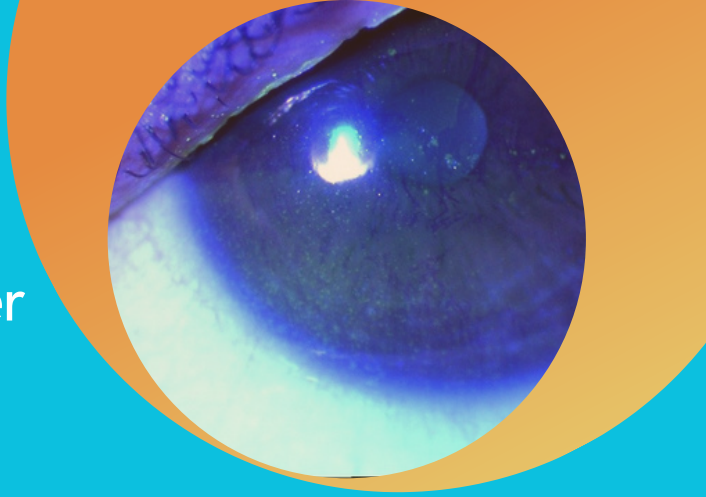


THE VIEW

Corneal Research Group Newsletter The University of Sydney

2026 | VOLUME 14



The View highlights the achievements of the Corneal Research Group at the University of Sydney and our shared commitment to improving eye health.

Our research focuses on diseases of the cornea—the clear front window of the eye—which is essential for good vision. Around the world, corneal diseases remain a major cause of irreversible blindness and everyday visual disability, affecting people of all ages. Because the cornea is richly supplied with sensory nerves, damage or disease can also cause significant discomfort and pain.

Many patients living with corneal disease continue to face unmet clinical needs. At present, there are limited curative treatments, and more real-world evidence is needed to better understand how existing therapies perform in everyday clinical care. Addressing these gaps is at the heart of our research program.

Over the past year, the Corneal Research Group's researchers and students have published internationally significant work and delivered real-world impact. Just as importantly, we are helping to train the next generation of eye health experts, including undergraduate and postgraduate students and clinician-scientists, to strengthen capacity across the sector. Our clinical trials have provided patients with access to promising new treatments that would otherwise not be available.

I would like to warmly congratulate the research team on their outstanding achievements over the past year, which you can read more about in this issue of The View.

Your support makes this work possible. Please consider supporting the Corneal Research Group so that we can continue to discover new knowledge and advance care for patients living with corneal disease.

Sincerely,

Professor Stephanie Watson OAM FARVO
Head of Ophthalmology and Corneal Research Group,
Sydney Medical School, The University of Sydney

Newsletter Highlights

SAVE SIGHT DRY EYE & DRY EYE DISEASE CLINICAL TRIALS

KERATOCONUS RESEARCH NETWORK

ARTIFICIAL INTELLIGENCE AND CORNEAL CONDITIONS

BACTERIAL OCULAR SURVEILLANCE PROGRAM

OCULAR STEM CELL THERAPIES

EVENTS:

KERA CLUB, DRYEYE CLUB & CORNEAL STEM CELL CLUBS

CELEBRATING TEAM MEMBERS

SUPPORT OUR RESEARCH

You can make a donation by scanning or clicking on the QR code below and select 'Cornea Research Group'



Save Sight Dry Eye Registry

Patients with dry eye disease suffer with painful eyes and blurred vision despite available treatments. The impact of dry eye disease on quality of life can be as severe as having moderate to severe angina.

The Save Sight Dry Eye Registry led by the Chief Investigator Professor Stephanie Watson OAM FARVO is the first international collaborative dry eye registry across ophthalmology and optometry to collect data from everyday clinical practice on long-term treatment outcomes.

