vision News

Lions Eye Institute

Spring 2022

World-first clinical trial

Testing new treatments for Stargardt disease.

Two new research Chairs

Leading vision research at the Institute.

Childhood myopia

Philanthropic support is saving sight.

Yelaina, a patient at the Lions Eye Institute, with her mum Sarah

From the Managing Director

As I write this, Spring is just around the corner, promising regrowth and renewal in nature.

Let's hope that it also brings reinvigoration in our community, which has been pummeled by COVID-19, Influenza and other illnesses in recent months.

At the Lions Eye Institute, our clinical services offering in Perth's eastern suburbs has had a rebirth, with the relocation of Lions Eye Institute Midland to a brand new site. The clinic opened its doors on 18 July and is already proving to be popular with our patients and staff.

The Institute has had a presence in Midland for the past six years under the leadership of Dr Hessom Razavi, and the new state-of-the-art clinic builds on our commitment to provide high quality and accessible eye health services to people in Perth's eastern suburbs and neighbouring regions.

The clinic, situated in the Midland Specialist Centre on Yelverton Drive, will cover the full spectrum of eye diseases, with four leading specialists available to treat patients: Dr Razavi (retina), Dr Antony Clark (paediatrics, glaucoma), Dr Jean-Louis deSousa (oculoplastics) and Dr Geoffrey Chan (glaucoma). All doctors treat cataract and provide general ophthalmology consultation. The clinic is also staffed by a highly experienced team of allied health and nursing professionals.

We couldn't do our vital research into vision loss and blindness without your support.

We are experiencing renewal in our research area, with some exciting developments accelerating our work to prevent and cure eye disease. Recent funding has included a Perpetual 2022 IMPACT Philanthropy grant to support work by Dr Jessica Mountford in determining the genetic and environmental causes of early-onset myopia. You can read more about this project on page eight.

We were successful in obtaining a substantial grant from the WA Future Health Research and Innovation Fund – Innovation Seed Fund 2022 to support the development of a portable hand-held device for non-invasive measurement of intracranial pressure (ICP) via the eye. This innovation will be a game-changer for ICP measurement, which typically is carried out through invasive techniques such as lumber punctures or holes drilled into the skull.

In addition, we continue to receive much-needed research funding from our generous donors. We couldn't do our vital research into vision loss and blindness without this support.

This edition of Vision News features an article on our hard-working, long-term Fundraising Manager, Alisa Guillory. Although she is well known to many readers, Alisa generally likes to fly under the radar, however we have managed to convince her to share a little bit about herself and her work.

I hope that you enjoy the Spring Vision News, and that you and your loved ones stay safe and well.

Bill Morgan MB BS, PhD, FRANZCO
Managing Director, Lions Eye Institute

Follow us on social media

lionseyeinstitute lions-eye-institute LionsEyeInstAus

Colour is in the eye of the beholder

A paper written in 2021 by Professor David Mackey AO about the genetics of eye colour has become an internet sensation, having been accessed over 64,000 times – that's one new reader every 10 minutes!

Professor David Mackey AO

#thedress: Some people saw the dress as blue and black, while others saw white and gold. The original dress was blue and black

The role of genetics and family history is becoming increasingly more relevant in helping scientists and ophthalmologists to better understand the leading causes of blindness: age related macular degeneration, glaucoma, myopia, diabetic retinopathy and cataract.

In 2021 Professor Mackey decided to use his time in COVID lockdown to write a review article to summarise the basic and more complex genetics that ophthalmologists and their patients need to understand in the genomics era.

"Eye colour, or more accurately iris colour, and colour perception are excellent examples to use when teaching genetics as these topics encompass basic genetics such as dominant and recessive, as well as a number of newer concepts," said Professor Mackey.

Using themes from popular culture, such as the social media trend of "#thedress" and the hit television show Game of Thrones, Professor Mackey explained how colour perception is influenced by concepts beyond genetics, such as optics, physiology and psychology.

"As a researcher it is important that we make scientific discoveries of how genetics contributes to many eye diseases, but equally we must be able to explain this work in ways people can understand and relate to," said Professor Mackey.

In the future this understanding will be crucial for researchers to find new treatments and cures, not only for inherited retinal diseases, but for a broad range of eye conditions.

The article, titled "*What colour are your eyes? Teaching the genetics of eye colour and colour vision.*", is now being used in secondary schools to teach students about the genetics of eye colour and can be found at go.nature.com/3bXWplf.

