THE WORLD'S FIRST FUNKY OPTOMETRY MAGAZINE





Unique , Smart and A.I. solutions for **Eye Care Specialists!**





FAST Get all the measurements in 3"



FRIENDLY Easy-to-use and patients friendly



ACCURATE Suitable for adults and kids



PORTABLE Take it everywhere



MULTIFUNCTIONAL Widest range of Application



SAFE Safety Working distance > 1 m









ime flies even when you're not having fun, and this year is proof of that. Before we know it, it's already November and 2022 is just around the corner.

Although we spent most of the year in lockdown, trying to live our best amid the pandemic, we still have high hopes for the coming year. And what better way to close a challenging year than to look back on how far we've come in the optometry industry.

The invention of spectacles will always be a part of the colorful history of optometry and how it started as a profession. According to some accounts, circa 1285, Italians Salvino D' Armate and Alessandro Della Spina invented the first wearable pair of eyeglasses. Germany's Nicholas of Cusa was credited for having made the first near-sighted lenses in 1451. They were concave and thinner at the center and thicker at the edge.

As early as 1864, the term "optometry" was used to refer to an occupation concerned with the measurement of the refractive power of the eyes, as well as prescribing lenses by health service providers involved primarily with vision problems.

In 1866, Edmond Landolt discussed the principles of optometry in his book Refraction and Accommodation of the Eye and Their Anomalies. He also developed the Landolt C ring — commonly used for visual acuity testing for kids and those who are non-verbal.

Scleral contact lenses were first developed in 1888 by Adolf Eugen Fick (Zurich, Switzerland) and Eugene Kalt (Paris, France). And in 1895, Charles Prentice charged a professional fee for his optometric services, which enraged a group of New York ophthalmologists to the point that he was even threatened to be arrested.

Indeed, optometry has undergone a series of redefinitions throughout history. Its definition and scope have evolved from refraction to surgical intervention. Indeed, the journey has been challenging, with ophthalmology strongly opposed to the advancement of the optometric profession and legislation.

However, the definition of optometry has taken leaps and bounds. Today, it is now widely recognized as a profession concerned with the health of the eyes and related structures, as well as visual information processing in humans.

Optometrists are trained not only to prescribe and fit lenses, but also to improve vision and diagnose and treat various eye diseases. In the United States, Canada, and Ghana, optometrists are Doctors of Optometry (OD) and are held to the same legal standards as any physician. This is not the case, however, in the United Kingdom and other countries where optometrists do not undertake medical training equivalent to that of physicians and are, therefore, not considered as such.

But in all U.S. states, optometrists are licensed to diagnose and treat diseases of the eye through topical diagnostic and therapeutic drugs, as well as oral drugs (in 48/50 states). In some states, ODs are also able to perform certain types of laser surgery. In other countries, however, patients are referred to other healthcare professionals, such as ophthalmologists, neurologists, and general medical practitioners for further treatment or investigation.

Nevertheless, in some jurisdictions, optometry care has advanced to such a level as to include the use of noninvasive laser surgical procedures, including YAG capsulotomy, selective laser trabeculoplasty, and laser peripheral iridotomy.

In the Philippines, the Revised Optometry Law allows for the use of diagnostic pharmaceutical agents and raised the optometric education curriculum from four to six years. The law defines optometry as a primary eye care profession.

To say the least, optometry has come a long way and achieved so much. However, we still have a long way to go, and looking back on our challenging past and colorful history should only keep us all inspired and motivated to move forward.

> As always, COOKIE magazine is packed with interesting accounts, events, and articles. We hope you enjoy our History issue!

fest.

Carmen Abesamis-Dichoso OD, MAT, FIACLE, FPCO, FAAO



IN THIS ISSUE...

Cool Optometry

Probe à la **J**6 Holmes Investigating the etiology of some common anterior segment pediatric diseases

Cone-Shaped N8 Trouble

The development of the keratoconus treatment with contact lenses

Cut Nearsightedness Short The latest in India's fight against myopia

Cover Story





Kudos

First Line of Defense Professional ODs Society introduces a fresh vision for Philippine optometry

Beauty & Vision 26 Dr. Elise Brisco — optometrist, inventor, and beauty queen - puts 20/20 into her every project

Innovation

28

Be My Sight Smartphone apps and features for the visually impaired

AR in Eye Care 30 Exploring the role of augmented reality technology in addressing visual field loss





We are looking for eye doctors who can contribute articles to COOKIE magazine. Interested? Let's talk! Send us an email at editor@mediamice.com.



Matt Young CEO & Publisher

Hannah Nguyen COO & CFO

Robert Anderson Media Director

Gloria D. Gamat Chief Editor

Brooke Herron Fditor

International Business Development Ruchi Mahajan Ranga **Brandon Winkeler**

Writers

Andrew Sweeney Ben Collins Chow Ee-Tan **Chris Higginson Corrina Lindkvist** Elisa DeMartino **Jillian Webster** Joseph R. Schreiber **Nick Eustice** Sam McCommon

Maricel Salvador Graphic Designer

Published by



Media MICE Pte. Ltd. 6001 Beach Road, #19-06 Golden Mile Tower, Singapore 199589 Tel: +65 8186 7677 / +1 302 261 5379 Email: enquiry@mediamice.com www.mediaMICE.com

Society Friend



He Eye Specialist Hospital

To place an advertisement, advertorial, symposium highlight, video, email blast, or other promotion in COOKIE magazine contact sales@mediamice.com.

Enlightenment

Optics

Subjective Refraction with Trial

0

The History and Value of

Cool and Clear-Sighted

Bifocal and multifocal

presbyopia and myopia

contact lenses for

Crack the Code

Resolving some

FAQs on scleral

important

lenses

Frames

control

16

Chronicles of the Silent Thief 32 A brief lowdown on everything you need to know about glaucoma



Facts vs. Myths Demystifying common misconceptions about myopia









Dr. Kristie Nguyen

Dr. Kristie Nguyen is a board-certified optometrist. She currently serves as a contract doctor for Perez and Associates and Phan-Tastic Eye Care in Altamonte Springs, Florida, USA.

After graduating in the top 10 of her high school class with honors, she went on to obtain her Bachelor of Science degree from the University of Houston, Texas. While at U of H, she volunteered at a local hospital and worked as an optometric assistant. Dr. Nguyen obtained a Doctorate of Optometry (O.D.) in 2005 from Nova Southeastern University College of Optometry in Fort Lauderdale, Florida. She conducted her medical internships at the Chickasaw Nation Health Clinic in Ardmore, Oklahoma and the Lake Mary Eye Care in Lake Mary, Florida. Dr. Nguyen is a member of the American Optometric Association, the Florida Optometric Association, Young ODs of America, OD Divas, Optometry Divas and the Central Florida Optometric Society.

In addition, she has been an executive board member for Optometry Divas for the past two years. She is also a brand ambassador for an independent eyewear brand called Kazoku Lunettes and director of business development for an online optical company called Optazoom. She is also an independent consultant for Rodan+Fields, which is a global clinically tested skincare brand.

Dr. Nguyen is married and has two beautiful daughters. She enjoys going to the beach, hanging out at Disney, and reading.

ፉ kristie817@gmail.com



Dr. Oliver Woo B Optom, FIAOMC

Dr. Oliver Woo graduated from the School of Optometry, University of New South Wales, Australia in 1994 and established an independent optometrist practice in Sydney, Australia in 1997. In 2007, he became the first Australian Fellow of the International Academy of Orthokeratology (FIAO) and mentor. Dr. Woo has special interests in pediatric optometry, myopia prevention and control contact lens fitting of orthokeratology and specialty contact lenses.

He opened an Orthokeratology and Myopic Control Clinic in 2010. Dr. Woo uses and provides a variety methods in myopic management.

Dr. Woo has been actively participating in the continuing education conference of the IAOA (International Academy of Orthokeratology Asian Branch) as an instructor and mentor for FIAO of Chinese ophthalmologists, as well as in many local and international optometry and ophthalmology conferences as a lecturer and mentor.

He served on the board of directors of the Oceania Society of Orthokeratology (Australia and New Zealand) from 2014 to 2020. He was the FIAO Section Chairman (Oceania — Australia and New Zealand), senior member examination chair and examiner from 2014 to 2017. Dr. Woo actively participates in many local and international optometry and ophthalmology conferences as a lecturer, mentor and coach, with more than 90 international presentations.

sydneyorthok@gmail.com



Dr. Carmen Abesamis-Dichoso

OD, MAT, FPCO, FIACLE, FAAO

Dr. Carmen Abesamis-Dichoso received her Doctor of Optometry from the Central Colleges of the Philippines in 1989, and earned her Master of Arts in Teaching from the Central Colleges of the Philippines in 2001. Her specialties include special contact lens design for keratoconus, children and high astigmatism; and visual assessment of the mentally challenged, autistic, ADHD, cerebral palsy and learning disabilities. In addition, Dr. Abesamis-Dichoso has been an orthokeratology practitioner in the Philippines since 2005. Since 1998, she has been self-employed in a private practice at Medical Plaza Makati.

She was awarded "Outstanding Optometrist of the Year" in 2017 by the Optometric Association of the Philippines. Currently, Dr. Abesamis-Dichoso serves as the International Affairs Committee chair of the Optometric Association of the Philippines; director of the Special Olympics Opening Eyes in the Philippines; program manager of Optometric Association of the Philippines Vision Screening Program and provision of eyeglasses with the United Nations Development Program in 10 areas and four Regions in the Philippines; and chairperson of the Special Olympics Healthy Athletes Program in the Philippines.

Dr. Abesamis-Dichoso is a fellow of the American Academy of Optometry; a founding fellow at the Philippine College of Optometrists; a fellow of the International Association of Contact Lens Educators; an Asia-Pacific Regional advisor for the Special Olympics Opening Eyes; treasurer at the Asia-Pacific Council of Optometry; and is an Asia-Pacific Council of Optometry (APCO) representative for the World Council of Optometry, in addition to being a member of the Legislation, Registration and Standards Committee. She has also authored numerous published papers and is a popular lecturer at industry meetings.

carmen.dichoso@gmail.com



Investigating the etiology of some common anterior segment pediatric diseases

by Joseph Schreiber

f you type "etiology" into Google, you'll find that, for our purposes, it's defined as the cause of a disease. But a second definition states that etiology is the investigation into the causes or status of something — its history or mythology.

Why does the tiger have stripes? Maybe because the very first tiger sat in the shade of a gapped fence and wouldn't get up until the sun permanently burned stripes into all of its descendants to teach them not to be lazy. Of course, that's not the case, its genetics evolved for greater camouflage in the wild. But it's a cute story. Why does Superman have superpowers? That's also genetics — and he really likes the sun.

However, etiology shouldn't just mean knowing the cause of a disease. It should also mean discerning the origin of symptoms to find out what to look for in the first place.

With that said, let's bring out our inner Sherlock Holmes and examine some of the risk factors, signs, and symptoms of some common anterior segment pediatric diseases.

First up: Epiblepharon

Epiblepharon is a congenital condition and a variation of the eyelid that has a large spectrum of severity. It is observed as a horizontal fold across the margin of the eyelid and found most

commonly in those of Asian descent, as well as some Hispanics.

It is a pediatric condition that generally vanishes as a child gets older. In a Cybersight Webinar lecture on anterior segment pediatric diseases, Dr. Jenelle Mallios cited a survey where approximately 20% of Japanese children are diagnosed with epiblepharon at age one, but this was reduced to only 2% at age 12. She went on to state that epiblepharon can also be asymptomatic a word that we're all-too-familiar with due to the COVID-19 pandemic - and should be kept in mind under the slit lamp for these populations in absence of general symptoms.

Staining is also important for mild cases and can help detect mild punctate keratitis that is present in over 80% of cases. Look for the contact with the eye in addition to the fold. A patient may even have a case where contact is only noticeable when looking in a certain direction.

Keep an eye out for blepharokeratoconjunctivitis

In all my time writing for medical publications and websites, blepharokeratoconjunctivitis – aka BKC (thank god there's an acronym) – is the most difficult medical condition I have ever encountered. It's difficult for me because I'm required to spell things correctly — but, hopefully, it won't be as difficult for you in your diagnosis.

BKC is a chronic inflammatory eyelid margin disease that is known to collude with partners in crime conjunctival and corneal issues. It appears in 15% of the US population of pediatric patients. However, Dr. Mallios said that it's most likely higher than that because most doctors do not know that they should be keeping an eye out for it.



Symptoms involve discomfort, eye rubbing, burning, itching, redness, and tearing. It can also be confused with herpes, but the easy way to spot the difference is that BKC is bilateral and asymmetric, while herpes is unilateral.

The seasonal vernal keratoconjunctivitis

Vernal keratoconjunctivitis (VKC) is a seasonal ocular inflammatory disease — and right there we have a reason to look for it. It appears seasonally in conjunction with allergies and in patients with a familial history of allergies. It is also three times more likely to occur in males than females, in particular children and young adults from three years of age to 20, although most likely to be seen in kids under 10.