Our publication using data from the Save Sight Dry Eye Registry revealed a significant mental health burden from dry eye disease beyond clinical signs. Dry eye had a profound impact on the overall quality of life. We highlighted the need for individualised treatment approaches and a holistic management strategy. Our real-world findings from the registry have been presented each year at our annual online patient and community focused event, the 'DryEyeClub' with over 600 attendees learning of the latest developments in dry eye disease research and treatment.



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QUESTIONNAIRES - VISUAL ANALOGUE SCALE		
Questionnaire	Score	Completed at
Ocular Surface Disease Index	Severe: 93.75 PHQ-4: 9.0 (Anx: 5.0, Dep: 4.0)	16/02/2021
Ocular Comfort Index	Severe: 55.0 PHQ-4: 9.0 (Anx: 5.0, Dep: 4.0)	16/02/2021
Ocular Surface Disease Index	Severe: 45.83 PHQ-4: 7.0 (Anx: 5.0, Dep: 2.0)	11/05/2021
Ocular Comfort Index	Mild: 30.0 PHQ-4: 7.0 (Anx: 5.0, Dep: 2.0)	11/05/2021
Ocular Surface Disease Index	Severe: 52.08 PHQ-4: 6.0 (Anx: 4.0, Dep: 2.0)	22/06/2021
Ocular Comfort Index	Mild: 40.0 PHQ-4: 6.0 (Anx: 4.0, Dep: 2.0)	22/06/2021

Figure shows data for an individual patient's responses to dry eye symptoms questionnaire ('Score') and screening questionnaire for anxiety and depression ('PHQ-4') over 3 clinic visits. A Patient Health Questionnaire-4 (PHQ-4) score of 3 or more suggests anxiety and depression.

Keratoconus Research Network

Keratoconus with onset in childhood and young adults, is a progressive condition that warps the cornea leading to significant impacts on quality of life. The Keratoconus Research Network team led by Professor Stephanie Watson OAM and Dr Himel Kandel conducted several impactful studies over the past year. Collectively, this work has informed clinicians on the best treatments for and the safest ways to prevent disease worsening in keratoconus. Our accreditation for use of the Save Sight Keratoconus Registry with the Royal Australian and New Zealand College of Ophthalmologists and Optometry Australia for Continuing Professional Education has enabled clinicians to benchmark their practice against their peers driving improvements in care. Whilst we improve current care for patients, our collaborations with biomedical engineers have enabled us to progress the development of new therapies.

Advances in keratoconus management

In Australia, over 20 years, we found significant shifts in treatment patterns for keratoconus. In our paper by lead author Dr Richard Kha, corneal cross-linking (CXL), to prevent keratoconus worsening, has increased markedly, particularly among younger patients, since Medicare provided a rebate towards procedure costs in 2018, while the number of corneal transplant procedures has declined. Advances in contact lens technologies, especially scleral lenses, are also enabling more patients to avoid surgery. Unfortunately, disparities in access to care persist across patient populations.



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Finding out which treatments work and guiding clinicians in dry eye disease management

Topical ciclosporin

Topical ciclosporin A is a prescription eye drop used to treat underlying eye surface inflammation in chronic dry eye disease. Professor Stephanie Watson OAM FARVO and Dr Ngozi Chidi-Egboka collaborated with a team of national experts to develop evidence- and consensus-based recommendations for prescribing topical ciclosporin A (e.g., Ikervis®, Cequa®) in dry eye and ocular surface disease. These recommendations will improve patient care and the quality use of medicines by qualified ophthalmologists and optometrists in Australia. The work has gained wide professional and media recognition attracting up to 2,124 full-text views in the last year, invited presentations at leading national conferences and commissioned Continuing Professional Development education articles in two national magazines.



[DOWNLOAD HERE](#)

We conduct clinical trials on ocular surface diseases, including dry eye diseases to bring new therapies to the patients in collaboration with the Sydney Eye Hospital.