Professor Mackey engaged a new audience with his paper, originally intended only for ophthalmologists.

First published in the UK journal Eye, it was quickly cited by another author and picked up by social media (having an Altmetric score of 69, which is in the top five per cent of articles). However the general public began reading the article and within a few weeks it had been read by 5,000 people.

The article is now his most read publication out of nearly 500. Most impressively, if one does a Google search for "eye colour" for most people it comes up in the first page of suggestions.

Lions Eye Institute Clinical Trials Centre part of world-first trial for Stargardt disease

Associate Professor Fred Chen and the Lions Eye Institute Clinical Trials Centre are conducting groundbreaking research into a new treatment for Stargardt disease, the most common single gene disease of the eye.

Clinical Trials Manager Tammy Corica said the Clinical Trials Centre at the Lions Eye Institute is involved in around 75 clinical trials a year, and is at the forefront of conducting successful trials for testing new medicine.

"We were the first clinical trials site in the world invited to be involved in this particular trial, thanks to our reputation for excellence."

Thank you

Thanks to your invaluable support, Associate Professor Chen has been conducting innovative research into Stargardt disease and other inherited retinal diseases in the Lions Eye Institute's ocular tissue engineering laboratory.

The future is looking hopeful for people like Associate Professor Chen's patient Yelaina (pictured) who was diagnosed with Stargardt disease at just 12 years old.

"Prior to this study, there was nothing available – no opportunity for patients with Stargardt disease to receive any treatments in Australia," said Associate Professor Chen.

Associate Professor Fred Chen examining the eyes of his patient Yelaina

How the trial will work

In the phase one human trial, children with Stargardt disease aged between 12 and 18 years will take a daily oral dose of a medication called tinlarebant. The drug has already been proven to be safe in healthy adults.

Associate Professor Chen said that the drug works by blocking vitamin A supply to the eyes.

"We know in Stargardt disease the damage in the retinal cells is due to the build-up of metabolites from interruption of the vitamin A cycle," he said.

"In the body, vitamin A usually goes through a series of chemical reactions in the retina. This allows the retinal cells to respond to light which is necessary for vision. But in Stargardt disease, one step of that recycling process is impaired. Consequently there is a build-up of metabolites which then damage the retinal cells.

"This treatment aims to block vitamin A supply to the eyes thus reducing the vitamin A metabolite building up that damages the cells."

Associate Professor Chen's research

Participants in the trial will be monitored for just under two years. As part of his research, Associate Professor Chen is taking a number of measurements and scans of the retina to make sure there is no unexpected damage from the medication being used in the trial.

"Because Stargardt disease progresses rather slowly, and each individual's progression is unique, this treatment trial will only provide information on the safety of this medication but not its effectiveness.

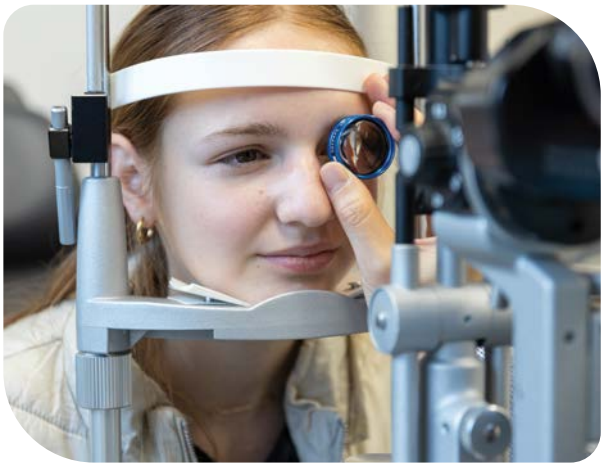
"Since we are dealing with rare diseases with onset at childhood and slow disease progression, it is extremely challenging to design a trial that can provide evidence of safety and efficacy over a short duration. Therefore, trials such as this one give people tremendous hope. This is the beginning of the process of bringing a new therapy into the clinic."