This allergic eye disease is further linked to hot, dry climates but can be found universally. It is frequently found alongside more general atopic disorders, like eczema and asthma. There is a large range of allergy symptoms and signs, but a simpler summary offered by Dr. Mallios is that "these patients are just really uncomfortable".

Treatment can often be carried out with the same basic lifestyle changes you'd use to deal with allergies, including hygiene and avoiding allergens and other triggers such as the sun, wind, and salty water.

If you know that a patient has a history of VKC, you may want to preempt with treatment as the season approaches and perhaps add an allergen medication or steroid.

A case of nasolacrimal duct obstruction

Another important factor in being a disorder detective is ruling out differentials. In the case of nasolacrimal duct obstruction (NLDO) or blocked tear duct, there are several similar conditions that can be mistakenly identified. In particular, Dr. Mallios pointed out that the biggest differentials to keep in mind are dacryocele and congenital glaucoma.

In her presentation, she also mentioned entropion, ectropion, trichiasis, incomplete punctal canalization, functional epiphora, and punctal agenesis as potential diseases with enough crossover to cause confusion.

Dacryocele: AKA dacryocystocele, amniocele, or mucocele

Speaking of dacryocele, NLDO can cause mucoceles to form within the lacrimal sac and create distention with an associated cyst. This appears immediately in newborns or the very young and is identified by a bluish swelling and nasal to medial canthus.

Differentials to rule out are hemangioma, a dermoid cyst, and encephalocele. Dr. Mallios cautioned that if you notice it's bilateral then it's probably urgent.

Iris coloboma and other syndromes

Coloboma is easy to identify because of malformations of the iris that result from the optic fissure failing to close. It generally shows up in-utero within the second month of pregnancy.

There are different types of coloboma than just the iris. It also afflicts the retina, the choroid, and the uveal. But you can have coloboma anywhere, whether it's in the macula, the eyelid, the lens, or the optic nerve. It can be anterior, posterior, or both. It can be found with amblyopia or strabismus, as well as CHARGE (coloboma, heart defects, atresia choanae, genital abnormalities, and ear abnormalities) syndrome and a variety of other disorders. So make sure you're testing for additional syndromes if you see coloboma.

Be vigilant like Holmes or House

Dr. Mallios repeatedly cautioned that while we're investigating, we should be vigilant in identifying whether a patient meets a demographic and testing for suspected disorders. A good knowledge of what to look for and what to suspect makes diagnosis both easier and more efficient. And if you prefer him to Holmes, feel free to think of yourself as Dr. Gregory House.

Editor's Note:

This Cybersight Webinar (a project of Orbis International) was held on May 25, 2021. Reporting for this story also took place during the virtual meeting.

Cone-Shaped Trouble

The development of the keratoconus treatment with contact lenses

by April Ingram

t may be hard to believe, but it was nearly four centuries ago that someone first described keratoconus. It was 1748 when Burchard Mauchart, a German oculist, wrote about a 'staphyloma diaphanum' in a doctoral dissertation.

Prior to this, it was referred to as 'ochlodes', which translates to 'annoying' in Greek — not the most comprehensive medical definition. It wasn't until the 1850s that the term 'conical cornea' was used and included descriptions of classic features, including polyopia, weakness of the cornea, and difficulty matching corrective lenses to the patient's vision.

In 1869, Swiss physician John Horner used the name 'keratoconus' that we still use today, although our differentiation and classifications have become far more sophisticated.

The evolution of the treatment of keratoconus with a contact lens

The first treatment for conical cornea was documented in 1859, when British surgeon William Bowman reported some success when he pulled on the iris of an 18-year-old woman by inserting a fine hook into her cornea and stretched the pupil into a vertical slit, like a cat-eye.

By 1869, Bowman's treatment strategy was old news, and German ophthalmologist Albrecht von Graefe decided that chemical cauterization to reshape the cornea with silver nitrite must be the way to go. Use your imagination here, chemical cauterization and a pressure dressing in an era well before anesthesia, and decades before antibiotics.

Although the first corneal transplant would be performed to treat keratoconus in 1936, Eugene Kalt a French physician had been looking for a use for a glass scleral shell he invented in 1888. This glass shell could compress the cornea into a more regular shape and improve the patient's vision. This was the first treatment of keratoconus with a contact lens.

We have been fortunate to have been witness to an evolution and a revolution in ocular care. But the contact lens — far evolved from the glass scleral shell — remains at the forefront of keratoconus treatment. The different contact lens designs and the materials available have opened up more options for fitting patients with corneal ectasia. We also have access to highly sensitive imaging technology, including corneal topography and anterior segment optical coherence tomography (OCT), allowing for customization down to the microstructural level of the cornea.

We are in an era of personalized, customized treatment for patients with keratoconus, optimizing outcomes. The options for the optical management of keratoconus now include a range of contact lens modalities, including soft lenses, hybrid designs, rigid lenses, piggyback configurations, corneoscleral, mini-scleral, and scleral lenses. We owe a debt of gratitude to the hooked irises, chemically cauterized corneas, and glass scleral shells that paved the way.

What's the latest in contact lens treatment?

Recently, Tomris Şengör and Sevda Aydın Kurna published a review paper* in the *Turkish Journal of Ophthalmology*, "Update on Contact



Lens Treatment of Keratoconus". They provide a comprehensive description of contact lens treatment, but also highlight important things to be mindful of when planning treatment and preparing a patient for the long haul that is this chronic disease.

The review covers contact lens fitting: "a long and arduous process for both the patient and the practitioner, and the three main goals of this process are to achieve optimal comfort, increase vision quality, and provide the best possible fit for the irregular corneal structure".

Mr. Stan Ingham from New Westminster, Canada, has specialized in fitting contact lenses for keratoconus for the past 35 years. "As an ophthalmic technician, licensed contact lens fitter, and licensed refracting optician, I have a good deal of experience working with all the various contact lens materials and designs available, and specialty soft contacts that are custom made for each eye," he shared.

Mr. Ingham's experience has highlighted the importance of customizing lenses to the individual to optimize comfort and vision. "My goal with each individual I fit is to provide them with the lens material and designs to give them the comfort and vision they desire," he said.

Technological advances and contact lens options in keratoconus treatment

Şengör and Kurna noted the lifelong and progressive course of keratoconus, marked by a gradual decline in the quality of vision and associated impairment of the patient's quality of life. Survey studies based on the National Eye Institute Visual Function Questionnaire (NEI-VFQ) have confirmed the effects of this vision-related impairment on quality of life. They have also reported that those keratoconus patients who use contact lenses have the highest quality of life scores.

Anyone who treats keratoconus patients can tell you that the reliable workhorse of the contact lens family for these patients is the rigid gas-permeable lenses. Their smooth spherical anterior optical surface delivers an important refractive effect and also shapes the tear layer into a liquid lens, masking anterior surface irregularities and those associated with increased higher-order aberrations.

Many studies have shown that these lenses consistently demonstrate high levels of optical success and have been shown to delay the need for surgery in 99% of patients — 99%! The downside to these lenses is that they aren't comfortable, a consequence of the rigidity, which may lead to patient noncompliance with treatment.

Eliminate the rigidity, and we have soft contact lenses that translate the irregularities of the corneal surface to their front surfaces, resulting in less than stellar visual outcomes. These are typically left to the early stages of the disease. Advancements in lens design, including special soft toric lenses for keratoconus eyes, the Toris K Silicone Hydrogel, have a toric front surface and provide dynamic stabilization and come in different central thickness options for different stages of disease severity.

Şengör and Kurna also describe KeraSoft IC, a prism-ballasted,

silicone hydrogel lens, boasting an aspheric toric front surface and aberration control that allows for the periphery of the lens to be modified independently of the base curve and customizable quadrant design.

> How about a piggy back? Mr. Ingham shared an advanced technology: "There are custom soft lenses with a grooved area that you can insert a small gas permeable lens for stable comfort and vision". This dual-lens concept has been around since the 1970s and uses a configuration that places a rigid gas permeable lens on top of a soft lens with high oxygen

permeability — visual performance of gas permeable + soft lens comfort.

Other advanced contact lens options include scleral lenses, which are 15 mm or larger in diameter and rest on the sclera as a vault system, over the entire cornea, limbus, and land on conjunctiva overlying the sclera.

"Gas permeable contacts range from small designs that cover a portion of the cornea, to the scleral designs that vault over the entire cornea like the soft lenses," Mr. Ingham explained, describing the range of gas permeable lenses.

Finding the right option for the right patient

As this area of research and development continues, there is an increasing amount of options available, although the variability of the disease and progression over a patient's lifetime may mean that patience will be a requirement in finding the right option for the right patient at the right time. The good news is that there are a growing number of options and more opportunities available before taking the step toward surgery.

Tomris Şengör, Sevda Aydın Kurna. Update on Contact Lens Treatment of Keratoconus. Turk J Ophthalmol. 2020;50(4):234-244.

Contributor

Mr. Stan Ingham is an ophthalmic technician, licensed contact lens fitter, and licensed refracting optician in New Westminster, British Columbia, Canada. He has specialized in fitting contact lenses for keratoconus for the past 35 years. Mr. Ingham provides expert testing for eye specialists. He frequently attends global contact lens training online to ensure he is always up to date on the latest techniques.

stan.ingham@gmail.com



hat would it be like to wake up every morning unable to see further than a couple of meters, squinting as you go about your day? How about being unqualified for most careers because, well, you just can't see a dang thing that you're doing? In fact, imagine being a nearsighted caveman trying to outrun a predator or feed your family! This was life for humans before

the invention of treatment options for nearsightedness.

Yet, while we don't have many records of prehistoric or even ancient myopia rates, we do know that it probably wasn't nearly as common of an issue. In fact, in the last 300 years, the rate of nearsightedness in humans has skyrocketed, which historians attribute to increased literacy and increased time spent indoors. $^{1} \ \ \,$

In recent decades, myopia has become so common that some have called it an epidemic. Scientists have predicted that by 2050, half of the global population will be myopic.² To combat this growing problem, in 1999, the World Health Organization and the International Agency for the Prevention of Blindness launched *Vision 2020: The Right to Sight*, which advocates awareness and funding for eye health in countries and districts where action is needed.

Vision 2020's India chapter in cooperation with Orbis recently provided a platform for the Optometry Council of India (OCI) to discuss the future of myopia treatment in the country and worldwide in a Cybersight webinar, titled "Myopia: Are we short-sighted in our approach?"

Looking ahead in India

Unfortunately, India won't be an exception to this high-affliction forecast. Dr. Pavan K. Verkicharla, head of the Myopia Centre at LV Prasad Eye Institute in Hyderabad, said that 48% of urban Indian children in 2050 will be near-sighted.

"We're looking at about 64 million children who [will] have myopia," he predicted, based on current population numbers. "So that's a big problem and, definitely, this is a public health concern."

Dr. Verkicharla advised that to reduce the incidence of myopia in the upcoming generations, one primary preventative measure must be considered: time spent outdoors, which not only prevents myopia but also slows down its progression.

"If I'm indoors, I have objects coming in from different dimensions and there are accommodations that pull people in," he explained. "From outdoors, especially in an open space, I have equal adaptive space, let's say optical infinity; my accommodation is relaxed, not just at the center, but even in the periphery there are not any targets," he continued. "If I'm outdoors, dopamine release happens in the eye that is known to inhibit the axial elongation."

The key period for preventing myopia is during childhood. "We found that children progress much faster compared to the rest," Dr. Verkicharla explained. "If somebody develops it before 10 years of age, when they become adult, they'll tend to have high myopia. And if somebody develops it at the age of 16 or above that, they tend to have only [mild myopia]." Hence, the age of onset of myopia is extremely important, and it is something that must be kept in mind in treating children.

Treatment options and myopia management

Fortunately, unlike our ancestors, we aren't left squinting if our eyesight is bad.

Some other anti-myopia strategies Dr. Verkicharla suggested include pharmaceuticals, undercorrection spectacle lenses, bifocal spectacle lenses, progressive addition spectacle lenses, adapted spectacle lenses, and soft multifocal or adapted contact lenses.

Dr. S. Viswanathan, chief optometrist at the Myopia Management Clinic at Sankaya Nethralaya, continued along this line by reviewing spectacle intervention of myopia. He shared that glasses are a simple, go-to treatment option that are easy to fit young children and come without the complications of contact lenses, such as dry eyes or blurred vision. He introduced some studies of glasses models that have the potential to slow myopia progression.

"MiyoSmart lenses [Hoya Vision, Lewisville, TX] are based on defocus incorporated multiple segment technology, which was developed with the Hong Kong Polytechnic University," Dr. Viswanathan shared. "These lenses had a central clear optic zone surrounded by treatment zones and these multiple treatment zones had myopia defocus of plus 3.5 diopters. And these lenses were tried on 183 children. What they found was these lenses significantly retarded myopia progression and axial elongation," he explained.

He also mentioned the Stellest lens [Essilor, Charenton-le-Pont, France] based on highly aspherical lenslet target technology, which induces myopic defocus. These were tried on 167 children and, again, had good a reduction in spherical equivalent and axial elongation as well.

A final spectacle option mentioned was the new Novel DOT glasses from SightGlass Vision [Palo Alto, California, USA], developed based on retinal contrast signals. "After three months, what they found was that the axial growth was drastically reduced in the eye which had these DOT lenses. The initial results are very promising," he concluded.

