professor at the University of Houston College of Optometry, will then shift the focus toward treating specialty populations such as children with Down syndrome. She will walk attendees through the visual deficits prevalent in this population, including strabismus and nystagmus, reduced visual acuity, elevated refractive errors, poor accommodation and corneal abnormalities. She will then discuss the ocular complications and behavioral limitations that make accurately determining their refractive correction a challenge. In addition, will touch on strategies in the pipeline for objective prescribing techniques and the direction of future research when it comes to clinically-based vs. metric-based refractions and monitoring spectacle compliance and visual acuity outcomes.

## ANNUAL FELLOWSHIP BANQUET

**Saturday, October 14, 7pm to 10pm**

Join us in recognizing the new Fellows and Diplomates! The event will be hosted by *The Second City*, a Chicago-based improvisational comedy group. Enjoy the camaraderie and indulge in “Best of Chicago” food stations. Also, the dress code has been relaxed – so wear what you’d like! Banquet tickets can be purchased for \$25 at Registration Central.

## TODAY’S HIGHLIGHTS

**FRIDAY, OCTOBER 13**
**Today’s Paper Sessions**

Category	Room Number	Time
P-14 - Papers: Spatial Vision with Keynote Address by: John Robson (Poster viewing until 1pm)	E351	10:15am
P-15 - Papers: Low Vision I	Room 351	2pm

**Today’s Poster Sessions:**

Posters will be displayed from 9am to 3pm in Exhibit Hall D. Odd-numbered authors will present in the morning hours, 10am to noon, and even-numbered authors will present in the afternoon, 1pm to 3pm.

Topics include:

- Binocular Vision
- Pediatric Optometry
- Cornea / Anterior Segment / Contact Lens
- Neuro-Ophthalmic / Orbit
- Posterior Segment
- Optics / Refractive Error / Refractive Surgery
- Health Policy / Health Care Delivery
- Systemic & Other Disease

**Tomorrow’s Paper Sessions:**

Category	Room Number	Time
P-16 - Glaucoma Super Session: Improving Glaucoma Management <i>Paper presentations from 8am to 9:30am Poster Data Blitz presentations begin at 9:30am, followed by interactive session with poster and paper authors until 11am</i>	E351	8am
P-17 - Papers: Low Vision II	E352	8am to 9:30am

Interested in presenting a paper or poster at Academy 2018 San Antonio? The Scientific Program abstract submission window will be open from May 1 through May 31, 2018. More information will be provided online at [www.aaopt.org](http://www.aaopt.org).

# Join the Academy's Social Media Community!



## Academy Instagram Photo Contest

Share your photos from Academy 2017 Chicago on Instagram publicly with the hashtag #Academy17 to enter the Academy Instagram Photo Contest! The person who posts the photo that gets the most likes will win complimentary registration for Academy 2018 San Antonio!

Also, follow #academycloseup to see live photos from the Academy Close Up photo booth at booth #551 in the exhibit hall!



## AMERICAN ACADEMY OF OPTOMETRIC FOUNDATION — MEET THE EZELLS

AAOF Booth #539

Stop by to meet the 2017-2018 William C. Ezell Fellows. Discuss cutting-edge science and learn why your generous donation is so important in aiding new optometric talent to achieve great things.

## RESIDENTS DAY AT ACADEMY 2017 CHICAGO

Saturday, October 14

Residents Day is a forum where residents have the opportunity to present their interesting grand rounds case reports or the results of their research projects! Papers will be presented from 8am to noon and posters will be presented from 1:30pm to 3:30pm, all in E354B, Lakeside Center.

## FRIDAY THE 13TH VEIN DRAIN



The Academy invites you to give back during Academy 2017 Chicago and participate in our second blood drive benefiting the American Red Cross—this time taking place on Friday the 13th!

**Date:** Friday, October 13

**Hours:** 10am to 5pm

**Location:** E256, Lakeside Center

Donors will receive snacks and drinks. Please join us in supporting the local Chicago community!

## JOIN US AT THESE FUTURE MEETINGS!

Academy 2018 San Antonio.....	November 7-10, 2018
Academy 2019 Orlando.....	October 23-26, 2019
Academy 2020 Nashville.....	October 7-10, 2020
Academy 2021 Boston.....	November 3-6, 2021
Academy 2022 San Diego.....	October 26-29, 2022
Academy 2023 New Orleans.....	October 11-14, 2023
Academy 2024 Washington DC.....	November 6-9, 2024
Academy 2025 Boston.....	October 8-11, 2025

## Academy 2017 Chicago on Twitter (#Academy17)



Be sure to follow the Academy on Twitter (@aaopt) for up-to-the-minute tweets on all things related to the meeting. Also,

don't forget to use the official hashtag, #Academy17, on all of your tweets related to the meeting!