The future

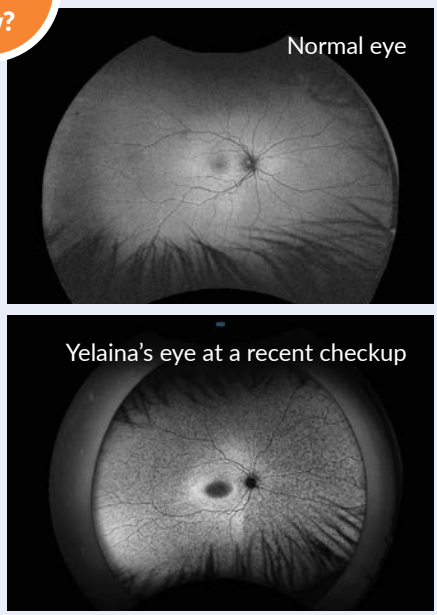
Associate Professor Chen's team and collaborators are also using molecular genetic testing to identify the genetic causes of other inherited retinal diseases, like Stargardt disease, in the hope one day they may use this information to develop personalised treatment for some of these patients. Around 450 of the 750 of Associate Professor Chen's patients have already been genetically tested.

"We are grateful that our patients are willing to be part of our research projects, and that the Institute has the state-of-the-art laboratory, equipment and technology for our team to be able to investigate the genetic cause of their inherited retinal disease," said Associate Professor Chen.

"Genetic research is costly as we have to apply technology at the forefront and there is insufficient public funding for all the work required for our patients. We rely on donations to support our endeavor to find a cure for this group of diseases. Without genetically diagnosing our patients, we wouldn't have anyone ready for future clinical trials."



Did you know?



In a normal eye, the retina appears smooth and grey. In a patient with Stargardt disease, dark spots and patches indicate damage to the retina

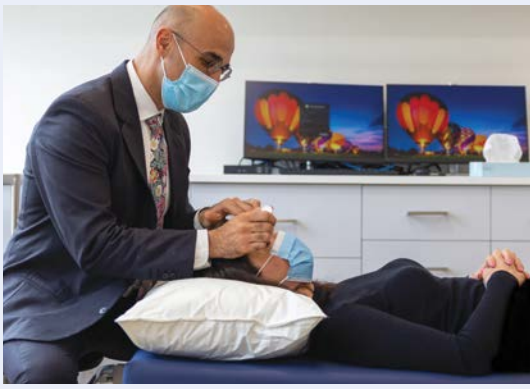
Stargardt disease

Stargardt disease is the most common single gene disease of the eye, and around one in 10,000 people in Australia live with this condition. Traditionally diagnosed in primary school, children with Stargardt disease develop a loss of central vision and colour vision deficiency.

"This is a devastating diagnosis for a child. They have difficulty reading, and without extra school support, they will also struggle to learn," said Associate Professor Chen. "Some will end up with guide dogs in their 20s, and need someone to help them navigate by their 40s. Most will never be able to drive, they will lose their mobility and their independence in the prime of their lives."

There are many types of Stargardt disease, and it is thought the condition is more common than most people realise. "From our research we have discovered there is also late onset Stargardt disease that affects people in their 60s or 70s. They can be misdiagnosed as age-related macular degeneration. There's a wide spectrum of age onset from six to 60."

New clinic for Perth's eastern suburbs



The Lions Eye Institute is proud to announce the opening of our new Midland clinic.

Officially opened by Ms Tania Lawrence MP in August, the new clinic reinforces the Institute's commitment to ensuring people in Perth's eastern corridor have access to high quality eye health services. Under the leadership of Dr Hessom Razavi, the Institute has operated a clinic in Midland since 2016.

"We have been working in the area for more than six years, but this new purpose-built facility will provide us with the opportunity to expand our service offering and work even more closely with the local community in ensuring they have access to the best possible eye care," Dr Razavi said.

Dr Razavi will be joined at Lions Eye Institute Midland by fellow Institute doctors, Dr Antony Clark, Dr Geoffrey Chan and Dr Jean-Louis deSousa. All four clinicians are internationally recognised specialists who share the common goal of improving people's lives.

Together they cover a broad range of eye diseases and disorders, including cataract surgery, pterygium, paediatric ophthalmology, glaucoma, strabismus, oculoplastics, age-related macular degeneration and diabetic eye disease. In addition to treating patients, all Midland clinicians are involved in teaching, research and community outreach work.

The new clinic will also provide a base for student placements from the newly established Doctor of Optometry program at The University of Western Australia.

Dr Hessom Razavi

Dr Antony Clark

Dr Jean-Louis deSousa

Dr Geoffrey Chan

Lions Eye Institute Midland is located in Suite 1, Level 1 of the Midland Specialist Centre at 81 Yelverton Drive, Midland. Appointments can be made by calling (08) 9381 0780 or emailing midland@lei.org.au.

