

WCSM Eye-to-Eye Report: March 2021 – “The Rise of The Robot”

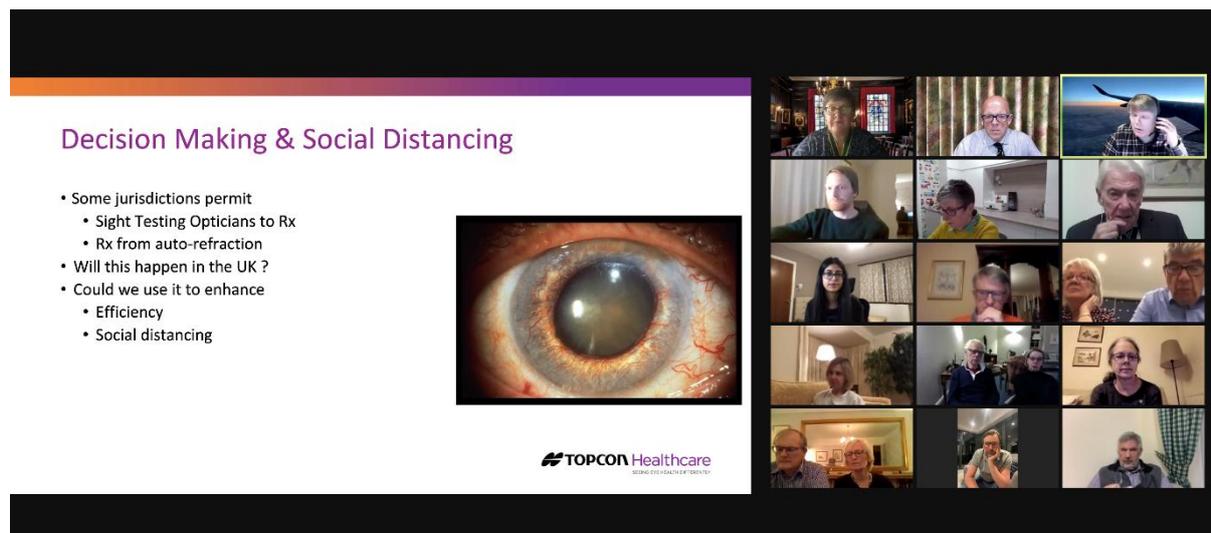
This month’s Eye-to-Eye - entitled “The Rise of the Robot” – explored how state of the art technology is being utilised in different settings to enhance ocular & public health, both here in the UK & globally.

The speakers for the evening were:

- Liveryman Nick Rumney: Nick is a third generation Optometrist who practices in the award winning BBR Optometry in Hereford. Nick is an honorary Professor at the University of Manchester, Visiting Professor at the University of Oulu, Finland and the current President of the European Academy of Optometry & Optics.
- Andrew Bastawrous: Andrew is an Ophthalmologist & Associate Professor of International Eye Health at the London School of Hygiene & Tropical Medicine and co-founder & CEO of Peek Vision – a social enterprise that seeks to bring better vision and health to everyone, with a focus on low and middle income countries. Peek’s technology and programme design is being used to develop sustainable access to eye care.
- Reena Chopra: Reena is an Optometrist based at Moorfields Eye Hospital and a PhD student at the UCL Institute of Ophthalmology. Reena is a recent recipient of the WCSM Ruskell Medal for her research in a collaboration between Moorfields Eye Hospital, DeepMind and Google Health, looking at being able to train an artificial intelligence (AI) system to predict whether a patient with wet age-related macular degeneration in one eye would develop the condition in their second eye.

Our three speakers, all with different backgrounds, shared their own perspectives of using new & emerging technology in the sphere of eye health.

Nick began the evening by setting the scene on how highly regulated the profession of optics & optometry is in the UK dating back some 100+ years and how the process of testing sight has evolved slowly until now. He highlighted recent changes in practice in the light of the COVID 19 pandemic – reduced contact time with patients, increased infection control & prevention & social distancing measures making adaptation essential in the process of examining eyes.