## Academy on Facebook



Visit [www.facebook.com/AAOPT](http://www.facebook.com/AAOPT) to like the Academy's page, a great place to stay connected

to your colleagues and get up-to-date information on the annual meeting. Check back after the meeting to view photos of the exciting sessions and events from Academy 2017 Chicago.

## Academy LinkedIn Group



To join, search for "American Academy of Optometry" in the Groups section. The Academy's group page is a great place

to network, make new connections and contribute to discussions related to optometry and vision science.

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# 2018 MEETINGS

**FEBRUARY 16-20, 2018**

**Winter Ophthalmic Conference**  
**ASPEN, CO**

Westin Snowmass Conference Center  
Program Chairs: Murray Fingeret, OD & Leo Semes, OD

**APRIL 6-8, 2018**

**NASHVILLE, TN**  
Nashville Marriott at Vanderbilt  
Program Chair: Paul Karpecki, OD

**APRIL 26-29, 2018**

**SAN DIEGO, CA\*\***  
San Diego Marriott Del Mar  
Program Chair: Paul Karpecki, OD

**MAY 17-20, 2018**

**ORLANDO, FL**  
Disney's Yacht & Beach Club  
Program Chair: Paul Karpecki, OD

**NOVEMBER 2-4, 2018**

**ARLINGTON, VA**  
The Westin Arlington Gateway  
Program Chair: Paul Karpecki, OD

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\*\*15<sup>th</sup> Annual Education Symposium  
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Review of Optometry® partners with Salus University for those ODs who are licensed in states that require university credit.  
See Review website for any meeting schedule changes or updates.



# AAO Exhibits

The Academy 2017 Chicago exhibit hall is the perfect place to experience cutting-edge products and services. Remember, badges are required for admission to the exhibit hall.

Today is the final day of exhibits for Academy 2017. The remaining exhibit hall hours are as follows:

**FRIDAY, Oct. 13**

10am – 3pm

## There *IS* Such a Thing as a Free Lunch!

Stop by the exhibit hall for free lunch today from 11:30am to 1:30pm.

Company Name	Booth Number
ABB Optical Group	504
AccuLens, Inc.	565
Aerie Pharmaceuticals, Inc.	609
Akorn Pharmaceuticals	663
Alcon Foundation, Inc.	631
Alcon Laboratories	119
Alcon Novartis Pharmaceuticals	731
All About Vision	563
Allergan	409
American Academy of Optometry	551, 669, 761
American Academy of Orthokeratology and Myopia Control	556
American Board of Optometry	571
American Foundation for the Blind	566
American Optometric Association	519
American Optometric Foundation	539
Annidis Corp.	245
Armed Forces Optometric Society	774
Art Optical Contact Lens, Inc.	300
Association of Schools and Colleges of Optometry	675
Bausch + Lomb	431
Bernell	605
BioD, LLC	619
BioTissue	403
Blanchard Contact Lens, Inc.	626
BlephEx LLC	208
Boston Foundation For Sight	505
Brien Holden Vision Institute	365
Bruder Healthcare Company	455
Bryn Mawr Communication	105
CareCredit	302
Centre for Contact Lens Research	1
Chadwick Optical, Inc.	267
Coburn Technologies	303
Compulink	157
CooperVision, Inc.	131
DemandForce	305
Designs for Vision, Inc.	461
DGH Technology Inc.	215
Digital Heat Corp.	153
Diopsys	521
Dyop Vision Associates	613
Elektron Eye Technology	258
Elsevier, Inc.	205
Enhanced Vision	251
Eschenbach Optik of America	451
Essilor of America	101
Euclid Systems Corporation	364
Eye Care and Cure	304
Eye Designs, LLC	661
Eye Photo Systems, Inc.	243
Eyecheck, LLC	764
Eyefficient, LLC	601
EyeMed Vision Care/Luxottica Group	212