An eye for what really matters

Our Fundraising Manager, Alisa Guillory is celebrating her 10th work anniversary at the Lions Eye Institute next month.

Many of you have come to know Alisa over the years at one of our events or over the phone and heard her warm friendly voice. To mark her special anniversary, we wish to share some highlights of Alisa's dedication to you, our patients and the Institute.

Alisa's impact on the Lions Eye Institute runs deep. Her passion to help patients has enabled and accelerated research resulting in treatments and cures for eye diseases. It has provided encouragement to the researchers to spur them on, that there are people out there who believe in them. It has provided hope to patients and their families. It has also built a community of loyal supporters who know their eye disease matters, and that the Lions Eye Institute is there for them through thick and thin.

Alisa has made a significant contribution to the Institute over the past decade with many donors raving about their positive experience with not only their clinician, but also the communication and support they receive from Alisa and her team. We are delighted to hear this feedback and wish to thank all our donors including the 1,028 donors who have supported us for 10 years or more and the 343 donors who have supported us for 20 years or more. We are overwhelmed at this remarkable support.

Alisa Guillory, Fundraising Manager at the Lions Eye Institute

We asked Alisa to tell us why she works at the Lions Eye Institute, and this is what she had to say:

> *The people are what make my day. Our supporters are some of the most genuine people you are likely to meet and I'm fortunate that I have gotten to know so many of them over the years. Many of them have experienced the devastating effects of vision loss and know how much their donations are appreciated, both big and small.*

"I feel privileged to raise funds for a world-leading medical research institute. The donations received are imperative for our researchers to conduct sight saving research needed to help the many supporters and patients I have connected with. I believe research can change people's lives and that we have the talent here at the Lions Eye Institute to find scientific breakthroughs leading to treatments and cures.

"Lastly, every day is different, the staff and researchers are amazing and I love working with them. Together with our amazing donors, talented researchers and dedicated staff, it's not hard to see why this is my longest held position!"

10th Anniversary

Next time you see Alisa at an event, or talk to her on the phone, please congratulate her on her 10th anniversary at the Lions Eye Institute. We hope she will stay for another 10 years!

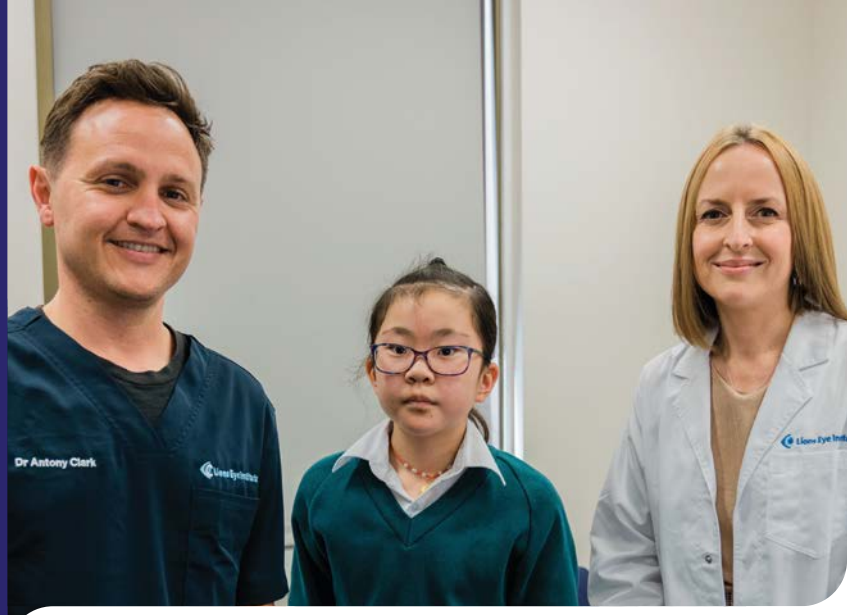
Prevalence of early onset myopia among children is increasing at an alarming rate

Dr Jessica Mountford, Brian King Fellow and Head of the Functional Molecular Vision Group, along with paediatric ophthalmologist, Dr Antony Clark at the Lions Eye Institute, are investigating the link between both genetic and environmental risk factors associated with childhood early onset myopia (short-sightedness).

An estimated 23,000 children in Western Australia suffer from myopia, a disease that is rapidly rising globally and if left untreated, can progress to high myopia. Research into determining the factors involved in developing myopia is crucial for preventing the risks associated with high myopia.