If you are interested in participating in a clinical trial, please contact:

Dr Ngozi Chidi-Egboka on her email: ngozi.chidiegboka@sydney.edu.au

Breast cancer and dry eye disease

Our studies of the ocular surface complications of chemotherapy for breast cancer found that complications such as dry eye disease were not uncommon. Patients were also often unaware that their ocular symptoms were due to chemotherapy. We are currently recruiting patients to investigate the underlying causes of this dry eye condition and increase awareness amongst oncologists of the potential for ocular side effects with chemotherapy.

Corneal disease in Aboriginal and Torres Strait Islander People

This study conducted by Dr Angus van der Nagel highlighted both progress and ongoing disparities in corneal disease, including reduced prevalence of trachoma alongside persistent gaps in keratoconus and corneal infections. We recommended the need for culturally appropriate care and improved access to eye health services in Aboriginal and Torres Strait Islander people.



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Corneal crosslinking in children with thin corneas

Corneal cross-linking (CXL) is recommended for children with keratoconus due to the high risk of disease progression. Some children have corneas that are too thin for standard CXL. In this study, we evaluated real-world outcomes of CXL in these patients. We found that corneal shape and vision were generally stabilised following treatment, suggesting CXL may be a viable option even in these cases. Some complications included corneal scarring and infection, highlighting the importance of careful clinical monitoring.



[DOWNLOAD HERE](#)

Corneal stabilisation following contact lens cessation

For corneal assessments (i.e prior to cataract surgery), patients are advised to stop wearing contact lenses because they can alter corneal shape. Our study with lead author Dr Ali Abid found that the time for the corneal shape to stop changing after contact lens wear varied widely, depending on lens type, ranging from hours to several weeks. We recommended personalised guidance on when to cease contact lens wear prior to corneal assessments, along with careful case selection and clinical monitoring, to help ensure accurate measurements.



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Artificial intelligence and corneal diseases

Artificial intelligence and patient-reported outcomes

Patient-reported outcomes are used in clinical care and research to accurately measure the patient experience of a disease and the effects of treatment. We found with lead author Dr Luke Tran that artificial intelligence is underutilised in patient-reported outcome research in ophthalmology. To ensure emerging technologies deliver meaningful benefits to patients beyond diagnostic accuracy, we recommended that patient-reported outcomes research could be assisted by artificial intelligence.



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Artificial intelligence to diagnose corneal infections

This project led by Dr Maria Cabrera-Aguas, head of the Corneal Infections Program of the Corneal Research Group, uses artificial intelligence to help identify the type of corneal infection—bacterial, viral, or fungal—using eye images. Early and accurate diagnosis is important to ensure patients receive the right treatment as quickly as possible. This research aims to support clinicians in making faster and more accurate decisions, ultimately improving patient outcomes. The project is partially funded by the Perth Eye Foundation and the Claffy Foundation.

Patients are being recruited in Sydney and Perth. The photographs, taken with a mobile phone, will be used to train and evaluate artificial intelligence models. This potential rapid and accurate tool could be used in telemedicine in rural and remote communities.

Corneal infections

The Bacterial Ocular Surveillance System (BOSS)

This project was established in collaboration with Prof Monica Lahra, NSW Health Pathology to monitor antibiotic resistance in bacterial corneal infections in Sydney in 2016. The BOSS expanded to Melbourne, Perth, and Adelaide with financial support from Australian Vision Research in 2020.

Data from the 2019-2024 national report shows that coagulase-negative staphylococci were the main bacteria causing this infection. One in 4 cases caused by this bacterium were resistant to cefalotin, one of the first-line antibiotics to treat this infection.

This project was highlighted in the publication 'Antimicrobial resistance in ocular infection: A review' which was among the top 10 most-cited papers in 2024, attracting 7118 full-text views to date.

An ongoing monitoring system is needed to provide up-to-date evidence-based recommendations for the initial antibiotic therapy to avoid complications such as loss of vision or even the eye.