Dr. Yashwant Saoji, a private practitioner at Saoji Vision Care in Nagpur, India, followed up by addressing advances and benefits of using ortho-k lenses to stall myopia progression while simultaneously adjusting daily vision.

"The moment you mention the word orthokeratology, many cringe," opened Dr. Saoji. "It's because of the bad experiences people have had in the past. But those designs were different, those conditions were different; the practitioners did not understand orthokeratology so well." Dr. Saoji explained that now, more and more countries are realizing the importance of myopia control, and such lenses are gaining popularity in countries like China, Russia, the US, Singapore, and Australia.

"Vietnam got into orthokeratology just four years back, and they are way ahead of India," added Dr. Saoji. "They understood the importance of practicing these lenses and the amount of lenses being ordered by Vietnam today is amazing. So this is where India has to reach very soon."

Young children are ideal patients for ortho-k, Dr. Saoji said, because their nearsightedness tends to still be mild and because they tend to have a regular schedule where they wake, eat, and, sleep at specific times.

Key in the fight against myopia

Dr. Lakshmi Shinde, CEO of OCI, believes that advocacy of the problem is key for battling it. The OCI came up with a whitepaper with recommendations for schools and healthcare practitioners to improve awareness of myopia prevention.

"For the schools, we are saying they have one compulsory outdoor activity. They should have spacious playgrounds. They should have windows, and they should be constructed in such a way that they allow ample amount of sunlight to enter the class. And for small kids, try and do more activitybased education rather than books or some near work-related activities," Dr. Shinde shared.

She posed the idea of community activities. "Maybe over the weekends," she explained, "for all the children in small communities where we can get outdoor activities so that they're exposed to sunlight."

Dr. Shinde also recommended eye exams every six months for nearsighted children and yearly eye exams for the rest. Following the whitepaper, she hopes the government will work with relevant interest groups to create and implement health policies in this direction.

REFERENCES:

- What Did Nearsighted Humans Do Before Glasses? Published July 7, 2016. Available at: https://www.npr.org/sections/healthshots/2016/07/07/484835077/. Accessed on October 14, 2021.
- Holden BA, Fricke TR, Wilson DA, et. al., Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050. Ophthalmology. 2016;123(5):1036-1042.

Editor's Note:

This Cybersight Webinar (a project of Orbis International) was held on May 25, 2021. Reporting for this story also took place during the virtual meeting.





or more than a century, eye care practitioners have relied on trial frames for refraction. One of optometry's most important devices — described as looking like "funny glasses" — these frames hold interchangeable lenses of different powers to help guide a refractive correction. Of course today, we have objective refraction with auto refractometer and subjective refraction with the phoropter, but trial frames still play an important role in subjective refraction to improve visual acuity for most patients.

Use trial frames in low vision patients

There are several advantages to using trial frames over an autorefractor in low vision patients: They allow for more natural posture and eccentric viewing, and allow the examiner to determine the differences in lens choices as discernible to the patient. These concepts were covered in a study by DeCarlo et al.*, that compared refractive error in low vision patients as measured by an autorefractor and trial frames.

In total, 440 patients were included in this retrospective chart review. Although autorefraction is a quicker measurement, the investigators explored whether the newer tech could be a suitable replacement for the more time-consuming trial frame evaluation — and they found something worth noting: "The results we obtained show that there are greater differences between trial frame refraction and autorefraction for patients with poorer vision, making the latter an unsuitable substitute even for patients who are legally blind," said DeCarlo and



colleagues, adding that "autorefraction is therefore a reasonable starting point for refraction of patients with low vision and may decrease the time required to complete trial frame refraction."

A more perfect product emerges

Because low vision patients come with certain needs when it comes to vision care, devices used to measure acuity must accommodate them for the best visual outcomes.

Building on past advances, one company has been hard at work to reimagine trial frame technology: That's OCULUS Optikgeräte GmbH (Wetzlar, Germany) and its Universal Trial Frame UB 6. Like the long history of trial frames themselves, OCULUS also has a long history with the optical device: Using experience with its previous models, the company has dedicated much time and effort to evaluate its existing trial frames and to create a more perfect product. And so, after rethinking and revising every aspect, the high-end Universal Trial Frame UB 6 has arrived.

In developing these hand-crafted trial frames, OCULUS incorporated customer feedback and made ergonomics, ease-of-use and patient comfort top priorities. Some of these key features include an improved pupil distance adjustment for increased precision; a height- and depth-adjustable nose bridge; the incorporation of six lens slots (four in the front and two in the back); and flexible double temple tips to ensure a perfect fit.

Another further advantage of the OCULUS trial frames is that the patient's reaction can be better observed when changing lenses. The head posture always remains in the examiner's focus and is also taken into account during wearing tests. OCULUS also offers special trial frames for smaller heads and children. An additional important feature is the ability for mobile use at any time.

Thanks to this attention to detail and user-friendly design, the OCULUS trial frames and the new UB 6 in particular, are indeed a "little masterpiece," and the perfect addition in any optometry toolkit.



Original Trial Frame UB1 approx 1917

DeCarlo DK, McGwin G Jr., Searcey K, et al. Trial frame refraction versus autorefraction among new patients in a low-vision clinic. Invest Ophthalmol Vis Sci. 2013; 54(1): 19–24.



For more than a century, optometrists have used trial frames to chart patients' visual correction course — and today, this "navigational" tool still reigns supreme in discovering refractive errors in some patients.





Cool and Clear-Sighted

Bifocal and multifocal contact lenses for presbyopia and myopia control by Joseph R. Schreiber

A dvances in technology have combined contact lenses with the original bifocal hipster — Benjamin Franklin — to produce bifocal and multifocal lenses. Dr. Krystal Fordoski, a specialist in pediatrics and lens fittings, agreed, saying: "They help you look and feel young again without being reliant on glasses".

In a study* by Dr. Laura Remón of the Department of Applied Physics at the University of Zaragoza and colleagues, they reviewed some of the latest and greatest bifocal and multifocal lens advances as solutions to presbyopia and myopia.

The evolution of bifocals

Traditionally, bifocals haven't changed much since Franklin popularized — not necessarily invented — them nearly 250 years ago, and they remain the most popular option for treating myopia. "The contact lens has evolved so much over the past 50 years, from the polymethyl methacrylate (PMMA) lens to rigid gas permeable (RGP) lenses to soft contact lenses, and everything is moving towards a daily disposable lens," said Dr. Fordoski.

Recent hybrid and scleral (SL) multifocal lenses have been used to great effect for presbyopia compensation and myopia progression control. Scleral lenses, in particular, have proven to be an excellent option for presbyopia because of their larger diameter and improvements in fitting. Scleral contacts have the added bonus of stability, comfort, and therapeutic properties for other eye conditions.

Currently, SL makes up only 2% of all contact lenses, and recent designs vary greatly from manufacturer to manufacturer. So, it is important to carefully follow fitting instructions to match them to patients' eyes. In Dr. Remón and colleagues' study, four lenses examined were Acuvue Oasys (Johnson & Johnson, New Jersey, USA) for presbyopia, MiSight (Coopervision, California, USA) dual focus for myopia, Purevision Multifocal (Bausch & Lomb, New Jersey, USA), and Air Optix (Alcon, Geneva, Switzerland).

Oasys and the MiSight have a multizone design, although they differ in zone size. Purevision and Air Optix differ in their transitions between near and distance vision. Dual focus is recommended for far focuses with different pupil diameters, whereas Purevision and Air Optix have greater potential for distance correction.

And from the eye clinic, Dr. Fordoski said she prefers Air Optix multifocal because they have a "really high success rate, are easy to fit, and people tend to like them the best". She also shared that her practice has had great luck with Biofinity (CooperVision, Coopervision, California, USA).

Preventing presbyopia

For presbyopia, the study assessed visual acuity, contrast sensitivity, stereoacuity, and through-focus performance. Visual acuity was assessed between high and low contrast LogMAR.

Studies showed better high contrast visual acuity (HCDVA) than previously found, but comparable high contrast





An interesting finding about contrast sensitivity function (CSF) was that monovision patients with good vision did not have significantly better results than Biofinity MX or multifocal lenses after 15 days of lens wear. But under mesopic conditions, they differed significantly. Oasys and Purevision were similar under photopic, but Purevision provided better results under mesopic.

Another study showed that glare was a much bigger detriment to the performance of Purevision than in standard spectacles. Differences aside, all simultaneous image multi- and bifocal lenses provided solid stereoacuity in comparison to monovision.

Through-focus performance was measured by the defocus curve, a relatively recent technique to measure multifocal lenses. It was indicated that a problem measuring the depth of focus is that it changes with age, pupil size, and other factors. Therefore, it is difficult to discern whether the lens is the source of improvement or if the patient's eye has improved naturally.

Two lenses were compared, the aspheric center-near design of the Purevision Multifocal and the zonal concentric design of the Acuvue Oasys. Far and intermediate results were similar, but the Purevision performed better for near distance.

All lenses tested gave a similar performance with negative vergences, but positive vergences varied significantly more, with the recommendation that fitting is important because of high variability in pupil size. However, we are approaching a point in technology where more sophisticated fitting techniques will account for all variables.

Managing myopia

Contact lenses have been prescribed for some time for myopia, but because prescriptions have until recently been off-label, there has been little research on them until the last 10 years.

Dr. Remón studied five contact lenses in children, including peripheral gradients, soft lenses, bifocals, and extended depth of focus lenses. The issue is that children have the nasty habit of aging, and not only does that change the eyes, but it also changes other habits.

Findings suggest that pediatric lenses should be designed specifically for myopia control, factoring in pupil size. They show that more research, advancement in technology, and analysis of pediatric myopia are necessary.

It's also worth noting that orthokeratology — the new braces is reshaping corneas at night and providing 20/20 vision in the morning.

A hip and solid solution

Contact lenses differ in purpose based on the conditions they are meant to correct and the variance of individual eyes. As they develop, they should move in different directions based on those conditions and characteristics.

Presbyopia correction utilizing lenses consists of up to 35% of contact lens fittings in many countries. Although myopia-correcting lenses are undergoing long-term clinical trials, lenses are significantly lower in number, at only 5%.

The study concludes that although bifocal and multifocal lenses are gaining popularity and approval and should experience a renaissance for myopia in coming years, at the moment, they are still not a completely accepted treatment method in the myopia field. However, as research and technology progress, their currently limited usage should spike considerably.

Lenses for presbyopia, however, have been commonly utilized for ages, and surgical intervention in that field continues to be an option.

"Multifocal lenses are definitely functional but not perfect. They don't allow you to see like you did before you became presbyopic and they don't make many types for astigmatism," said Dr. Fordoski.

And I'm sure many hipsters attached to their Warby Parkers would agree that since spectacle correction is common and doesn't seem to be going anywhere anytime soon, they should increase much more moderately.

In conclusion, both Dr. Remón and Dr. Fordoski are in agreement that the results of contact lenses are a solid solution for myopia control, particularly because of the expansion of demographics being considered for lens fittings and a higher discovery of myopia in younger patients.

That's right, myopia is hip with the kids these days, too, and contact lenses to treat myopia and presbyopia will only trend further from here. 🥴

Remón L, Pérez-Merino P, Macedo-de-Araújo RJ. Bifocal and Multifocal Contact Lenses for Presbyopia and Myopia Control. J Ophthalmol. 2020;8067657

Contributing Doctor



Dr. Krystal Fordoski, O.D., holds a Bachelor of Science in Biology from the University of Pittsburgh and a Doctorate of Optometry from the Pennsylvania College of Optometry at Salus

University in Philadelphia, USA, with a specialization in eye examinations, lens fittings, pediatrics, retinal disease, and anterior segment disease. She currently works at the Elk County Eye Clinic and enjoys spending time with her family, snowmobiling, camping, kayaking, and taking long walks with her Border Collie, Kavdee.

kfordoski@gmail.com

OPTICS | LENS TECH

Crack (******************************

FAQs on scleral lenses

by Corrina Lindkvist

A lthough wearing contact lenses is one of the most convenient ways to correct vision, some eyes are not compatible with this type of lenses, causing not only discomfort but also serious visual impairment. So what's a good alternative to consider? Scleral lenses.

Why would scleral lenses be the 'chosen one' for your patient providing a practical vision solution while regaining quality of life? What benefits do they have over traditional lenses? How do you know they are the perfect answer for your patient's vision complications? These and other frequently asked questions (FAQs) will be tackled in this article.

But before we delve into the ultimate rationale for the use of scleral lenses, let's take a quick look at its history.

The Da Vinci theory: Cracking the code of the scleral lens origins

Surprisingly, scleral lenses have a far longer history than typical contact

lenses. In fact, they were developed centuries ago. They were originally conceptualized by the great Leonardo Da Vinci in the early 16th century¹.

Universally known for his legendary artistic talents, Da Vinci was, in addition, an engineer, scientist, and writer. Many would unequivocally agree, this genius was far ahead of his time. However, that's another story.

