

cookie m a g a z i n e

Cool Optometry • Optics • Kudos • Innovation • Enlightenment

03

THE WILD WEST ISSUE

May 2021

cookiemagazine.org

p14

Cover Story

COOL OPTOMETRY
FRONT MATTERS



What about our future?

*"I'm going to
be a surgeon!"
Joe, 8 years old*

*"I'm going to
be a designer!"
Lilly, 10 years old*



OCULUS Myopia Master®

For early myopia detection and management

Myopia in children and young people is increasing worldwide. Early detection and treatment can slow or stop the progression of myopia. The new Myopia Master® combines all important parameters for myopia management in a myopia analysis software: axial length, refraction values and the central corneal radii.

Myopia management – much easier and more reliable than ever!



[Click here to learn more](#)





It's getting wild in COOKIE 03...

Dear Readers,

When it comes to the practice of optometry — and especially when looking through a global lens — it can seem a bit like the Wild West. In addition to all the normal barriers to care like access and affordability, education and training requirements also differ dramatically around the world. These gaps in training create further inequalities when it comes to preserving vision and preventing disease — and many developing countries are just in the frontier of optometric care.

There is, of course, a gold mine of opportunity here — so, in COOKIE 03, we saddled-up to ride into the Wild West of optometry. In this issue's cover story, we look at how greatly vision and eye care differs in different regions of the world, as well as two of the biggest frontiers remaining in optometry: improving and supporting education in the developing world and enhancing myopia management — especially in Asian countries that are reporting startling high myopia populations. These issues have also been echoed by the International Association for the Prevention of Blindness (IAPB) which has released the Vision Atlas and paints a stark picture of the global myopia epidemic.

However, there is good news — treatments are always evolving to better meet the needs of both patients and physicians. Sticking with myopia, we look at updates and attitudes in treatment, especially the rise of orthokeratology in Asia. And for patients with declining near sight due to age (a.k.a. presbyopia), new topical therapies are gaining momentum as they show both efficacy and safety. Further, innovations in telemedicine could improve access to diagnosis and management sooner rather than later.

Back in the Wild West, cowboys shielded their eyes from the sun with wide-brimmed hats. And while it's still common for Texans to wear 10-gallon-hats, the rest of us can thankfully protect our eyes with a simple pair of sunglasses. But that's not to say innovation is lacking there either — indeed, there have been improvements to protect the eyes from harmful rays (like photochromic lenses) as well as protect the Earth (in sustainable eyewear).

In this issue, other regular features like Women in Optometry celebrate the history (or frontier) of women in the field. And our in-depth country focus travels to Malaysia for insights into optometric practice there. We're also introducing a new feature — a disease spotlight, which will cover signs, symptoms, diagnosis and management of various ophthalmic conditions. In this Wild West issue, we take a closer look at age-related macular degeneration (or AMD).

So, grab the reins, buckaroo ... and 'git to readin'. We reckon there's lots of good info in COOKIE 03 — yeehaw!

Cheers,

Brooke Herron

Editor

PIE, CAKE & COOKIE magazines





Cool Optometry

06

Study Unveils Global Differences in Myopia Treatment

While the myopia epidemic grows, treatment options vary worldwide



08

A Solution for Thirsty Eyes

How one device can make all the difference in dry eye disease diagnosis and management

Optics

10

Seeing Green

Sustainable Eyewear in Asia

12

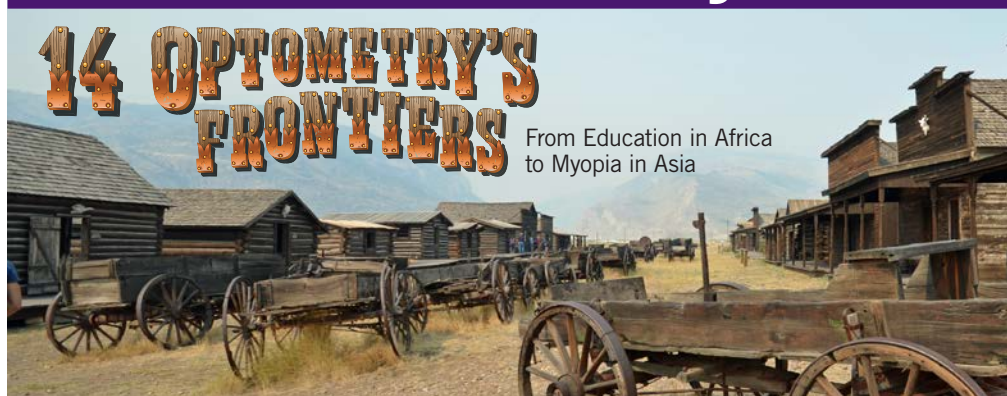
Protecting Eye Health with Photochromic Lenses



Cover Story

14 OPTOMETRY'S FRONTIERS

From Education in Africa to Myopia in Asia



Kudos

20

Women in Optometry: Then & Now

23

Remembering a True Friend of Philippine Optometry

Innovation

24

Never Lose Your Reading Glasses Again

26

Save Sight and Stay Safe with these Simple, Smart Screening Solutions



Enlightenment

28

Spotlight on Malaysian Optometry
Exploring optometry in a diverse country



31

Spotlight on Age-related Macular Degeneration

33

Telehealth for Optometry is Getting Newer and Cooler

Conference Highlights

34

Eye Innovation Webinar Conjures Up Cool Presbyopia Technology

35

Groundbreaking CLEAR Report Featured at BCLA 2021

Mark your calendars for this can't-miss event!

Matt Young

CEO & Publisher

Robert Anderson

Media Director

Hannah Nguyen

Production & Circulation Manager

Gloria D. Gamat

Chief Editor

Brooke Herron

Editor

International Business Development

Ruchi Mahajan Ranga
Brandon Winkler

Writers

Andrew Sweeney

Chow Ee-Tan

Elisa DeMartino

Jillian Webster

Sam McCommon

Contributor

Carmen Abesamis-Dichoso

Maricel Salvador

Graphic Designer

Published by

MEDIA
MICE

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.mediamicem.com

Society Friend



何氏眼科

He Eye Specialist Hospital

He Eye Specialist Hospital



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.

To place an advertisement, advertorial, symposium highlight, video, email blast, or other promotion in **COOKIE** magazine contact CEO Matt Young at matt@mediamice.com.



Dr. Kristie Nguyen
OD

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.

 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, FFAO

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



Study Unveils Global Differences in Myopia Treatment

by Andrew Sweeney

If you've ever watched *The Simpsons* you'll likely be aware of Marge Simpson's twin sisters Patty and Selma. The chain-smoking spinsters were often characterized by either disinterest in relationships or failed attempts at creating ones, especially in the earlier seasons. Selma was more often portrayed as wanting children, sometimes heartwarming, which at one time drove her into the arms of the ultra-myopic Hans Moleman.

Desperate to conceive children while she still could, she agreed to go on a date with Moleman in return for ensuring he passed his driver's license test. At the end of the date, she nearly followed our moley friend home, only to imagine what their children would look like in a fairly grotesque manner: Children with vaguely mole-ish heads running around and bumping into walls, with 10 cm-thick glasses.

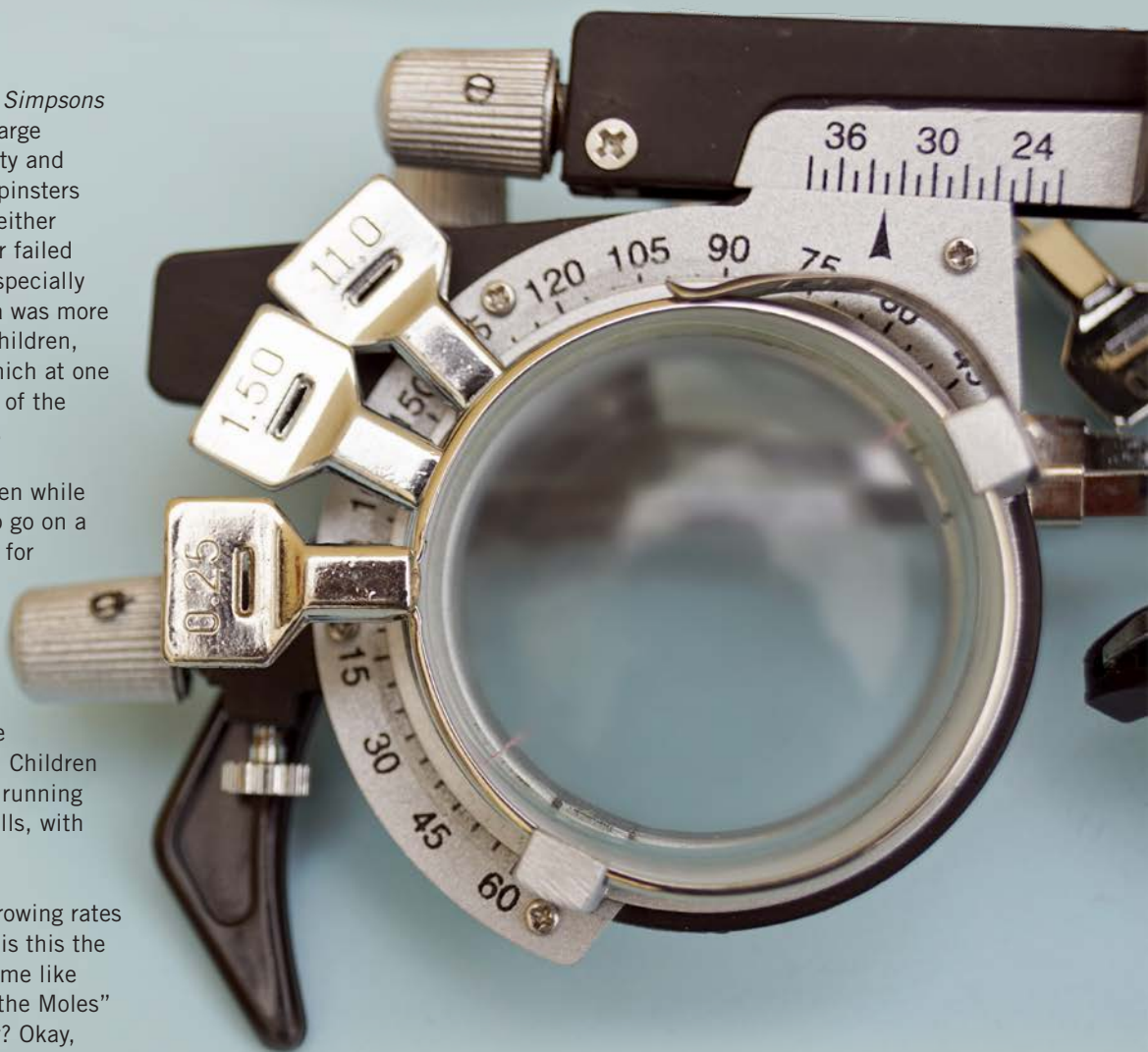
Now ask yourself, with the growing rates of myopia around the world, is this the fate of our children? To become like the spawn of Hans "King of the Moles" Moleman and Selma Bouvier? Okay, in all likelihood it is probably not, and our children will likely avoid the fate of moleish-ness, but myopia is growing exponentially, and every year more and more children are diagnosed with near-sightedness.

Are kids without glasses the odd ones out now?

Myopia is a truly global phenomenon — and while it is most common in East Asia, many countries are experiencing rising rates of the condition. In 2010,

it was the leading cause of distance refractive error and affected 1.45 billion (or 27%) of the world's population, with the low myopia threshold defined as ≤ -0.50 D. In certain age groups in several Asian countries, the myopia rate exceeds 80%. For example, among late teenagers and young adults in Korea, Taiwan and China, the prevalence of myopia is estimated to be between 84 and 97%.¹

Myopia is often thought of as a relatively benign condition; however, it can cause significant long-term health consequences, some of which are sight-threatening. It is associated with an increased risk of developing conditions such as myopic macular degeneration, retinoschisis, posterior staphyloma, glaucoma retinal detachment and cataracts. While these complications are rare, there is interesting differentiation among regional myopia patterns.¹





For example, the prevalence of vision impairment due to pathologic myopia (high myopia with one or more typical fundus lesions) is between 0.1 and 0.5% in European studies and between 0.2 and 1.4% in Asian studies.¹ As the possible causes of myopia occurring are multifactorial — including genetics, time spent outdoors, low vitamin D levels, inadequate light exposure, poor diet, etc., — finding the right treatment and management for myopic individuals varies considerably. This applies to regional and national differences, as well.

How many languages can you answer in? (It's two for me)

Global Trends in Myopia Management Attitudes and Strategies in Clinical Practice is one of the most comprehensive pieces of research you could ask for. It serves as an update to a 2015 survey of myopia patients and practices and is a self-administered, internet-based, cross-sectional survey in eight languages (Chinese, English, French, German, Italian, Portuguese, Russian and Spanish). The survey was distributed through various professional bodies across the world to reach eye care professionals. Its nine questions included prompts about the level of concern associated with pediatric myopia; the minimum age for prescribed myopia control options; and the perceived efficacy of available strategies designed to counteract myopia and their related adoption levels.

“How proactive practitioners felt they were being ‘in myopia control’ followed a similar pattern, but this did not translate to how they prescribed. The majority of young myopes are still being prescribed single vision spectacles and contact lenses,” said Prof. James Wolffsohn of Aston University in Birmingham, England, and one of the lead researchers in the study.

“Our study found strong evidence for the effectiveness of regulated myopia control soft contact lenses and orthokeratology; these slowed the progression of axial elongation and the resulting increase in myopia. Pharmaceutical use of low-dose atropine also has well-designed clinical trials demonstrating its efficacy,” he said.

Treatment approaches vary by country

Where practitioners tend to differ most is in their relative aggressiveness in treating myopia. For example, in Asia, Chinese practitioners generally held the highest relative consideration for most myopia control options, whereas practitioners from Hong Kong held the least overall perceived effectiveness for most myopia control options.