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Ocular stem cell therapies

Australasian consensus recommendations on ocular stem cell therapies

Stem cells hold promise for treating diseases of the cornea and ocular surface. Using published evidence we were able to make recommendations on the safe and ethical use of stem cell therapies for corneal and ocular surface diseases. While select treatments show promise, the guidance emphasises evidence-based use within appropriate clinical settings and cautions against unregulated therapies.



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EVENTS

DryEyeClub: Seeing Outcomes 2026

Join us for a free online webinar to hear from eye research experts and clinicians on the latest developments in treating dry eye disease and improving patient outcomes. This event will be hosted by Professor Stephanie Watson OAM. Save the date!

When: Wednesday 29 July 2026

Time: 5pm-6pm.

Where: Online, via Zoom.

[REGISTER HERE](#)



Corneal stem cell Club 2026

Join us for a free online webinar to hear from eye research experts and clinicians on the latest developments on corneal stem cell therapies for limbal stem cell deficiency and other ocular surface conditions and improving patient outcomes. This event will be hosted by Professor Stephanie Watson OAM. Save the date!

When: Wednesday 23 September 2026

Time: 5pm-6pm.

Where: Online, via Zoom.

[REGISTER HERE](#)



More information:

Kamila Isabelle Navarro

ssi.events@sydney.edu.au

KeraClub 2026

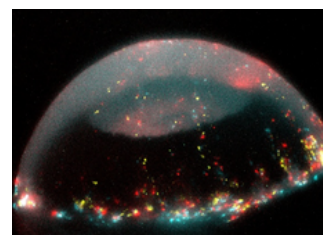
The 11th annual community event for people with keratoconus will be held in November close to World Keratoconus Day. The KeraClub is co-hosted by Save Sight Institute and Keratoconus Australia. The latest advancements in keratoconus management will be featured. The speakers include Professor Stephanie Watson OAM, Dr Himel Kandel, Mr Larry Kornhauser OAM, and invited optometrists and patients with keratoconus. Save the date!

When: Wednesday 28 October

Time: 5pm-6.30pm.

Where: Online, via Zoom.

[REGISTER HERE](#)



Dr Abbasi was awarded second place in the Centenary institute 2025 'When Art Meets Science' image prize competition. The winning image shows a mouse cornea from a Confetti reporter line after Cre recombination, with specific cornea stem cells labelled in distinct fluorescent colours allowing researchers to trace how these cells repair and regenerate the cornea over time

OUR TEAM



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CELEBRATING TEAM MEMBERS



Dr Abbasi was granted the PERIscope Commercialisation Award, a program that helps researchers explore and accelerate the commercial potential of their work, accelerating the journey from breakthrough research to market-ready solutions.



Dr Maria Cabrera-Aguas was presented the Best Poster award for her work on the 'Bacterial Ocular Surveillance System 2019-2024 national report' at the 2025 Royal Australian and New Zealand College of Ophthalmologists annual meeting. Prof Stephanie Watson accepted the award on her behalf.

Dr Ngozi Chidi-Egboka was awarded the 2025 Association for Research in Vision and Ophthalmology (ARVO) Foundation Research Catalyst Awards supporting her early-career research as a clinician scientist. She was successful with her academic promotion application for 2026 to Level B as a Research fellow and was recently celebrated by the Sydney Medical School.



Professor Watson and Dr Abbasi spoke at the 'Science for Sight' public information event, organized by the Centenary Institute in September 2025. The event raised awareness of eye diseases, particularly keratoconus, limbal stem cell deficiency, and dry eye by combining medical research with patient experiences. The event was attended by community members, patients, researchers, and clinicians.

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 bequest.

To help us find new and improved ways to save sight please consider donating to the Corneal Research Group via our donation form by scanning or clicking on the QR code and selecting **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 Amanda Craze (amanda.craze@sydney.edu.au or +61 422 943 686)

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

Don't forget to subscribe to our YouTube channel: [SaveSightInstitute](#)

Listen to the: Sydney Eye Podcast

Sign up at: <https://app.e2ma.net/app2/audience/signup/1934492/1924607/>