Scleral lenses were manufactured in Europe during the late 1800s. In an extract from Ophthalmology: Current and Future Developments¹, it was stated that the first scleral lenses were blown glass scleral shells made in 1887 by Fredrich A. Müller and Albert C. Müller. According to the book: "The primary indication for these scleral lenses was to manage ocular surface disease. In 1889, Adolf Eugen Gaston Fick described the use of scleral lenses with optics added to correct vision. In 1889, Eugene Kalt described contact lenses as orthopedic appliances for the treatment of keratoconus. In that same year, August Müeller created a scleral lens for himself to correct his own 14D of high myopia."

In an article² published on *Contact Lens Update* titled *Scleral Lens Update: Current and Future Applications*, the rising popularity of scleral lenses was explained. "Scleral lenses not only manage a condition, but the technology also treats the entire person, and even entire families."

0

On the other hand, in her article Building a Scleral Lens Practice, Dr. Melissa Barnett, OD, said: "Fifteen years ago, only a handful of specialized practitioners were successfully fitting scleral lenses, and only a few laboratories were producing them. Today, multiple manufacturers are developing new and innovative scleral lens

designs, solutions, and technologies. Thus, scleral lenses are becoming far more 'mainstream' in contact lens practice".³

The importance of scleral lenses fitting

When it comes to scleral lenses, fitting is of utmost importance. Ill-fitting lenses will not only feel uncomfortable, but they can also cause serious damage to the patients' eyes.

Dr. Carmen Abesamis-Dichoso, an optometrist and orthokeratologist from the Philippines, shared: "A corneal topography map is an indispensable tool in successful scleral lens fitting, as it gives a clearer image for the fitter to navigate and avoid the cone in cases of keratoconus and pellucid marginal degeneration (PMD)".

She added: "A request for an anterior segment optical coherence tomography (OCT) has also been proven to see the cone better in a keratoconic patient. And thus, gives the fitter an exact



vaulting to have a perfectly fitted scleral lens."

FAQs on scleral lenses

Demanding schedules of practitioners simply do not permit enough valuable time to hike through highlands of information searching for the advantages and disadvantages of various products and their potential worth for patients. Doctors need basic, practical answers that are easily sourced and translated to layman's terms for patients.

So, here are some proposed key questions and comprehensive answers you can easily provide during an initial consultation.

Why should I opt for scleral lenses?

If you have a patient who has difficulty finding glasses or conventional contact lenses, then they could be a candidate for scleral lenses.

Scleral lenses are customized for the individual patients, and the lenses are fitted to vault over the cornea. This maintains a constant reservoir of fluid between the lens and the cornea. This design ensures that the eye remains hydrated during the entire time the lens is worn.

However, warn your patients to be prepared for a few visits to their practitioner before they can get the right fit. In addition, the fluid layer helps compensate for any irregularities in the shape of the cornea, which improves vision.

Recently, scleral lens usage has also been broadened to include an array of other conditions, including keratoconus, complications following corneal transplants, dry eye treatment, chemical and burn injuries, eyelid abnormalities, corneal degeneration, complications caused by laser-assisted in situ keratomileusis (LASIK) surgery, and high astigmatism.

$\mathbf{2}$. Are they expensive?

A common misconception about scleral

lenses is that they cost a bomb in comparison to standard soft contact lenses. Because the lenses are custommade and fitted to an individual's eyes, there is much more work involved in the prescription.

Patients assume that this will make the lenses more expensive when in fact, they are not excessively costly. Although it's true that optometrists who do the scleral lens fitting require special training, and that the fitting process can be costly and time-consuming, the additional expense is usually worth it. Moreover, scleral lenses are usually covered by health insurance. If they are not, patients are usually pleased to make the investment.

The improvement in comfort and vision compared to regular lenses, as well as their lifespan over other types of lenses, is the proof in the pudding. Of course, you need to care for your investment, and regular cleaning, maintenance, and proper storage will ensure this. Caring for your lenses will see them have a longevity of one to three years.

3. Can scleral lenses support healing of the eye surface?

An additional benefit of wearing scleral lenses is that they also protect the eye by exposing it to an oxygen-permeable fluid-filled chamber. This environment gives the eye moisture and oxygen that it needs to stay healthy while protecting it from outside threats or irritations.

Scleral lenses are great for the promotion of healing the eye surface, especially after a corneal transplant or when the patient is recovering from a chemical or burn injury.

4. Is it possible to wear my scleral lenses overnight?

The quick answer is 'absolutely no'! Scleral lenses must be removed before heading to bed each night.

5. Are there complications associated with wearing scleral lenses?

Any contact lens can come with a risk of eye infections, and that is a fact. However, these issues are generally the result of lack of lens care and hygiene rather than the fault of the lenses themselves. Therefore, keep your lenses well cleaned and maintained.

6. Are scleral lenses comfortable?

Initially, there may be a sense of awareness with wearing scleral lenses. It can take some time to get used to this feeling, especially if the patient has never worn a contact lens before.

In the long run, most patients report that scleral lenses are more comfortable than other types of lenses, to the point where they are hardly noticeable.

The design of scleral lenses helps reduce corneal irritation and keeps the eye hydrated and healthy. They are also custom-designed to fit the unique shape of each individual eye — factors that allow for all-day comfort.

REFERENCES:

- Bowden TJ, Barnett M. Opthalmology: Current and Future Developments. 2017. History of Scleral Lenses. Vol. 4, 1-47.
- Scleral Lens Update: Current and Future Applications. Published on Oct. 28, 2020. Available at: https://contactlensupdate. com/2020/10/28/. Accessed on Oct. 18, 2021.
- ^{3.} Building a Scleral Lens Practice, What to do once you've mastered the skills. Published on Oct. 1, 2017. Available at https:// www.clspectrum.com/supplements/2017/ october-2017/. Accessed on Oct. 18, 2021.

Contributing Doctor

Dr. Carmen Abesamis-Dichoso received her Doctor of Optometry from the Central Colleges of the Philippines in 1989, and earned her Master of Arts in Teaching from the Central Colleges of the Philippines in 2001. Her specialties include special contact lens design for keratoconus, children and high astigmatism; and visual assessment of the mentally challenged, autistic, ADHD, cerebral palsy and learning disabilities. In addition, Dr. Abesamis-Dichoso has been an orthokeratology practitioner in the Philippines since 2005. Since 1998, she has been self-employed in a private practice at Medical Plaza Makati.

carmen.dichoso@gmail.com



ODIOINETEN TOTOINETEN ODIOINETEN ODIOINETEN ODIOINETEN ODIOINETEN ODIOINETEN

A peek into the history and evolution of optometry practice by April Ingram

he study and discovery of optics and refractive principles have appeared in history books for centuries, documented as far back as the 1200s. In fact, debate remains as to who is considered the founding 'Father' (or 'Mother') of optometry, or even who invented the first set of spectacles.

Dominican theologian Giordano Di Rivalto wrote in 1305: "It is not yet 20 years since the art of making spectacles — one of the most useful arts on earth — was discovered," but he didn't name any names. There is also a clue etched on a headstone from 1317 in Florence Italy: "Here lies Salvino d'Armato degli Armati of Florence, the inventor of spectacles. May God forgive his sins".

Presbyopes had to wait another few

hundred years until they could get their first bifocal lens, at the turn of the 18th century, reportedly invented by Benjamin Franklin. This claim is also highly debated.

Of note, the average lifespan during that time was less than 40 years, so there was probably less demand for bifocals then than there is today. Astigmatic correction wasn't fully understood until 1827 when the first astigmatism-correcting spectacles were made in the United Kingdom.

Optometry practice has come a long way

Spectacles and lenses are only a small part of the history of optometry, but it took a long time to get here.... or close to here.

> In 1864, the word 'optometry' appeared in the Oxford Dictionary,

defined as "the measurement of the visual powers; the use and the application of the optometer; also, the occupation concerned with the measurement of the refractive power of the eyes and the prescription of corrective lenses".



More than 100 years later, in 1991, the definition of 'optometry' was still limited to "the science or practice of testing visual acuity and prescribing corrective lenses" — which was disappointing, as the scope of practice had evolved significantly.

It wasn't long after — in 1995 — that the University of Missouri St. Louis optometry school provided a detailed and comprehensive description of what modern optometry looks like, so far beyond prescribing corrective lenses, stating: "Optometrists are the major providers of vision care. They are independent healthcare professionals who are specifically educated, clinically trained, and licensed to examine, diagnose, and treat conditions or impairments of the human vision system. Optometrists examine the eyes and related structures to determine the presence of vision problems, eye disease, and other ocular abnormalities. They provide treatment or therapy to preserve or restore maximum efficiency in vision.

Optometrists can also detect certain general diseases of the human body — such as diabetes, hypertension, and arteriosclerosis. As physicians, optometrists are primary healthcare professionals."

Discovery of the first optometrist

When did we first discover the first optometrist? The term 'optometer' was first penned by Scottish physician William Porterfield in his 1759 book "A Treatise on the Eye: The Manner and Phenomena of Vision". However, the profession recognized as 'optometry' didn't appear until the late 1800s, with the United States and Australia leading the way.

Where did the early optometrists come from? The first official college of optometry was established in the United States in 1872, the Illinois College of Optometry in Chicago. Shortly after, the New England College of Optometry was founded in 1894.

Cylindrical lenses were started being used around the same time, and these early optometrists began experimenting with contact lenses. In 1888, the first successful use of corrective vision contact lenses was documented. John Dalton was the first to describe color-blindness, and Thomas Young successfully mapped a normal visual field. And eventually, in 1922, the professional organization for optometrists in the United States, The American Optometric Association, was formed.

Across the pond in the United Kingdom, the optical industry had launched the London School of Optics and Sight Testing in 1891 to train opticians. Little did they know, they were training future optometrists. A rebellious group of opticians in 1895 formed The British Optical Association and invited students to challenge a national examination for ophthalmic opticians. This standardized testing



COVER STORY

and certification paved the way for those recognized as optometrists today in the United Kingdom.

Still a long way to go

Depending on where you are in the world, the definition and designation of 'optometry' as a profession may be part of far more recent history. And in some countries, it still doesn't exist at all. Globally, there are many regions where optometry as a profession is not recognized by government branches of health or education, or is considered a relatively new concept and slow to be accepted. This is the case in many parts of Latin America, Europe, Asia, and Africa. As an example, of the 50 counties in the African continent, optometric educational programs only exist in six countries.

Although global definitions vary, The World Council of Optometry (WCO), previously the International Optometry and Optical League (IOOL), formally defined optometry in the 1990s.

Optometry is a healthcare profession that is autonomous, educated, and regulated (licensed/registered), and optometrists are the primary healthcare practitioners of the eye and visual system who provide comprehensive eye and vision care, which includes refraction and dispensing, detection/ diagnosis, and management of disease in the eye, and the rehabilitation of conditions of the visual system.

The evolution of the optometry practice

Since the 1990s, the scope and breadth of the optometric practice have evolved and expanded.

Optometry practice in the United Kingdom had been broad and comprehensive since its inception, leading the way internationally. UK optometrists have had access to utilize available therapeutic and diagnostic drugs for more than 100 years, while this barrier was not lifted in the United States until 1976.

> Dr. Sondra Black, an optometrist in Toronto, Canada, has witnessed several changes in the profession during her extensive and impressive career.

"Optometry for me has changed drastically over the 41 years since I graduated," Dr. Black shared. "Not only did we not have therapeutics in 1980 in Ontario, but we also did not have diagnostics. All of our exams were done on an undilated pupil."

Until the mid-20th century, the primary focus of optometrists was to masterfully refract and prescribe corrective lenses to optimize visual function, based on each patient's specific needs.

Dr. Black shared how her practice has evolved and the importance of being adaptive. "Early on, glasses and contact lenses were the main focus of the patient's annual visit," she said. "Anything that was remotely suspect was immediately referred out. In the first decade of my practice, we did eventually get diagnostics, which meant a whole new learning curve. And then about 15 years later, we had therapeutics."

By the 1980s and 1990s, most optometrists had begun diagnosing and treating most ocular diseases that didn't require surgery with topical or oral medications. Treatment and management of patients also often included education on disease prevention and lifestyle modification, tapping into their broad medical and optometric knowledge and communication skills.

As the need for eye care increased and the number of optometrists in many regions vastly outnumbered ophthalmologists, optometrists became the primary eye care practitioners. This profession has provided accessible, affordable, and patient-focused options for the delivery of eye care.

Optometry and the advancements of technology

Optometrists are known for readily adopting new technology, and as diagnostic technology advanced, so did the scope of practice responsibilities.

As well, the ability to efficiently collect increasingly detailed information noninvasively and compare it over time has had a profound impact on optometric practices and patient care. Not to mention, the non-diagnostic technology, computers, electronic medical records, and opportunities for patient engagement and education using social media.

Technology has also provided access to new resources and methods of communication. Real-time consultation with other practitioners and specialists across the country or around the world has become seamless.

It wasn't that long ago, an optometry office was considered 'fancy' or certainly well-equipped if they had a slit lamp/biomicroscope, a complete set of trial lenses and frame, a tonometer, a retinoscope, ophthalmoscope, keratometer/ophthalmometer, lensometer, a phoropter, a PD ruler, and color and stereo books. We now enjoy all the benefits of automation, pupilometers, topographers, tonometers, pachymeters, and computerized acuity charts.