PROUDLY SUPPORTED BY telethon 7

STAN PERRON CHARITABLE FOUNDATION



(L-R): Dr Antony Clark with patient Jessica, and Dr Jessica Mountford

By 2050 over 50% of the world's population is expected to suffer from myopia

The incidence of myopia is rapidly becoming one of the world's leading causes of vision impairment. Currently, over 2.6 billion people suffer from myopia worldwide. Furthermore, the World Health Organization (WHO) predicts 50 per cent of the world's population will become myopic by 2050.

Fastest rise is in children as young as six years old

Unfortunately, the fastest rise in prevalence is occurring among school children as young as six years of age. Left untreated, early onset myopia can progress to high myopia (>-5.00 diopters) and contribute to the development of other serious visual disorders such as retinal detachment, retinal atrophy, myopic maculopathy, glaucoma, cataract and ultimately blindness.

Factors causing myopia

Several contributors, both genetic and environmental, have been associated with the development of early onset myopia. Genome wide association studies (GWAS) have identified in excess of 100 genes and over 300 genetic mutations that are associated with the condition, indicating that myopia is a complex disease involving many different genetic variants. In addition, environmental factors such as lack of exposure to natural light environments, near work (reading) and education are also acknowledged risk factors in the development of myopia. However, the mechanisms surrounding the interaction between genetic risk factors and the environment are yet to be determined.

World-first research

As the prevalence of myopia continues to rise globally, aided by COVID-19 lockdowns and increased online learning, research into the fundamental mechanisms involved in the development of myopia are crucial to slowing down this increase.

Dr Mountford and Dr Clark's research aims to contribute to developing greater prevention strategies, screening for at-risk individuals and the development of personalised treatment. This research includes studying early onset myopia using zebrafish models of refractive error and studying the genetics of Western Australian children diagnosed with myopia.

Dr Mountford's research is distinguished from previous myopia studies as it aims to utilise zebrafish as a model of refractive error. This will facilitate the rapid screening of groups of genes, selected from human myopia genome wide association studies, and assessing how light can influence the development of myopia.

Impacting the lives of Western Australian children

The long term impacts of this research are anticipated to assist in identifying children at risk of developing early onset myopia and to implement a treatment plan for the child. It is also hoped to further encourage educational initiatives and policy reform to increase outdoor exposure for children both at school and home for the prevention of early onset myopia.

The impact of this research will help ensure the 23,000 Western Australian children diagnosed with early onset myopia will not experience the debilitating impacts of high myopia, such as severe vision impairment and blindness.

Philanthropic supporters

Channel 7 Telethon Trust, Perpetual, The Stan Perron Charitable Foundation, Lions Save-Sight Foundation WA Inc and the Ophthalmic Research Institute of Australia support Dr Mountford's research into early onset myopia.

Myopia research at the Lions Eye Institute

Researchers at the Lions Eye Institute are world leaders in investigating causes, finding treatments and undertaking population studies into myopia. Dr Mountford works alongside esteemed colleagues including Professor David Mackey AO, Dr Livia Carvalho and Dr Antony Clark.

Jessica, nine year old patient at the Lions Eye Institute

Jessica loves playing the violin, reading, and drawing. She also hopes to have a pet one day; she loves animals and would like to become a veterinarian.

Jessica was a happy and active five year old when she was first referred to the Lions Eye Institute in 2018, when she was in pre-primary, after a routine school vision check. Her vision was blurry, which resulted in her seeing an optometrist. The optometrist diagnosed her with strabismus and mild short-sightedness, and referred Jessica to Dr Antony Clark at the Lions Eye Institute.

Dr Clark confirmed the diagnosis of strabismus, a condition where the eyes are misaligned and may result in causing a squint. Jessica's strabismus has now been corrected by wearing glasses. Unfortunately, Jessica's early onset myopia progressed quickly. She has been treated with atropine drops, currently the most effective therapy for myopia, for the past 12 months to help slow its progression. However, it is too early to tell if they have helped.

Jessica's mum, Qi Peng, is relieved to hear about Dr Mountford and Dr Clark's research. It gives her hope that better treatments may be found to avoid Jessica's early onset myopia developing into the debilitating impacts of high myopia. She hopes her daughter will be able to live an active life and fulfil her dream of becoming a veterinarian.

Dr Clark examining Jessica's eyes at a recent check-up

Professor Andrew Turpin

Professor Allison McKendrick

A global leader in vision research

The appointment of two new Professorial Chairs will cement Western Australia's position as a global leader in the research and treatment of vision challenges.