Decision Making & Social Distancing

- Some jurisdictions permit
 - Sight Testing Opticians to Rx
 - Rx from auto-refraction
- Will this happen in the UK ?
- Could we use it to enhance
 - Efficiency
 - Social distancing

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Nick shared his experience of using an automated digital binocular refraction system as a part of the eye examination. Tablet-operated controls facilitate social distancing and the space taken up by equipment in a consulting room is reduced. The system allows clinicians & ancillary staff to carry out the process of refraction (as a delegated function for ancillary staff). Optometrists can then interpret & refine these results as required in an efficient and safe manner for both staff and patients.

Andrew then followed & shared a whistle-stop tour of the work he has done with Peek Vision.



Peek Vision powers eye health organisations with a proven suite of solutions to expedite delivery of care. The result is that more people can get the treatment they need. Andrew illustrated perfectly that by training lay people (such as teachers & volunteers) in the countries in which they work, large groups of people can be triaged & screened using Peek smartphone apps & other software. The people who need interventions can then be clearly identified & directed to eyecare professionals who can deliver the care they need. Integrated, portable applications mean that more people who need expert care can access it in countries where resources & clinicians are scarce.

Andrew presented a short video at the end of his presentation showing the outcome of cataract surgery on an elderly man who had been 'blind' for a lot of his life. His life was transformed, his independence regained & sight restored. Really powerful, moving images!

Reena Chopra, the last of the evening's presenters, is a young optometrist working towards her PhD at Moorfields on joint projects with DeepMind/Google Health. She shared the research she has been doing using AI and its applications in eyecare.

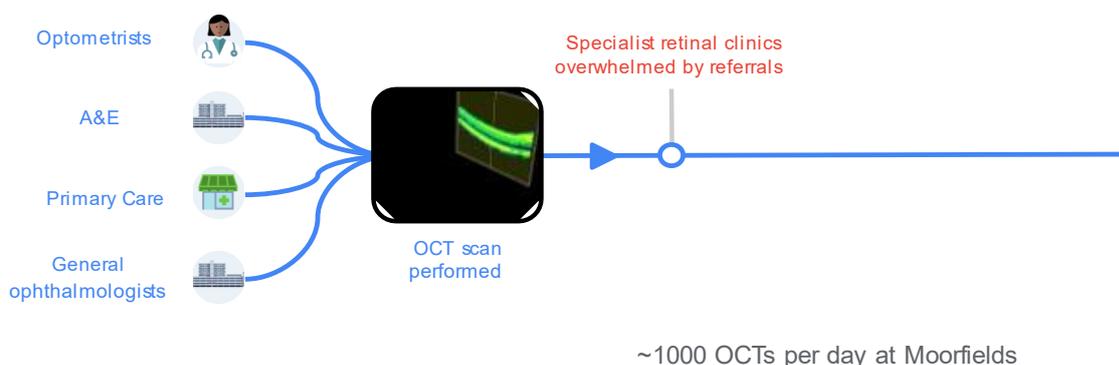
Reena very clearly described how AI works and its advantages in speeding through repetitive tasks and allowing more time for interpretation of data sets.



The quality of data & modelling is crucial to the accuracy of the results we gain from AI. Experts have compared their own results with the predictions of AI systems & worked in conjunction with AI to enable us to have confidence in the results it produces.

Reena shared findings from her research which showed that in almost every case, AI was as accurate or more so than a panel of experts with years of experience. The most surprising outcomes were obtaining predictions of future disease from an OCT scan in only 50 seconds and AI's ability to determine the gender and key background information of a patient (eg smoker/non-smoker) from a retinal scan.

Using AI to read OCT



It was clear that the application of AI in a variety of healthcare settings will have a huge impact on public health in the near & distant future – exciting times ahead. The evening was rounded off by a lively discussion session among attendees and the Master's closing reflections on just how far technology has come in a very short time.

A poll at the end of the session showed 66% of participants strongly in favour of, and the remaining 34% broadly positive about, new technologies like those described being used to enhance delivery of eyecare & healthcare. There were no negative views amongst our (admittedly Zoom-proficient) audience.

Our next session, on 13 April, will focus on living to the full as we consider "A Day In The Life" of our panel, all of whom are blind or have significant sight loss. You can find more details in the events section on the home page of our website; www.spectaclemakers.com

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