Welcome to our first newsletter of 2018. Since our last newsletter we have proudly watched the graduation of the class of 2017 (pictured below) and welcomed 65 new students into the first year of the Doctor of Optometry program. We wish our graduating class all the best for their future roles in the health care sector and we are very excited to get to know our new cohort. In addition to teaching the Doctor of Optometry program, we also welcome all our new research focussed students, who are involved in a variety of programs (PhD, MPhil, MBioMedSci, and Honours programs). These students are involved in a breadth of research projects ranging from the directly clinically focussed, through to projects that discover new fundamental knowledge in the vision sciences. Without research endeavour, there is no evidence base to advance our clinical practice, and no development of new techniques and treatments. We are very proud of our research contributions which are recognised and have impact internationally. I’d encourage you to have a read through the summaries of our recent publications in this newsletter to get a flavour of recent work. Excitingly, many of these publications are authored by our research focussed students.

I would also like to highlight the upcoming 15th Scientific and 9th Educators meeting in Optometry (SEMO 2018, April 5-6th 2018). SEMO 2018 is being co-hosted by Deakin University and the University of Melbourne with a collaborative organising and program committee. SEMO has had a little hiatus since 2012, so we are very excited to reinvigorate this biennial meeting. The program is still being finalised, but approximately 60 abstracts have been received from representatives from all the optometry programs in Australia and New Zealand. The meeting is open to all, so if you are interested in attending, please engage with the SEMO Facebook page: https://www.facebook.com/2018SEMO/ and sign up for the meeting at: goo.gl/g8dt5v

If you have any suggestions or items for the next newsletter, please email:

Tom Cougan
(tcougan@unimelb.edu.au)

Items need to be submitted by August 31st 2018

Pictured are those that were in attendance at the Graduation ceremony on Wednesday December 13th, 2017.
Sustained Excellence in Learning and Teaching

Congratulations to Anthea Cochrane on being the recipient of the inaugural faculty of Medicine, Dentistry and Health Sciences Award for Sustained Excellence in Learning and Teaching for her initiative ‘Preclinic to Practice – developing work ready Optometry students in a postgraduate course’. This award celebrates the outstanding work of an academic who has demonstrated sustained excellence and achievement in learning and teaching for four or more years.

HealthTech Innovation Challenge

Congratulations to Selwyn Prea, Dr George Kong and Prof Algis Vingrys on being one of the four teams to receive a grant from the The Graeme Clarke Institutes - HealthTech Innovation Challenge (HTIC) 2017. This will allow them to continue their development of “Tablet technology for the early detection and monitoring of chronic eye disease”. Selwyn Prea one of our PhD students did a brilliant and inspiring pitch.

Melbourne Neuroscience Institute

The Department was visited by a couple of Year 10 students from the Melbourne Neuroscience Institute Work Experience Program at the Ocular Physiology and Ocular Biomarker Laboratories. Riya (Nossal High School) and Shraddha (Penleigh and Essendon Grammar School) spent 2 days with us learning about retinal biomarkers and diagnostic tools that we utilise in our research. It was fantastic having these budding scientists in our labs and wish them best of luck for the future.

RhD Colloquium

A big thank you to the student conveners for a brilliant Melbourne School of Health Sciences Research Higher Degree colloquium. A fantastic day providing a overview of MSHS graduate research, featuring over 60 oral and poster presentations in physiotherapy, social work, nursing, audiology, speech pathology, optometry and vision sciences. Particular congratulations to Optometry’s masters and PhD students who did a wonderful job presenting their exciting work.

Symposium on Visual Neuroscience

The University of Melbourne’s Symposium on Visual Neuroscience saw two of the most eminent neuroscientists speaking about how we keep the world still when our eyes move around so much and how artists have used clever tricks to make paintings more representative of our true visual experience of the world. It was a pleasure to have Columbia University’s Professor Michael Goldberg and Oxford’s Sir Colin Blakemore involved with this event.
Outreach Eyecare

In December, OD students: Lanka, Menaka and Erica, as well as Nuwan (OD graduate 2016) volunteered their services for an outreach eye care project in Sri Lanka. They were part of a larger team of volunteer optometrists from both Australia and Sri Lanka. Together the team examined around 500 patients each day and provided much needed eye care to around 2000 people over four days. They visited remote villages that would otherwise have no access to eye care. Global Hand Charity project team leader Regina Lau described the performance and attitudes of the Department’s OD students as exemplary in every area. “They were friendly, flexible and ‘able to rough it’ in some not so ideal circumstances. The team work was amazing and we were all feeling grateful to make some difference to people’s lives.