South America was notable for its higher rate of support for stronger responses, with practitioners indicating they utilized pharmaceutical options most frequently for progressing, younger myopes; while those from Asia and Europe were the most conservative in treating this group.²

Regardless of regional specificity, which is fascinating in itself, we highly recommend reading Prof. Wolffsohn's research in full. The overall picture is clear: Myopia is becoming more serious every year. The large number of people already affected by the condition is growing and it's becoming a more serious public health concern by sheer volume alone. However, though the picture may appear bleak, Prof. Wolffsohn sees room for optimism thanks to new research.

“There is a lot of work in refining optical designs to get the best effect in slowing myopia, how they might be combined to be even more efficacious, and how to predict which treatment is best to start for a particular individual. Likewise, there is new instrumentation to measure key parameters such as axial length in children,” Prof. Wolffsohn said.

“What makes me most excited is that many years of research in the field can now be translated into real benefits for our patients, and that eye care practitioners can reduce the tsunami of myopic visual impairment that will otherwise ensue,” he concluded. 🍷

REFERENCES:

1. Holden BA, Wilson DA, Jong M, et al. Myopia: A Growing Global Problem with Sight-Threatening Conditions. *Community Eye Health*. 2015;28(90):35.
2. Wolffsohn JS, Calossi A, Cho P, et al. Global trends in myopia management attitudes and strategies in clinical practice - 2019 Update. *Cont Lens Anterior Eye*. 2020;43(1):9-17.



Contributing Doctor



Prof. James Wolffsohn is a lecturer in optometry and biomedical engineering at Aston University. Prof. Wolffsohn holds a first class optometry degree from Manchester, a PhD from Cardiff University and a clinical/research fellowship at the University of Melbourne, Australia. His main research areas are the development and evaluation of ophthalmic instrumentation, contact lenses, intraocular lenses and the tear film.

 j.s.w.wolffsohn@aston.ac.uk



A Solution for Thirsty Eyes

by Elisa DeMartino

The first recorded mention of our need for tears, and the concept of dry eye, dates back to 1550 BC from an ancient Egyptian medical document called the *Ebers Papyrus*. In it, they referred to tears as “the water within.”

Speaking of Egypt, let's imagine a desert oasis. There's dry air all around, but one obvious factor can relieve that: an oasis with water. In the desert, a quick glance at the surroundings makes it clear why it's arid and where to go next. But with dry eye, the solution isn't as simple — and discerning the topography of the eye requires a more detailed look.

Diagnosing dry eye

Dry eye is a multifactorial disease characterized by unstable tear film. This causes a variety of symptoms and/or visual impairments, and is potentially accompanied by ocular surface damage. There is a key word here: multifactorial.

The numerous conditions associated with dry eye can make it difficult to pinpoint the underlying cause. Indeed, sometimes a patient's dry eye isn't noticeable during regular exams until they experience vision impairment. Unfortunately, many patients also experience dry eye as a result of other conditions involving other organs in the body

(like autoimmune diseases) and, in frustration, are doomed to hop from practitioner to practitioner seeking relief.*

The Keratograph 5M (OCULUS Optikgeräte GmbH, Wetzlar, Germany) provides such an oasis in the desert of dry eye. This advanced corneal topographer, with a built-in keratometer and color camera optimized for imaging, offers a comprehensive eye examination complete with an easy-to-understand report that doctors can use to advise patients.

Benefiting patients

Dr. Pragnya Rao, works as a consultant ophthalmologist specializing in cornea and ocular surface diseases at the LV Prasad Eye Institute (LVPEI) in Hyderabad, India, which has launched a dedicated dry eye clinic for comprehensive care of these patients. Before implementing the OCULUS Keratograph 5M, the clinic was already equipped with LipiView (Johnson & Johnson Vision, Florida, USA)

and IDRA (Clarion Medical Technologies, Ontario, Canada) for tear film analysis and utilizing LipiFlow (Johnson & Johnson Vision) for therapeutic interventions. The team catering to care of dry eye patients also includes a panel of physicians who do detailed workups for autoimmune diseases that are associated with dry eye disease. In other words, all patients undergo a complete, systematic evaluation once they visit the dry eye clinic.

“They work to understand what type of dry eye does the patient have, what is the underlying cause, and if there are any other issues in the body, like a generalized systemic issue, that is causing it,”

Dr. Rao explained. “It's a very holistic approach of treating a patient with dry eye disease. We look at the extent of involvement of the eyes and other organs, and at the same time try to treat both together.”

Almost two years ago, the LVPEI's dry eye clinic added the OCULUS Keratograph 5M. Dr. Rao asserts that it's been a great addition to the capacities of their practice. The most appreciated element of the machine for the clinic is the amount and variety of information it measures. “We are able to image the oil glands that are present in the eyelids,”



she expounded. “At the same time we’re able to get a more objective measurement of the dynamics of the tear film on how fast it’s breaking up, with non-invasive tear break-up time assessment.”

The JENVIS Pro Dry Eye Report in the Keratograph 5M offers metrics for tear film, lipid layer, tear meniscus height, meibography of the upper and lower eyelids, and a conjunctival redness scan (R-Scan).

Topographical measurements include keratometric data and surface analysis, including Fourier and Zernike analysis, keratoconus screening and curvature, and other analyses for daily practice — even outside of dry eye needs.

“If you have a practice where you do a lot of refractive surgery and contact lenses — and you want to start off with having dry eye assessment — I think this is a very good machine,” she added.

This Keratograph 5M is also designed for fitting contact lenses. The device’s multi-purpose topographer is very useful for evaluating the tear surface before performing refractive surgery on patients; it may also be of interest to optometrists because it helps in contact lens fittings, especially in multifocal contact lenses, said Dr.

Rao. It additionally simulates the transmissibility of oxygen through soft lenses — which is of key importance when evaluating dry eye symptoms among lens wearers — via its Oxi-Map® function.

...and patients alike

Dr. Rao and others at LVPEI appreciate that the machine’s testing includes a user-friendly report. The summary is color-coded and graphically represented, which helps the patients to understand their condition; this also helps the clinic to follow-up with them post-therapy. These reports help patients understand their status, their individualized recommendation therapy, and can be a helpful tool to remind them of their treatment in a multifactorial approach.

“The reports have been very useful in counseling my patients,” said Dr. Rao. “I can tell them, ‘these areas are the healthy zones ... but you’re slightly at the borderline ... or you’re falling into that zone where the tear film is not looking really good,’ so that they understand.” The tool is especially helpful in explaining to dry eye patients how much improvement to expect with treatment, as they need to understand that the condition cannot

always be drastically improved or cured altogether based on its underlying cause.

For ease of study, imaging and color-coded topographical charts are available and can be compared side-to-side within the program.

Quench dry eyes — and a variety of testing needs!

Perhaps the main advantage of implementing the OCULUS Keratograph 5M is its versatility. “It definitely gives a very good and comprehensive evaluation of dry-eye,” concluded Dr. Rao, adding that for the price, the machine delivers a lot of data. “If you want to do a basic evaluation and you don’t want to have too many machines in the clinic, then this is the instrument that you would want to have.” 🍷

Contributing Doctor



Dr. Pragnya Rao pursued her fellowship in cornea and anterior segment at LV Prasad Eye Institute, Hyderabad from the year 2016 to 2018. She worked at the Regional institute of ophthalmology (RIO) of Andhra Pradesh before starting her fellowship training and subsequently joined LVPEI. Her areas of clinical interest are advanced corneal diseases, infections and cataract, with a special interest in ocular surface diseases like chemical burns (LCSD), immunological diseases (Steven Johnsons syndrome, ocular cicatricial pemphigoid) and ocular allergy. Her areas of surgical expertise are in corneal transplantation (PK, DSAEK, DALK), artificial corneal transplantation (KPro), stem cell transplantation (SLET), cataract, LASIK and laser refractive surgeries, corneal trauma and various other ocular surface procedures. She has a focused interest toward the management of dry eye disease and ocular allergy, in terms of both clinical and research work. She has presented at various, state, national and international forums and is dedicated to delivering her best in the medical care of her patients.

 drpragnyarao@lvpei.org



Keratograph 5M



Seeing Green

Sustainable Eyewear in Asia

by Elisa DeMartino

No doubt about it, the COVID-19 pandemic has been rough on businesses, and on small businesses in particular. With the masses unable to go out and shop, large enterprises with well-established online shopping systems have thrived while many smaller companies perished.

Local companies that were flexible with their digital advertising, online shopping and organization, however, have managed to stay afloat through the crisis.¹ Thanks to their creative social media marketing — and with many consumers tired of throwing their money at behemoths that don't really need it — demand has surged for locally and responsibly produced merchandise. And reports show that the desire for locally sourced products will continue after the pandemic, too.²

The eyewear industry is no exception to this trend. Although the majority of frames are produced in China for large corporations,³ plenty of bespectacled folks are looking for locally-made products with something special to offer, whether they are hand-made, eco-friendly, or otherwise unique compared to mass-produced options. Social media, and Instagram in particular, has become a hub for this online shopping surge of specialty items.

New opportunities

Sustainable glasses — especially sunglasses — are no new thing, but the pandemic opens new doors for companies offering a wider selection. With many people nowadays unable or unwilling to be physically present

at an optometrist for glasses try-on, now is an opportunity for these specialty crafters to receive exposure online, where they won't have as much competition from the typical stock sold in optometrists' offices and department stores.

At the same time, lockdowns persist globally, requiring longer hours in front of a screen and indoors focusing on close-range objects. Demand is rising for blue light lenses, computer glasses and reading spectacles, even from people who have never worn glasses.⁴

Going green

Asia is often a hotspot of popular trends and innovative fashion, and while the eco-friendly trend has flourished in Europe and North



America, earth-friendly consumerism is taking off a bit more slowly in and around Asia.

Fortunately, the region doesn't disappoint in eco-friendly eyewear, despite how obscure it may appear. Even with the looming competition of mass-produced frames, small businesses shine by relying on their products' unique features and environmental benefits. We've put together a short list of eye accessory brands which focus on reducing human waste impact on the planet.

Hong Kong-based "OKIA"

This integrated eyewear label of some 20-plus-years introduced its sustainable eyewear line in 2019. According to their website, OKIA's objective is to create innovative glasses and related accessories designed around market trends and the use of diverse materials.

OKIA's sustainable glasses project includes frames upcycled from water bottles turned into recycled polyethylene terephthalate. They say that five water bottles will help to make one pair of frames, which they've branded as Reshape Eco Eyewear.

Interestingly enough, they also produce biodegradable sun lenses with UV protection and clear lenses for demo glasses. Once the lenses have served their purpose, the material will take up to five years to biodegrade in a landfill.

Even the packaging is earth friendly: The glasses come in plastic bags that also compost in five years.

Singapore-based "Monocle"

Sustainability comes in many forms, and it's not always about the company's materials but their practices. It's perfectly fine to prefer glasses (and their price point!) made

from the regular metal; in this case, plastic cellulose acetate that is plant-based and more environmentally-friendly than petroleum based plastics.

According to their sustainability page, Monocle has eliminated all unnecessary and nonbiodegradable packaging. This is notable because plastic packaging is actually responsible for almost half of total global plastic waste.⁵ Monocle pursues eco-friendly policy in its details, promising to recycle and reuse any wasted or demo glasses — as well as printing its gift cards not on plastic, but on seed paper that can be planted. Additionally, and perhaps most compelling for potential buyers, for every pair of glasses sold the company plants a tree through the One Tree Project in Indonesia and the Philippines.

The label offers sunglasses and regular prescription glasses.

Japan-based "Roots"

Roots' one-of-a-kind frames are handmade from regional specific bamboo growing in Kyoto. What's fascinating about their website is they describe the production process in detail, from harvesting the plants to the finishing touches of the glasses, including adding bamboo nose-pads.

In addition to offering visuals of the bamboo and crafting process, the company talks about the frames being more lightweight, slip-resistant, and durable than alternatives.

Hong-Kong based "22 degree eyewear"

22 degree, calling itself an experimental eyewear brand, offers several lines of handmade spectacles and sunglasses with an emphasis that style doesn't have to disappear when sustainability enters. For instance, they write on their website that the P Series glasses use "non-environmental

pollution materials" that are sustainable and biodegradable in line with the brand's concept.

The company advertises that compared to other companies, at 22 degree more of the materials used are recyclable; to make recycling even easier, customers can send old glasses back directly when they've gotten their use out of them.

Sustainability means leaning local

The companies above are put forth as a small handful to serve only as an example of the variety of sustainable eyewear options cropping up in Asia. Because sustainability and mass production don't typically go hand-in-hand, it's somewhat difficult to determine whether large corporations are operating in an earth-friendly fashion; hence the focus on small businesses. While these stores have interesting products, we can't personally vouch for any of them. If you're looking to get into local, eco-friendly products, we encourage you to see what's available in your country, too! 🌱

REFERENCES:

1. For A Business To Survive The COVID-19 Crisis, Flexibility Is Key (And That's Not Going Away). Entrepreneur Middle East website. Available at: <https://www.entrepreneur.com/article/354840>. Accessed on April 6, 2021.
2. COVID-19 is Reshaping the Consumer Goods Industry. Available at https://www.accenture.com/_acnmedia/PDF-127/Accenture-COVID-19-CGS-Pulse-Survey-Research-Wave-4.pdf. Accessed on April 6, 2021.
3. Bonior J. Seeing Through the Lens: American-made Eyewear. Aug 2015. Available at <https://www.americanmanufacturing.org/blog/seeing-through-the-lens-american-made-eyewear>. Accessed on April 6, 2021.
4. Global Market Study on Eyewear: Increasing Sales through Online Channels Augmenting Market Growth. <https://www.persistencemarketresearch.com/market-research/eyewear-market.asp>. Accessed on April 6, 2021.
5. Ritchie H, Roser M. Plastic Pollution. Sep 2018. Available at <https://ourworldindata.org/plastic-pollution>. Accessed on April 6, 2021.