Through collaborations with The University of Western Australia (UWA) and Curtin University (Curtin), the Lions Eye Institute has significantly deepened its research base in clinical vision sciences and data science and analytics.

Professor Allison McKendrick has been appointed as the inaugural Lions Eye Institute UWA Chair in Optometry Research, and Professor Andrew Turpin has accepted a role as the inaugural Lions Curtin Chair in Ophthalmic Big Data. Both researchers will move to Western Australia from Victoria in November this year.

Professor McKendrick is currently a Professor in the Department of Optometry and Vision Sciences at The University of Melbourne. Her specific research interests include the study of glaucoma, neurological diseases, and how normal ageing affects vision. She is particularly interested in using technology in novel ways to assist in the detection and management of eye disease.

"I look forward to commencing this exciting new role at the Lions Eye Institute and UWA, and to contributing to the goal of earlier detection and improved management of eye disease in the community," Professor McKendrick said.

Professor McKendrick will work closely with the UWA Doctor of Optometry program, which was introduced in 2020 to tackle an increase in eye complications from chronic diseases and conditions suffered by millions of Australians.

Professor Garry Fitzpatrick, Head of Division – Optometry at UWA, said the establishment of the endowed Chair was an exciting milestone in the journey of the program. "With the inaugural cohort of students now in its second year, the course will receive a huge boost from the appointment of

Professor McKendrick, who will amplify our efforts to build first-class optometric research," he said.

"Professor McKendrick will oversee a research strategy focused on the earlier detection and management of ocular disease and the development of innovations in the delivery of eye care, in order to reduce preventable blindness and increase the accessibility of eye health services."

The Lions Curtin Chair in Ophthalmic Big Data has been established with support from the Lions Save-Sight Foundation WA Inc, to enhance leadership and research in ophthalmic big data.

Professor Turpin is a global expert in data science and analytics and is currently Director of the Melbourne Data Analytics Platform (MDAP) and Senior Academic Convenor of the Petascale Campus Initiative, at The University of Melbourne. His research interests include computational problems in human vision, in particular developing new techniques for diagnosing and monitoring glaucoma.

The Managing Director of the Lions Eye Institute, Professor Bill Morgan, said, "Professor Turpin will bring deep expertise that will further develop the Institute's and Curtin's work in artificial intelligence, image analysis, Indigenous, rural and remote eye health, and data linkage."

"He will help to drive the research agenda and facilitate the translation of research knowledge into policy and practice."

Professor Morgan said the two new Chair appointments complemented a dedicated strategy by the Institute to invest in translational ocular research. The Lions Eye Institute and UWA are also partnering to develop the Ian Constable Chair in Discovery and Translational Ophthalmic Science. This role will establish a dedicated vision neuroscience group in Western Australia.

"Together, these three new Chairs will significantly strengthen Western Australia's position as a premier medical research hub, where world-class scientists work together with leading health professionals to change the understanding of eye disease and delivery of eye health care," Professor Morgan said.

The power of philanthropy

The Lions Eye Institute's inaugural Impact Report was released earlier this year.

The report reflects on the achievements, successes and activities over the past year. Much has been achieved and we are delighted to provide you with an overview of the highlights.

We are proud of the research we have undertaken and the progress made, and understand it is only made possible through the generosity and committed support of the Western Australian community.

The second half of the report details research currently taking place across the Institute's five research pillars, chosen for their impact on Western Australians.

The Lions Eye Institute's five research pillars

1. **Glaucoma**
2. **Diabetic and vascular retinopathies**
3. **Aboriginal and community eye health**
4. **Genetic eye disease, gene therapies and macular degeneration**
5. **Cornea, ocular surface and ocular immunology**

To view the Lions Eye Institute's 2021 Impact Report visit **lei.org.au/our-impact**.

Put the FUN in fundraising and help save sight

Have a great fundraising idea?

We are excited to launch our Community Fundraising Program, packed with helpful resources, an easy to use website and a dedicated Fundraising Coordinator to assist you in your fundraising journey to support sight-saving research.

Just think of a fundraising idea that appeals to you. You can do it alone, as a team with family, friends, colleagues or community groups. There are so many ways you can make a difference. You can fundraise by:

- Conquering a personal challenge
- Participating in a mass event such as Rottnest Channel Swim or City to Surf
- Requesting donations in lieu of gifts on your special day, such as your birthday or anniversary
- Requesting donations to support you on your quest to quit a bad habit
- Organising an event such as bake sale, run a raffle or do casual Fridays at work.

