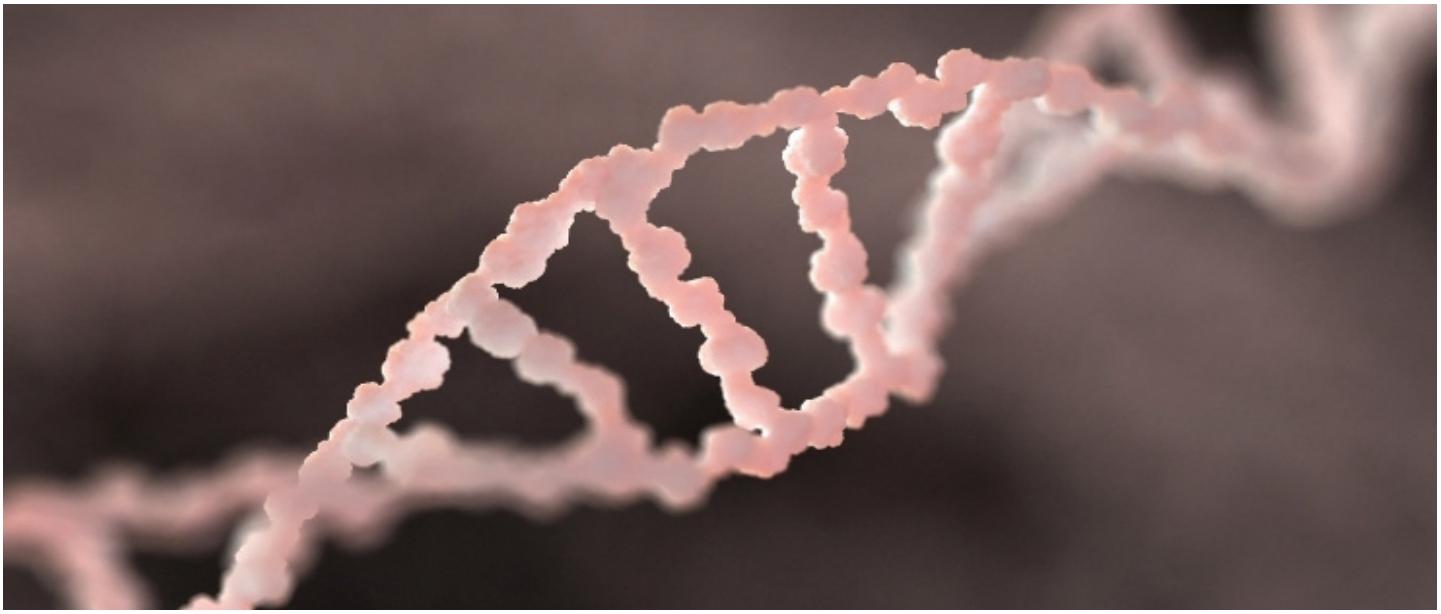
Glaucoma Australia
Saving sight

Glaucoma News

Autumn 2021 / No.80

Our vision is for Australians to be free of glaucoma blindness



Aussie researchers help identify 127 glaucoma genes in largest study of its kind

Australian researchers have been at the fore of the largest genetic study of glaucoma that has identified 44 new genetic variants that may lead to new treatment targets.

Ten Australian institutions involving some of the nation's most prominent glaucoma researchers were involved in the international effort which analysed genes in more than 34,000 people with glaucoma across multiple ancestries for the first time.

The results comparing the genes of people with the disease to 349,321 control subjects were published in *Nature Communications* last month.

In addition to identifying new genetic variants, the international consortium of researchers also confirmed 83 previously reported loci linked to glaucoma. Loci are considered "genetic street addresses", denoting a specific location on a gene.

Lead author Mr Puya Gharahkhani, Associate Professor in the Statistical Genetics group at QIMR Berghofer Medical Research Institute in Brisbane, explained why – for the first time in a glaucoma genome-wide association study – they performed a cross-ancestry comparison looking at genetic data from people of European, African and Asian descent.

They found the majority of loci that contribute to glaucoma were consistent across all three groups.

"Glaucoma rates are highest in African and Asian ancestry groups, but the largest genetic studies of glaucoma in the past focused on people of European ancestry," he said.