Even with photochromic lenses, we do not recommend staring directly into the sun.

Protecting Eye Health with Photochromic Lenses

by Jillian Webster

The eye comes equipped with its own photosensitive protection: the cornea and the crystalline lens. They help to filter a lot of the UV light encountered in a regular environment; however, there are situations where extra protection is needed. For example, it takes a few minutes for our eyes to adjust to midafternoon sunshine after a couple of hours in a dark movie theater. Often people will reach for their sunglasses on their way out of the building to avoid that intense response to significant light increases.

However, many people with optical refractive errors can not simply put on their drug store shades or expensive sunglasses. Most spectacles are transparent to visible light and offer no extra protection. But with the development of photochromic lenses in the past decades, optometric patients

now have several options that increase the eye's ability to cope with light variations on a daily basis.

There have been many developments in photochromic lenses, from fashionable pink tinted glasses to UV resistant contact lenses. These lenses obviously provide a useful function considering their continued popularity. However, they did not initially capture the market. Just like with all new optical technology, there were many improvements and reimaginings along the way.

How it started

The history of spectacles begins in the 10th century and there have been approximately 1.3 billion eyeglass-wearers since the initial invention.¹

There has been steady progress in the development and improvement of spectacles. Photochromic lenses were a great leap forward in the field of protective eyewear, combining style with practicality.

The trend toward photochromic lenses seems intuitive. In higher income countries, consumer trends tend towards convenience. Darkened lenses are already worn by most people when outside on a sunny day. Spectacle wearers have the option of having a pair of clear lenses and a pair of prescription sunglasses. For many though, obtaining and carrying two pairs of lenses — if they plan on moving from low light to intense light situations — is a burden. Photochromic lenses offer an alternative.



How they're made and who makes them

Photochromic lenses were made commercially available as early as the 1960s. These lenses were made from glass and used silver halide crystals to provide a darkened appearance when activated. This also allowed the lenses to revert to a clear state once they were no longer activated. Plastic photochromic lenses, created using spiropyrans, spirooxazines and naphthopyrans, were then made available in the 1980s using a process in which spiroindoline photochromic dye was inserted between several coatings of polyurethane on the surface of polycarbonate lenses. This allowed for a uniform tint density across the lens.¹ Plastic photochromic lenses did not find commercial viability until the introduction of Transitions Lenses in 1990 from Transitions Optical (Florida, USA).

According to their patent, Transitions Lenses were intended to provide photochromic lenses with a relatively long user life while being commercially marketable, lightweight and comfortable. They also developed a method of imbuing the lenses which photochromic chemicals in a way that would allow them to be used by patients with various kinds of refractive errors — and thus, expanding the realm of photochromic lens possibility.

Transitions Optical has since been the leading company for photochromic lenses and they continue to develop and produce new innovations in specific light filtering. They are now developing, in partnership with Johnson & Johnson

Vision (Florida, USA), ACUVUE® OASYS with Transitions™. These are contact lenses with photochromic technology. This expands the total market and shows the ever-evolving world of optics, refractive treatments and ocular safety.

Benefits and drawbacks

The human eye has struggled to adapt to certain levels of increased illumination. Though the eye has some built in functions that respond to increases and decreases in light, the eye still requires extra protections in certain environments. Sunglasses have been used for decades as eye protection and they have been made fashionable by Hollywood stars like Marilyn Monroe and Audrey Hepburn. They are in themselves a statement of independence, worn by spies and socialites alike.

Naturally, individuals who are being treated for refractive errors also want to be fashionable while protecting their eyesight — and clear lenses aren't always enough. Therefore, adding filtering via a photochromic lens significantly increases subjects' abilities to cope with intense broadband and shortwave lighting conditions and to adapt back to normal.² Photochromic lenses are an answer to this need.

However, photochromic lenses do not function equally in all conditions. Each lens has an expiration date and can be affected by environmental factors. Researchers have studied the differences of photochromic lenses in warm and cold temperatures and

found that “there are significant differences in the optical properties of the photochromic lenses in terms of an absorbance at a shorter wavelength, a lower transmittance, a higher optical density, optical blocking percentage ratio, and luminous transmittance at the cold as compared to the warm temperature.” They recommend that patients be informed of these potential limitations, such as increased fading rate variation that may occur in different environments.³ It may be necessary for the patient to use another form of refractory correction in the extreme cold, for example.

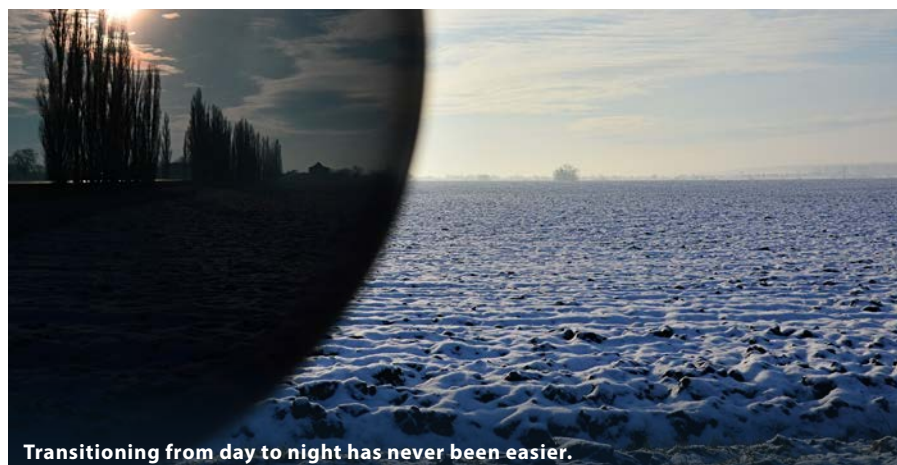
Despite some limitations, most wearers of photochromic lenses find them to be useful and are satisfied with their experience. The reason individuals tend to wear protective eyewear (sunglasses, photochromics) outdoors is likely driven, in part, by increased comfort and some measurable benefits to visual performance.¹ Photochromic lenses are popular for the same reasons that sunglasses are popular and there are now more alternatives for those with refractory conditions.

The future

Photochromic lenses protect eyes from harmful light and may reduce the instances of sun exposure-related eye degeneration. On top of all that, they now come in hundreds of different styles. Transitions Optical has been joined by more companies around the globe, such as Corning Optical (North Carolina, USA) and Hoya Vision (Bangkok, Thailand), to produce innovation in photochromic technology. With these companies' improvements and new products, the future looks bright ... and there is no need to worry if you have your photochromic lenses. 🍷

REFERENCES:

1. Pillay R, Hansraj R, Rampersad N. Historical Development, Applications and Advances in Materials Used in Spectacle Lenses and Contact Lenses. Clin Optom (Auckl). 2020;12:157-167.
2. Renzi-Hammond LM, Hammond BR Jr. The effects of photochromic lenses on visual performance. Clin Exp Optom. 2016;99(6):568-574.
3. Moon BY, Kim SY, Yu DS. Differences in the optical properties of photochromic lenses between cold and warm temperatures. PLoS One. 2020;15(5): e0234066.



Transitioning from day to night has never been easier.



OPTOMETRY'S FRONTIERS

FROM EDUCATION IN AFRICA
TO MYOPIA IN ASIA

by Andrew Sweeney

The image we all have of the Wild West is a little one-dimensional — this is understandable, given the steady stream of western movies churned out by Hollywood. These usually depict cowboys or pioneers battling for territory with Native Americans: Think John Wayne (permanently smoking a Marlboro cigarette) facing off against a tribe wearing warpaint and feathers. Often, the indigenous inhabitants were painted in the broadest strokes and associated with totem poles, powwows, peace pipes and scalping.

There was, of course, far greater depth and variance to the Native American people. Yet no matter how much Hollywood might try to compensate for its historic inaccuracies, the cultural damage is done and the public perception is fixed. Indeed, most people would find it hard to differentiate

in any meaningful way between North America's original inhabitants and those portrayed in movies.

And so too is the public's perception of the differences between ophthalmologists and optometrists — if they're aware of any differences at all. In the lay community, there is considerable ignorance about each, including what each involves. However, we cannot blame cowboys or Hollywood for this ... and the huge differences in optometric practice around the world don't help either.

Separating your optometrists from your ophthalmologists

A recap is in order for those who are new to optometry, or perhaps have a slightly foggier mind. According to the American Academy of Ophthalmology (AAO), the primary difference between

an ophthalmologist and an optometrist is that the former are medical doctors who are trained in medical school and receive an MD; ophthalmologists undertake four additional years of specialized training in eye care. On the other hand, optometrists in the U.S. receive an OD degree (or doctorate of optometry) by attending optometry school for four years and are not required to undertake postgraduate training.¹

Now, before you think that this sounds different to the optometry training or education you're aware of, you may be right. The AAO is, after all, an American organization that is speaking about the training medical personnel receive in the U.S. — most countries have their own education systems and traditions. The Academy's definitions are perfectly accurate, but different countries have their own routes to becoming an optometrist.



Optometrists who learn their trade in the U.K. for example, study for a General Optical Council approved degree, usually for around three years; this is followed by a 12-18 month probationary period. In Hong Kong, it takes five years of education and training to become a qualified optometrist at Hong Kong Polytechnic University; however, they do recognize qualifications from other countries. In Israel, a country that has become a leading innovator in eye-focused healthcare, there are two schools of optometry that offer four year academic degrees.

Balancing the local and the international

Can these myriad systems and education processes meet the demands of an increasingly interconnected global discipline — and one that requires every optometrist to possess the same core competencies?

At present, the direction of optometry appears positive, with growing awareness of the differences from ophthalmology and considerably increased communication between clinicians and others thanks to the growth in online events. According to Prof. Peter Hendicott, president-elect of the World Council of Optometry, the optimal future is found at the nexus of balancing local concerns and international standards.

“Optometry needs to ensure that, across the world, it has the relevant competencies that will enable it to broaden

its scope to participate most fully in the health care delivery system in a particular country, and also at international level, aligning with and participating in the international health agenda,” said Prof. Hendicott.

“In many countries, optometry is well prepared for its role in this space and is ready to contribute to the management of this increasing burden of disease. In other countries, a wider role for optometry in improving healthcare outcomes will require legislative change to reflect changes to optometric education to equip future optometrists with the necessary increased skills required to prosper,” he said.

71 optometrists for 3.2 million

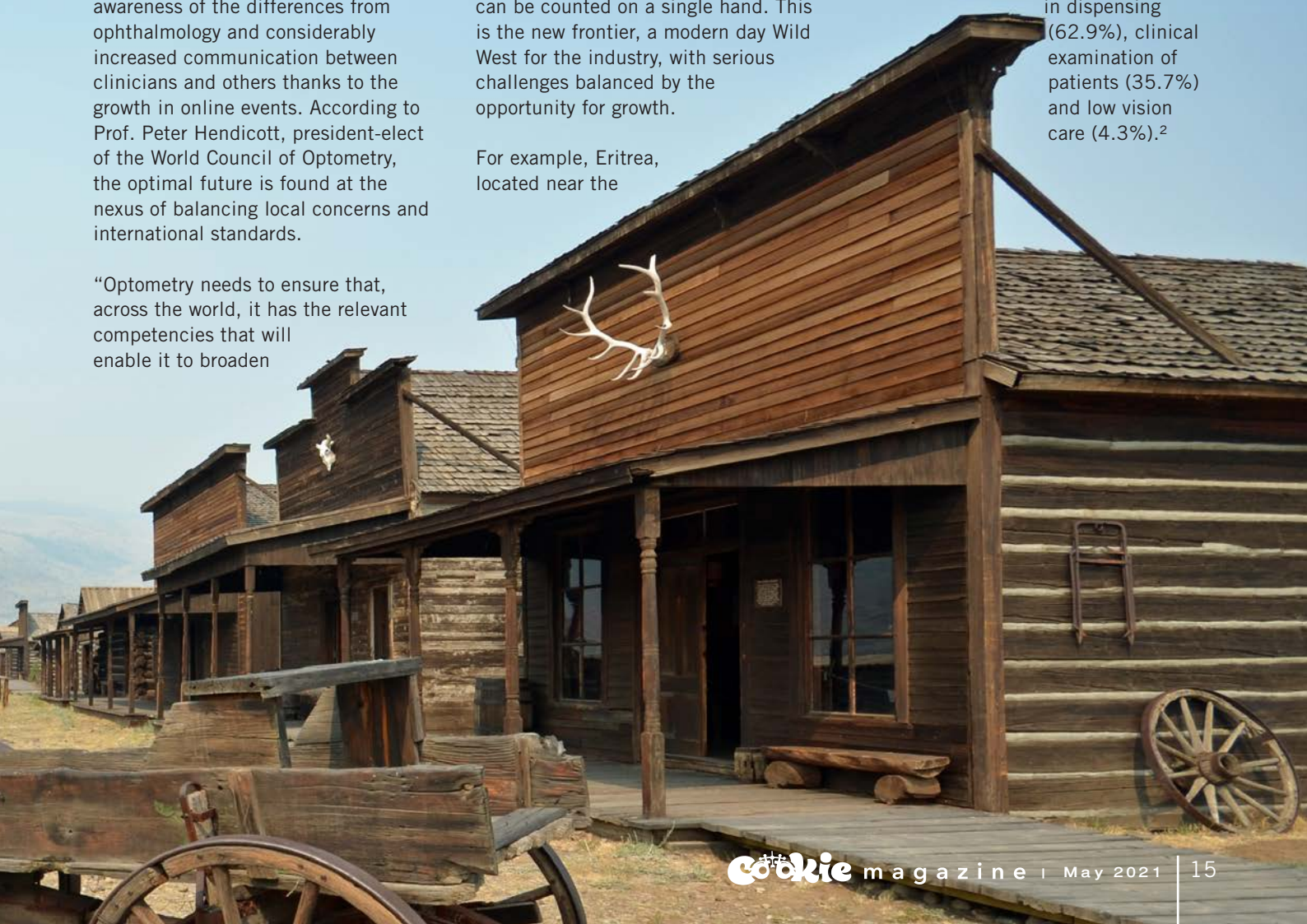
The challenges Prof. Hendicott refers to are particularly acute in developing nations where general healthcare infrastructure is lacking, with optometry even more so. This is particularly noticeable in Africa, where in some countries the number of optometrists can be counted on a single hand. This is the new frontier, a modern day Wild West for the industry, with serious challenges balanced by the opportunity for growth.

