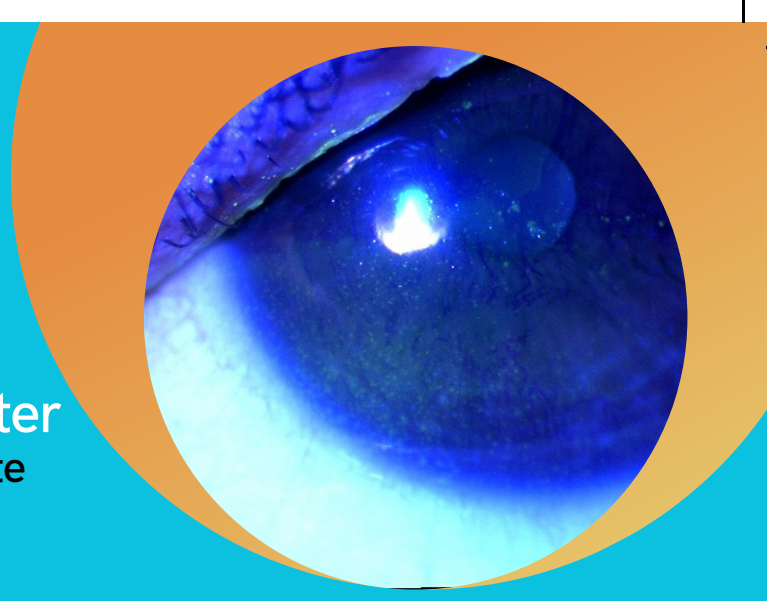


THE VIEW

Corneal Research Group Newsletter
The University of Sydney, Save Sight Institute

2023 | VOLUME 11



Welcome to The View, the newsletter of the Corneal Research Group. Corneal diseases remain a major cause of irreversible blindness globally and affect all ages. The cornea, the eye's window, is essential for clear sight. Patients suffering from corneal disease have unmet clinical needs due to poor sight and severe discomfort due to the cornea's rich sensory pain fibre innervation. The Corneal Research Group aims to improve the lives of patients with corneal diseases through developing novel therapies as well as ensuring that available therapies are effective and safe.

The Corneal Research Group has now grown to over 20 members who are all seeking to find solutions to blinding and common corneal diseases. I am extremely proud of the achievements of our group members; three PhD's have recently been awarded to Dr Maria Cabrera Aguas, Dr Jackie Tan and Dr Annette Hoskin. I am also pleased to welcome Dr Ngozi Chidi-Egboka who has recently completed a PhD in dry eye and Dr Daniel Lindegger from University College London, United Kingdom to the group.

Our work on the Save Sight Dry Eye Registry is featured in this issue of The View. The registry is the first global registry that allows both ophthalmologists and optometrists to track the outcomes for dry eye treatments.

Sincerely

Professor Stephanie Watson OAM
Head, Corneal Research Group | Save Sight Institute

Newsletter Highlights

CORNEAL RESEARCH GROUP PROJECTS

SAVE SIGHT DRY EYE & KERATOCONUS REGISTRIES

SERIOUS OCULAR INFECTIONS, THERAPEUTICS & TECHNOLOGY

CELEBRATING TEAM MEMBERS

EVENTS:
KERA CLUB & DRYEYECLUB:
SEEING OUTCOMES

SUPPORT & COMMUNICATIONS



THE UNIVERSITY OF
SYDNEY
—
Save Sight
Institute



**Save Sight
Registries**

Seeing Outcomes

Corneal Research Group Projects

The Corneal Research Group aims to improve the quality of life for people affected by corneal and ocular surface diseases by using a unique and sophisticated platform for tracking the long-term effectiveness and safety of treatments, and developing new solutions for corneal infection, trauma, and stem cell deficiency.

Fight Corneal Blindness (FCB!)

The Fight Corneal Blindness Project is part of the Save Sight Registries (SSR) and consists of a dry eye and keratoconus module savesightregistries.org.

Save Sight Dry Eye Registry

The Save Sight Dry Eye Registry is the first international interdisciplinary registry that incorporates both ophthalmologists and optometrists. The registry comprises of a sophisticated online data collection platform designed to fight dry eye disease through timely provision of relevant information to practitioners and to patients. The registry enables easy access to patient outcomes from emerging and current treatments and surgical procedures for dry eye disease.

Benefits of the Registry

The Save Sight Dry Eye Registry:

- Allows patients to see and understand their treatment journey and outcomes.
- Facilitates treatment performance benchmarking for the clinicians using graphical tool.
- Highlights treatment patterns that lead to best outcomes.
- Aids in the development of strategies to reduce the risk of dry eye disease.

Capture of Real World Data for Dry Eye



- Since March 2020, the Save Sight Dry Eye Registry has collected data on over 654 baseline clinical visits.
- One year data from 800 eyes from 31 clinicians across practices in Australia, Spain, Germany and United Kingdom showed that 93% of patients suffer from dry eye disease due to excessive tear evaporation and eye dryness following insufficient tear oil supply from the eyelid meibomian gland.
- Worse dry eye symptoms and visual functioning were associated with poorer anxiety and depression scores.
- Clinicians should be aware that the mental health of symptomatic dry eye patients particularly with poor visual function may be compromised. Regular comprehensive evaluation of patient reported outcomes, particularly symptoms using validated questionnaires is essential.