"Those studies showed genetic tests could be used to help identify who would benefit from sight-saving early monitoring or treatment, but because of the narrow scope of the genetic data, we

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From the CEO

Hello dear friends and supporters

I hope you had the opportunity to see, hear and share our vibrant new 'Treat Your Eyes' eye health awareness campaign. Our new partnership with Shopper Media resulted in our campaign being displayed in shopping centres across the country and our amazing community helped to share these resources across their networks.

I was delighted to see our eye health message featured so prominently in the media and hope 'at risk' Australians took action by getting their eyes tested for glaucoma. Our Patron, His Excellency the Governor General asked the third of Australians over 50 who do not have regular eye exams to get tested. Ambassador Kirk Pengilly, appeared on television, radio and even climbed the Harbour Bridge to demonstrate how fortunate he is to 'treat his eyes' to the best view in Sydney. He was joined by Kelly Mercieca, who has congenital glaucoma, to ensure our patient centred message remains front and centre of the message we share.

While our community continues to meet virtually for most of our clinician led lectures, it was wonderful to have the opportunity to collaborate with the International Association of Preventable Blindness and Vision 2020 to speak at a live event which was broadcast to a global audience. If you ever miss an online event, feel free to visit our website glaucoma.org.au/glaucoma-tv and watch it at a time convenient for you.

Sincere thanks to those of you who took the time to complete the recent member survey. Our education team are currently supporting thousands of people as they adjust to their new treatment regimen and your feedback only helps measure our impact, it provides hope to those joining our community after recently being diagnosed.

Wishing you all the very best.

Annie Gibbins

CEO

Cover Story

Continued from page 1

weren't sure until now that the genetic indicators were true for people of different ancestries."

Future research will focus on using these genetic loci to improve screening and diagnosis of glaucoma and, one day, to develop new treatments.

"Glaucoma is one of the most strongly genetic human diseases, which is why we are looking at the genetic architecture of the disease to find clues on how to prevent and treat it," Professor Stuart MacGregor, the head of QIMR Berghofer's Statistical Genetics group and co-senior researcher on the study, said.

"We're hopeful that understanding the biological processes and knowing which genes control them could help scientists develop new drugs in the future."

Institutions in New South Wales that participated in the study included the Centre for Vision Research, Department of Ophthalmology and Westmead Institute for Medical Research, at the University of Sydney; Ophthalmology and Vision Science at Macquarie University; and Department of Ophthalmology at the University of Sydney, Sydney Eye Hospital.

In South Australia, the Department of Ophthalmology at Flinders University, and the South Australian Institute of Ophthalmology at the University of Adelaide were involved.

Menzies Institute for Medical Research at the University of Tasmania; the Centre for Eye Research Australia at the University of Melbourne; the Centre for Ophthalmology and Visual Science at the University of Western Australia; and QIMR Berghofer Medical Research Institute in Brisbane were also affiliated with the work.

Leading Australian researchers involved were Professor Alex Hewitt, Professor David Mackey, Associate Professor Paul Healey, Professor Paul Mitchell, Professor Robert Casson and Clinical Professor Ivan Goldberg.

Grants from the National Health and Medical Research Council (NHMRC) of Australia and the Ophthalmic Research Institute of Australia helped support the study.

This article has been republished courtesy of www.insightnews.com.au

Feature

Measuring the impact of COVID-19

Written by Dr Ben Ashby

Close measurement of glaucoma detection at Specsavers has provided valuable insights into the impact of COVID-19 on eye care. The good news is that detection rates for glaucoma and other eye diseases are increasing post lockdown periods. However, it will take time and encouragement from eye care professionals to get all patients back into practices for clinical examinations.

Like all sectors, the eye care industry is keenly looking to understand the health and economic impacts of COVID-19. In October 2020, Optometry Australia released a summary of Medicare statistics,[1] reporting a 6–7% drop in optometric services in the 2019/20 financial year compared to the previous year. This quantified the immediate impact of COVID restrictions as 630,000 fewer Medicare billed optometric services nationwide.