Company Name	Booth Number
Fashion Optical Displays	167
Freedom Scientific/Optelec	500
Good-Lite Co.	501
Haag-Streit USA/Reliance	137
Hadley Institute for the Blind and Visually Impaired	564
HAI Laboratories, Inc.	351
Halsted Eye Boutique (Vision Source)	170
HCPN Alliance/Pharmanex	664
Heart of America Eye Care Congress	753
Heidelberg Engineering	525
Heine USA, Ltd.	200
Hero Practice Services	755
Hoya Vision Care	161
Icare-USA	412
Illinois College of Optometry	552
iMatrix	410
ImprimisRx	309
Indigo Iris Designs, LLC	562
Innexus by Interactive Media	159
Innova Systems, Inc.	168
Invision Magazine	152
IrisVision	460
Johnson & Johnson Vision	321
Keeler Instruments, Inc.	400
Kentucky College of Optometry	662
King Devick Test	404
Konan Medical USA	408
Lippincott Williams & Wilkins, Wolters Kluwer Health	358
Lombart Instrument	143
LS&S Products Inc.	458
Luneau Technology USA	612
M&S Technologies, Inc.	314
MacuLogix, Inc	359
Marco	357
Menicon America	201
MiBo Medical Group	255
Modern Design Architects	558
Moria, Inc.	210
National Vision, Inc.	527
NBEO – Board Certification, Inc.	402
NCI Vision Systems	610
Nidek	308
Nova Southeastern University	560
Novabay Pharmaceuticals, Inc.	242
Oculus, Inc.	343
Ocusoft, Inc.	310
Ocutech, Inc.	459
Opticwash	561
Optometry Times	262
OptoPrep	342
Optos, Inc.	151
Optovue, Inc.	259
OpTranslate	154

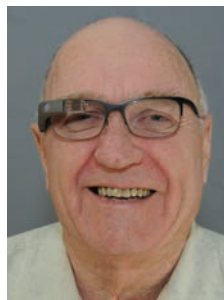
Company Name	Booth Number
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# Academy Presents: 2017 Awards and Lectures Ceremony

We look forward to seeing you at the 2017 Awards and Lectures Ceremony this morning from 8am to 10am in Room E351 of Lakeside Center. Help us celebrate the individuals who have demonstrated their contributions to the advancement of optometry and vision science! Join us to hear the Charles F. Prentice Lecture and the Glenn A. Fry Lecture (one hour of CE for this two-hour program) and to recognize these outstanding individuals.

## 2017 Charles F. Prentice Medal and Lecture

*The Charles F. Prentice Medal is the Academy's top award—and lecture—at the annual meeting. The honor is presented to an individual who has made a significant contribution to the advancement of knowledge through research in the visual sciences.*



Eli Peli, MSc, OD, FAAO, is a truly outstanding clinician-scientist-engineer with a career-long record of

advancement of knowledge in vision science, especially vision rehabilitation. In his pursuit of this area he has contributed important developments and concepts to basic vision psychophysics, engineering, and human factors research.

## 2017 Glenn A. Fry Award and Lecture

*The Glenn A. Fry Award and Lecture is sponsored by the*

*American Academy of Optometry Foundation and recognizes a distinguished scientist or clinician for his or her current research contributions.*



The work done by Mitchell Scheiman, OD, PhD, FAAO, using clinical research to

address key clinical questions and controversies has had a tremendous impact on the profession of optometry and on optometric practice. He served as Study Chair for the NIH-funded Convergence Insufficiency Treatment Trial (CITT), which provided definitive evidence that office-based accommodative-vergence therapy results in a significantly greater improvement in symptoms and clinical measures compared to other treatments.

## Irvin M. and Beatrice Borish Award

*The Borish Award recognizes an outstanding young researcher who has shown exceptional promise to conduct independent optometric research directly related to etiology, prevention, detection, diagnosis or management of clinical eye disorders.*



Ava K. Bittner, OD, PhD, FAAO, is a productive, multi-tasking young scientist who maintains a

funded laboratory while training students and proctoring in the clinic in her area of expertise—vision rehabilitation.

## AAO-Essilor Award for Outstanding International Contributions to Optometry

*The International Award recognizes an individual(s) or organization whose direct efforts and contributions have resulted in unquestionable significant and extraordinary advances in optometry and eye care internationally.*

This year's International Award will be issued to Luigi Bilotto, MS, OD, FAAO. As Global Director of Human



Resource Development for the Brien Holden Vision Institute, he has been at the forefront of optom-

etry's development of capacity and qualified human resources to provide sustainable means of addressing avoidable blindness and providing comprehensive quality eye health services worldwide.