How many of us can recall the era before the speed and accuracy of modern autorefractors, using projection screens of cartoons or having a colleague stand at the end of the room with a stuffed animal to get accommodative relaxation and attempting objective refraction with retinoscopy?

How about manual keratometry? Or performing visual field assessments using the tangent screen, or felt fabric wall, and all those little white pins?

Of course, technology often comes



with a steep learning curve, high costs for having the latest and greatest, as well as ongoing maintenance. Not to mention the space to use and store it all!

Optometrists step up to the challenge

The intraocular lens and phacoemulsification have been gamechangers. It wasn't that long ago when following cataract surgery, patients would need refraction and be fitted with aphakic spectacles or instructed on the proper use of contact lenses for the first time in their lives — quite a feat for our elderly patients.

Then, in the 1980s, optometrists were called upon to co-manage these patients, assessing them and counseling them before surgery, and providing postoperative care and ongoing management after surgery. Their expertise in optics and anterior segment disease has also made optometrists valued members of the refractive surgery team, providing pre-operative and post-operative care, as well as co-management and patient counseling.

Optometrists have now been managing glaucoma for decades — a disease that was once considered solely managed by ophthalmologists. As early as 1940, when Harold Noyes published an article intended to educate optometrists about the various types of glaucoma, his intention was that a well-trained and well-equipped optometrist could detect the disease and subsequently refer the patient for appropriate care. If you may recall, in the 1940s, there were few, if any, optometrists legally permitted to use diagnostic or anesthetic drops.

But optometrists stepped up to the challenge, as they always do. And by the early 1950s, it was discovered that glaucoma was far more prevalent than originally thought. This was because optometrists had become a valued part of the diagnostic team and became so well versed in identifying glaucoma patients that they were the first providers to see it. It was several decades later when some optometrists would be permitted to prescribe topical treatments for glaucoma. However, in many regions, they are still prohibited from treating these patients independently from ophthalmologists.

Introduction of some of the most important tools in optometry

An entire volume could be written on the evolution of contact lenses and the material and features we can share with our patients today. We have come a long way since Dr. Adolf E. Fick introduced his blown glass contact lenses — which caused cornea edema after a few hours and didn't provide any vision correction.

In 1934, PMMA plastic (polymethylmethacrylate) was introduced, and this new material was optically clear like glass and could be shaped and tinted, and modified to fit the surface of the eye for a better fit.

In 1936, a hybrid lens composed of glass and plastic was introduced, and it was reported that by 1937, more than 3,000 people in the United States were already wearing contact lenses. It wasn't until the 1970s when a material that was better suited for direct contact with the ocular surface was developed — HEMA (hydroxyethylmethacrylate), which allowed for some gas exchange with the lenses.

Today, we are spoiled for choice, with a spectrum of contact lenses available to suit almost everyone and their visual needs.

Digital imaging has also become part of normal practice and is considered a powerful tool that has completely changed optometry practice. Digital photography and video capture are used in diagnostic and treatment processes to provide standardized documentation and are an incredibly valuable teaching instrument.

Before photography, ocular eye exams included detailed drawings by the eye care professional to document the appearance of ocular structures. Even the introduction of film cameras into practice was considered revolutionary.

Optometry: A leading force in vision care

Optometry has become a leading force in health and vision care. The rapid development and evolution of optometry make sense, as it is an adaptive profession that provides the right solution to address a substantial need for eye care globally.

Dr. Black has seen a lot of changes in optometry practice during her 41 years in the industry. And she is proud of what she and her colleagues have accomplished and their contributions to global eye care.

"Optometry has truly evolved into a medical model, and I couldn't be prouder with what has been achieved by the profession since my graduation," she concluded.



Dr. Sondra Black, OD, FAAO, graduated from the University of Waterloo School of Optometry in 1980. She practiced optometry for 20 years in private practice. She then joined TLC as a clinical director for the TLC Custom LASIK center in Toronto, Canada. In 2009, Dr. Black left TLC to become the VP-Clinical Operations for Crystal Clear Vision. She left practice in November 2017 to focus exclusively on consulting both to industry and individual practices. Her expertise lies in cataract, refractive surgery, and patient management and counseling, and now works full time for Johnson & Johnson Vision as the Head of Professional Strategy Surgical Americas.

sblack15@its.jnj.com







First Line of Defense

Professional ODs Society introduces a fresh vision for Philippine optometry

by Dr. Rheza Marisse Badon-Tabasuares

hen it comes to eye care, optometrists are your first line of defense. They're not only trained to detect vision impairment and signs of ocular diseases and injury, but they also offer various options for vision corrections.

For years, optometry in the Philippines has been lacking what its practitioners claim to offer to their patients — clear vision. And the Professional ODs Society (PODS), a recently formed organization of Filipino ODs, seeks to bridge that gap.

Dr. Jehan Zaragoza-Echavez, the founding president of PODS, along with her co-founders — Dr. Christopher Buniel from Surigao City, Dr. Melina A. Perez from Bulacan, and Dr. Douren Espina from Tacloban City — are all working together, pushing against all odds to make it happen.

PODS: A pandemic baby

Like most of the companies and organizations that popped up in the last two years, PODS has surpassed the challenges of the pandemic.

Organized in 2019, PODS was founded just before the pandemic

hit. "We banded together to address the seeming erosion of professional independence that has been negatively impacting the overall quality of vision care in the country," shared Dr. Echavez.

Dedicated to taking their profession to a new level of relevance and dynamism to better attend to the Filipinos' eye health, the organization vows to make a difference.

"With a mix of practice veterans and recent licensees, PODS is poised to make a difference in the profession, all for the benefit of our patients," affirmed Dr. Jehan Echavez.

Despite the challenges posed by the pandemic, PODS was able to deliver relevant programs to its members through virtual events. Some of them were "Myopia Management: Putting Theory into Practice" by Dr. Dwight Akerman and Dr. Oliver Woo (August 25, 2020), "Shining a Light on Retinal Examination: From Classics to the Cutting Edge" by Dr. Mark Eltis (May 30, 2021), "Revisiting RA 8050: Revised Optometry Law of 1995" by Atty. Bayani Abesamis (July 7, 2021), and "Up Close and Personal: The Independent OD" by Mr. Woon Pak Seong (August 31, 2021).

When a lockdown was ordered in the Philippines, PODS was able to successfully lobby the government to have optometry services recognized as essential — paving the way for the reopening of optometry clinics.

"In a way, the pandemic unified our members as we were able to communicate constantly through virtual channels," added Dr. Echavez. "We were also able to recruit more members."

Prioritizing quality vision care over profit

The organization's vision was simple. "We decided to focus our efforts on





PODS Members: Dr. Jehan Z. Echavez (PODS President), Dr. Douren Espina (PODS Secretary), Dr. Melina A. Perez (PODS Treasurer), Dr. Carmen Abesamis Dichoso, Dr. Rheza Marisse B. Tabasuares, Dr. Kristine Mary Louise A. Buniel, Dr. Elaine Rose A. Anore, Dr. Thomas Francisco Abesamis III, Dr. Janine Tiongson, Dr. Mary Margaret Felix, Dr. Shaira Hewitson, Dr. Precious Cordero, Dr. Benjie Girl Martinez, Dr. Dionith V. Galarido, Dr. Levi Reyes, and Dr. Rosalie A. Chan

supporting independent optometry practice, as we believe it will be the bulwark against practices that prioritize profit over quality vision care," shared Dr. Echavez.

The focus on independent optometry practice is anchored on helping optometrists be more proficient both technically and technologically.

"We encourage our members to offer comprehensive eye examination that is better for their patients. This will also differentiate them from those who are geared toward optometry more as a business rather than a profession," she said.

PODS sees a long journey ahead as it pursues its advocacies. "We are aware of the many challenges that await us, both within and outside our profession. But we are confident, guided by our sense of purpose strengthened by our passion for the profession, that our labors will ultimately redound to our community's benefit and those of our fellow Filipino optometrists," enthused Dr. Echavez.

Contributing Doctor

Dr. Jehan Zaragoza-Echavez, OD, RN, is the founding president of the Professional ODs Society (PODS). She is also a registered nurse and a certified diagnostic pharmaceutic agent (DPA) practitioner. She does primary eye care in two provinces north of the Philippines — Bulacan and Bataan. Dr. Echavez is also an officer of the Bulacan Chamber of Commerce and Industry.

jjechavez02@gmail.com

Beauty & Vision

Dr. Elise Brisco optometrist, inventor, and beauty queen puts 20/20 into her every project by Corring Lindkvist

ive your best life at any age" — this is not only the Instagram motto and title of Dr. Elise Brisco's upcoming book, but it is also the visionary message that she would like to spread to as many people as possible.

Dr. Brisco is an optometrist, fitness enthusiast, wellness advocate, inventor of NearSight (an alternative to reading glasses), author, lecturer, beauty queen, single mother, and former co-owner of Hollywood Vision Center. This genuinely fascinating woman puts 20/20 into every project she sets her mind to.

With such an impressive life resume, how do you begin to describe the achievements of this inspirational, motivational and stunning woman?

A beauty queen who advocates self-care and fights the stigma of aging

Spreading her wings far and wide,

touching an assortment of avenues and directives throughout her career and life, Dr. Brisco makes an enlightening 'life reference' in one of her Instagram blogs. Inspired by her passion for boxing, she said: "You need to be on the offense to achieve your goals while simultaneously being on the defense to counter life's challenges". A compelling recommendation, indeed!

United States national pageant held in Las Vegas.

"I am very proud to have been crowned *Ms. Woman California United States*," she said. "It takes a lot of chutzpah to enter a beauty pageant at my age, but I needed to put myself out there to inspire people to embrace aging rather than fear it. My goal is to decrease the stigma of getting old by educating and motivating people to take better care of themselves so that they can enjoy the second half of life!"

With all of her fascinating achievements, a beauty pageant seems a little out of the mix — or is it? What attracted Dr. Brisco to become involved in such a highly competitive beauty pageant? "My mission is to improve people's lives through health education and motivation. Beauty pageants provide wonderful support to reach and inspire more people," she shared.

The goal of launching herself on such an alternative platform is to work on decreasing the stigma of aging by giving people additional tools to improve selfcare.

"This has been my life's mission as a doctor, and now as a queen," enthused Dr. Brisco. "I want to help people 'Live Their Best Life at Any Age,' which is the title of my new book. I also connect with people on social media, especially on Instagram (@HollywoodEyes) where I post daily health and beauty tips, as well as YouTube and Facebook (Hollywood Eyes – Dr. Elise Brisco). I am looking for ways to help people embrace rather than fear aging."

Dr. Brisco also expressed her admiration for the community of strong and beautiful women in the pageant who work with many worthy causes.

A homeopathy optometrist who champions both alternative and traditional treatments

After a childhood suffering from untreated vision problems, Dr. Brisco has made it a point to advocate for eye health. Her key practices to maintaining

Despite her numerous accomplishments, Dr. Brisco shows no signs of slowing down, and why should she! After recently winning the title of *Ms. Woman California United States*, she moves to the next level. In October this year, Dr. Brisco competed in the *Ms. Woman*



eye health include annual exams, healthy living, and self-care (i.e., lid hygiene, sunglasses).

Dr. Brisco stated: "There is more to having a good optometrist who prescribes eyeglasses or contact lenses. Most eye diseases have no warning signs, so seeing a doctor who evaluates your eye health thoroughly is extremely important. This includes a dry eye evaluation and a retinal exam."

Natural and homeopathic treatments have been around for hundreds of years, well before the traditional medicines we see today. Dr. Brisco has co-formulated and shared two homeopathic optometric treatments.

"One is a brain injury formula that helps to speed up the body and brain's recovery after brain injury," she shared. "The second is a Blepharitis formula, which helps the immune system kick in instead of masking symptoms (not on the market)."

The success of NearSight, developed and patented by Dr. Brisco, is an innovation in alternative vision support. "It replaces the hassle of having to carry, or find reading glasses to see your phone, or see things off your phone (a menu, program, or price tag) because it is a reading lens that lives on a phone case," she said. "It's also a great lifestyle brand because many people don't like how they look in glasses or they feel that reading glasses make them look old."

A mother who knows how to strike a better work-life balance

With her impressive work and busy lifestyle, balancing all this must have its challenges. How does she manage? "I make time by scheduling what I need to accomplish every day," shared Dr. Brisco. "This includes time to work out, do homework and play with my son, create content, and run NearSight, among others. I even schedule a time to sleep! Since my mission in life coincides with what I am doing, there is overlap. I love what I do, so it is fulfilling and doesn't seem like a chore." Looking back on life and seeing one's achievements are fulfilling and define how we advance moving forward. Dr. Brisco narrowed down her best achievements thus far: "My two babies are my greatest achievements — my son and my practice! I birthed and developed both of them as a Mom, and am proud of what they have both become."