Whichever way you choose to fundraise, your commitment and efforts will provide urgent research funds for people living with an eye condition or blindness.

Already have an idea and eager to start your fundraising journey with the Lions Eye Institute? We encourage you to visit our website at **lei.org.au/fundraise-for-us**. Alternatively our Fundraising Coordinator, Yoke Lim, welcomes an opportunity to discuss your fundraising idea(s). You can contact Yoke on **08 9381 0809** or email **donorcare@lei.org.au**.

Hey burger lovers, we have a treat for you this September!

For the month of September, please help us raise much-needed funds to support sight-saving research. All you have to do is visit Grill'd Subiaco in Subiaco Square with your friends, family or work colleagues.

Enjoy a delicious meal and drop your tokens into the "Local Matters" Lions Eye Institute jar. It's that simple! There is no limit on how many times you can visit, so go to Grill'd Subiaco and burger-it-up for a good cause.

We are grateful to Grill'd Subiaco for once again appointing us as one of three charities to be part of their September "Local Matters" program.

Yoke and Grill'd staff member

When the hamburger and cheese come together they have a proper Ketchup.

Mention you are from the Lions Eye Institute at the counter and you'll get extra tokens for our jar!

Lions Eye Institute

Meet some of our Lions Eye Institute champions

We are very grateful to the following community supporters for choosing to fundraise for the Lions Eye Institute.

My son was just 13 years of age when he was diagnosed with Coats disease – a rare eye disease where retinal capillaries leak fluid into and behind the retina, leading to decreased vision or blindness in the affected eye. I participated in the full Busselton Ironman challenge in December 2021 and raised much-needed funds to support sight-saving research at the Lions Eye Institute.

Jon, community supporter

My two children were diagnosed with retinitis pigmentosa in their teenage years. To raise money for the Lions Eye Institute I decided to swim the distance of the drive from Bilgoman Pool to Kalgoorlie (567.4 kilometres). Money raised will support research into treatments, cures and therapies for retinitis pigmentosa.

Danielle, community supporter

Helmut was inspired to fundraise for the Lions Eye Institute after living with macular degeneration (in addition to having cataracts). He was a patient of Professor McAllister and marvelled at being able to see in colour again after having cataract surgery.

Helmut loved to tinker in his garage and found that even with his limited vision he could still manage to make decorative lamps. What started as making centrepieces for events at the retirement village soon turned into a yearly stall at the local craft fair. All money raised from the sale of the lamps was donated to the Lions Eye Institute.

Leopoldine,
wife of the late Helmut,
community supporter

A close relative of mine was diagnosed with degenerative eye disease in his 20s early February of 2022. He was told he may go blind in the next 10 years. I have decided to put my talent to good use – making macramé friendship bracelets to sell at local and regional markets. All money raised from the sale will be donated to the Lions Eye Institute.

Wendy, community supporter

One small device to make a big impact

Professor Bill Morgan

The future looks a little brighter for people suffering eye health problems as Professor Bill Morgan and the Lions Eye Institute's Physiology and Pharmacology research team take a step closer to realising the development of an exciting new device they have been working on for more than two decades.

The device, known as OcuLinx™, will change the way cerebrospinal fluid pressure is measured in people across the country, overseas and even in space. The hope is to reduce the need for the overly invasive and risky procedures used currently – such as drilling a hole in the head or putting a large needle into the back.

It was while Professor Morgan was completing his PhD over 20 years ago that he first became interested in the role of cerebrospinal fluid pressure in generating forces across the back of the optic nerve. "We realised that it was equally important as eye pressure. So we started investigating how to measure this pressure, as no one had done that before," said Professor Morgan.

Aleksandar Vukmirovic, Research Engineer at the Lions Eye Institute, with the Hon John Quigley MLA and a prototype of the device

"We spent 10 years taking lots of measurements from patients, and discovered the pressure pulse was being sent forward into the eye. This was a huge breakthrough, and allowed us to go on to develop a method to measure this pulse," he said.

The result is a non-invasive, handheld prototype that is now being developed for commercial use by the Institute's Aecona Pty Ltd, and in close consultation with Professor Morgan.

A recent State Government Innovation Seed Fund grant of $500,000 will kickstart the development of the device, however Professor Morgan said philanthropic support was crucial, especially in the early years. "I am grateful for the support of a number of donors, over many years, which has enabled the team and I to continue our innovative research," he said. "Without that support, we would still be asking the same questions we were over 20 years ago."