For example, Eritrea, located near the

Horn of Africa, is a benighted country even by African standards. It is run as a military dictatorship that has been described as a local version of North Korea, characterized by a cult of personality, human rights abuses and military conscription for nearly all young adults. A difficult environment in which to work in any industry, perhaps even more so in the medical field.

Starting in 2009, a program was launched to provide optometry technician (OT) training over a two year period to bridge the gap of care in Eritrea. Carried out in conjunction with the School of Optometry and Vision Science at the University of New South Wales in Sydney, Australia, *Practice Scope and Job Confidence of Two-Year Trained Optometry Technicians in Eritrea* found that 94 OTs had graduated by the end of 2016, and 71 (75.5%) were involved in the country's eye care services. Four of six regions in the country lacked the required number of OTs to meet the recommended ratio of 1 refractionist per 50,000 people (in a country of 3.2 million), and many reported they had little experience

in dispensing (62.9%), clinical examination of patients (35.7%) and low vision care (4.3%).²





"Education and mentorship is how we can improve optometry practice in developing regions, as well as by providing access to advanced equipment in diagnosing medical and eye conditions, like optical coherence tomography (OCT) and biometry scanning. We can achieve this either via donations or by providing further education," said Sydney, Australia-based optometrist Dr. Oliver Woo, an expert with more than 22 years of experience. He also pointed out that Wild West-esque frontiers are not just geographic — rather, scientific development also offers a glimpse into undiscovered country, too.

"At the moment, the hottest topic in optometry is myopia management. And we are seeing the development of more effective, scientifically proven products and equipment that enable us to manage myopia with great results. Myopia is a global issue and we are on the frontier of it," Dr. Woo said.

We are probably staring at screens too much

Our glimpse into the education and training of Eritrean doctors highlighted one particular challenge global optometry faces — the exponential increase in myopia is another. Rates have increased so quickly that up to 90% of 18-year-olds in East Asia are myopic and 10-20% are highly myopic. It is estimated that by 2050, the frequency of myopia worldwide will increase to 50% and high myopia to 10%, with high myopia set to become the most frequent cause of irreversible blindness due to its association with myopic maculopathy and glaucomatous optic nerve atrophy.³

Technology is playing a greater role in treating conditions like myopia, as well as preventing them from happening in the first place. We all became familiar with the term "telemedicine" during the COVID-19 pandemic, and while there may be some subject fatigue in this field, there is no doubt that it will play a serious role in optometry in the coming years. This is particularly the case during the diagnosis stage.

"The use of these diagnostic technologies will improve eye care, and coupled with the use of telehealth and the development of lower cost and portable diagnostic technology, this will also increase the reach and availability of high quality eye care across the world," said Prof. Hendicott.

"This is applicable across all regions of the world. Reduced access to eyecare is not just a developing world problem. It happens in populations within developed countries as well," he added.

It's looking sunny Down Under

There are frontiers — and then there are *frontiers* — for example, a person living in Eritrea's capital Asmara may face different troubles compared with a myopic patient from rural China. This does not minimize the problems faced by one individual over another, but rather highlights local specificities and issues. In an increasingly global industry, however, we should consider which regions are getting it right and how they can serve as an example to the wider optometry community.

It is perhaps fitting that this article has taken on something of an antipodean theme as Australia's collective identity is of a tough, frontier society, the British Empire's very own Wild West. The country has changed over the years but it still serves as a frontier in optometry, not in its undiscovered potential, but rather as a place that pushes the boundaries of what's possible. According to Dr. Woo, his country's optometry experience can serve as a good example for the international community.

"Australia leads the way in the Asia and Pacific region; we have access to many therapeutic and diagnostic products and can provide the best professional eye care to the public. Proper and well-planned tertiary education for optometry, which we have in Australia, is needed in some countries in Asia," said Dr. Woo.

"Australian optometry can be a role model in

practicing optometry for the Asia-Pacific region and beyond, but education and support from the industry are needed to make this profession grow. Also, government intervention and funding are very important to raise the level of optometry and make it become the gatekeeper for many visual-related diseases," he concluded. 🌞

REFERENCES:

1. The American Academy of Ophthalmology. Differences in Education Between Optometrists and Ophthalmologists. Available at <https://www.aao.org/about/policies/differences-education-optometrists-ophthalmologists>. Accessed on Monday, April 12, 2021.
2. Gyawali R, Bhayal BK. Practice Scope and Job Confidence of Two-Year Trained Optometry Technicians in Eritrea. BMC Med Educ. 2019;19(1):303
3. Jonas JB, Panda-Jonas S. Epidemiology and Anatomy of Myopia. Ophthalmology. 2019;116(6):499-508.

Contributing Doctors



Prof. Peter Hendicott is the president-elect of the World Council of Optometry, starting in October 2021. His research interests include clinical measurement techniques, ocular disease, perimetry, and binocular vision. He is former head of the School of Optometry and Vision Science at the Queensland University of Technology, and previously practiced in Hong Kong.

p.hendicott@qut.edu.au



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, and contact lens fitting of orthokeratology and specialty contact lenses. Dr. Woo has been actively participating in the continuing education conference of the IAOA 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.

sydneyorthok@gmail.com

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



FAST
Get all the measurements in 3"



ACCURATE
Suitable for adults and kids



MULTIFUNCTIONAL
Widest range of Application



FRIENDLY
Easy-to-use and patients friendly



PORTABLE
Take it everywhere



SAFE
Safety Working distance > 1 m

THE VISION ATLAS

During the United Nations Friends of Vision Group meeting in February 2021, the International Agency for the Prevention of Blindness (IAPB) officially launched its Vision Atlas. These are its key messages.*



1.1 BILLION

people have vision loss primarily due to lack of eye care services

90%

live in low- and middle-income countries

73%

are over 50-years-old

55%

are women





By

2050

this number will rise from **1.1 to 1.7** billion due to population growth and aging.



90%
of vision loss is preventable.



Global economic productivity loss from unaddressed poor vision:

\$411 B
annually



Poor eye health leads to a **2.6X** increased risk of mortality.



Children with vision impairment are **5X** more likely to have poorer educational outcomes.

LEADING CAUSES OF PREVENTABLE

VISION LOSS INCLUDE:



Uncorrected refractive error:

161 M

Distance vision loss

510 M

Near vision loss

8.1 M

Age-related macular degeneration

100 M

Unoperated cataracts

4.4 M

Diabetic retinopathy

56 M

Other causes of vision loss

“Eye health is simple and cost-effective and makes a real difference to people's lives. As we build back health services post-COVID we need to make sure it is included.”

Dominic Haslam, deputy CEO for Sightsavers.

* The Vision Atlas brings together data from the Vision Loss Expert Group, the WHO World Report on Vision, country-level monitoring data, and the The Lancet Global Health Commission on Global Eye Health. It has been sponsored by Allergan (an AbbVie company), Bayer, Seva Foundation, Sightsavers, CBM and The Fred Hollows Foundation. Hundreds attended the virtual meeting, which was organized by the UN Ambassadors from Antigua and Barbuda, Bangladesh and Ireland, with an address by H.E. Volkan Bozkir, president of the UN General Assembly. For more on this meeting, see the full story on www.piemagazine.org.



Women in Optometry

Then and Now

by Chow Ee-Tan



In optometry, women have come a long way from the days when they were grossly underrepresented due to social and gender barriers.

Historically, a woman's path to pursuing a career in optometry was hampered by many barriers. This included social pressure and stereotypical opinions, unequal access to participate in social organizations, discriminatory experiences, concerns with practice patterns, as well as discrimination in placements upon graduation.

Today as women gain more equality in academic and career opportunities, the numbers and the positions occupied by women optometrists are not only increasing — and in some parts of the world, they have outnumbered their male counterparts.

The American history

The March 2019 edition of *Optometric Education*¹ documented the historical trends of women in optometry and celebrated contributions by women to the profession in the United States.

Around 1899, Gertrude Stanton was reported to become the first licensed female optometrist. She was soon followed by Millie Armstrong. In 1898, two women were charter members of the American Association of Opticians, which later became the American Optometric Association (AOA).

In the past 50 years, women in optometry have made huge strides. By 1968, only 368 women were optometrists in the United States, representing 2.1% of active

optometrists in the country at the time. In the 1970s, women still accounted for a very small percentage of practicing optometrists.

Then, the percentage of women enrollees in optometry school began to grow in the 1980s: from 19% in 1980, to 44% by 1989. This decade also saw women benefiting from fading stereotypes regarding which careers they should pursue. In particular, 1992-93 was a pivotal academic year when women became the majority of students enrolled in optometry schools.

This shift in the profession's demographics toward women has continued to grow. In 2014, women made up 38% of the profession and 39% of AOA members.

From an *AOA Focus*² article in March 2019, the Association of Schools and Colleges of Optometry (ASCO) data show that female optometry students have outnumbered males for at least the past decade. In the 2017-18 academic year, there were 4,830 females and 2,294 males enrolled as full-time doctor of optometry students at U.S. schools and colleges of optometry.

And according to the data from AOA's Survey of Optometric Practice, in 2016, female doctors accounted for 43% of practicing doctors of optometry, up from about 29% in 2009. And many more women doctors owned practices in 2016 (39.1%) than in 2009 (20.5%).

In recent years, 65 to 75% of optometry students have been women. While male ODs (Doctor of Optometry) tend to be practice owners as 74% of owner/optometrists are men, the number of female practice owners is also growing.

Indeed, from optometry schools to private optometric practices, to the AOA Board of Trustees, women are better represented in optometry than ever before.

Today, more women are also members of optometric professional organizations. The 2018 annual report



of the American Academy of Optometry (AAO) noted that approximately 40% of fellows and approximately 63% of candidates for fellowship are female.

Dr. Joan Exford became the first female president of the AAO in 1993 and in the last decade, more women leaders have become role models and continue to inspire other women leadership roles. Dr. Karla Zadnik was the president of the AAO in 2011, followed seven years later by Dr. Barbara Caffrey in 2018. Dr. Dori Carlson became the first female president of AOA in 2011, and Dr. Andrea Thau was elected to the role in 2016.

To learn more, *COOKIE* magazine spoke to two luminous women optometrists from the United Kingdom and the United States on their professions and aspirations.

Famous firsts

In 2001, Professor Shahina Pardhan became the first woman to be appointed as a professor of optometry at Anglia Ruskin University in the U.K.

Born in Tanzania, Dr. Pardhan moved to Yorkshire when she was 18 and went on to graduate with a first-class degree in optometry from the University of Bradford. After receiving a scholarship from the College of Optometrists, she completed her doctorate in 1989. She joined the University of Bradford in 1994 where she was the only Asian female lecturer.

“My parents were not educated — my mother had no schooling and my father had only four years of primary school. However, they believed in education and worked extremely hard so that we could all go to school and university.

“Out of eight children, seven of us have university degrees and some have postgraduate degrees. We have doctors, pharmacists, optometrists and accountants in our family,” shared Dr. Pardhan.

Now, as Director of Vision and Eye Research Institute at the School of Medicine at Anglia Ruskin University, Dr. Pardhan is responsible for leading the Institute’s direction, as well as its

activities. The Institute was awarded world-class scores at the Research Excellence Framework (REF2014), which is a national exercise that grades the research profile of all universities in the U.K.

Dr. Pardhan wore glasses from an early age and she knew people who lost sight from reversible blindness — and she wanted to try to redress that, in any way she could. Among others, her fields of specialization include working on factors that influence the risk of sight-threatening retinopathy in different parts of the world.

“We have designed culturally and linguistically appropriate training to reduce the barriers affecting good diabetic control and to increase the uptake of retinal screening. I also work on how visual impairment impacts activities of daily living — especially gait, and reaching and grasping; and how auditory cues are used by people with low vision,” she said.

Dr. Pardhan also loves research. She likes designing new projects and the brainstorming behind them, including the “good challenges” like when data does not fit the hypothesis and leads to a thorough rethinking.

She admits that her career journey has been hard work and frustrating at times.

“When I was younger, there were patients who said they wanted to be tested by an older experienced man. Occasionally, I used to think that I have to be better to be an equal, but much less so now as things are improving,” she continued.

In a December 2017 issue of *Optometry Today*³, Dr. Pardhan shared that gender imbalance still exists within academia in the U.K., although in 2015–16, there were more female doctoral students than males.

“However, less than half of female doctoral students go on to take up research positions”, she said. “Of the nine optometry schools in the U.K., 83% of professors are male, while only 17% are female.”

On her first day as a lecturer at University of Bradford, Dr. Pardhan

was told that she “couldn’t go into the staff common room because secretaries weren’t allowed.”

“Yes, it was one of the examples of unconscious bias that we all have to be aware of,” says Dr. Pardhan. “As it is ‘unconscious’ it is difficult for the person to know that they are engaging with it. Self-awareness and training can help.”

Among the accolades that she’s received are the famous Asian Woman of Achievement Award in 2001 and the Asian Jewel Award in 2005.

“I think Asian women have a much better profile than previously, but there may be some who still have not been recognized for the wonderful and meaningful work they do,” she said.

She believes that the challenges women optometrists face are the same across the world — primarily, balancing the demands of a job and home life/ childcare.

“This is why it is so important to take into account the time taken off from work to bring up children when promotions are being considered,” she said, adding that there shouldn’t be any limitations in career fields for women. Women are just as capable as men in whatever they choose to specialize in. And she believes that the future of women in optometry is bright — very bright indeed.