## Brien Holden Humanitarian Award

*The Brien Holden Humanitarian Award is presented to an individual or organization who has made significant contributions to improve eye care in developing communities.*

C. Ellis Potter, OD, FAAO, has a long and distinguished career with Volunteer Optometric Services to Humanity (VOSH), working tirelessly to change

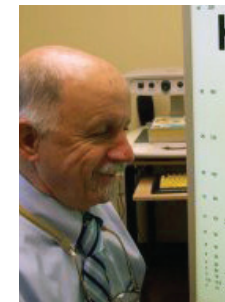


the VOSH paradigm. He has played a key role to help VOSH evolve from its original model that

provided care in week-long clinic trips to developing countries to a model that works with local optometry and health providers to create more sustainable eye care.

## Carel C. Koch Memorial Medal

*The Carel C. Koch Memorial Medal is awarded to a person who has made outstanding contributions to the enhancement and development of relationships between optometry and other professions.*



Joseph Fontenot, MD, CLVT, is this year's Koch Award recipient because of his work in assisting

visually impaired people, for promoting access to low vision rehabilitation care, and for building bridges between professionals who care for people with vision impairment.

## Julius F. Neumueller Award in Optics

*The American Academy of Optometry Foundation's Julius F. Neumueller Award in Optics is issued to a student pursuing the Doctor of Optometry degree in a school or college of optometry who submits a*

**TODAY: 8AM TO 10AM** LAKESIDE CENTER, ROOM E351

### Vincent Ellerbrock Clinician Educator Award

The Vincent Ellerbrock Clinician Educator Award is presented to a distinguished clinician who has made outstanding and sustained contributions to the Academy's Lectures and Workshops program.

This year's recipient is Richard Madonna, MA, OD, FAAO. Dr. Madonna is Chairman of the SUNY College of Optometry's Department



of Clinical Education. Dr. Madonna has improved eye care by sharing his expertise with his colleagues at more than 20 Academy meetings, encompassing more than 54 lectures, posters or case reports.

of Clinical Education. Dr. Madonna has improved eye care by sharing his expertise with his colleagues at more than

*first-authored original research paper on one of the following topics: Geometrical Optics, Physical Optics, Ophthalmic Optics, Optics of the Eye.*



This year, the Awards Committee selected two recipients. **Laura A. Goldberg, OD, MS**, wrote her paper, "Opposing effects of atropine and timolol on the color and luminance emmetropization mechanisms in chicks," during her studies in the combined MSc/OD optometry program at the New England College of Optometry.



**Celia R Gong, OD**, wrote, "Accommodation and Phoria in Children Wearing Multifocal Contact Lenses," in the OD-MS program at the State University of New York College of Optometry.

### Eminent Service Award

*The Eminent Service Award honors those persons who have rendered extraordinary and/or distinguished long-term service to the Academy.*



This year, the Awards Committee selected **Harue J. Marsden, OD, MS, FAAO**, to posthumously receive the Eminent Service Award. Dr. Marsden's tireless and energetic contributions to the Academy spans from work on the Exhibits Committee, helping to make the Academy's exhibits what they are today, to the Section on Cornea, Contact Lenses & Refractive Technologies, to teaching at the Leadership InSight® program for many years.

This year, the Awards Committee selected **Harue J. Marsden, OD, MS, FAAO**, to posthumously

### Life Fellowship Award

*The distinction of Life Fellowship was created to provide recognition to those Fellows who, through long-time membership in the Academy, have rendered distinguished service to the science and art of optometry.*

This year, two recipients will share this honor. **Bert C. Corwin, OD, FAAO**, has served the Academy since 1975, first as Chair of Clinical Papers of the Cornea and Contact Lens Section. He was elected to the



Board of Directors and served as President of the Academy from 1988 to 1990. Dr. Corwin co-chaired the first international Academy meeting and has the rare distinction of being a past president of both the American Academy of Optometry and the American Optometric Foundation.

Board of Directors and served as President of the Academy from 1988 to 1990. Dr. Corwin co-chaired



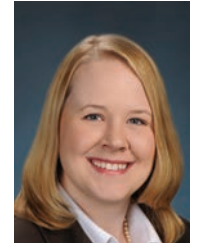
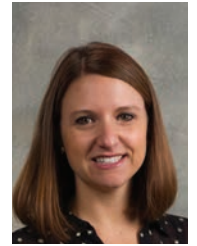
research that is still cited today, mentored others to follow academic careers and has encouraged many other Canadian optometrists to pursue candidacy for Fellowship.

