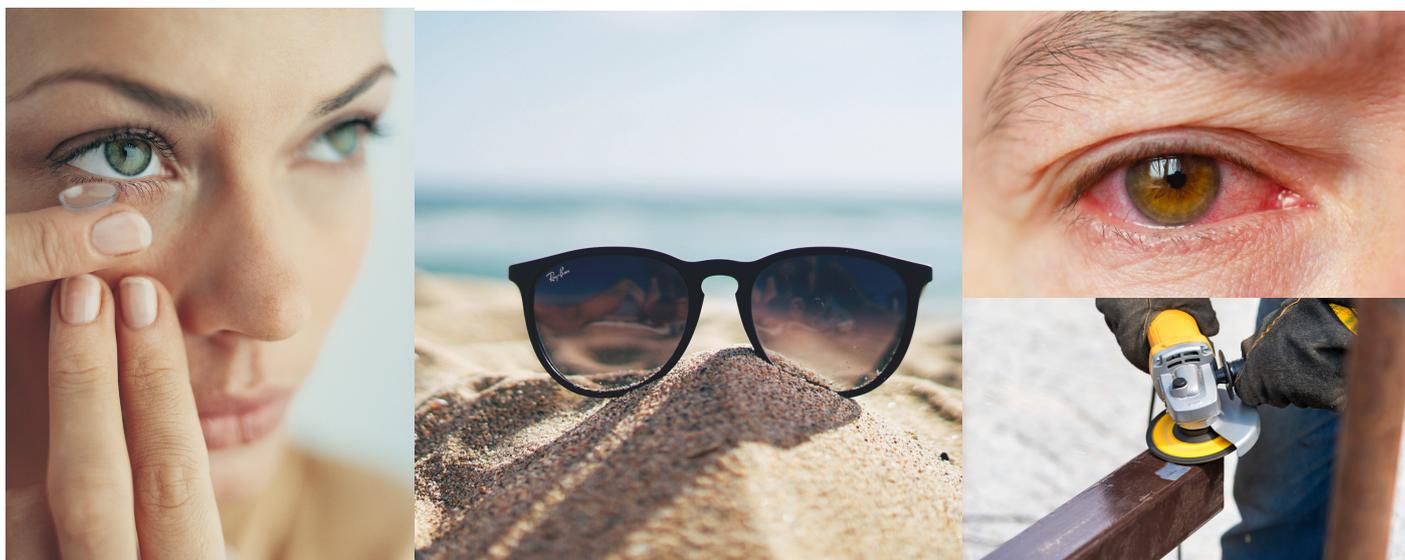


SPRING 2020

THE VIEW

Newsletter of the Corneal Research Group at
the University of Sydney, Save Sight Institute



WHAT'S NEW AT THE CORNEAL RESEARCH GROUP

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Welcome to the latest issue of **'The View'**. 2020 has been a year like no other, with COVID-19 impacting many activities. Despite the challenges I am pleased to present our research work from this year. I am really proud of my research team and their achievements.

Around the world vision is still being lost from corneal infection and the World Health Organisation (WHO) has declared corneal scarring a priority area. With infection and trauma commonly leading to scarring we need to prevent and treat vision loss from this. Our work has helped guide clinicians in their everyday practice and trained the next generation of eye care professionals. As well as our high impact publications in eye journals we have used social media and YouTube to share our findings. This newsletter will tell you about our work and if you would like to know more please visit our online resources.

I would also like to thank the supporters of our research, during these difficult times your help has been encouraging and importantly contributed to our efforts to save sight from corneal disease.

Prof Stephanie Watson
Head, Corneal Research Group

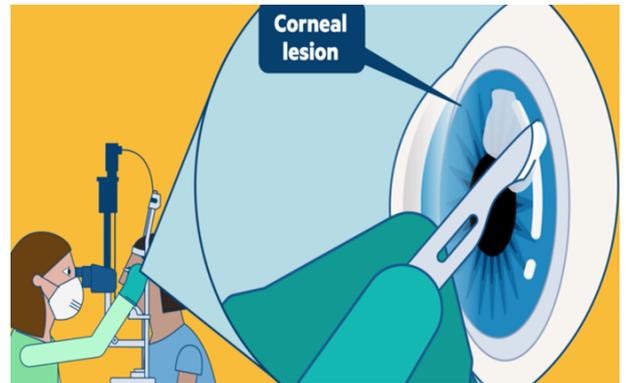
Bacterial Ocular Surveillance System (BOSS)

Team: Dr Maria Cabrera-Aguas, Ms Pauline Khoo, Prof Monica Lahra, Prof Stephanie Watson

The Bacterial Ocular Surveillance System (BOSS) has provided the first surveillance data for corneal infections in Sydney and is now reaching out across NSW. Ocular infection can irreversibly damage the eye's structures resulting in vision loss and even blindness. Prompt use of appropriate antimicrobials can preserve vision.

According to the WHO antimicrobial resistance (AMR) is emerging as a significant problem. The BOSS promotes rational antimicrobial use for ocular infection potentially saving sight.