Save Sight Keratoconus Registry

The mental health impact of keratoconus

Keratoconus blurs vision and most commonly onsets in teenagers and young adults who are otherwise healthy. Keratoconus may impact life aspirations as well as quality-of-life. Whether keratoconus affects mental health is not understood. Using the Save Sight Keratoconus Registry, an international, web-based patient database, clinicians routinely collect data on the signs and symptoms of keratoconus including anxiety and depression related symptoms. Our study found that:

- Keratoconus had a negative effect on mental health and emotional well-being.
- Worse mental health scores were associated with worse vision, higher differences in keratoconus between the two eyes, and more severe disease.
- Mental health impacts were often found to be greater than the effects on vision.
- Over time, mental health outcomes improved suggesting that treatment of the keratoconus and patient acceptance may have had positive mental health effects.



Keratoconus patients can be reassured that over time their mental health can improve, if it has been impacted, and researchers can use the data to find treatments able to address the potential mental health impacts of keratoconus.

Serious Ocular infections

Our projects aim to investigate the causes and treatment interventions for a range of corneal infections including:

- **The Bacterial Ocular Surveillance System' (BOSS)** has provided the first antimicrobial resistance surveillance data for bacterial corneal infections in Sydney in 2016. **The BOSS** promotes evidence-based antimicrobial use for corneal infection potentially saving sight. The current Australian empiric guidelines for bacterial corneal infections includes eye drops of ofloxacin, or combination of eye drops of cefalotin plus gentamicin. The 2017-18 BOSS reported no significant difference between cover from ofloxacin or cefalotin plus gentamicin. However, a treatment with chloramphenicol plus ofloxacin or chloramphenicol plus gentamicin, had significantly improved cover than the current recommendations. In 2022, a wider system was implemented across Australia with data from Perth, Melbourne and Adelaide with the support from the Australian Vision Research.
- **Herpes Simplex keratitis (HSK)** is the leading cause of infectious blindness in developed nations and is commonly seen at the Sydney Eye Hospital. To save sight we have developed and implemented into practise the first Australian guidelines for anti-viral therapy for this infection. Evaluation of the guidelines has demonstrated that they have improved practise and educational videos have informed trainees.

VIDEOS

- [Educational video to support the diagnosis of herpes simplex keratitis for trainees.](#)
- [Educational video to support the treatment of herpes simplex keratitis.](#)

Therapeutics and technology

We focus on innovative solutions to restore sight and eye health in a range of corneal and ocular surface diseases, with a particular interest in stem cell repair, sutureless surgery, dry eye and ocular trauma.

• Stem cells - Sydney Nano

Stem cells are programmable human cells that can be used to repair tissues. Disease or injury of the cornea's stem cells is a condition known as Limbal stem cell deficiency which can cause pain and impair vision. We developed a world-first technique where stem cells were applied to the ocular surface with modern contact lenses to heal the cornea and restore vision. At the Save Sight Institute in collaboration with Sydney Nano we are developing novel nano-therapeutics to optimise our stem cell technique. The work is currently being undertaken by Dr Daniel Josef Lindegger, an international academic scholar, postgraduate student with background in clinical ophthalmology, ophthalmic surgery and science. Daniel joined Prof Watson's renowned Corneal Research Group in 2023 Australian summer.

• Ocular Trauma

Eye injuries can have a devastating and sudden impact on an individual and those around them. Serious vision loss can result from a range of circumstances, including at work and at play. In Australia, common causes of eye injury range from easily accessible objects in an around the home, such as cleaning chemicals and D-I-Y activities such as hammering and drilling. Patients at higher risk include those who have had previous eye surgery, high myopes and those with keratoconus, and those participating in high-risk activities. At risk individuals should ensure they wear well fitted eye protection appropriate for the task.

Celebrating team members

Dr. Maria Cabrera-Aguas



Dr Maria Cabrera-Aguas was awarded her Doctor of Philosophy degree in December 2022 for her thesis on [the Development, implementation and evaluation of a treatment guideline for herpes simplex keratitis.](#)

Dr. Jackie Tan



Jack completed his PhD thesis entitled [Sutureless Corneal Surgery](#) in June 2022. This work evaluated a novel chitosan adhesive for sealing penetrating corneal wounds and returned promising results. Human trials are anticipated.

Dr. Annette K. Hoskin



Dr Annette K. Hoskin BOptom, MBA, PhD, was awarded Doctor of Philosophy degree in April 2023 for her thesis titled ["Defining and Rectifying the gaps in our ability to record and measure eye injuries internationally"](#).

OUR TEAM



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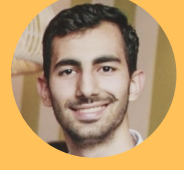
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EVENTS

DryEyeClub: Seeing Outcomes

Dry Eye Disease Webinar hosted by Save Sight Institute Corneal Research Group. This event will feature talks on the latest advancements in dry eye disease research and treatment, patient reported outcomes, and understanding patient perspective from lived experience.

When Tuesday 18th July 2023, 5pm-6pm.

Where Online, via Zoom.

Registration Here 



KeraClub 2023 - Save the Date

The 8th annual community event for people with keratoconus, 'KeraClub' is co-hosted by Save Sight Institute, Sydney Nano and Keratoconus Australia. The latest advancements in keratoconus management will be featured. The KeraClub 2023 will be chaired by Ms Michelle Pritchard, a renowned violinist who has a lived experience of keratoconus.

When Thursday 9th November 2023.

Save the Date! More info to follow.

Registration Here 



Contact or Follow us on our community media platforms to get alerts on the latest research findings



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SUPPORT OUR RESEARCH

We can't do what we do without the support of our patients and community. Our research is funded 100% by grants, donations and bequests,

To help us find new and improved ways to save sight please consider making a donation to the Corneal Research Group via our donation form online at:

<https://qrco.de/bdsgix> or scan the QR code and select **Corneal Research Group**:



Donations over \$2 are tax deductible.

If you're interested in discussing and making a substantial contribution to the Corneal Research Group, please contact Narina Janian (narina.janian@sydney.edu.au or +61 437 533 725)