**Avrum Richler, OD, PhD, FAAO**, received his Fellowship in 1965. He conducted myopia

### Garland W. Clay Award

*The Garland Clay Award is presented to the authors of the manuscript published in Optometry and Vision Science that has been most widely cited in world research literature in the preceding five years and has the vote of the Optometry and Vision Science Editorial Board.*

The 2017 Clay Award paper is "Multifocal Contact Lens Myopia Control" and its authors are **Jeffrey J. Walline, OD, PhD, FAAO**, **Katie L. Greiner, OD, MS, FAAO**, **Mary Elizabeth McVey**,



**OD, MS**, and **Lisa A. Jones-Jordan, PhD, FAAO** (pictured clockwise from top left). The article was published in *Optometry and Vision Science*, 2013;90(11):1207-1214.

### Michael G. Harris Award for Excellence in Optometric Education

*Presented by the American Academy of Optometry Foundation, the Harris Award recognizes an optometric educator who has demonstrated ongoing and consistent excellence in education of optometry students and/or advancement of optometric education.*



This year the Harris Award is presented to **Lorraine Lombardi, PhD**. Although not an optometrist herself, Dr. Lombardi is an optometric education icon after her more than 45 years of teaching at Salus University Pennsylvania College of Optometry. The Harris Award will complement her 25 college awards as Educator of the Year.

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Leo Semes, OD, FAAO

### SPEAKERS:

Robert Fechtner, MD  
Andrew Morgenstern, OD, FAAO  
Jack Schaeffer, OD  
Amilia Schrier, MD  
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# Research, Tech Highlights from Academy 2017 Chicago

Wednesday's AAO press conference provided a snapshot of the leading scientific research and innovative products and services presented this year. Moderated by Edward Chu, OD, FAAO, the scientific session highlighted these key findings:



- Cognitive distraction affects the peripheral vision of older drivers more than younger ones, according to Alex Bowers, PhD, MCOptom, FAAO, of Schepens Eye Research Institute. Using memory tasks as a form of cognitive distraction, her team found a three-way interaction between load, age and eccentricity, suggesting older subjects reached the limit of their dual-tasking capabilities sooner than younger subjects.

Source: *Effects of Age and Cognitive Distraction on Peripheral Detection at Intersections.*



- Inhibiting EGFR signaling may be a viable pathway to prevent posterior capsular opacification (PCO), said Daisy Yao Shu, BOptom, BSc, of the Save Sight Institute in Sydney. Understanding the interplay between divergent canonical and non-canonical pathways in TGFβ-induced EMT could enable development of pharmacological therapies for PCO, said Dr. Shu.

Source: *Inhibition of EGFR signaling is a novel approach to Prevention of Posterior Capsular Opacification.*



- In a phase 2 study, the segment of adult patients with resolution of acute adenoviral conjunctivitis at day six was significantly higher for those treated with dexamethasone/povidone-iodine vs. vehicle—31.3% vs. 10.9%, respectively, said Abhijit Narvekar of Shire. Also, the proportion with adenoviral eradication was significantly higher, observed as soon as day three.

Source: *Dexamethasone/Povidone-iodine Ophthalmic Suspension for Tx of Adenoviral Conjunctivitis.*



- CooperVision's Paul Chamberlain presented data showing that a dual focus contact lens reduced myopia progression by 59%, 54% and 52% and axial elongation by 58%, 50% and 45% at 12, 24 and 36 months, respectively, compared with single vision. The study also found the treatment effect was independent of age, gender, ethnicity and baseline refractive error.

Source: *Efficacy of Dual Focus CL and Factors Influencing Myopia Progression in 3-year Trial.*



- Ophthalmologists submit substantially more claims than optometrists for glaucoma services, noted Mark Swanson, OD, MSPH, FAAO, after analyzing

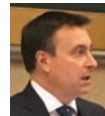
2014 Medicare Part B claims for five standard-of-care glaucoma tests. Dr. Swanson suggested there is room for growth in optometry's provision of these services.

Source: *Glaucoma Testing Under the 2014 Medicare Part B Program.*



- Lipoxin B4 (LXB4) was protective of the inner retina in a chronic ocular hypertension rat model, according to John G. Flanagan, OD, PhD, FAAO. Although LXB4 had no effect on IOP, it provided for better RGC function and a thicker RNFL vs. controls at week 15 of treatment.