Forward-thinking futures

Dr. Kristie Nguyen, an optometrist based in Orlando, Florida, USA, wears many hats.

She is an independent consultant with Rodan + Fields, and serves as a contract Doctor of Optometry for Perez and Associates, Phan-Tastic Eye Care and Dr. David Feenstra. The latest feather in her cap is brand ambassador for Kazoku Lunettes, a Japanese eyewear company.

Her passion for eye care began because she wanted to help people see clearly to enhance their day-to-day life.

The eldest of seven children, Dr.



Nguyen graduated in the top 10 of her high school and finished college with a Bachelor in Science from the University of Houston. She obtained her Doctorate in Optometry in 2005.

"During graduate school, I envisioned opening my own office after I graduated. But the reality was that I needed money after graduation to get married and pay my student loans," she shared.

"I worked instead as a contractor at multiple locations. I quickly learned that private practice wasn't for me. The cost to break even for most doctors was five years at the time. I preferred the flexibility of contracting and I have never looked back."

She says her consultant role is similar as that of an optometrist, except Rodan + Fields is all about skincare and helping people feel more confident in their skin.

"My focus is to help curate a special skincare regimen to target the concerns my customers have and to obtain healthy, beautiful skin to make them feel and look confident. I also help empower men and women who want to earn extra income to share in this business opportunity," she explained.

Meanwhile in optometry practice, pediatrics and contact lenses are her passion.

"I've worked 7.5 years with special needs kids. Each patient's visual demand is different, therefore each patient who I fit with contact lenses is unique. Listening and learning what they need for their visual system on a day-to-day basis allows me to better select the best combination of contacts for them," she explained.

Dr. Nguyen met Michael Nicolas, head designer and CEO of Kazoku Lanettes, at the Vision Expo East in New York in

2019; he approached her a few months later and asked her to be their brand ambassador.

"This is due to my large following on social media, especially LinkedIn. I loved his bold and beautiful collection so I was happy to accept the role," said Dr. Nguyen.

As a working mom, she has had to learn to prioritize her time each day and makes the most of what she has.

"When I'm physically at work, I use any pockets of free time to work on all of my other businesses. When I get home, I try to maximize the time I have with my family. Sometimes it can't be helped, for example if I have an hour-long Zoom presentation, but now I actually have more free time with my family than when I was working only as an optometrist," she said.

Some challenges include having big corporations pushing doctors for more hours or more patient numbers. "Quantity often reduces quality due to lack of sufficient time spent per exam. Insurance is another problem. Changes in a patient's benefits often lead to them having poor understanding of their coverage," she said.

She admits that female optometrists don't get paid the same as their male counterparts, and it's the same for other professions.

"We still don't get the same level of respect. A few of my male patients would inappropriately address me as hun, honey or darling," said Dr. Nguyen. "But I can only count a handful of times in my 15 year career when a patient refused to see me because I was a woman, but never because I was Asian. I'm grateful in this regard," she said.

In the U.S., dry eye, specialty contact lenses, myopia control and

aesthetics are a few fields that female optometrists can specialize in, she says. However, she thinks that there aren't any real advantages for one gender.

"Currently, I think there are just as many female optometrists as men, if not more. The stats shifted years ago. The profession is also becoming younger and more female. So, women are very much the future of optometry," she concluded. 🧐

Contributing Doctors



Professor Dr. Shahina Pardhan qualified with First Class Honors in Optometry from the University of Bradford. In 2001 she joined Anglia Polytechnic University as the first female professor of Optometry in the U.K. She is director of the Vision and Eye Research Institute (VERI). Dr. Pardhan led the successful Research Excellence Framework 2014 for Allied Health Professions which resulted in 100% of VERI's profile being rated as world class, internationally excellent (82% rated as world class/internationally excellent). The impact and reach of VERI's research activities was rated as 100% world class and internationally excellent. Dr. Pardhan is a recipient of the Asian Jewel Award in the Health Care and Education category (2005), the Asian Women of Achievement Award - Professions category (2001) and the first Ismaili Award for Excellence in the Postgraduate category (1992).

✉️ shahina.pardhan@anglia.ac.uk



Dr. Kristie Nguyen is a board-certified optometrist. She graduated with a Bachelor in Science at the University of Houston and obtained her Doctorate in Optometry in 2005. She currently serves as a contract Doctor for Perez and Associates, Phan-Tastic Eye Care and Dr. David Feenstra. Dr. Nguyen has been the Executive Board Member of Optometry Divas for the past 2 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's the US Ambassador for IMAGINEM magazine and the board member of COOKIE magazine, both of which are optical related.

✉️ kristie817@gmail.com

REFERENCES:

1. Denial A. Editorial: A Look Back: Celebrating Women in Optometry. *Optometric Education*. Winter/Spring 2019; 44(2). Available at: www.journal.opted.org/article/a-look-back-celebrating-women-in-optometry. Accessed on April 10, 2021.
2. The Future is Female. *AOA Focus*. March-June 2019. Available at: www.aoa.org/news/inside-optometry/aoa-news/the-future-is-female?sso=y. Accessed on April 10, 2021.
3. Powell S. First female professor of optometry on workplace sexism. *Optometry Today*. December 19, 2017. Available at: www.aop.org.uk/ot/in-practice/practitioner-stories/2017/12/19/first-female-professor-of-optometry-on-workplace-sexism. Accessed on April 10, 2021.



Remembering a True Friend of Philippine Optometry

by Carmen Abesamis-Dichoso

Every so often, we meet people who profoundly impact our lives. This is the story of one of those people, Dr. Luigina "Gina" Sorbara, who sadly passed away on February 10, 2021. Gina was a true ally in the world of optometry. Below is a tribute written by her close friend and fellow optometrist, Dr. Carmen Abesamis-Dichoso.

I first met Dr. Luigina "Gina" Sorbara on my first trip to the U.S. in 1991. I had just come from Europe on a Rotary International fellowship to attend a meeting of the Association of Contact Lens Educators at Ohio State University. It was there that Gina approached me; she asked whether I was planning to visit anyone in the U.S. or Canada following the conference. I said "yes," as I had planned to visit my brother, who is a lawyer in Toronto, (Ontario, Canada). She then suggested that I visit the School of Optometry at the University of Waterloo, which was just a short drive away from Toronto. This brief conversation was the beginning of a long, mutually fulfilling relationship, professionally and personally.

I accepted her invitation and so we met at the UW School of Optometry. Here, Gina gave me the grand tour, unbeknownst to both of us that soon afterward, I would be undergoing the IACLE (International Association of Contact Lens Educator) Fellowship Program there at her bidding. This fellowship would turn out to be a high point in my development — both as an optometrist and educator. And Gina was there with me at every turn.

As our professional relationship grew, we also enriched each other's personal lives. I got to know her husband Ben and their two adorable kids, Gerry and Emmy. Gina and her family also got to know my brother in Toronto, who on more than one occasion, visited their home in Milton, Ontario to pick up items to donate to the school where I was teaching. In exchange, my brother

would bring her adobo, a Filipino dish she had come to love.

Gina was able to come to the Philippines several times to share her expertise and experience as an academic and a researcher. In one of her many trips, she visited several cities in the country to witness the state of optometric education and offer her insight for continued development. In these instances, when I expressed frustration at the very slow pace of reform, she would encourage me by saying, "change takes time."

During another visit, she remarked on how mature the optometry graduates were in the Philippines, noting that they had gone through the new six year curriculum mandated by the new optometry law — which incidentally, my brother actually spearheaded before he immigrated to Canada.

Her relationship with optometry in the Philippines continued. In August 2015, Gina delivered a lecture during a conference organized by the Optometric Association of the Philippines. Then in 2016, Dr. Keren A. Fernandez and Dr. Margaret O. Felix had the rare

opportunity to spend time as research observers at the School of Optometry at the University of Waterloo. Gina was instrumental in arranging this special placement. These two optometrists are now practicing in the Philippines and have participated in an international research grant in optometry. In June 2019, the Optometric Association of the Philippines organized its 20th Asia-Pacific Optometry Congress in Manila. Never wanting to pass up an opportunity to help Philippine optometry, Gina readily accepted an invitation to be a Keynote Speaker.

The last time I saw Gina was in November 2019 at the International Specialty Contact Lens Society conference held in Rome, Italy. She was one of the major lecturers; I presented a paper on keratoconus. We had a grand time reminiscing.

The news of Gina's passing caused immeasurable grief to myself and my family, including my brother in Toronto who had gotten to know the Sorbaras quite well. The restrictions brought about by the pandemic have made things tougher for Gina's family — now, there are limited opportunities for us, as well as Gina's other friends and colleagues, to share both time and space during their time of grief. But even as our thoughts and prayers go out to them, we are comforted by the fact that, in our lifetime, we were able to experience the warmth and joy of knowing Gina.

Goodbye, Dr. Sorbara. 🍀



CLOCKWISE:

Luigina "Gina" Sorbara, OD, MS Optom, FFAO, Diplomate, AAO Cornea and Refractive Section, School of Optometry, University of Waterloo (1953-2021).

Dr. Gina Sorbara with Filipino optometrists and educators during an Alcon event in 2014.

With Gina at GSLS Las Vegas



Never Lose Your Reading Glasses Again

Presbyopia Drops are Coming

By Jillian Webster

Once a certain age is reached, presbyopia is almost unavoidable. Indeed, the deterioration of near vision is one of the most common optical ailments affecting the over 40 population. There are a number of treatments available for this condition, including reading glasses, contacts and corrective surgeries. However, for a large part of the past decade there have been efforts to develop a topical treatment for presbyopia to help limit the need for corrective lenses and surgical procedures.

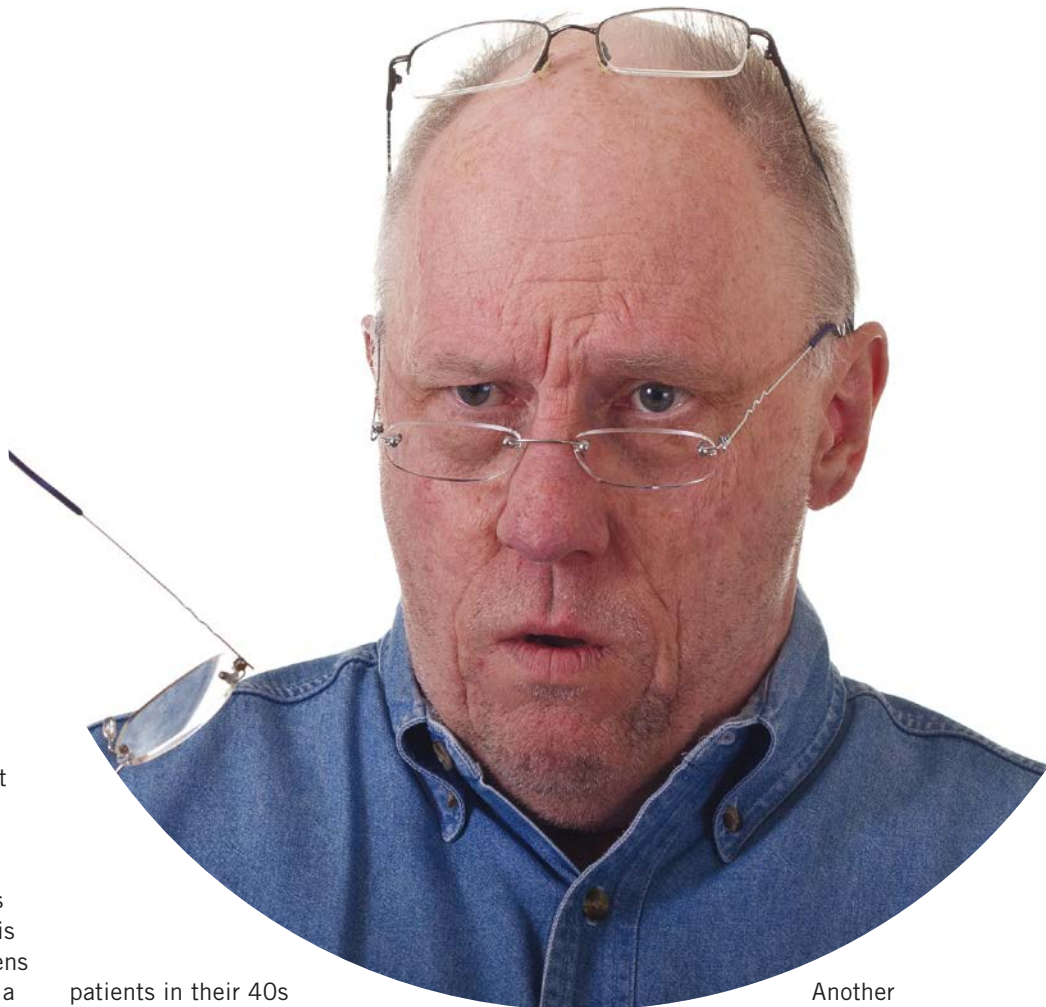
There are a few theories as to why presbyopia develops. Over time there is a change in the power of the optical lens. One theory suggests that the shape of the lens — changes in diameter and curvature — results in the increase in power of the lens. Another theory suggests that changes to the pliability of the lens causes this power increase. Spectacle, contact lens and surgical treatments for presbyopia have significant drawbacks, but the development of eye drops could make treating this common condition more convenient and less invasive.¹

Data shows drops work

A recently published eight year, retrospective study² from Benozzi et al., concluded that “presbyopia drops [one bottle of pilocarpine and diclofenac preservative-free eye drops], self-administered twice a day, seems to be sufficient to give spectacle independence for near visual tasks, in people with emmetropia with presbyopia.” The authors added that this is an efficient treatment for

patients in their 40s until their 60s; it was deemed viable as an alternative to lenses and surgery.