Since June 2020, resurgences of the virus have resulted in fluctuating restriction levels, impacting the delivery of eye care to vastly different degrees, depending on region. The inevitable consequence of this is that the road to recovery looks very different across the country, in particular for metropolitan Melbourne where lockdown measures were in place for almost twice as long as other regions. Clinical data has become incredibly useful in understanding where reduced access to optometrists has impacted on routine care, as well as the diagnosis and management of prevalent eye conditions in the primary eye care setting.

For optometrists operating in a lockdown situation, urgent and essential services were rightly reserved for emergency presentations, patients with acute or progressed symptoms, and those with known at-risk conditions necessitating care. As such, detection of silently progressive eye conditions like glaucoma, which is estimated to affect 3% of the population over the age of 40,[2] has been significantly impacted due to disruption to routine eye care in 2020.

At Specsavers, the years preceding the outbreak of COVID-19 saw the culmination of several significant clinical initiatives designed to target detection of glaucoma. Consistent use of optical coherence tomography (OCT) for all patients, education around clinical indications for visual fields assessments, and implementation of the Royal Australian and New Zealand (RANZCO) Referral Pathways for Glaucoma Management provided a consistent framework enhancing glaucoma diagnosis across the network. After several years of measurement, 2019 was a defining year for glaucoma care as national detection rates across the Specsavers network averaged 1.2% of total patients (approximately 2.4% of patients seen over the age of 40), with 50% of these glaucoma referrals relating to new detection of the disease.

Close measurement of glaucoma detection in the pre-COVID setting was specifically in place to check efficacy of the Specsavers' glaucoma detection strategy however, as it turns out, it became a valuable baseline which can now be used to understand the impact of COVID-19 on glaucoma detection in 2020.

National Impact

At a national level, restrictions were in place between March and May 2020. Figure 1 demonstrates a significant decrease in glaucoma referrals over this period driven by a drastic drop in patient attendance due to restrictions. Figures from metropolitan Melbourne are excluded from this and are discussed later in this article.

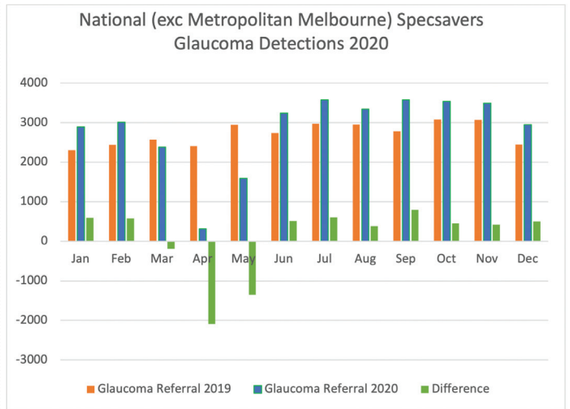

Figure 1

Continued from page 3

Based on corresponding glaucoma detections for the same period in 2019, 3,635 patients were estimated to have missed a glaucoma-identifying eye test over this time. Despite a significant drop in volume, the glaucoma referral rate remained steady during the essential care model, with 1.5% of patients presenting referred for glaucoma.

Impact on referrals

The data shows that there was a 16% drop in new detections but referrals for patients with existing glaucoma increased by 12% (Figure 2). This is a reflection of optometric services being accessed by patients with known glaucoma, acute glaucomatous symptoms and/or progression of existing glaucomatous signs during this time and less incidental detection of the disease.

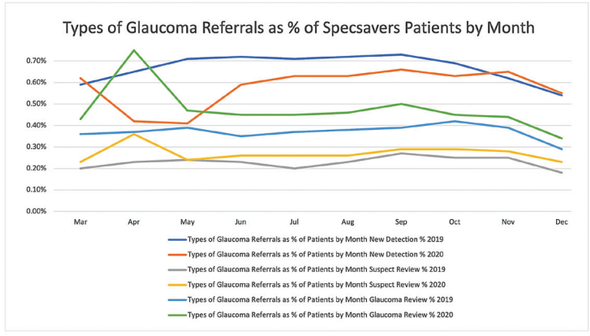

Figure 2

As expected, the data shows that increased access to routine eye tests since June 2020 saw detection volumes recover rapidly. This was tracked to the point at which the estimated group of missed detections was recovered at the end of December 2020.