The current Australian empiric guidelines for bacterial infection of the cornea includes eye drops of ciprofloxacin/ofloxacin, or combination of eye drops of cefalotin/cephazolin plus gentamicin.



The 2017-18 BOSS reported no significant difference between cover provided either with ciprofloxacin/ofloxacin vs cefalotin/cephazolin plus gentamicin.

However, a treatment with chloramphenicol plus ciprofloxacin/ofloxacin or gentamicin, had significantly improved cover.

Chloramphenicol in combination with other antibiotics seems to be an alternative to the Australian empiric antibiotics.

Travel associated microbial keratitis

Team: Dr Maria Cabrera-Aguas, Ms Pauline Khoo, Prof Monica Lahra, Prof Stephanie Watson

International travel is an important factor in the spread of AMR with travel to Asia and the Indian subcontinent posing the greatest risks for Australian residents, yet AMR is poorly studied for eye infections.

Travel to the tropics has been reported as a risk factor for contact lens-related bacterial keratitis (infection of the cornea) with *Pseudomonas aeruginosa* the most associated organism.



In our study, patients had mainly travelled to Southeast Asia.

The main associated bacteria were coagulase-negative staphylococci followed by *Pseudomonas aeruginosa*; and the patients were mostly contact lens wearers. There was no resistance to ciprofloxacin. However, this may change as there is increasing resistance across the globe

Primary health providers must consider travel abroad as a risk factor for microbial keratitis, especially amongst contact lens wearers, and promptly refer patients to a specialist centre for an appropriate management to avoid severe complications

You can access our article in Travel Medicine and Infectious Disease at:

<https://authors.elsevier.com/a/1b-i35G2B%7E8gj->

Antiviral therapy guideline for herpes simplex keratitis

Team: Dr Maria Cabrera-Aguas, Dr Yves Kerdraon, Prof Stephanie Watson

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.

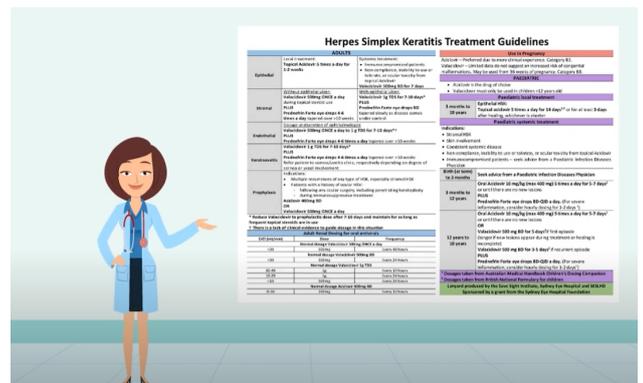
Evaluation of the guidelines has demonstrated that they have improved practise and educational videos have informed trainees.

The Royal Australian and New Zealand College of Ophthalmologists has now adopted the guidelines since April 2020.

We are currently conducting an audit to evaluate the continuing adherence to the guideline among clinicians.

Educational videos (available on our YouTube channel):

- Educational video to support the diagnosis of herpes simplex keratitis for trainees. <https://youtu.be/awvyfLua-Dc>
- Educational video to support the treatment of herpes simplex keratitis. In this video, we describe the treatment guideline. https://youtu.be/gg_q0YI7e4I



Ocular trauma

Team: Annette Hoskin, Dr Christopher Bartimote, Prof Stephanie Watson

Ocular trauma is responsible for a silent epidemic of vision loss, often due to subsequent infection.

In the elderly, we reported ocular trauma to occur more commonly following falls and in younger patients, it was associated with alcohol. Working with metal was also a common cause of injury often from DIY activities in the home, without appropriate eye protection.

Children's ocular injuries were more common, in males, with sticks and when there is more than one child present. World-wide, we found trauma still causing vision loss. Our data, which has highlighted how eye injuries happen, is now being used to develop strategies to prevent vision loss from ocular trauma.

Support: NHMRC Public Health and Health Services Postgraduate Scholarship

Common eye infections

Team: Prof Stephanie Watson, Dr Maria Cabrera-Aguas, Pauline Khoo

Not all red eyes are due to infections. Not all eye infections respond to antibiotic eye drops. Conjunctivitis is the most common eye infection; most cases are viral and do not require antibiotic eye drops.

Infectious keratitis (corneal infection) is a cause of blindness. It presents with pain, blurred vision, corneal opacity or hypopyon (pus inside eye). It is an emergency that requires prompt specialist treatment.

Infectious endophthalmitis (infection of the whole eye) is an emergency that has become more frequent with the use of intravitreal injections such as for macular degeneration. Intravitreal antibiotics are needed to try and prevent visual loss

You can access our article in Australian Prescriber at <https://www.nps.org.au/australian-prescriber/articles/common-eye-infections>

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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://www.sydney.edu.au/save-sight-institute/support-us/donate.html> and selecting **DONATE NOW** and then '**CORNEAL RESEARCH GROUP**'

Donations over \$2 are tax deductible.



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