Further, the authors continued that topical treatment can be viable in treating presbyopia. In their study, patients administered drops twice a day. After eight years of follow-up, the large majority of patients showed little to no adverse effects. They stated, “all of the patients achieved remarkable improvements of UNVA (uncorrected near visual acuity), and UDVA (uncorrected distance visual acuity) was not clinically affected.” Thus, patients experienced relief from an inability to focus on near objects, while distance vision was unaffected.



Another study³ showed “a progressive improvement in near vision with topical lipoic acid choline ester (UNR844) treatment during the 91 days of dosing.” This study showed that this treatment improved the sight of the trial subjects with minimal adverse effects. These trials are exciting indications of the future viability of topical presbyopia treatment.

On adverse events

Of course, there are some adverse effects to taking the drops. A number of patients in some clinical trials experienced burning once the drops were administered; however, most did



not end the trial because of this.² With any topical treatment there is the risk of discomfort, but the good news is that the drops studied in clinical trials to treat presbyopia seem to only have caused minor discomfort. There is also concern regarding the effect these drops might have on distance vision.

Unfortunately since topical treatment of presbyopia is still in its clinical trial phase, there will need to be a lot more research done before there is a clear idea of what the long-term effects will be.

The future is coming into focus

This treatment has the potential to change the world of optometry. Most clinical trials of presbyopia topical treatments have shown successful improvement of near vision with only short term and limited negative effects. If these drops continue to show consistent benefits then the option to treat presbyopia without lenses or surgery would be a massive achievement. Several companies have taken up this challenge and many new treatments may be available by the beginning of next year.

The front runner is Allergan, an AbbVie company (Zurich, Switzerland),

which has just submitted their topical presbyopia treatment for FDA approval. The treatment, AGN-190584, works by constricting the pupil (or miosis), and enhancing depth of focus on near objects. Clinical trials have shown success with limited adverse effects and there is significant hope regarding endorsement.

Another drop that has been developed is PRX-100. This treatment was developed by Presbyopia Therapies in San Diego, California. The company uses a miotic agent which constricts the pupil. This may prevent any harm to the patient's distance vision because there is no accommodation.⁴ The company reported phase 3 FDA clinical trials began in 2020.

Eye Focus (OSRX Pharmaceuticals, Montana, USA) also utilizes the process of miosis. However, this product uses a combination of medications in order to produce the desired effect, restricting pupil movement. The combination, including pilocarpine, phenylephrine, pheniramine and ketorolac, function together to preserve distance vision while improving near vision. Because this treatment uses a combination of medication, it is not subject to the same FDA scrutiny. This means that Eye Focus may become available without having to wait for the approval of the FDA.⁴

While many companies are focused on miosis, Novartis (Basel, Switzerland) has taken the lens restoration approach to presbyopia treatment. Novartis partially funded a recent study on topical lipoic acid choline ester eye drops.³ These drops work by softening the lens so that the effects of presbyopia are minimized. Though results of long-term use are still unknown, there is potential that this treatment might reverse age-related lens hardening.

There are many companies now actively researching presbyopia eye drops. It is likely that they will become a viable optometric option in the near future. Not only are there topical treatments that correct pupil function, there are also treatments that soften the lens and thus combatting the processes of eye aging. This healthy competition ensures that the products that are approved and accepted by eye care specialists will offer the greatest benefit to the patients. This will also give optometrists another avenue in which to connect with their patient and provide continued care.

Looking toward the future, topical presbyopia treatments will likely become a safe alternative to surgery and lenses. They will also decrease the stigma around a presbyopia diagnosis. In the near future, their patients will no longer be limited to invasive surgery or cumbersome lenses, they will be able to live more comfortably based on the ingenuity of pharmaceutical companies and of their optometrists. 🍷

REFERENCES

1. Grzybowski A, Markeviciute A, Zemaitiene R. A Review of Pharmacological Presbyopia Treatment. *Asia Pac J Ophthalmol* (Phila). 2020;9(3):226-233.
2. Benozzi G, Perez C, Leiro J, et al. Presbyopia Treatment With Eye Drops: An Eight Year Retrospective Study. *Transl Vis Sci Technol*. 2020;9(7):25.
3. Korenfeld MS, Robertson SM, Stein JM, et al. Topical lipoic acid choline ester eye drop for improvement of near visual acuity in subjects with presbyopia: a safety and preliminary efficacy trial. *Eye (Lond)*. 2021;Jan 29 [Online ahead of print.]
4. Davidson J, Kimbro P. Coming soon: Presbyopia-correcting eye drops. *Modern Optometry*. 2020 Sept. Available at www.modernod.com/articles/2020-sept/coming-soon-presbyopia-correcting-eye-drops. Accessed on April 24, 2021.





Save Sight and Stay Safe with Simple, Smart Screening Solutions

By Brooke Herron

Tongue-twisting titles aside, we have a massive, global problem: According to the WHO, 2.2 billion people have vision impairment or blindness. Of these, more than 1 billion could have been prevented or have yet to be addressed. Add the ongoing COVID-19 pandemic to this issue and it becomes clear that sustainable solutions are needed.

Fortunately, with the development of artificial intelligence (AI) and related technologies, we are getting closer. Thanks to companies like Adaptica, which is part of He Vision Group (Shenyang, China), there are now simple, smart, fast, portable AI devices to detect refractive errors and visual defects. With these devices, Adaptica wants to close the gap between people with ocular impairments and those that could have been prevented.

According to Adaptica's Director of International Sales Vasileios Skountis, the Padua, Italy-based company is an industry pioneer thanks to its use of tech, AI and cloud storage, which combine to form solutions — rather than just products — with the “fastest ROI in the market.”

“Our ambition is to revolutionize the standard way to perform eye examinations by developing easy to use, AI-based technologies that guarantee a complete exam anywhere in the world through our global consolidated distributor network,” said Mr. Skountis, adding that this is all made possible using the company's EyeROBO® AI platform.

“AI is the best solution to perform exams in a more efficient and cost-effective way, making the highest

quality health care services accessible to all,” he shared.

And this is where two Adaptica devices — 2WIN and Kaleidos — could have a noticeable impact. Both have the same purpose: to measure objective refraction and vision problems in real life vision conditions. Both are portable and can be used anywhere. However, similarities aside, their usage is entirely different.

Streamline mass screenings with Kaleidos

A big advantage of Kaleidos is that it can be used by anyone — no optometric training is required. It works best in high light conditions which makes it ideal for outreach projects, or in schools and other mass screenings; however, it can also be used in clinics and hospitals.

The device serves as a darkroom: To obtain measurements, the patient looks into a dark tube. The test is non-invasive and

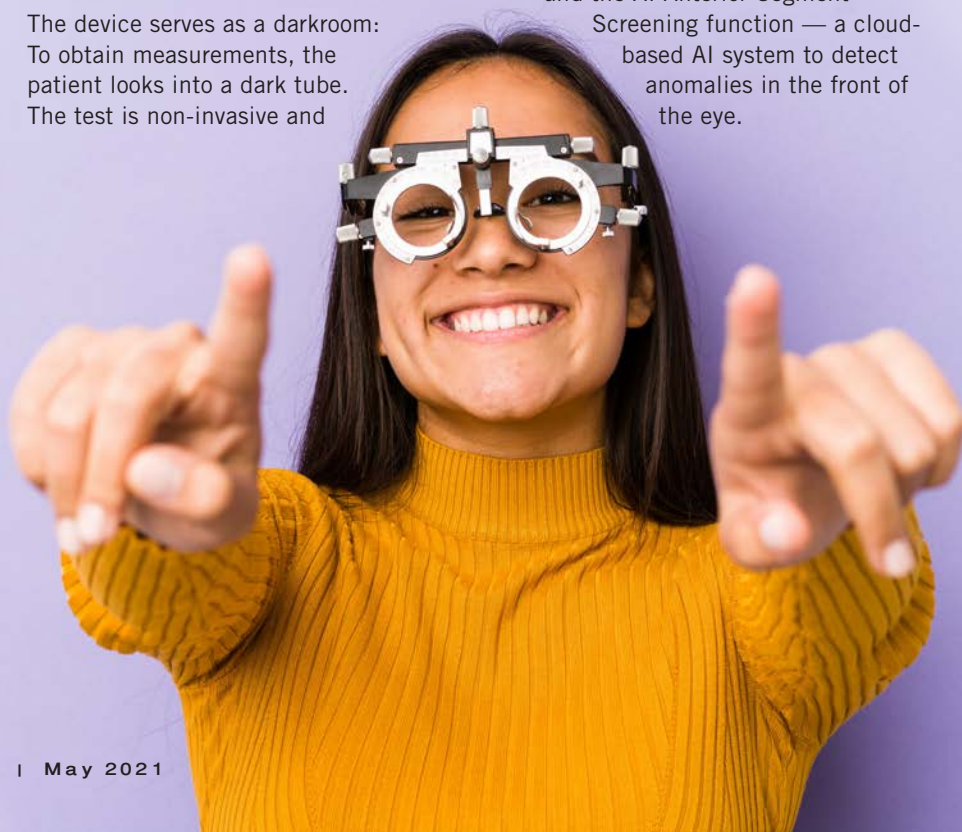
results are obtained quickly — in less than 3 seconds — which saves both time and money.

Kaleidos is certainly beneficial to doctors, but these measurements — which can detect a variety of parameters — can be taken by anyone. “For example, inside a clinic, while the patient is in the waiting room, he can do the measurement with an assistant, so the doctor already has the objective refraction as a starting point for the final prescription for the glasses,” explained Mr. Skountis.

“The application is fully automatic and easy to use, the operator just needs to follow instructions to proceed with the measurement,” he continued.

Further, with the Kaleidos Plus configuration, screenings can be even more effective using EMR integration and the AI Anterior Segment

Screening function — a cloud-based AI system to detect anomalies in the front of the eye.





2-WIN is a clear win in daily practice

On the other hand, 2WIN is indicated for use by skilled operators, like pediatricians, ophthalmologists, opticians and optometrists. It works in dim-light conditions, making it more suited to clinics, hospitals and private practices. The device can be configured for several applications, including: corneal reflex readings, lens centering, dynamic pupil response and VDUs distance indications — and compared to the competition, it has the most applications.

“For this reason, the device is the perfect ally for ophthalmologists, opticians and optometrists in their daily practice,” said Mr. Skountis.

Of all the 2WIN's added features, the most advantageous is the CR-App, said Mr. Skountis. The CR-App is only available on Adaptica devices (including Kaleidos) and it helps analyze corneal reflexes using documented information of phorias and tropias (horizontal and vertical) up to 30 prism diopters. The CR-App also compares the position of

the corneal reflexes in three different measurements (one binocular and two cover tests under an IR occluder).

Another major advantage of 2WIN is its versatility. It can be used on any patient — including infants and those who are non-cooperative or disabled — thanks to the device's employment of sound, light and images to help attract the patient's attention. Patients with postural problems can also be measured with 2WIN thanks to an interior gyroscope allowing it to acclimate to tilt. In these cases, it also will measure the correct cylinder axis.

Solutions for safe screenings during COVID-19

So, how does Adaptica assist eyecare professionals and patients in this challenging time? It's simple, according to Mr. Skountis: “By producing devices that have never needed close proximity between the patient and technician.”

Using Kaleidos, operators can maintain a safe 1-meter distance from patients, thanks to remote tablet control. “With this device, subjective refraction

can be performed in the fastest way possible, while respecting all sanitary recommendations from the WHO,” he said, adding that both Kaleidos and 2WIN are completely portable which makes home visits feasible.

For more on Adaptica and its product catalog, visit www.adaptica.com or email contact@adaptica.com.



Helping the people who need it most

Adaptica, along with He Vision Group, is involved in numerous non-profit screening initiatives around the world to provide eye care screening, as well as preventative care and treatment, to the people who need it most.

“Together, we can contribute, provide access and give them the chance to identify and correct refractive errors, strabismus and amblyopia,” said Mr. Skountis.

In 2020, Adaptica was approved to become a standard supplier for the IAPB (International Agency for the Prevention of Blindness), which is a list used by NGOs to source the best equipment for their needs.

“Adaptica cooperates with several NGOs all over the world and we are really proud that our devices can contribute so much in helping improve people's lives,” continued Mr. Skountis.

Kaleidos is also a great tool for prevention, and can be used to raise awareness about good vision. For this reason, Kaleidos is often used by NGOs for mass screening projects “During one project on the Amazon River, one of the NGOs we cooperate with was able to screen almost 900 patients per day,” shared Mr. Skountis.

And that's just one project — now, imagine the impact these devices could have on those 2.2 billion people suffering from vision impairment or blindness...



2WIN



2WIN can be used on patients of all ages.



No optometric training is required to operate Kaleidos.



Kaleidos



Spotlight on Malaysian Optometry

by Chow Ee-Tan

According to a report titled, *Malaysia Eyewear Market By Type (Spectacles and Contact Lenses), By Sunglasses and Eyeglasses and By Sales Channel - Outlook to 2021*,* Malaysia is among the countries in the world where vision impairments like myopia, hyperopia and presbyopia are rising at an alarming rate. Largely owing to the increased demand for prescription glasses, the eyewear market in Malaysia grew at a CAGR of 6.4% from 2011 to 2016.

Malaysia's optometry industry has come a long way, said President of the Asia Optometry Congress Datuk Murphy Chan, who is also advisor and former president of Association of Malaysian Optometrists (AMO).

He said that in the past, optometry was viewed more as a business than as a profession. Today, people are more aware of the role of optometrists and the differences between the three

"O's" — optician, optometrist and ophthalmologist.

"The perception of the public very much depends on how optometrists conduct their professions," he explained. "With the emphasis on the sale of spectacles and contact lenses and discount offerings, the optical industry would run into the danger of deviating to retail."

Chan says besides the support of professional associations such as the AMO, the involvement and support of the government is also very important.