The data also shows a sustained 0.1% increase in national glaucoma detection rates (1.2% to 1.3%) when restrictions were lifted and routine eye care resumed. This occurred simultaneous to a higher than normal demand for services and is equivalent to an additional 1,800 Specsavers' glaucoma detections in the recovery period June to December 2020. This promising trend indicates that missed glaucoma detections are recoverable, even as optometry practices adjust to new and changing COVID-safe protocols. It also suggests that access to care in the post-restriction period is crucial to timely detection of conditions such as glaucoma that are likely to present at a higher prevalence as patients who are overdue for their review or routine eye test return.

Metropolitan Melbourne lockdown and impact

As the rest of the country experienced a gradual easing of restrictions in the second half of 2020, the state of Victoria bunkered down for one of the longest and strictest COVID-19 lockdowns that has occurred in the world to date. For metropolitan Melbourne, significant restrictions were in place from March until October 2020, resulting in the majority of optometry practices limiting services for almost five months.

It is still very early to understand the impact of this type of disruption to routine care on glaucoma detection, however initial statistics show metropolitan Melbourne is likely to see a rapid return to pre-COVID glaucoma detection volumes occurring in line with what has been experienced in other regions of Australia in 2020.

We have estimated that more than 2,500 patients with undiagnosed glaucoma were unable to access routine care during the five-month period of heavy restrictions. This is equivalent to 41% of the estimated total glaucoma detections missed nationally, just in the state of Victoria. However, with the easing of restrictions and the return of patients for overdue reviews and routine care, an increase of detections has been seen. In November and December alone, an additional 730 glaucoma diagnoses were made across Specsavers'

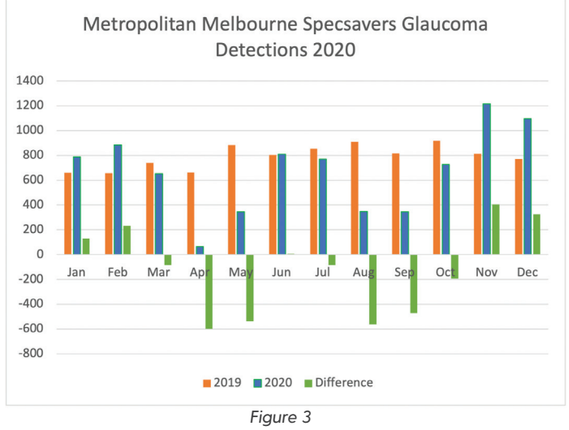

Figure 3

metropolitan Melbourne practices compared to the same period in 2019 (Figure 3). While these numbers are encouraging, they still only represent 33% of the estimated patients missed, indicating a longer recovery ahead before equilibrium is achieved.

The good news is that detection rates for glaucoma and other eye diseases are increasing post lockdown periods.

Impact on all referrals

A closer look at referrals both nationally and for metropolitan Melbourne has also revealed that glaucoma detection was more severely impacted than referrals for other eye conditions such as retinal disorders, macular degeneration and diabetic retinopathy (Figure 4). This is likely to be explained by the often-asymptomatic nature of glaucoma and highlights the association between routine eye tests and new detection of glaucoma in patients.

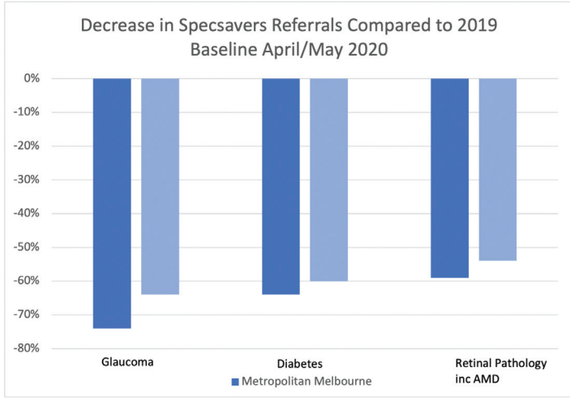

Figure 4

In April and May 2020, glaucoma referral volumes decreased by 64% nationally and in the metropolitan Melbourne lockdown by 74%, compared to the year previous. Referrals for retinal pathology including macular degeneration saw a 54% drop nationally (59% in metropolitan Melbourne); and diabetic retinopathy referrals decreased by 60% nationally and 62% in metropolitan Melbourne compared to 2019.