Dr. Brisco sold her highly successful practice in 2019 — why? It would seem a solid and reliable business for her to continue her future with. "It allows me to write, create content on social media, and run my new company NearSight," she explained her reason. "My goal is to release more products through NearSight to address vision, beauty, and health problems. I have learned so much after being in practice for 33 years as an integrative optometrist and clinical homeopath. I want to share this knowledge in ways that can make people's lives better," she concluded like a true beauty queen. 🥹



"My mission is to improve people's lives through health education and motivation." — Dr. Elise Brisco

Contributing Doctor

Dr. Elise Brisco, OD, FAAO, FCOVD, CCH, is an integrative optometrist and former partner doctor at Hollywood Vision Center, clinical homeopath, beauty queen, digital content creator, author, and

founder and CEO of NearSight - a vision wellness start-up company that ranked 3rd place in the People's Choice award on the CBS show, California by Design. As a health and wellness influencer, Dr. Brisco creates content for companies in beauty, health, wellness fitness, nutrition, vision, holistic health, sports, healthy aging, fashion, travel, and lifestyle. She is the winner of Ms Woman California United States 2021 and has appeared in over 400 national and international TV, radio, internet, and print interviews and appearances, including The Doctors, Inside Edition, California Live, KTLA, ABC, CBS, FOX, KTTV, NBC, Disney Channel, Home and Family Show, GoodHouseKeeping.com, Oprah.com, Cosmopolitan, Teen Vogue, and youbeauty.com, among others. Dr. Brisco is the author of the book "Live Your Best Life at Any Age", which aims to empower readers through holistic health and wellness self-care.



Smartphone apps and features for the visually impaired

by Ben Collins

echnological advances for the visually impaired have come a long way in the last 200 years, but it is only in the past 50 or so that we have seen major advancements in electronically-based technologies. Early iterations of CCTV (video magnifiers), reading machines, and attempts at speech synthesis can be seen as precursors for some of the tech we now carry around in our back pockets.¹

Dr. Alexis Malkin, an optometrist from the New England College of Optometry (NECO), Boston, Massachusetts, USA, talked to practitioners about the latest smartphone features and apps for the low vision community during a recent Cybersight webinar.

Whether it's an Android or iPhone, there are a bunch of fantastic features now built into the functionality of smartphones. The competitive nature of these tech giants also means they are constantly updating and improving them, which is great for users. Combine this with an ever-increasing number of free and paid content within their respective app/play stores and you have an incredible resource at your fingertips.



Keep it simple

With so many apps and features available, deciding what's best for you and your specific requirements can be the hard part. Dr. Malkin suggested

keeping it simple, learning your way around the built-in features on your phone, and sticking to a few favorite apps.

"I find when my patients are coming in and asking me for guidance, they don't want me to give them a list of 10 different apps," shared Dr. Malkin. "They want to know one or two that they can look at and try and they can figure out if they'll work."

She stressed the importance of listening to your patients' needs and being careful about making assumptions based on age or other factors. "I would say pay attention to your patients' interests. They may think they can't use a smartphone because of their vision impairment. So it may not actually be that they're tech-phobic. It may be that they just didn't realize that there were so many accessibility features available. And that tech fears are not necessarily based on age," she explained. "I have young patients who only want to use a simple phone. And I have older adults who are more than willing to use smartphones and often know at least as much about the phone as I do, if not more," continued Dr. Malkin.

"When it comes to using apps for the visually impaired, keep it simple, learn your way around the built-in features on your phone, and stick to a few favorite ones."

So, perhaps the first and simplest accessibility feature you'll come across almost universally (even on the most basic of cell phones) is voice activation/ recognition.² So even if you are just using your phone for the very basics like making and receiving calls, this feature is available.





Keep it customized

Next, you'll want to look at the display modifications on your phone. Both Android and iPhone have a range of

customizable features. Magnifiers can help the user to view both on-screen content and their surroundings more easily. Adjusting font size/boldness can be useful, and both operating systems offer color inversion. Most of these features are compatible across apps now, too.

"iPhones have smart inversion... so they will interpret images, whereas the Android phone for the most part still inverts everything, and it just makes it a little bit more of a pleasant experience for someone. They don't have to keep flipping back and forth between inverted and not inverted," said Dr. Malkin.

Dr. Malkin also talked us through screen readers. This is a somewhat benign name for what, these days, are highly sophisticated interactive and adaptive software programs.

Screen readers allow you to navigate your device using gestures and touch while the information is communicated aurally. Both offer an incredible array of features, and it would be hard to separate them in terms of quality and functionality.

"On Android, it is called TalkBack. On the iPhone, it's called VoiceOver," explained Dr. Malkin. "They claim that it's the most sophisticated screen reader available for smartphones. I think Android would argue that they are catching up very quickly."

That brings us to apps and Dr. Malkin has some sensible advice for us here, too.



Keep it relevant

"Patients often ask: 'Which magnifier app should I get? There are 80 of them when I go into the Google Play Store or the App Store. And I don't even know what I should do and what I should get'," shared Dr. Malkin.

"So, I talk to my patients and ask them to figure out: Does the app do more than just access the light and the camera? Does it do font adjustments or contrast adjustments? Like I showed you with that built-in magnifier on the iPhone. Those are features that are worth having. For the most part, I tell people to look for apps that are free," she continued.

So, there are apps that magnify, apps that read out loud, apps for daily living, and apps with multiple functionalities. Front runners of the latter being the *KNFB Reader App* and *Seeing AI* (exclusively for iPhone). Dr. Malkin is a fan of both, but again offers some sage advice, possibly not just for the consumer, but for app developers as well.

"I haven't worked with the newer Android document reader enough to say that Android can replace what the *KNFB Reader Mobile App* does," she said. "But that's something that I'm gonna start practicing with and seeing. Can we get people with an Android phone to avoid spending USD100 on an app? I love what they've done with the *KNFB Reader App*. And it's not that I don't want to support app development, but when we're working with people with low vision, free is always better," she said.

For those of us who enjoy more human touch, there are also apps that connect you to a real person. *Aira* is a subscription-based service that connects you to a sighted user and *Be My Eyes* is a free service run by volunteers.

"*Aira* is a cool visual interpretation service. You can have a few short calls for free, but typically if people are using *Aira*, they're getting a paid description," explained Dr. Malkin. *Be My Eyes* is a free app that connects you to volunteers. You connect in, and you ask them questions. So someone with vision impairment can call the volunteer and ask: 'Can you tell me what that picture is? It's on my desk.' Or 'I got a piece of mail and I'm not sure it's for me'. And they can read you the envelope, or they can read you that piece of mail."

So, what's the future of lowvision technology?

Well — if you believe the marketing hype and human interest stories anyway — it must surely lie with augmented reality and head-mounted displays. Some of these are stand-alone products, while others utilize your smartphone as the interface, like *IrisVision*. While websites and testimonials make bold claims, the good doctor has a wee warning here, too.

"Patients are starting to ask more about head-mounted displays. In part, because they see the *YouTube* videos of people getting them. And they hear about them. Or a friend sends them a link and says: 'Oh, this might be the Holy Grail. This might fix your vision problem.' So you need to counsel your patients appropriately," advised Dr. Malkin. "And I tend to steer them towards some of the easier to access technology, that built-in technology on their phones, before we go to something that's gonna cost a huge amount of money," she concluded.

And so, perhaps at least until some of the more futuristic devices out there become more affordable anyway, we'd be better off sticking to the built-in features and apps on our phones for now.

REFERENCES:

- Legends and Pioneers of Blindness Assistive Technology, Part 3. American Foundation for the Blind. Published Nov. 2006. Available at: https://www.afb.org/aw/7/6/14413. Accessed on Sept. 30, 2021.
- A guide to voice activated recognition. Available at: https://www.verizon.com/articles/speechrecognition-technology/. Accessed on Sept. 30, 2021.

Editor's Note:

This Cybersight Webinar (a project of Orbis International) was held on May 25, 2021. Reporting for this story also took place during the virtual meeting.





AR in The second second

reality technology in addressing visual field loss by Nick Eustice

n the '80s and '90s, picture-inpicture (PIP) televisions were cutting edge. It seemed like a bizarre and wonderful thing, to be able to see two videos at once on the same TV screen. On top of the main screen, which showed one channel, a viewer could watch a second soundless one. You could watch the news on one screen while following a football game in a window in the corner of the screen.

These days, with our monitors full of a dozen web tabs and smartphones that run several programs at once, the PIP TV seems pretty old-fashioned. In its day, however, having a PIP television felt like living in the future.

Technology has moved forward, past the simple PIP television, and in many ways past the television itself. But as with all developments in technology, it has been improved and put to different uses than might have seemed obvious at the time. Bonus features on DVD and Blu-ray discs allowed you to watch suspense films from different camera angles at the same time using the same PIP concept. We can keep security cameras and baby monitors on our desktops, allowing more effective multitasking using another evolution of the PIP format.

From picture-in-picture to assistive technology

Today, in a lab in Essex, UK, a whole new application for PIP is being pioneered. Participants in a developing program wear virtual reality (VR) headsets, looking at what resembles a game of Tetris through their headsets, seeing the scene from a different angle in a second window overlaid on top. As the participants analyze and interact with the scene on their screens, they could easily be mistaken for game testers. This program, however, is anything but just a game. And the PIP window isn't being used for entertainment purposes. What these researchers are working on is a new assistive technology for those with visual field loss. And the picture-in-picture, called the Support Window, could someday be used to help a potential user see a more complete view of the world around them using augmented reality (AR) headsets worn out in the real world.

This project is called AReye, and it came into being as a result of the personal experience of its founder, Dr. Jordi Asher. After suffering a stroke quite early in life, Dr. Asher was left with visual loss due to hemianopia. The lack of follow-up care or treatment options for this life-changing event came as a great shock to her.

"When they discharged me from the hospital," Dr. Asher recalled, "they gave me a PDF with my prognosis and the



tests that they had done, and basically said 'well, there's nothing we can do for you, so just get on with your life'."

Dr. Asher began exploring different approaches to this dilemma. Surely there had to be more options than just accepting a loss in her visual field. For years, asking academics and eye care professionals got her nowhere. As she began to explore alternative approaches to visual field restoration, she returned to university in order to pursue a Ph.D. in psychology. Hoping to find some answers to this end, she focused her research on the subject of visual training and learning strategies.

While her program of research was valuable, Dr. Asher did not discover the transformative answer she'd hoped for. "It turns out, the medical professionals of yesteryear are probably correct: at this stage, there's not very much we can do to get [visual field loss] back." Though this dead-end was somewhat demotivating at first, it prompted her to shift focus from finding a neurological solution to one seeking to develop assistive technologies.

AReye: Inspirations and development

She drew initial inspirations for the project from blind-spot mirrors used in cars. The convex mirrored attachments, fixed to a part of a driver's side-view mirrors, lets a driver gain a wider perspective on the visual field behind them, allowing them to drive with a higher degree of safety. What if the

field loss?

When she encountered her first VR headset, Dr. Asher knew she was on the path toward the possibility of doing just that. Though the headsets at the time were bulky, she began work on software that can be utilized via AR glasses which, through development, continue to become smaller in size and lower in cost.

This leads us to AReye. While still in developmental phases, this software aims to use supplemental cameras to create a PIP support window within the user's sighted area that includes the blind field of their vision. Thus, while visual field restoration remains out of reach, the aim is to transpose the area of visual loss into a sighted field of vision, contextualized with the surrounding sighted area.

What makes this context vital, Dr. Asher explained, is that it allows a user to psychologically connect the transposed blind spot shown in the support window to the broader sighted visual field. At present, the project is still in relatively early testing phases. And, of course, the outbreak of COVID-19 has slowed that process quite significantly. Nonetheless, Dr. Asher is hoping to resume testing soon, with the aim of bringing the program to a public phase within the next few years.

Giving hope to people with visual impairment



The purpose of this extensive

project is to allow people with visual loss greater freedom and independence in their day-to-day lives. Dr. Asher shared: "From speaking to people with visual field loss, that's the most important thing: to get them out and about. They want to go to the shops by themselves, they want to be able to

go to the library... all these things that people who have a full field of view may not consider that much of a priority."

As AReye is still in development, a number of questions remain open. We are not certain how much preparation or training a person would need in order to become comfortable enough using the platform that they could venture outside with its assistance. This is likely to vary from person to person, as a user's age, familiarity with technology, and overall adaptability would all play a part in how quickly a user might adapt to the software.

So what role does Dr. Asher see eye-care professionals play in the development and deployment of this technology? "I certainly hope there's a role for ophthalmologists who are already preparing people to use things like prism lenses or the white cane," she replied. As time goes on, it could become a valuable tool for those who have previously been saddled with a fairly bleak prognosis.

This exciting new technology brings with it a lot of hope for those who suffer from visual field loss, arising from a number of different conditions. And that picture-in-picture window that began as a gimmick in old television sets may well someday bring a whole world of freedom to the many people who suffer from vision field loss.

Contributing Doctor

Dr. Jordi Asher, Ph.D., M.A. Dr. Jordi Asher is a lecturer at the University of Essex. Her research is focused, to date, on the potential of plasticity in the brain and training strategies to help people with visual field loss. She is currently investigating the use of augmented reality (AR) specifically for individuals with visual field loss. She and her team are developing a software solution for readily available consumer AR headsets (i.e. smart glasses). The project is funded by grants awarded by the SETsquared partnership, Eastern Arc (EIRA), and the Higher Education Innovation Fund.