Source: *The Neuroprotective Role of Lipoxin B4.*

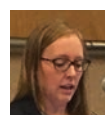


- The University of Waterloo's Centre for Contact Lens Research has been rechristened the Centre for Ocular Research and Education (CORE) to better reflect its scope, which includes biosciences, clinical research and education, said CORE Director Lyndon Jones, PhD, FCOptom, FAAO. The new name reflects its continued efforts to collaborate with the optometric profession and improve vision health, he said.



- Pattern recognition analysis may improve detection of glaucomatous visual field defects (VFDs) early in the disease, said Michael Kalloniatis, MScOptom, PhD, FAAO. His asymmetry analysis used grouped points with the same contrast sensitivity isocontours within each hemifield and detected more VFDs (64%) than the HFA hemifield test (38%). A subset of five VFs from five eyes with moderate glaucoma confirmed that the model performed just as well with more severe VFDs.

Source: *Pattern Recognition Reveals Unique Sensitivity Patterns Useful for Hemifield Test Analysis in Glaucoma.*



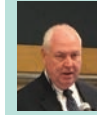
- Acute concussion significantly impacts visual function; however, it's unknown whether or not residual defects persist after concussions have healed. Kristine Dalton, OD, PhD, FAAO, of the University of Waterloo, examined visual function in athletes with and without history of concussion and found no long-term visual impact of presumably healed concussions.

Source: *Does a History of Concussion Matter?*

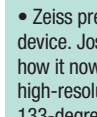


- Objective refraction may be better for patients with Down syndrome (DS), said Ayeswarya Ravikumar, PhD, of the University of Houston. Refractions identified through optimization of image quality metrics (IQM) may also overcome some of the

## Advances From Industry



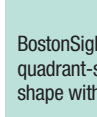
- Ammad Khan of IrisVision showcased the company's new low vision device, developed in collaboration with leading low vision experts. The company hopes to continue to redefine low vision and provide new assistive technologies, he said.



- Zeiss presented its new Clarus 500 widefield imaging device. Jose Castanon, head of marketing, discussed how it now combines improved color accuracy with high-resolution imaging—down to 7µm—within a 133-degree field of view.



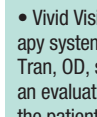
- The Heine Omega 500 with DV1 camera provides five-megapixel resolution with no disturbing picture noise due to the camera's increased light sensitivity, according to western sales manager Dan Cunningham.



- Karen Carrasquillo, OD, PhD, of BostonSight, introduced a new lens that offers the first quadrant-specific toric lens design with built-in scleral shape with right- and left-eye anatomical designs.



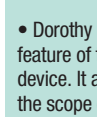
- Keeler's Eugene Vanarsdale shared the Vantage plus slimline digital video system that adjusts to fit smaller head circumferences, can accommodate smaller pupillary distances and is wireless. The Keeler BIO also has enhanced video image and LED light source, he said.



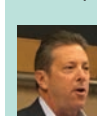
- Vivid Vision has launched a virtual reality vision therapy system called Vivid Vision Home. Cofounder Tuan Tran, OD, said patients are first directed to a clinic for an evaluation and prescription, and doctors can track the patient's treatment and response remotely.



- Russell Schlage, DGH Technology's territory manager, shared the Scanmate Flex ultrasound system, which can be equipped with any combination of three probe types: UBM, A-scan and B-scan. Desktop or wall-mounted, its internal battery allows it to operate for hours without being plugged in, according to the company.



- Dorothy Hitchmoth discussed the new panorama feature of the Annidis RHA multispectral imaging device. It adds to the number of image sets, expanding the scope of the device to include 115-degree views of the mid-periphery, she noted.



- Essilor's Howard Purcell, OD, FAAO, detailed the technology behind the company's progressive addition lenses (PALs), which use a unique "honeycomb" design that reduces head position limitations and suits visual tasks more naturally than conventional PALs, he noted.

challenges of subjective refraction in patients with DS.

Source: *Objective Refractions Outperform Habitual Refractions in Down Syndrome Eyes.*



- Children born prematurely have thicker lenses that are stronger in power and steeper than in children born full-term, according to Ann Morrison, OD, a pediatrics Ezell Fellow. Additionally, not all of these children are myopic; rather, some are hyperopic. Dr. Morrison hopes her research will help to elucidate what is happening in this patient population.

Source: *Investigating Early Detection and Correlation of Infant Farsightedness*

# All of Us and the Precision Medicine Initiative

The Monroe J. Hirsch Research Symposium addressed the shift to patient-tailored care.