Growth in optometry graduates

According to Dr. Tan Xuan Li, honorary secretary of the AMO, optometry is a relatively new profession in Malaysia. The number of eye care practitioners in the country has evolved from less than

100 in the 1990s to nearly 3,000 today.

"The increased number of optometrists has brought up the level of eye care service and delivery in the country. Unlike older days, vision testing is mostly conducted by opticians and assessment of eye health is not covered," she said.

There are currently about 2,700 registered optometrists in Malaysia, but the number of practicing optometrists is fewer.

As per the report from Malaysia's Ministry of Health in 2015, the ratio for optometrist per population in the country was 1 to 22,460 — compared to 1 to 8,000 in developed countries. Thus, more optometrists are needed to ensure sufficient eye care services to the community.

Chan is optimistic. "The WHO recommended a ratio of 1 to 10,000



for optometrist to patient. Therefore we need about 3,200 optometrists to serve the population. There are six universities that are producing qualified optometrists so I am confident that in three years, we can reach the number.”

A qualified optometrist in Malaysia would have gone through a four-year bachelor degree in optometry. He or she is required to register with the Malaysian Optical Council in order to practice legally in the country.

Tan believes optometry graduates will be in high demand in terms of job recruitment and entry salary. Those who further their education with master degrees and PhDs can go into different secondary specialties, such as specializing in orthokeratology, binocular vision or eye muscle problems and color-vision.

Raising eye care awareness and standards

In Malaysia, it is important to continue to raise public awareness on the services provided by optometrists, which includes a comprehensive eye check-up and ocular disease detection.

Private optometrists should be encouraged to undertake continuous optometry education programs in order to keep abreast with the ever-evolving technology in eye and vision care. More optometrists in the government hospitals and clinics should be recruited to improve more comprehensive eye care services in Malaysia

“Continual education is a must. The knowledge that you know today may be obsolete tomorrow. Thus, optometrists must constantly upgrade their knowledge and skills,” said Chan.

Chan’s optometry center Eyecon was established in 2010 with the support from co-founders/optometrists who believe in re-branding the optometry practice toward a more professional and innovative approach. His eye care group also runs an academy to train their team with continual education.

Meanwhile, Tan says the AMO has been working very hard toward raising the awareness of the profession and has worked closely with the Ministry of Health since 2016. Plenty of efforts have been exerted to improve public awareness in the profession by the AMO via campaign, social media and public screening.

As an association that represents all optometrists in Malaysia, the executive committee of AMO seeks to work together to promote the roles of optometrists for eye care and vision care in Malaysia.

“Among the efforts to achieve this objective is collaboration with universities, industrial partners, media, local and global association and practitioners,” said Tan. The association has also organized international conferences such as Global Orthokeratology & Myopia Control Conference (GOMCC), Asia Optometric Congress, and public awareness campaigns, like National Eye Health Awareness Campaign (NEHA).

She says among AMO’s outreach programs include providing many free large-scale vision screenings across the nation, many are in collaboration with NGOs (e.g., Lions Club and Rotary Club).

“There have also been numerous invited projects for less fortunate groups like old folks homes, orphanages, underserved populations, etc. to request services for vision screening,” says Tan.

Chan applauds the AMO’s effort in organizing programs in education and public campaigns. With the support of the government and with local institutions producing more optometrists, he believes that the optometry movement is gaining momentum and will have a bigger voice.

“It’s all about collaborations — optometrists need to work with the government and our industrial partners, and also to have all members from every state to participate,” he said.

Challenges and advances

One of the challenges faced by the optometry industry, says Tan, is that the level of service delivery varies from one practitioner to another, as there is no standard or minimum for clinic’s set-up.

“Also, there are no regulations on the mandatory test for eye examination. Thus, not all patients will be provided with full eye examination and it is due to unavailability of equipment or lack of time,” she said.

In Malaysia, optometrists are prohibited to use drugs, either for diagnostic or therapeutic purposes. Tan opines that the level of eye care to the public could be improved if optometrists could access diagnostic drugs for cycloplegic refraction or prescribe drugs for minor infectious eye conditions like conjunctivitis.

“The Malaysian Optical Council and the AMO are pushing for the legal use of drugs for these purposes for the past five years,” she said.

Chan says the government has to step up its enforcement, such as to uphold the Medical Device Act and not allow



A young boy gets an eye exam in Kuala Lumpur.



the selling of products such as contact lenses outside optical centers.

“We also need a clear Optical Act to differentiate the scopes of optometrists, opticians and ophthalmologists. A revamp of The Optical Act 1991 is long overdue and we are trying to get the government to amend it,” he says.

Tan says the AMO has pushed for the revamp of the Optical Act 1991 with effort from its Council's representatives for the past few years.

Future outlook

Malaysian optometry is one of the more established in the region, said Chan. The first Asia Optometric Congress was founded by Malaysian optometrist Dr. Chung Kah Meng in 2007 and it was expanded to ASEAN countries when the bi-annual conference was held in Singapore in 2014. It now includes many Asian countries and territories including India and China.

“The Congress' objective is: Asians helping Asia. We want to uplift the standard of delivery of eye-care in the region and standardize primary eye-care delivery of optometrists across the region.”

He says the most important specialty today is myopia control.

“By 2050, half of the world's population will be myopic. One billion of the world's population will have prescriptions of more than 5 diopters. That means we have a higher risk of having cataracts, glaucoma, retinal detachment and macular degeneration.

“Myopia is the number one health problem in Malaysian schools today. One in three primary one students is short sighted and another one has not been detected,” he said.

He encourages optometrists to work in a network to inspire and motivate one another, and also to build good working relationships with ophthalmologists and opticians. Optometrists should be trained to handle the primary care of eye health and ease the burden of ophthalmologists, said Chan.

“With the increase in the number of optometry practitioners in Malaysia, we believe more competent and comprehensive services can be provided to the public,” said Tan.

She says the association is working on the “Primary Eye Care E-Symposium,” which is intended to refresh the knowledge and enhance the skills of eye care practitioners in Malaysia, making them prepared to become a primary eye care practitioner.

Like many industries, the COVID-19 pandemic had impacted the optometry industry especially during the Movement Control Order (MCO) implemented by the Malaysia government.

“The Association had appealed to allow operation of optometry practice during the MCO period with the recognition that optometry service is part of essential services. We then established the ‘COVID-19 Response Group’ which later worked out the SOPs for members to adhere to during this period,” said Tan. “Recently, the association has successfully gained recognition from the Ministry of Health (MOH) to categorise optometrists as front liners and to be included under Phase 1 of National COVID-19 Immunisation Programme (NIP).”

Chan views the pandemic as a transformation period, where optometrists can reflect on how they could improve their practices, how to expand their roles and embrace digitalization.

“I see it as an opportunity rather than challenge. When we follow the SOPs properly, we can give our patients the peace of mind. There are a lot of things we can do productively such as planning, communicating with patients, and expanding our network.

“Optometrists must have passion for their profession. The future of optometry depends a lot on the practitioners to get the right footing to ensure that the public will benefit from eye care services and fulfill their lifestyle needs,” he concluded. 🧐

* Ken Research Private Limited. Malaysia Eyewear Market By Type (Spectacles and Contact Lenses), By Sunglasses and Eyeglasses and By Sales Channel - Outlook to 2021. Available at <https://www.researchandmarkets.com/reports/4463208/malaysia-eyewear-market-by-type-spectacles-and>. Accessed on April 2, 2021.

Contributors



Dr. Tan Xuan Li obtained her BOptom (Hons) from International University College of Technology Twintech (IUCTT) and further ventured into MSc (Clinical Optometry) at National University of Malaysia (UKM). Upon completion of her MSc, she was appointed as a lecturer and optometry consultant at the Department of Optometry, UCSI University. Then, she embarked on further study for her PhD in Optometry with UKM. She has since rejoined academia with SEGi University as a lecturer in 2019. Prior to lecturing, she served at UM Specialist Centre as clinician with a pediatric ophthalmologist. Her PhD thesis project was on the establishment and effectiveness of a preschool vision-screening program in Malaysia. She was under MyBrain15 scholarship for both her master's and PhD studies. She has received a research grant for her PhD project from the Centre of Research and Instrumentation (CRIM), UKM and sponsorship from Essilor Vision Foundation.



tanxuanli@segi.edu.my



Datuk Murphy Chan Hian Kee graduated with first class honors with a Bachelor of Optometry from University Kebangsaan Malaysia in 1990. He started his career working with two optical centers. Chan pursued his optometry specialty in Orthokeratology in 1999 and was a member of the National Eye Research Foundation, USA. In 2000, he obtained his diploma from the Varilux University, France, for the specialty in progressive lens design. His optical center Eyecon was established in 2010 to rebrand the optometry practice toward a more professional and innovative approach. In January 2011, Eyecon was awarded with the International Franchise License by the Ministry of Domestic Trade, Co-operatives and Consumerism, Malaysia. Chan is president of Asia Optometric Congress and past president of Association of Malaysian Optometrists (2012-2018). Since 2005, he has been invited by Industry Multinationals as the Asian presenter in providing continual education in this region.



murphy@eyecon.com.my



treatable with current technology and understanding of the advancement of the disease.

Clinical signs and symptoms

AMD has two detectable stages, early and late stage, or it can also be differentiated in another way: exudative or neovascular (wet) AMD and geographic (dry) AMD. The majority of treatments are directed at the wet stage.¹ Seen in older populations, the disease's development in a patient is dependent on a number of factors.

The three main risk factors for AMD are age, genetic predisposition and consumption of nicotine.² AMD is primarily found in patients over the age of 65. According to Wong et al., "Age-related macular degeneration accounts for 8.7% of all blindness worldwide and is the most common cause of blindness in developed countries." Developed countries have less instances of preventable blindness among young people; however, as populations in developing countries age, the occurrence of AMD increases.³

Diagnosing AMD can be difficult. The early stages of AMD are asymptomatic, especially if the fovea, a tiny pit in the retina that provides clear vision, is not yet affected. In general, AMD is characterized by a gradual loss of central vision due to photoreceptor cell degeneration in the macula. The patient should be asked if they are experiencing metamorphopsia, or distorted vision, as this could imply macular disease. Once a patient begins to experience distorted vision, for example, a normally straight line such as a window pane or street line appears askew — it is necessary for the individual to undergo ophthalmological analysis.

In AMD, the natural function of the retinal pigment epithelium (RPE) is disturbed. The RPE is a single layer of mature or post-mitotic cells that regulates how the retina receives nutrients. It is likely that the aging of the REP is strongly correlated with the development of AMD.⁴ AMD is characterized by the accumulation of retinal waste products called drusen underneath the RPE. Drusen is a sign

Spotlight on Age-related Macular Degeneration

by Jillian Webster

As optometrists are often the first to catch sight-threatening disease, in each issue of COOKIE, we'll shine a spotlight on one ophthalmic condition. In this issue we take a look at age-related macular degeneration, including the clinical signs and symptoms and treatment options.

Age-related macular degeneration (AMD) has been increasing in prevalence as the world's population gets older. It's directly attributable to vision loss and poses significant pressure on public health. AMD is recognized as a multifactorial disease, with the complement system under heated discussion recently.¹

The factors that contribute to the development of AMD are still being tested and doctors are improving theories with each clinical trial — for example, there is evidence that AMD is brought on by certain genetic and lifestyle factors. Though there are a number of trials and theories regarding treatment, many AMD cases are not



of AMD and is easily recognizable by ophthalmologists.

Complement system and diagnosis and treatment

The treatment of AMD depends on the stage at which it is detected. A 2019 paper¹ pointed out that it's believed that the complement system is responsible for AMD and thus, it can be used to administer treatment. The complement system is a function of the immune system that enhances antibodies and other biological defenses to rid the body of microbes and damages cells. Complement activation takes part in many neurodegenerative diseases, such as AMD. There is "growing awareness that the complement system plays an integral role in AMD," noted the authors. Many of the current treatments of AMD focus on the complement system and its role in the disease.

The complement system has three pathways that make up a large part of the body's immune system. Complement components "trigger" certain proteins. Drusen testing showed it was made up largely of these proteins, connecting AMD to the complement system. Complement

cascade plays a pivotal role in AMD pathogenesis. Thus, it is probably a fairly potential strategic target for therapy, noted Jiali Wu, the author of the 2019 study.¹

AMD is often treated by repeated injection of anti-VEGF which inhibit the permeability of blood vessels in the affected region. In a 2020 paper, Andreas Stahl said, "this treatment has become a well-recognized therapy for patients with wet AMD." However, there is no effective treatment yet for dry late stage AMD.²

Late atrophic AMD does not respond to treatment. This is because the tissues and blood vessels involved are no longer recoverable due to the advanced stage of the disease. This is common in most diseases that affect the nervous system. In the case of AMD, the retinal photoreceptors have deteriorated to a point where they are no longer recoverable. If treatment is initiated too late, then the treatment is no longer viable.²

With the growing awareness that the complement system also plays an integral role in AMD, there is a surge in immune-modulatory strategies of treatment in recent decades.¹ However, these strategies are far from perfect.

AMD has proven to be a difficult disease to treat due to its initial phases being asymptomatic — and once the disease reaches a certain point in its progression, there is little that can be done.