🎐 jashera@essex.ac.uk

ENLIGHTENMENT | GLAUCOMA



Chronicles

of the Silent Thief

A brief lowdown on everything you need to know about glaucoma by Nick Eustice

called the trabecular meshwork. It can also be brought on by an overproduction of aqueous humor at a rate higher than drainage can keep up with. In either case, the increase in tension within the eye begins to put pressure on the optic nerve.

> Like all nerve tissue, the optic nerve is extremely delicate, and damage to it is irreversible. When the optic nerve deteriorates through pressure or other means, the result is blind spots in the visual field. Without treatment, the condition continues to damage the nerve, leading to further vision loss and eventual blindness.

The history of glaucoma

Hippocrates was the first to describe glaucoma, sometime around 400 BCE in Ancient Greece. In examining the eyes of the blind, he noticed that many of them appeared swollen, and that the pupil appeared shiny, gray-green, or otherwise discolored. *Glaukos* was the Greek word for this discoloration, and it is the root of the current term.

In the early 1800s, Scottish ophthalmologist Sir William Mackenzie identified the typical stages of progression of the disease — from its earliest symptomatic appearances to its eventual and inevitable result of loss of vision. He was the first to pioneer a surgical treatment for glaucoma, by performing paracentesis in order to alleviate pressure within his patients' eyes.²

Soon thereafter, in Germany, Hermann von Helmholtz's invention of the ophthalmoscope and Albrecht von Graefe's pioneering use of the new device opened up a whole new world of findings on the inner workings of the eye. Von Graefe was able to verify many of the working theories which Mackenzie had put forth on the nature

or many years, glaucoma has been called the "silent thief". While this name conjures up dramatic images of mystery and intrigue, of sinister agents lurking out of sight, it is also quite an accurate description of a condition more dangerous than any thief.

The money and valuables that a typical thief steals can always be replaced, after all, but it is our vision that glaucoma takes away — and that is something we can never get back.

The 'silent' part of glaucoma's nickname is equally appropriate. Glaucoma often starts long before symptoms set in, quietly doing its damage to a patient's eyes without any symptoms at all. Without appropriate testing, which can only be done by an eye care professional, glaucoma is virtually undetectable. Its harm is only apparent once it is too late, and the vision loss it causes is irreversible.

What is glaucoma?

Glaucoma is a group of conditions that cause damage to the optic nerve, thereby causing a loss of vision.¹ This nerve damage is typically associated with an increase in pressure of the aqueous humor within the eye.

In healthy eyes, aqueous humor flows naturally throughout the eye, providing nutrients and oxygen much as blood does throughout the body, as well as maintaining the delicate pressure equilibrium within the eye. Glaucoma usually happens as a result of a blockage in this flow at the intersection of the iris and the cornea, in an area



of glaucoma, and to advance new treatment options, himself performing the first iridectomy in 1856.

Contemporary signs and symptoms

While the outer indications of glaucoma identified throughout history have advanced our knowledge of the condition, they all have one thing in common: they occur only in advanced stages of the disease. Again we return to the "silent thief" analogy: glaucoma is often extremely difficult to detect in its earliest stages.

This is especially true of the disease's most common variety, open-angle

glaucoma, where a blockage in the trabecular meshwork gradually inhibits drainage between the iris and cornea. The aqueous humor continues

to flow throughout the eye, but at a diminished rate. Pressure gradually builds up, and little by little, the optic nerve is degraded as a result. This condition happens so slowly that vision loss often occurs before the afflicted is even aware of the problem.

The results are usually the only symptom of open-angle glaucoma. Patients first notice blind spots, normally in their peripheral vision or less frequently in their central field of vision. Long-term, untreated varieties result in tunnel vision.

Another, less common variety of the disease is angle-closure glaucoma. This condition occurs when the flow of aqueous humor is caused by a bulging of the iris rather than blockage in the trabecular meshwork. This can occur slowly over time (chronic angle-closure glaucoma), in which case, it is largely asymptomatic like open-angle glaucoma, or rapidly (acute angle-closure glaucoma), where it is accompanied by a number of symptoms.

These symptoms include headaches, sudden blurring of the vision or halos around lights, and pain and redness in the eyes. Nausea and vomiting can also occur. While glaucoma in all its forms is very serious, acute angle-closure glaucoma is particularly urgent and requires immediate medical care.

Treatment and management options

As the effects of glaucoma are not at present reversible, treatments of this condition are focused upon preventing the swelling of the eye that leads to nerve damage. While the historical catheterization surgeries have contemporary incarnations, doctors today are fortunate to have a great

many other tools available.

A large number of medications are prescribed to help relieve pressure within the eye. Typically, these come in the form of prescription eye drops, and they form the first line of defense against vision loss among glaucoma patients.

Prostaglandins and miotic or cholinergic agents increase the flow of aqueous humor out of the eye, while beta-blockers and carbonic anhydrase inhibitors slow down its production.¹ Alpha-adrenergic agonists do both, while rho kinase inhibitors suppress the enzymes that trigger the release of aqueous humor.

Any of these drops, or a combination of them, are frequently prescribed as the primary treatment of glaucoma. In addition, oral medications, often carbonic anhydrase inhibitors, can be prescribed if drops alone do not achieve a reduction in eye pressure.

In cases where medication alone is not sufficient to relieve pressure in the eye, surgery remains an option. This can take the form of an implanted shunt to directly promote drainage, or trabeculectomy, where part of the blocked trabecular meshwork is removed.

In addition to these and other surgical options, laser trabeculoplasty is a relatively new outpatient procedure that can relieve blockage trabecular meshwork without the need for surgery at all.

Conclusion: Detection is key!

As no cure exists for glaucoma, all the treatments described above are ultimately methods of management. While the damage caused by glaucoma can be mitigated, early detection is essential in preserving the sight of glaucoma sufferers.

Since symptoms are often so few (or even nonexistent) until damage to the optic nerve has already occurred, the vital link in detecting and addressing glaucoma is the optometrist. Glaucoma screenings in the optometrist's office are the surest and likeliest detection method available for this condition. For this reason, it is vital for patients to have regular screenings.

In a study³ by Augusto Azuara-Blanco and colleagues, it was found that "Community optometrists trained in glaucoma provided satisfactory decisions regarding diagnosis and initiation of treatment for glaucoma".

This is especially true for those patients who are in high-risk categories for developing glaucoma. These include patients over 60, those with a family history of glaucoma, and patients with diabetes.

With so few clues available to its victims, optometrists are the detectives who have the best chance to catch the "silent thief".

REFERENCES:

- Glaucoma. Available at https://www.mayoclinic. org/diseases-conditions/glaucoma/symptomscauses/syc-20372839. Accessed on October 13, 2021.
- ^{2.} Great Names in the Early History of Glaucoma by Harold D. Barnshaw. International Ophthalmology Clinics: Spring 1979 - Volume 19 - Issue 1 - pp. 3-7.
- ⁴ Azuara-Blanco A, Burr Jennifer, Thomas Ruth, et. al., The accuracy of accredited glaucoma optometrists in the diagnosis and treatment recommendation for glaucoma. Br J Ophthalmol. 2007; 91(12):1639-1643.



he history of optometric education doesn't date back as far as you might guess. Although lenses were being experimented with as long ago as the 13th century, and spectacles have been around for almost as long as that, optometrists didn't start to become recognized as formally educated doctors until the turn of the 20th century.¹

Fortunately, most countries today have a system of regulated optometric training with registered healthcare professionals. Yet barely a century after its recognition, the field was shaken by the coronavirus pandemic. Medical instruction overall experienced significant setbacks due to the need for doctors to have hands-on, face-toface experience during their training — a component that has been severely disrupted by social distancing measures since early 2020.

Optometry education: A time of change

Not even a year into the pandemic, two Indian optometrists excellently addressed COVID-induced challenges and the next best steps to managing optometric education in a paper titled "Optometric education in the post-COVID-19 era: A time of forced change!"²

The paper focuses on globally-relevant challenges as well as hurdles for eye health in India specifically, where regulated education is slightly newer with Gandhi Eye Hospital in Aligarh as the first Indian optometry school established in 1958³. Efforts to regulate optometry as a profession, solidify optometrists' roles in eye health in cooperation with ophthalmologists, and expand the more common two-year diploma into a four-year degree were still underway in the 2010s.⁴ In their study², Dr. Jameel Rizwana Hussaindeen, Head of the Rivoli Vision Academy at Rivoli Vision, UAE, and President of the American Academy of Optometry's India Chapter, along with her colleague Dr. Krishma Kumar Ramani, shared: "the article adopts a focused approach towards understanding the challenges and solutions pertinent to the optometric community that is very much in the primitive stages of evolution in India seeking support and guidance".

How the pandemic changed medical education

This publication² was laden with insightful observations on the obstacles that had already begun to appear and predicted potential issues. It's important to note that the authors don't seek to solve every problem themselves but primarily to introduce considerations for educators to think through.

The authors wrote that educational institutions worldwide would need to adjust infrastructure and operations to provide quality education. This includes providing classes via an online platform and ensuring testing could be carried out. They pointed out that because access to training, research, and internship opportunities was interrupted, the pandemic slowed down the curriculum and delayed graduation, consequently delaying new student intake for the next term. Obstacles to funding would have the same slowing effect.

As for factors specific to India, the authors addressed the challenges of Internet connectivity. This problem is, of course, relevant to any country with a significant rural population. "Though over 500 million people in India have access to the Internet," they wrote, "and therefore e-learning facilities, rural India does suffer from poor network connectivity."

With many people worried about contracting the virus, there also arises increased parental worry over their adult children pursuing education in a distant state. This applies to India and any culture where it's typical for a parent to make the final decision



on such matters. This can affect the usual diversity that colleges offer in the educational system, the authors wrote, and would restrict options available to the students.

While the entire paper cannot possibly be summarized here, a final noteworthy consideration is the mental health of the students. "With increasing concerns related to mental health especially among students due to the current pandemic," the paper suggested, "the curriculum should also incorporate psychosocial skills that are necessary to cope up with changes during tough times."

Adapting to a blended learning strategy

The authors of this article offered excellent advice for institutions or governments seeking to troubleshoot a lull in optometric education during the coronavirus era. With the pandemic's second year coming to a close, *Media MICE* followed up with Dr. Hussaindeen for more commentary.

The expert had recently contacted the same educators that had been used in the paper. In terms of online education, they reported that the learning was a 50-50 split between online and in-person. "They said you cannot go 100% virtual and you always need to have the in-person interaction, the hands-on training, and all those things." She shared that COVID-19 has forced people everywhere to adapt to the idea of blended learning — a forced change, as the paper subheading foreshadowed.

Some other challenges cited as a result of learning via virtual platforms were the short attention span of students, lack of responsibility because of the ability to switch cameras off, difficulty in getting them to answer questions, and lack of professional presentation in front of the webcam.

While not predicted initially in the paper, these issues are certainly relatable for anyone who has shown up to a Zoom call with sleep hair and a coffee still in hand. Finally, network glitches were also cited as an obstacle to learning. In India, the optometric student does their post-grad domestically or abroad, but the number of research grants, sponsorships, and scholarships has come down.

"Students are suffering. Top performers aren't able to get their university. Many of them have changed their decision, or gone into depression," Dr. Hussaindeen said. "I want to put it as a request to all the researchers, the teachers out there, to pay [attention] a little bit. Of course, they are trying their best."

"We've given a list of available resources." The expert referred to resources in the paper such as the *National Knowledge Network* of the government of India. "There's always lots of opportunities to contribute to these resources. Some of these wellestablished educational institutions should come forward and be willing to network, collaborate, and support the other institutions that need support in terms of infrastructure, educational aspects, delivering lectures, and things like that... More partnerships definitely will help."

The importance of student support and mentorship

When it comes to student support, Dr. Hussaindeen is a big advocate of the mentoring approach. She hopes that established professionals will open up to students about challenges from mental health to career.

Students should find someone to mentor them, especially nowadays with less time spent in the classroom. "You need a coach. You need someone that you can sit with and do your goal setting. You can't figure out everything on your own. Find somebody willing to help you in this journey," Dr. Hussaindeen advised. "You will see that there are more opportunities and avenues to explore than you can think of."

As for the author herself, the coronavirus pandemic on optometry training motivated her personally to move from research to an educator position.

"After 17 years, the COVID-19 period gave me some time to think about

what I really wanted to do in real life and I shifted my job. I moved to the UAE to train people who would come from all countries from multicultural backgrounds, for them to be able to face corporate optometry here in UAE. I'm here as a coach, as a trainer, as a mentor," shared Dr. Hussaindeen. "It's given me an opportunity to take up a challenging task."