Each year, the American Academy of Optometry's research committee spotlights important scientific discoveries to keep attendees informed about advancements prior to their translation to the clinic. This year's Monroe J. Hirsch Research Symposium addressed how clinical practice would be impacted by a shift in focus from care of the masses to the individual.

The current approach to treatment and prevention is based largely on patterns identified from studying the average response of many patients. However, with advancements in public health, genomics and DNA-editing technology, clinical practice appears to be at the beginning of a shift from a one-size-fits-all approach to tailored care. One example of this is the recent approval of immunological therapies, which rely on taking cells out of the bodies of individual patients.

Starting this year, a new program from the National Institutes of Health (NIH)—the Precision Medicine Initiative—will enroll one million volunteers with the goal of sequencing their genomes, under the banner of the *All of Us* Research Program. This year's Hirsch Symposium explored developments leading to the initiative. Dara Richardson-Heron, MD, NIH's chief engagement officer for the *All of Us*, program capped off the meeting with an insightful and inspiring talk about the importance of how optometry exemplifies the initiative's goals and tenets.

## Integrating Genomics

'The best way to predict the future is to invent it,' Bruce R. Korf, MD, PhD, of the University of Alabama at Birmingham, quoted computer scientist Alan Curtis Kay in speaking about genomic progress and the significance of translating recent advancements into clinical practice.

Dr. Korf gave a refresher on genetics fundamentals and then turned to sequencing and dilemmas regarding whether clinicians should notify patients of mutations for which the health significance is currently unknown. "Unless it's pathogenic," he said, referring to disease-causing variants in the patient's genetic code (as opposed to benign or unknown variants), it's best to steer clear of putting a "giant question mark in front of the patient," he explained.

He asked the audience to conceptualize the genome in the following manner: "We hear the genome referred to as the book of life; I think of it as the library of life" because every gene is actually more like a book. The genetic code is composed of three letters, and you can read the words, but understanding what it's trying to say requires a lot of time, effort and insight, said Dr. Korf.

Thomas May, PhD, of the HudsonAlpha Institute for Biotechnology, also broached the topic of ethical considerations when soliciting participation in initiatives such as the *All of Us* Research Program, which requires individuals to volunteer to have their genomes sequenced to create one of the largest known biomedical datasets. He explored the painful transgressions of science from the past, including the Tuskegee Syphilis Study, as well as the Havasupai Research controversy and the case of Henrietta Lacks—a medical ethics dilemma recently highlighted in a film starring Oprah Winfrey. It's imperative, according to Dr. May, that study participants benefit from the studies in which they participate. "Henrietta Lacks' family did not have health insurance and did not even benefit from the research she herself was part of," emphasized Dr. May.

## Relevance to Optometry

Rather than using a cookie cutter, one-size-fits-all approach, precision medicine aims to deliver "the right treatment, for the right person, at the right time." Such are the goals of the initiative, as well as to keep people living healthy longer and ensure diversity in biomedical research, according to Dr. Richardson-Heron. The precision medicine initiative, which was formed by President Barack Obama in 2015, aims to include diversity in the initiative's dataset to explore the impact of socioeconomic status, environment and race on individual health, as well as ensure every demographic's health can advance.

"This could be a radical shift in how each of us can receive the best care possible based on our unique makeup," said Dr. Richardson-Heron. She was encouraged to learn that optometry has given a tremendous amount of thought to how precision can help the eye care practice.



NIH's Dara Richardson-Heron, MD, chief engagement officer of the *All of Us* Research Program, presented a compelling case for precision medicine at this year's Monroe Hirsch Symposium and said optometry already engages in this form of medicine.

"Glasses are our favorite example of precision medicine," said Dr. Richardson-Heron, referring to the initiative's traveling mobile unit that uses examples of glasses to illustrate to the public what precision medicine is and encourage participation in the initiative.

"As someone who has worn corrective lenses for much of my life, I owe a huge debt of gratitude to optometrists," she said. Dr. Richardson-Heron assured the audience that "you don't want to wear my glasses and contact lenses, and I don't want to wear yours. I need my very own prescription, one that is based on my own personalized and specific needs."

Dr. Richardson-Heron said that the initiative is important to tackle serious, and potentially blinding, ocular conditions such as retinitis pigmentosa. "We don't know all of the causes, and this disease is a critical priority," she said.