Collaborators include the Sir Charles Gardner Hospital Neurology and Neurosurgery departments, Royal Perth Hospital, Murdoch University, NASA, PhD students and professors based locally and overseas. Continued support will be vital to assist ongoing research to improve the accuracy of the device.

Did you know?

Cerebrospinal fluid (CSF) bathes the brain and spinal cord, flowing up and around the optic nerve. CSF pressure, also known as intracranial pressure, is the pressure in that fluid space. Raised intracranial pressure is a concern in patients with head trauma, brain tumour or stroke and can cause damage to the brain and the optic nerve. It can also cause complications from glaucoma and idiopathic intracranial hypertension. Currently the only way to measure intracranial pressure is through particularly invasive methods such as intracranial or lumbar punctures.

Save the date
for these exciting events

2022 Ian Constable Lecture

The Lions Eye Institute is delighted to announce the 2022 Ian Constable Lecture will be presented by Professor Thomas W Gardner, who is joining us from Michigan, USA after having patiently waited two years for COVID-19 restrictions to lift.

The lecture will be held on Wednesday, 12 October at The University Club of Western Australia.

Professor Thomas W Gardner

Professor Gardner is scientific co-director of the Mary Tyler Moore Vision Initiative, and Professor of Ophthalmology & Visual Sciences, Molecular & Integrative Physiology and Internal Medicine at the University of Michigan.

In his lecture, Professor Gardner will examine how we define and name diseases, and the implications for diagnosis and treatment.

DATE	**Wednesday, 12 October 2022**
TIME	**Lecture commences at 7pm**
LOCATION	**The University Club of Western Australia**
TICKETS	**Available through Eventbrite https://bit.ly/3CbOOKg**

Join us at this year's Telethon Family Festival!

PROUDLY SUPPORTED BY telethon 7

We are very excited to once again be part of Telethon Family Festival.

The 2022 Telethon Family Festival will be held at the new home of Telethon, RAC Arena, on Sunday, 23 October.

The Telethon live broadcast will take place inside the arena from 7pm Saturday, and meanwhile on Sunday the surrounding streets will come alive with entertainers, food trucks, rides and plenty of stalls to entertain the kids and grandkids for hours on end.

Don't miss the activities at the Lions Eye Institute stall, or a chance to meet our friendly mascot Iris.

DATE	**Sunday, 23 October 2022**
TIME	**10am to 4pm**
LOCATION	**RAC Arena**
TICKETS	**Available soon**

Become a Sight Saver today

90% **of vision loss is preventable or treatable. Together we can be the solution.**

By becoming a Sight Saver, and donating to the Lions Eye Institute each month, you can help uncover research breakthroughs, transform lives and give hope to people facing blindness and eye disease.

Sight Saver members receive:

- research updates
- event invitations throughout the year
- a tax deductible receipt at the end of each financial year

Giving monthly allows the Lions Eye Institute to plan ahead for future sight saving research with the knowledge that your support is ongoing.

Setting up your regular donation is easy.

- You choose the donation amount.
- All donations over $2 are tax-deductible and a receipt is sent automatically at the end of each financial year.
- You can opt out or change your donation amount at any time.

Please fill out the form below (indicating monthly payment) and return it to our reply paid address, or call Carolyn in fundraising on (08) 6382 0566 to set up your automatic monthly donation.

Yes I want to save sight

Please accept my donation of $..... (Donations over $2 are tax deductible)

☐ Please make my donation monthly, I want to be a Sight Saver

Please find enclosed my ☐ cheque ☐ money order OR, please debit my ☐ Mastercard ☐ American Express ☐ Visa

Card No: ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ Expiry Date: ___ ___ / ___ ___

Cardholder's Name: ..... Signature: .....

Tax receipt details:

Name:.....

Address: .....

Suburb: ..... Postcode:.....

Telephone:..... Email: .....

☐ I would be interested to learn more about how I can include the Lions Eye Institute in my Will.

☐ I have already provided for the Lions Eye Institute in my Will.

☐ I would like to be included in donor recognition.
We recognise the generosity of donors on our donor recognition board, website and in our annual report.

Be a sight saver

Your donation helps eradicate blindness

Mail to:
Lions Eye Institute
Reply Paid 62815
Nedlands WA 6009
(No stamp required)
Or call (08) 9381 0777