Educators like Dr. Hussaindeen are making eye history by keeping optometric education on track during this critical period. 😵

REFERENCES:

- ^L History of Optometry. Available at https://fs.aoa. org/optometry-archives/optometry-timeline.html. Accessed on Oct. 18, 2021.
- ^{2.} Ramani KK, Hussaindeen JR. Optometric education in the post-COVID-19 era: A time of forced change! Indian J Ophthalmol. 2021;69(3):746-750.
- ^{3.} Optometry in India. Optician Online. Available at http://assets.markallengroup.com/article-images/ image-library/147/uploads/importedimages/ india.pdf. Accessed on Oct. 18, 2021.
- ^{4.} De Souza N, Yu C, Looi S. The role of optometrists in India: an integral part of an eye health team. Indian J Ophthalmol. 2012;60(5):401-405.

Contributing Doctor

Dr. Jameel Rizwana Hussaindeen, M.Phil, Ph.D., FAAO, FCOVD-I, is the Head of Rivoli Vision Academy at the Rivoli Vision, UAE, leading the strategic planning and functioning of the Academy.

She is also currently serving as the president of the Optometric Association of Tamil Nanbargal (OATN), in Southern India. Dr. Hussaindeen also serves as an adjunct faculty at the Sankara Nethralaya Academy and an honorary visiting consultant for Sankara Nethralaya, Chennai, India. She is also serving as a consultant for the International Agency for the Prevention of Blindness (IAPB). Dr. Hussaindeen's expertise spans clinical specialties of binocular vision, pediatric optometry, learning-related vision problems, cerebral visual impairment, amblyopia, and neuro-optometry. Dr. Hussaindeen has been involved in the school eye health initiatives for over a decade now and has earlier served as a mentor to the World council of Optometry's (WCO) Advocacy for eye health program.





Demystifying common misconceptions about myopia

A II too often, when we become familiar with something that's pretty widely understood, we also become comfortable with common assumptions about it. This is usually pretty harmless. It probably doesn't matter if we think that bats are blind (they're not) or that Edison invented the light bulb (he didn't). There's not much danger in these kinds of trivial misunderstandings.

However, when it comes to more serious matters, like medical treatments, we've got to be careful not to fall prey to common myths and misconceptions. And when we're talking about vision disorders, there are few topics so commonly misunderstood as myopia. Dr. Marcus Ang, a corneal refractive surgeon and a senior consultant at the Singapore National Eye Centre, said he encounters a great many common misconceptions about myopia in his practice. In addition to those coming from parents and patients, he also hears these from the general public, policymakers, and even from colleagues in the field.

"As eye care professionals, we all see the importance of myopia and the worrying trends around the world, where myopia rates are actually increasing," shared Dr. Ang. "But we also see a worrying trend where perhaps we're not doing quite enough to arrest or slow down the rising prevalence of myopia in our societies, our healthcare settings, and our populations."

In a recent lecture on the subject, Dr. Ang addressed some of the most concerning misconceptions about myopia.

Misconception no. **M**yopia is an Asian problem

The first of these misconceptions is that myopia is only a major problem in Asia, specifically in the highly-developed cities of East Asia. At first glance, it's easy to understand why. The highest rates of myopia by far are all in these large urban centers, where sometimes



over 80% of the population is myopic. Without a doubt, myopia is a bigger problem here than anywhere else in the world.

However, this does not mean that the problem is limited to East Asia. Population-based studies are beginning to emerge around the world that indicate myopia is on the rise everywhere. In some parts of Europe, these instances are as high as 50%. Similar increases have been noted elsewhere as well, with rising percentages in the Americas and Africa.

It is estimated that by 2050, 4.8 billion people will have myopia, a number reflecting the fact that this problem is in no way limited to any one area. Even more worrying, this same study suggests that as many as 0.9 billion people will have high myopia, where their condition is more likely to lead to permanent and untreatable vision loss.

to screen time, it is logical to conclude that they are at the greatest risk for myopia.

But looking at the onset of myopia only serves to address part of the problem, and often the least alarming aspect of it. Because when we look at the onset of high myopia, this is substantially more common later in life. This, of course, is the time when treatment is most vital, and unfortunately is also most frequently overlooked. this correlation is much higher in older patients.

This, Dr. Ang pointed out, is often a neglected aspect of patient education. While treatments are often focused on correcting the immediate vision problems of children and adolescents, it is vital to cultivate an understanding that as they get older, these patients may very well be at a heightened risk of more serious vision problems.

Misconception no. Myopia is simply a refractive error that can be easily corrected

It is also common for patients to dismiss myopia as a simple and easily corrected error of refraction, and nothing more. This makes sense. as it's human nature to focus on the immediate effect which a condition has on one's life, not necessarily considering the broader picture. As Dr. Ang makes clear when speaking of the dangers of myopia later in life, it is a much more serious condition than that.

And just as the problem of myopia is not limited geographically, it is also not limited demographically, in terms of age.

Misconception no. 2

Myopia only affects kids

The next myth Dr. Ang addressed is that myopia is only, or at least primarily, a problem for children and adolescents. Here again, the assumption has some basis. Myopia occurs primarily during childhood. It's also where we see the greatest growth in myopia statistics worldwide. As children spend the greatest amount of time studying and devote an increasing number of hours Furthermore, instances of vision loss and visual impairment have been shown to increase with age. This is not only true where the severity of myopia itself has increased, but remains a factor where the condition is relatively stable. In addition, high myopia is often associated with other major eye diseases. Cataracts, glaucoma, macular degeneration, and retinal detachment have been linked to instances where patients suffer from high myopia, and

Population-based studies indicate that myopia is on the rise

everywhere in the world.

Sadly, when people underestimate the dangers of a condition, it frequently goes without treatment. While this can be bad enough in highly-developed urban and industrialized areas, where mere treatment of the refractive symptoms of myopia may be the extent of the patient's care, it is especially troubling in under-developed and rural areas. In such places, treatment may be unavailable or simply inadequate. Under these circumstances, myopia can worsen considerably.



extent of that deformation. Fundus photography can give a clearer result, but it is limited to only a small area of the retina, and as such does not provide a complete picture of ocular deformation.

A magnetic resonance imaging (MRI), naturally, would provide a fairly complete evaluation of the extent of a patient's myopia. This, however, is not a good solution in many situations. The procedure is distressing for many patients and requires equipment that is very costly to deploy and to operate.

The expense involved makes MRI use difficult in advanced nations and simply out of reach in less developed ones.

Misconception no. 5 Treatment of myopia is simple

The last misconception that Dr. Ang talked about is the idea that treating myopia is a pretty simple thing. There have been many advances in recent years, but treatment is still far from easy. The use of orthokeratology, where overnight contact lenses gradually reshape the eye, is enormously effective when applied in a timely fashion. And Defocused **Incorporated Multiple Segments** (DIMS) lenses have shown that they are very effective in slowing myopia growth in children. Atropine has proved to be an effective pharmacological treatment as well.

Most of the treatments we have available, however, are useful only at the early stages of myopia. At the onset of high myopia, the available options become limited. Surgery is currently of limited value in treating eyes that have already undergone axial length elongation.

Because of this, Dr. Ang advocated for a strong focus on educating parents and patients on preventing myopia. There is a direct correlation between the amount of time that children spend focusing

on screens and instances of myopia. This trend has been growing each year since the invention of the television. As a result, Dr. Ang suggested a minimum of one to two hours of outdoor time for children.

Early treatment and prevention are needed to combat myopia

In conclusion, Dr. Ang said that a robust combination of active early treatment and prevention methods on the part of parents and patients, increased education carried out by eye care professionals, and a coordinated global effort to provide increased research funding on the part of policymakers are needed to combat what is clearly a serious and growing issue.

Dr. Ang's point is well made: Misconceptions are at the heart of the increasing danger of myopia. It's through further knowledge that we may hope to stem the tide of this problem. 😔

Contributing Doctor

Dr. Marcus Ang, MBBS, MMED, MCI, FRCS, Ph.D., is a consultant ophthalmologist at the Cornea and Refractive Service, Singapore National Eye Centre. He is Secretary of the Asia Pacific Academy of Ophthalmology (APAO) Young Ophthalmologist Committee. He is a graduate of the APAO Leadership Development Program (LDP) as well as the American Academy of Ophthalmology (AAO) LDP Class XX. Dr. Ang is heavily committed to charity work in the ophthalmology field in Singapore and throughout Asia. As founding director of Global Clinic, he regularly organizes missions to provide free eye care and cataract surgery in countries such as Indonesia, Thailand, Cambodia, India, and Myanmar. He also serves on the Board of the International Agency for Prevention of Blindness as well as Project ORBIS Singapore. He has been commended with the President's Award for Philanthropy in Singapore, and the Prevention of Blindness Award from APAO.

marcus.ang@singhealth.com.sg

The greatest concern when treatment is lacking is the onset of pathological myopia. This variety of high myopia affects as much as 3% of the world's population and is characterized by axial elongation of the eye. This permanent deformation is irreversible and frequently leads to vision loss. Needless to say, this is substantially more serious than basic symptoms may lead one to helieve

Misconception no. 4

Myopia diagnosis is straightforward

As mere nearsightedness is only the tip of the myopia iceberg, it follows that diagnosing myopia generally, and especially in its more threatening advanced stages, poses greater difficulties than one might assume. While refractive variances can be ascertained by simple tests of visual acuity, detecting more serious problems is nowhere near so straightforward.

This is because diagnosis is hindered by the very deformations of the eye which occur as a result of myopia. Optical coherence tomography (OCT) is the most common imaging tool used to diagnose visual impairments. Because this method involves measurements taken through the potentially irregular structure of the cornea, it is not particularly useful in evaluating the



INDUSTRY UPDATE

OCULUS Supports IMI in Raising Myopia Awareness



CULUS has joined the International Myopia Institute (IMI) in tackling myopia awareness and will support the IMI activities to advance the research of myopia to prevent future vision impairment and blindness.

"We are delighted about the cooperation," Christian Kirchhübel, CEO of OCULUS announced. "Our mission at OCULUS is to support eye care professionals around the world with cutting-edge, high-tech development. We are dedicated to saving and improving vision and visual performance with our precise, reliable long-lasting measurement solutions."

"There remains much to do in terms of growing myopia awareness and improving both eye care practitioner and the general public's knowledge of the need and ability to slow myopia progression clinically," shared IMI Chair, Professor Serge Resnikoff. "We are looking forward to continuing to work with OCULUS and all our sponsors in making evidence-based knowledge on myopia treatment and prevention freely available."

The IMI is a global group of experts who have come together to discuss, debate, and make available the latest evidence-based recommendations in classifications, patient management, and research, in the form of the IMI white papers, in up to 12 international languages.

For more information, visit www. myopia-master.com and www. myopiainstitute.org.

INDUSTRY UPDATE

Bausch + Lomb Announces Results from 2nd Phase 3 Trial of NOVO3

B ausch + Lomb and Novaliq GmbH announced significant topline data from the second Phase 3 (MOJAVE) trial, evaluating the investigational drug NOVO3 (perfluorohexyloctane) as a firstin-class eye drop with a novel mechanism of action to treat the signs and symptoms of dry eye disease (DED) associated with Meibomian gland dysfunction (MGD).

"The findings from this second Phase 3 trial reinforce the results of the first Phase 3 trial and further supports the efficacy and safety profile of NOVO3 as a potential important new treatment option for the millions of people living with dry eye disease associated with MGD," said Joseph C. Papa, chairman and CEO, Bausch Health. "These results mark another important milestone in bringing NOV03 to market as a potential firstin-class treatment, and we anticipate filing a New Drug Application to the U.S. Food and Drug Administration in 2022."

The MOJAVE trial met both primary sign and symptom endpoints: Change from baseline in total Corneal Fluorescein Staining (tCFS), a measure of assessing damage to the eye, achieved statistical significance at day 57, using the National Eye Institute (NEI) scale, compared to control [p < 0.001]. Change from baseline in Dryness score achieved statistical significance at day 57, as rated on a visual analogue scale (VAS) ranging from 0-100 (0 = no dryness; 100 = maximum dryness), compared to control [p < 0.001]. "We are extremely pleased by the consistency of the results, which reaffirm the safety and efficacy results for this investigational drug previously demonstrated in a Phase 2 trial and the first Phase 3 trial. This underscores the potential impact NOVO3 could have, if approved, in addressing an unmet medical need for the millions of patients with dry eye disease associated with MGD," said Christian Roesky, Ph.D., CEO, Novaliq.

"With these results, consistent statistically significant efficacy, safety, and tolerability have now been demonstrated in both NOV03 Phase 3 trials, as well as in the Phase 2 trial," said John Sheppard, M.D., president of Virginia Eye Consultants, professor of Ophthalmology at the Eastern Virginia Medical School, Norfolk, Va., and trial investigator.

The clinical development program for NOV03 is expected to conclude with an ongoing multi-center, openlabel, single-arm, 12-month safety extension trial (KALAHARI).



CONTENT MARKETING + ADVERTISING + MEDICAL WRITING

Request our 2022 Agency Kit Now! Write enquiry@mediamice.com for a copy







cafe magazine

www.cakemagazine.org



www.cookiemagazine.org



www.expo.mediamice.com

6001 Beach Road, #19-06 Golden Mile Tower, Singapore 199589 Phone: +65 8186 7677 | U.S.: +1 302 261 5379 E-mail: enquiry@mediamice.com Web: www.mediamice.com