False positives and the feedback loop

Ophthalmology feedback remains important to confirm validity of referrals. In 2019, a subset of 784 Australian patient referrals for glaucoma were analysed to determine the false positive rate. Of those within the subset classified as first assessment referrals (previously undiagnosed glaucoma), 83% were confirmed as definite or probable glaucoma, equating to a 17% false positive rate. Feedback loops such as this are an invaluable way to synchronise referral pathways between local optometry-ophthalmology networks, ensuring that the right people are referred at the right time for early treatment of glaucoma, particularly in the current climate. This type of practical feedback has been largely remarked upon by the ophthalmology industry as necessary to drive systemic change.

It's in the evidence

These figures reflect the impact as shown by Specsavers data, but may serve as an indication of what is occurring across Australia in primary optometric practice. It also begins to reveal the scale of impact of the Victorian lockdown, and how data is critical to better understanding and addressing the nuanced challenges that exist in each region – assisting with access to care and prioritisation of high-risk patients.

As we begin 2021, the data also evidences the role of routine eye tests in timely detection of progressive eye conditions including glaucoma. There is ongoing work to be done to ensure patients who have delayed or cancelled their recommended review are encouraged and enabled to return safely, and there is good evidence to suggest recovery is possible with a focus on access and consistency of care.

This article first appeared in mivision.com.au It has been reprinted with the permission of mivision (Toma Publishing).

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1. Carter H. One million fewer general optometric services during peak COVID period and overall 6% drop in services and income in 2019-2020. Optometry Australia. Published here.

2. Mitchell P, Smith W, Attebo K, Healey PR. Prevalence of open-angle glaucoma in Australia: The Blue Mountains Eye Study. Ophthalmology. 1996; 103(10):1661-1669. doi: 10.1016/S0161-6420(96)30449-1

Veronica sets her sights on independence after glaucoma diagnosis

Glaucoma is the leading cause of irreversible blindness worldwide. The disease affects 300,000 Australians, with 50% unaware that they have the disease because they haven't had a comprehensive eye exam. Known as the 'silent thief of sight', glaucoma develops slowly for most people, and a considerable amount of peripheral vision may be lost before the problem becomes apparent.

Blue Mountains - based, Veronica Dooley, now 92 years old, was diagnosed with glaucoma more than 32 years ago. She recalls being shocked by the news.

"I mentioned to my daughter that I was having some issues with my sight, so I booked an appointment to get my eyes checked with the specialist. I'll never forget that moment when the doctor said to me, 'You are going blind'.

From that moment on I have done everything in my power to follow the instructions given to me by my doctors and I have followed my treatment plan religiously."

Veronica's treatment plan has involved eye drops in her eyes weekly for the last three decades. It has preserved sight in her right eye while her left eye continues to be closely managed.

Thanks to her commitment to her treatment plan Veronica is able to live on her own and enjoy an independent life. She now catches the bus to go shopping every fortnight after voluntarily giving up her driver's licence when she suddenly started to lose sight of the lines in the middle of the road.

Veronica knows the importance of having an eye exam because it could be the difference between losing your vision, or keeping it for life...

"I walked straight into the registry and handed in my licence," she says. "It was hard but I have been able to hold onto my remaining sight and maintain my independence thanks to the dedication of my doctors and my determination to follow my treatment plan. I'm a big believer if something has to be done, then get it done.

"I am one of five siblings, three of whom have all suffered from glaucoma. My brother had an aggressive form, whereas my sisters, like me, are managing their glaucoma.

We are unaware if there was glaucoma in our family as back then there wasn't the testing facilities available that we have today, and health issues were kept private. But that's not the case today, so ask your family if anyone has glaucoma, as it is hereditary, and early detection is key," adds Veronica.

Glaucoma Australia recommends that anyone over 50 should visit their local optometrist for a comprehensive eye examination every 2 years, and if you have a family history of glaucoma check-ups should begin from 40.

Veronica hopes Glaucoma Australia's campaign, Treat Yours Eyes, will educate Australians about the importance of having an eye exam because it could be the difference between losing your vision, and keeping it for life.