Minorities make up 38% of the population, and numbers are projected to rise to more than 56% of the overall population by 2060, according to Dr. Richardson-Heron. And yet, she noted, Hispanic cancer patients only make up 1% of clinical trials nationwide and 2% to 5% of cancer trials. "We must make it abundantly clear that increasing diversity in medical research will enable us to learn more and will help foster discovery to advance treatment for all of us," Dr. Richardson-Heron asserted. "We can all agree to the need for more inclusive research."



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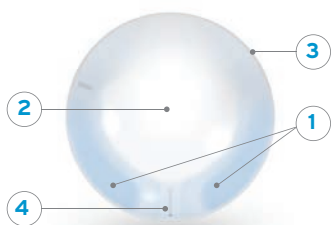
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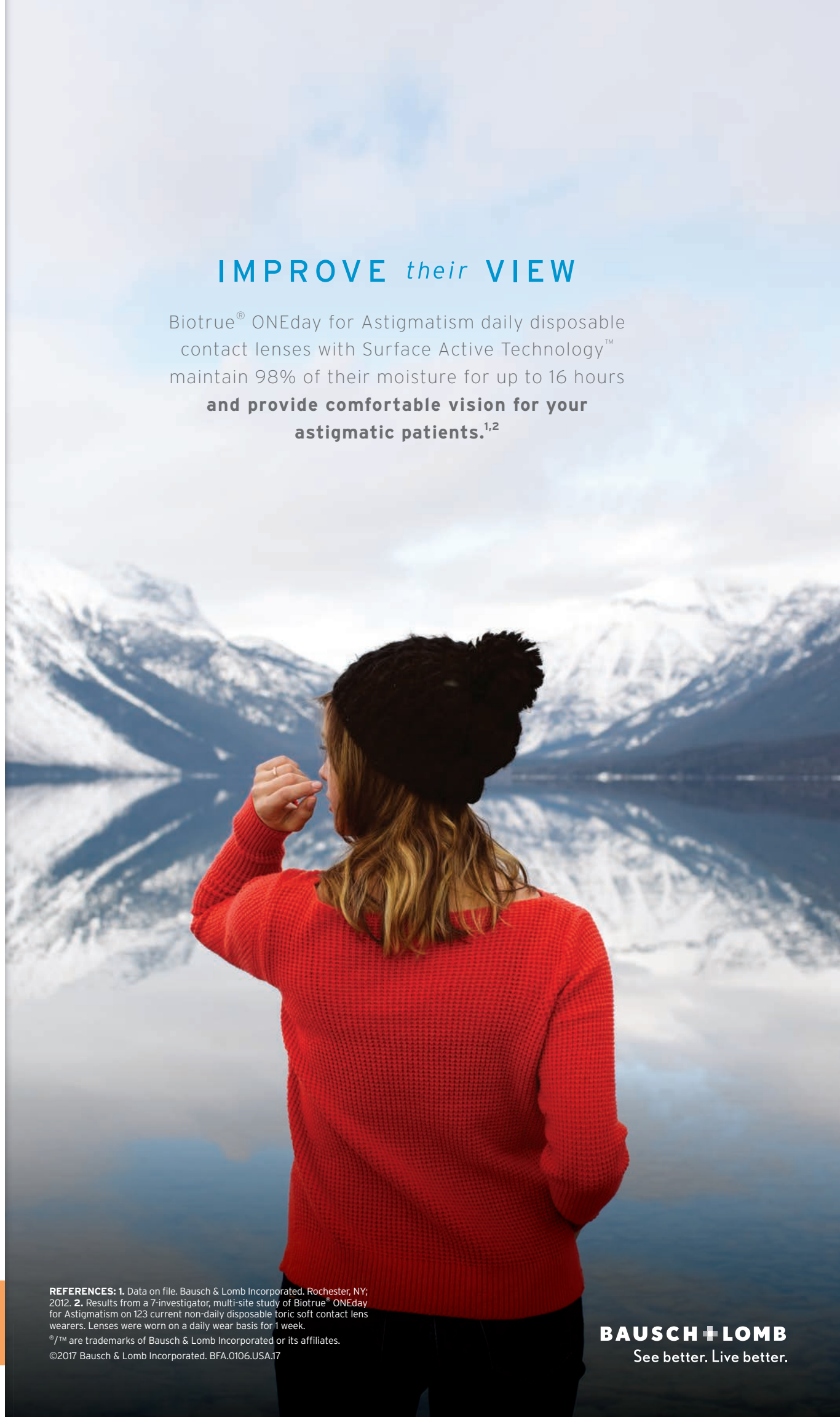


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