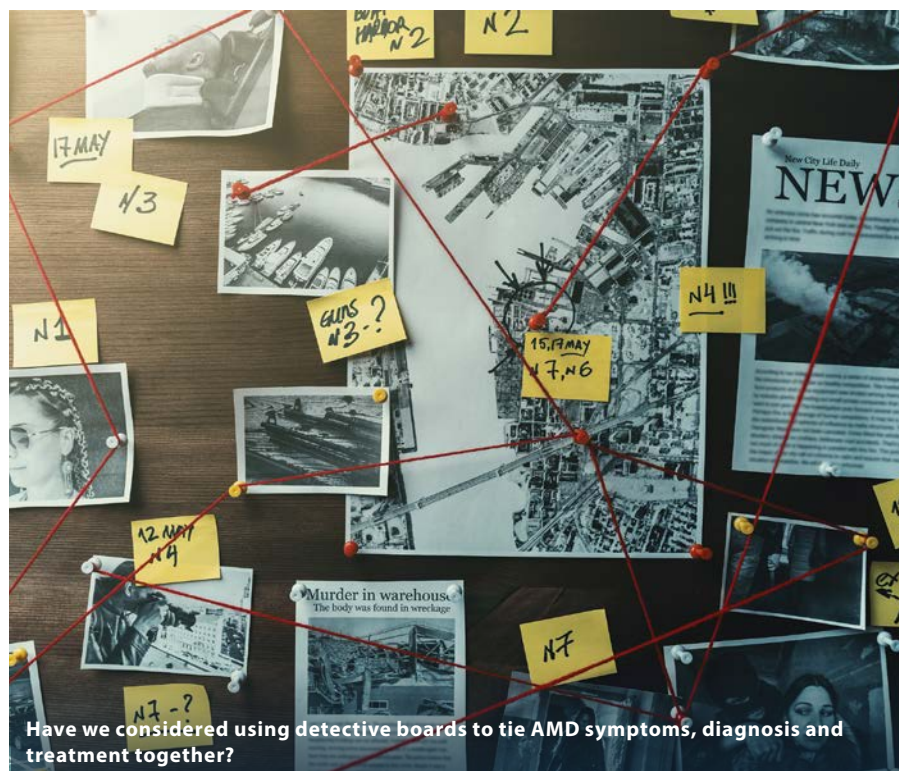
The future of AMD

AMD is expected to become a larger problem as populations in developed countries age. A 2017 paper⁵ said that, "it is known that AMD is the result of a complex interaction of environmental and genetic risk factors." However, treatments are having a hard time keeping up with aging populations. The complement system in AMD has been firmly established, the limited success of clinical trials seem to suggest that the drugs currently tested are not entirely effective. Anti-VEGF is only effective at the earlier stages of AMD and also is difficult to administer, considering problem areas are at the nanometer scale.⁴ It will take many more trials and studies before a treatment for all stages of AMD is properly developed.

Lifestyle changes are strongly encouraged for those in early stages of AMD or with a family history of the disease. Smoking cessation and healthy diet including supplements may stem the onset and severity of AMD.² As new treatments are developed and tested it is important for all, especially the aging populations, to be acutely aware of their eye health and report any abnormal instances of vision to their doctor. 🧐

REFERENCES:

1. Wu J, Sun X. Complement system and age-related macular degeneration: drugs and challenges. *Drug Des Devel Ther.* 2019;13:2413-2425.
2. Stahl A. The Diagnosis and Treatment of Age-Related Macular Degeneration. *Dtsch Arztebl Int.* 2020;117(29-30):513-520.
3. Wong WL, Su X, Li X, et al. Global prevalence of age-related macular degeneration and disease burden projection for 2020 and 2040: a systematic review and meta-analysis. *Lancet Glob Health.* 2014;2(2):e106-116.
4. Boulton M, Dayhaw-Barker P. The role of the retinal pigment epithelium: Topographical variation and ageing changes. *Eye (Lond).* 2001;15(Pt 3):384-389.
5. Geerlings MJ, de Jong EK, den Hollander AI. The complement system in age-related macular degeneration: A review of rare genetic variants and implications for personalized treatment. *Mol Immunol.* 2017;84:65-76.

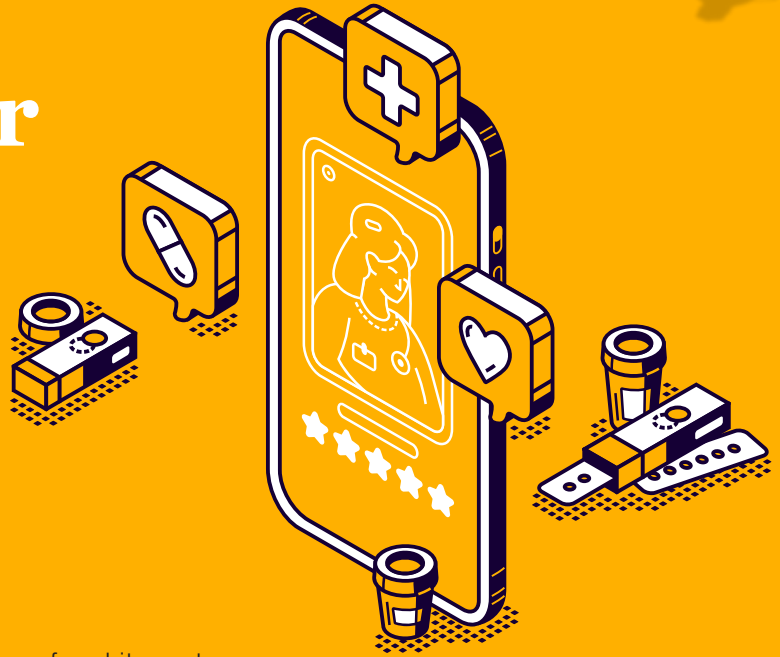


Have we considered using detective boards to tie AMD symptoms, diagnosis and treatment together?



Telehealth for Optometry is Getting Newer and Cooler

By Andrew Sweeney



Have you ever heard of a newly emerging technology in ophthalmology and optometry called telehealth? It is the newest addition to any discerning clinician's repertoire that ... okay, okay, do not worry or adjust your eyeglasses — we know you haven't been living under a rock for the last year.

We will spare you the full explainer on telehealth, but will just emphasize how popular it has become since the start of the COVID-19 pandemic. It has become pervasive and patients are generally supportive, recognizing it can make their medical experience easier and more comfortable. No surprise therefore, that several interesting new technologies are emerging specifically designed for telehealth in optometry.

Marvelous Moorfields

For example, Moorfields Eye Hospital in London (U.K.) has developed the Home Vision Monitor, a smartphone app designed for patients to remotely test and monitor changes in their vision at home.¹ The app is focused on conditions that affect the macula, like age-related macular degeneration (AMD). It uses a "shape discrimination" test where multiple shapes are displayed on a screen with one target shape being different, and the user must identify this shape.

Dispel any image in your mind of wee old dearies struggling to use the app to find the shape — it has proven popular. More than 90% of patients

who used the app found it easy to use, and 85% used it at least once or twice a week, the minimum amount required. Moorfields Eye Hospital said that apps help clinicians decide on the right course of action and can significantly improve outcomes, especially at early stages of disease progression.

There is something in the water

Detecting intraocular pressure (IOP) is also a crucial matter for patients and clinicians alike as this constitutes an early warning system for glaucoma and other conditions. The difficulty of properly checking and monitoring IOP with isolated patients is obvious, yet three researchers from the University of Birmingham in England have postulated a solution. They propose using smartphones to transmit sound waves as a mobile measurement method for IOP.

Dr. Khamis Essa, one of the researchers in the study, said his team has discovered a relationship between the internal pressure of an object and its acoustic reflection coefficient. His study concluded that there is a clear link between the internal pressure of an object and its acoustic reflection; while the internal pressure of an object increases, the reflection coefficient increases at a rate of approximately $1.80 \text{ RC mmHg}^{-1}$ through the range $0.100\text{--}0.200 \text{ m}$ through water.² While recognizing more research is required, the University of Birmingham reports this water test shows the promise of

using soundwaves to monitor IOP.

Now, new telehealth technology is not always smartphone-based and in fact, some even adopt a somewhat low-tech approach. The humble eye chart was adopted by a group of English researchers to create the Home Acuity Test (HAT). A study into this test was carried out from May 11 to 22, 2020 with 50 control participants and 100 adult ophthalmology outpatients who reported subjectively stable vision.

The researchers found that there was "good agreement in the visual impairment category for ophthalmology outpatients (Cohen $\kappa = 0.77$ [95% CI, 0.74-0.81]) and control participants (Cohen $\kappa = 0.88$ [95% CI, 0.88-0.88]), and the mean (SD) difference in visual acuity was -0.10 ."¹ Based on these findings, the researchers concluded that the HAT can be used to measure visual acuity by telephone. The trick will of course be ensuring patients can access printing technology, especially if lockdowns are in place. 🧐

REFERENCES:

1. Crossland MD, Dekker TM, Hancox J, et al. Evaluation of a Home-Printable Vision Screening Test for Telemedicine. *JAMA Ophthalmol.* 2021;139(3):271-277.
2. Essa K, Soanes M, Butt H. Testing the Viability of Measuring Intraocular Pressure Using Soundwaves from a Smartphone. *Engineering Reports.* 2021:e12355.



Eye Innovation Webinar Conjures Up Cool Presbyopia Technology

by Andrew Sweeney



Ang reporting improved visual acuity across all distances, with an average improvement of 0.3 logMAR. Dr. Ang concluded that LSM is a “safe and effective procedure for restoring visual performance.”

Well, maybe ray guns...

Presbyopia is by its nature, a condition that requires long-term patient follow-up and cross-referencing with other conditions. This makes RayPRO particularly valuable as a free mobile and web-based digital platform that proactively collects information for patients. Developed by Rayner (Worthing, England), RayPRO was originally designed for cataract surgeons but has applicability in presbyopia treatment and by optometrists.

RayPRO works by registering patients for up to three years and routinely sends them confidential questionnaires which ask about their satisfaction, spectacle independence, dysphotopsia, and follow-up procedures. Clinicians are then able to see their “patient score,” which Rayner reports is beneficial as it “provides real-time professional insights, and supports accreditation and clinical studies.” The RayPRO includes a Rasch constructed near visual acuity questionnaire which can differentiate between presbyopic corrections. 🧐

Some things in life are just guaranteed to happen: you will pay taxes, you will likely get food poisoning once or twice, and eventually, you will die. It might sound like we are being a “Debbie Downer,” but it is true ... and another sad fact of life is that as we get older, our vision is likely to drop in quality. Presbyopia, the gradual loss of your eye’s ability to focus on nearby objects, is a common side effect of aging.

Presbyopia is enjoying something of a “moment in the sun” recently and has frequently dominated discussion at both ophthalmology and optometry webinars. The 5th Oracles of Eye Innovation webinar, streamed on March 2, 2021, provided some examples of how optometrists are using new technologies to diagnose and treat presbyopia. We often talk about cool optometry at *COOKIE* and this event hit the mark.

After all, is anything cooler than lasers?

Dr. Robert Ang, a senior consultant at the Asian Eye Institute in Manila, Philippines, presented his work on laser scleral microporation (LSM) and its first human trial results. He said LSM is designed to reduce scleral biomechanical stiffness, and improve both ciliary muscle forces on the lens as well as lens shape changes. LSM is designed with presbyopia in mind and involves uncross-linking of scleral myofibrils, restoring the mechanical efficiency of the accommodation mechanism, and improving biomechanical mobility.

Patients selected for the first human studio were aged 48 and over, had a reading add rate of +1.50 D and an astigmatism of no more than 1.0 D. The results were stark, with Dr.

Editor’s Note:

The Oracles of Eye Innovation webinar was held on March 2, 2021. Reporting for this story took place during the event.



- Speciality lenses: OrthoK, Professor Stephen Vincent and Professor Pauline Cho
- Speciality lenses: Sclerals, Dr. Melissa Barnett
- Contact lens complications, Professor Fiona Stapleton
- Medical use of contact lenses, Associate Professor Debbie Jacobs
- Contact lens optics, Dr. Kathryn Richdale
- Future applications of contact lenses, Professor Lyndon Jones
- Evidence-based contact lens practice, Professor James Wolffsohn

“CLEAR is one of the most exciting pieces of research undertaken within the field of contact lenses and anterior eye for several years. We want to ensure as many eye care professionals as possible have access to this body of work,” said Luke Stevens-Burt, chief executive of the BCLA, in a press release.

“It is going to play a major role in this year’s conference and will shape much of the program, with many of the authors presenting their findings. Our members are already guaranteed access to CLEAR with a CLAE subscription inclusive in their membership and we want to give non-members the opportunity to benefit from this research too by registering their place as soon as possible,” he continued.

“This year’s conference will be like no other, with a truly global reach. Going ‘virtual’ gives us the chance to bring CLEAR to every single nation, benefitting both practitioners and patients around the world,” concluded Stevens-Burt.

Until then, interested parties can register online. And of course, *COOKIE* will be there virtually, covering all the conference’s hottest news. Until then, and for more details, visit www.bcla.org.uk.

Groundbreaking CLEAR Report Featured at BCLA 2021

by Brooke Herron

Mark your calendars for this can't-miss event!

The British Contact Lens Association (BCLA) is promising some groundbreaking revelations to attendees at its 2021 Clinical Conference and Exhibition. Held online from June 13-14, 2021 and across various time zones, delegates will have the opportunity to view a “pioneering global consensus report that is set to shape the world of contact lenses and anterior eye for years to come.”

For us at *COOKIE*, that certainly sounds like big news! This report, the *Contact Lens Evidence-based Academic Reports (CLEAR)*, delivers guidance to eye care professionals on all aspects of prescribing and fitting contact lenses as part of a concerted drive to provide the best possible patient care. The report was made available to early bird registrants to BCLA 2021; it will also be published in an upcoming issue of *Contact Lens and Anterior Eye (CLAE)*.

This report was made possible by educational grants from Alcon (Geneva, Switzerland) and CooperVision (California, USA). The report uses the latest information to set standards for researchers and eye care professionals, and also highlights opportunities for future research.

Ten overview papers, compiled by a panel of experts, are included in this report. The topics and panel chairs of each paper are as follows:

- Anatomy and Physiology of the Anterior Eye, Dr. Laura Downie
- Biochemistry of lens materials, coating, comfort drops and solutions, Professor Mark Willcox
- Effect of lens materials/design on the anatomy and physiology of the eye, Professor Philip Morgan

WE'RE NO SOCIETY,
WE'RE THE MEDIA.



expo.mediamice.com

18-19 June 2021, 2-8 PM SGT



MEDIA
MICE