"Early detection is key. I was so stunned by my glaucoma diagnosis. I had no signs before, and absolutely no pain. Get in early and have an eye exam so you can live the rest of your life normally and hold onto your independence. You can't undo the damage once it's occurred," says Veronica. ●

If you wish to share your glaucoma journey go to: glaucoma.org.au/how-you-can-help/share-your-story

OR

email your story and a photo (optional) to glaucoma@glaucoma.org.au

New family focused campaign to increase early detection

This month Glaucoma Australia will launch its new family focused campaign called "Saving Sight Begins With You" which encourages Australians already living with glaucoma to spread the word and encourage their family and friends to get themselves tested.

As we all know the risk of developing glaucoma is much higher if you have a first degree relative (parent, sibling or child) with it, in fact studies have shown glaucoma to be one of the most heritable of all types of diseases[1].

It is a condition that rarely shows itself until significant damage has already occurred, which is why glaucoma is called the sneak thief of sight. It is estimated that 300,000 Australians have glaucoma, yet half of those people are unaware they have a potentially blinding eye disease because they have not had a comprehensive eye exam.

"Our greatest advocates in stopping the potentially blinding effects of glaucoma are our people with glaucoma. This campaign is focused on creating a conversation around glaucoma initiated by the people who know about it, those living with it. We recognise however, that having a conversation about glaucoma can be difficult so we have created a campaign that makes it as easy as possible, and motivates Australia's glaucoma community to encourage loved ones and friends to get tested," says Glaucoma Australia CEO Annie Gibbins.

To learn more and to start a conversation visit www.glaucoma.org.au ●

1. https://glaucoma.org.au/news-details/news/the-genetics-of-glaucoma

Sebastian sees the world through glaucoma

There is no cure for glaucoma and vision loss is irreversible, making early detection and treatment key to saving sight. This has been crucial for Sebastian Correa, 24, from Melbourne, who was diagnosed with congenital glaucoma at just three months old.

"It was particularly scary for my parents. I was three months old when my parents noticed my eyes would water when I looked into the light. They immediately took me to hospital, and I was diagnosed with congenital glaucoma. My surgeries started not long after that and continued on until I was nine, because the pressure in my eyes remained too high."

Today, Sebastian is a freelance photographer and videographer. Ironically the health of his eyes is key to his ability to earn an income.

> **"...Given it (glaucoma) can be treated and managed if caught early so you don't lose vision – why wouldn't you?"...**

"Growing up I was very interested in optics, driven by managing my eye health. It was something I was conscious of, yet unconsciously it's taken me down a path where I'm in a profession that is dependent on my vision," he says.

"Every day is a marvel, and one day I may not be able to work in the field I love but until then I'm going to make the most of it while I have it. Right now I am putting the most I possibly can into all my visual projects to bring them to life."

Sebastian's treatment plan has involved using eye drops twice a day for 24 years. This treatment has preserved his sight and allowed him to live a relatively normal life thanks to his strict adherence to his treatment plan.

"My treatment is a maintenance thing. It's all about management, so my advice to anyone is, be sure to stay on top of it. It's really a mental thing that my eyesight could be compromised so I've been hyper-vigilant with the treatment plan and ensuring I'm not symptomatic. If, on the very odd occasion I've forgotten to take the drops for longer than a day, I get migraines and suffer from blurry vision. Ultimately, it's not fun and it's a reminder I need to stay on track."

Sebastian hopes Glaucoma Australia's new awareness campaigns will educate Australians about the importance of having an eye exam because it could be the difference between losing your vision, and keeping it for life.

"I've had to live with glaucoma all my life and while I've had a great life, I wouldn't wish it on anyone. And given it can be treated and managed if caught early so you don't lose vision – why wouldn't you get tested? " adds Sebastian.

Glaucoma Australia CEO Annie Gibbins says, "Three in 100 Australians will develop glaucoma in their lifetime, yet more than a third of Australians have not undergone regular eye examinations, increasing their risk of glaucoma remaining undiagnosed. We need this to change and we hope Australians take action and get an eye test and make it part of their regular health routine.

Smartphones could help to prevent glaucoma blindness – study

University of Birmingham

Smartphones could be used to scan people's eyes for early-warning signs of glaucoma – helping to prevent severe ocular diseases and blindness, a new study reveals.

Some of the most common eye-related diseases are avoidable and display strong risk factors before onset, but it is much harder to pinpoint a group of people at risk from glaucoma.

Glaucoma is associated with elevated levels of intraocular pressure (IOP) and an accurate, non-invasive way of monitoring an individual's IOP over an extended period would help to significantly increase their chances of maintaining their vision.

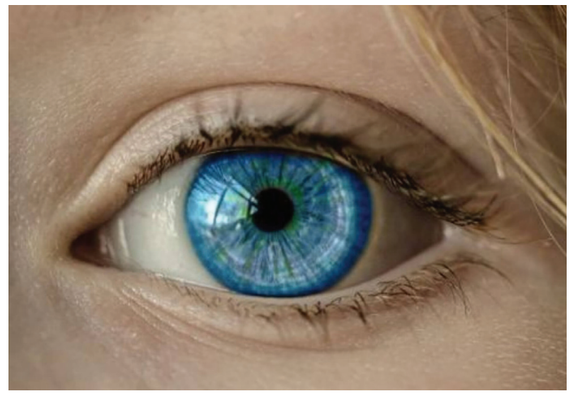
Soundwaves used as a mobile measurement method would detect increasing values of IOP, prompting early diagnosis and treatment.

Scientists at the University of Birmingham have successfully carried out experiments using soundwaves and an eye model, publishing their findings in Engineering Reports.

Co-author Dr. Khamis Essa, Director of the Advanced Manufacturing Group at the University of Birmingham, commented: "We discovered a relationship between the internal pressure of an object and its acoustic reflection coefficient. With further investigation into eye geometry and how this affects the interaction with soundwaves, it is possible to use a smartphone to accurately measure IOP from the comfort of the user's home."

Risk factors for other eye diseases are easier to assess – for example, in the case of diabetic retinopathy, individuals with diabetes are specifically at risk and are constantly monitored for tiny bulges that develop in the blood vessels of the eye.

The current 'gold standard' method of measuring IOP is applanation tonometry, where numbing



drops followed by non-toxic dye are applied to the patient's eyes. There are problems and measurement errors associated with this method.

An independent risk factor of glaucoma is having a thin central corneal thickness (CCT) – either by natural occurrence or a common procedure like laser eye surgery.

A thin CCT causes artificially low readings of IOP when using applanation tonometry. The only way to verify the reading is by a full eye examination – not possible in a mobile situation. Also, the equipment is too expensive for most people to purchase for long-term home monitoring.

IOP is a vital measurement of healthy vision, defined as pressure created by continued renewal of eye fluids. Ocular hypertension is caused by an imbalance in production and drainage of aqueous fluid - most common in older adults. Risk increases with age, in turn increasing the likelihood of an individual developing glaucoma.

Glaucoma is a disease of the optic nerve which is estimated to affect 79.6 million people world-wide and, if left untreated, causes irreversible damage. In most cases, blindness can be prevented with appropriate control and treatment.

Education

Events

Recently during World Glaucoma Week 2021, Glaucoma Australia hosted a series of 9 Virtual Q&A events on popular glaucoma topics.

OCT Testing
with Dr Shweta Kaushik

Visual Fields
with Matthew Bennett

Glaucoma & Driving
with Dr David Wechsler

Glaucoma & Dry Eye
with Professor James Armitage

Public or Private, which best suits you?
with Dr Kathrin Rac

Side Effects of Glaucoma Medication
with Jessica Leung

COVID-19 Vaccine & Glaucoma
with Khanh Nguyen

Glaucoma & Other Diseases
with Dr Matt Wells

Sleep Apnea and Glaucoma
with George Ploumidis.

To watch these videos go to **glaucoma.org.au/glaucoma-tv**

If you do not have access to the internet, don't worry, we will be publishing each Q & A in Glaucoma News over the coming months. Turn to the back page for Dr Shweta Kaushik's Q & A on OCT testing.

Visit our website
www.glaucoma.org.au/events
for upcoming events throughout the year.

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In Memoriam

We acknowledge with gratitude gifts, from family and friends, in loving memory of:

Mrs Jennifer Dawn Best

Mrs Rus Gaske

Bequests

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The Estate of the Late Dr David Douglas
The Estate of the Late Mr Leslie Trevor Myers
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How can we help?

Glaucoma Australia offers FREE education and support to people living with glaucoma.

If you or someone you care for has been diagnosed with glaucoma we recommend you join our community to access free resources, guidance and support.

Join our community online

www.glaucoma.org.au/get-support

Call our free support line

1800 500 880

Contact details

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Q&A with Dr Shweta Kaushik

Dr. Kaushik is a Specialist in Glaucoma, Cataract Surgery and General Ophthalmology and a Fellow of RANZCO.
If you have any questions, you can call our free toll support line 1800 500 880.

Q What is OCT Testing?

A Optical Coherence Tomography OCT) testing, is part of a series of tests that we ask persons with glaucoma or glaucoma suspects to undertake. OCT scans are used in conjunction with a patient's clinical history, eye examination and visual field testing. All these investigations are used to determine if someone has glaucoma or if their glaucoma is progressing. OCT scans measure the retinal nerve fibres that travel in the optic nerve. Ultimately glaucoma is a condition of the optic nerve, where individual nerve fibres are lost over many months, years or decades. Measuring the nerve fibre layer thickness is therefore very important in the assessment of glaucoma.

Q How does OCT work?

A An infrared light is sent through the pupil and to the back of the eye. Reflections of this infrared light are captured by the OCT. These reflections produce a beautiful 2D image of the back of the eye. OCT gives us high resolution images of the microscopic layers of the retina. We can measure the thickness of these layers.

OCT is very safe for the eye. In fact, there have been millions of OCT scans performed all around the world, without any evidence of damage to the eye.

Q Why is OCT testing important in glaucoma?

A Glaucoma is a disease of the optic nerve. It's a condition where the nerve fibres within the optic nerve are destroyed over time. The optic nerve is like a cable that runs from the eye to the brain, and is filled with nerve fibres. We have around a million of them when we're babies and slowly lose some as we age. Glaucoma patients lose them much more quickly.

Light goes through the cornea, which is the front window of the eye, through the pupil and to the retina. The retina is the inner lining of the eye and acts like the film of the eye. The retina captures the image, changes light from the image to electricity and sends the image to the brain via the optic nerve. The optic nerve is a cable of nerve fibres that sends information from eye to brain.

In glaucoma, you slowly lose the nerve fibres in the optic nerve. Typically you lose them over years and decades rather than months and weeks. The pattern of vision loss begins with peripheral or edge vision first. It only involves the central vision very late. Sometimes it's too late. This is why visual field testing and OCT testing is so important - your eyecare professional can pick up progression of your glaucoma before it is too advanced.

Q What do you look for in an OCT when testing for glaucoma?

A OCT testing gives us a picture of the back of the eye via a coloured thickness map. The head of the optic nerve appears as a grey spot in the centre, while colours such as blue, red and yellow give us an idea about the thickness of the tissues surrounding the optic nerve.

An OCT scan in a person without glaucoma may show a lot of red and yellow colour at the top and bottom of the optic nerve head.

An OCT scan in a person with glaucoma will show very little amounts of red and yellow colour indicating thinning of the tissue.

Q Why is OCT testing just as important as Visual Field Testing?

A We need to lose 50% or more of our nerve fibres before we see loss of vision.

If we take many OCT tests over time, we can measure very small changes in the nerve fibre layer thickness over time. This can be quite accurate as the OCT has very little measurement variability. This is why the OCT is so powerful, it can tell us that your glaucoma is progressing, often times before you see changes in your vision on the visual field test.

Q Why do I need to do so many OCTs? I have to do one almost every time I go to my doctor. Isn't it just telling us the same thing?

A Many OCT scans over time can be a powerful indicator of change. If a person has one test less than once per year we are unlikely to pick up changes quickly enough. The more OCT scans, the quicker and more precisely we can pick up true change from glaucoma progression.

Some studies have told us that in about 40% of patients, OCT can tell us four years ahead of time that your glaucoma is worsening, and in about 20% of people it can tell us eight years ahead of time. That is a substantial lead time for your doctors to do things to help stabilise your glaucoma.

OCT testing every six months or so is how we get a real handle on how your glaucoma is progressing. Generally most people do an OCT once a year and that's okay, however, if you do have more frequent scans you can get an even quicker indication of how the damage is progressing.