University of Birmingham Visit

Dr Lisa Hill from the Institute of Inflammation and Ageing, College of Medical and Dental Sciences at the University of Birmingham is visiting us in the Department for the next three months. She’ll be working on a joint project with Dr Holly Chinnery trying to find ways to improve corneal wound repair.

Australasian Neuroscience Society

In December 2017, Professor Vidyasagar convened and co-chaired a symposium on “Animals in Research” at the Annual Meeting of the Australasian Neuroscience Society. It was aimed at encouraging institutions and scientists to be more open about animal research and engage in pro-active communication with the public to promote better understanding of the value of animal research. DOVS was one of the sponsors of this symposium.

BioMedVic Awards

Congratulations to the Department’s Bao Nguyen on being a commendee in the 2017 BioMedVic Early Career Clinician Researcher Awards.

Ethics in Science

On December 7th 2017, Professor Trichur Vidyasagar from DOVS convened and co-hosted with Professor Marcello Rosa from Monash University a public forum on Ethics in Science. The panelists were internationally renowned scientists David Vaux AO (Walter and Eliza Hall Institute), Jakob Howhy (Monash), Lyn Beazley AO (UWA), Michael Goldberg (Columbia) and Sir Colin Blakemore (Oxford), who addressed some of the ethical dilemmas that face scientists and society today. The forum was moderated by ABC’s Bernie Hobbs and was co-sponsored by The University of Melbourne, Monash University, Florey Institute of Neuroscience & Mental Health and the ARC Centre of Excellence in Integrative Brain Function.
2017 Alumni Award

Congratulations to Andrew Harris, the 2017 recipient of the Department’s Alumni Award. Andrew has held key leadership roles in Optometry Victoria, Optometry Australia and the Australian College of Optometry. He is pictured (right) receiving his award from the Department’s Andrew Metha.

2017 Inspiring Student Award

Congratulations to Isaac Curkpatrick on being awarded the 2017 Inspiring Student Optometrist Award. Isaac is acknowledged for his work with the Country Fire Authority and we wish him success in the future!

Department of Optometry & Vision Sciences 10, 20-, 30- & 40-year Reunion Tours

The Department of Optometry and Vision Sciences at The University of Melbourne is holding an evening reunion tour on Thursday June 28th for the classes (final year) of 2008, 1998, 1988, and 1978. The tours provide an opportunity to visit the teaching, research and clinical facilities of the Department, to chat with current academic staff and most importantly to catch up with your peers. To find out more regarding this event please contact Bang Bui (bvb@unimelb.edu.au) for further information.

Helen Macpherson Smith Scholarship

Congratulations to Ms Anna van Koeverden (right) on receiving the Helen Macpherson Smith Scholarship, which will enable her to undertake her PhD studies to better understand the why neurons die in glaucoma, a disease estimated to affect some 300,000 Australians. This scholarship is awarded to high achieving female students undertaking research study at the University of Melbourne in scientific or technical disciplines or humanities and social sciences.

Student Achievements

Anna van Koeverden

Nikki Rubinstein completed her PhD thesis titled “Incorporating spatial information into visual field testing algorithms”.

Soumya Mukherjee completed his Masters project exploring difference in the way that axons are organised between individuals with short sightedness.

Cassie Brooks completed her MPhil thesis “Integration of auditory and visual temporal rate in aging”.

Andrew Harris (right)

Isaac Curkpatrick (left)

The class of 2008
Seeing Beyond Lecture Series October 2017
On Wednesday the 4th of October Dr. Holly Chinnery and Dr. Laura Downie presented at the Department’s Seeing Beyond Lecture Series. Thank you to all for coming along and joining in our discussion. Dr Chinnery and Dr. Downie discussed some of their latest research from the Department. Their work is shaping our understanding of how the cornea responds to injury (including in dry eye) and the role of omega-3 supplementation in ameliorating some of these effects, and highlights the critical role optometry-lead research plays in driving the future of the profession.

Seeing Beyond Lecture Series April 2018: Ophthalmic imaging: now and into the future
When: Wednesday 18th April 2018
Guest speakers: A/Prof Andrew Metha and Dr Christine Nguyen from the Department of Optometry and Vision Sciences
Times: 6.30pm – 8.00pm (please arrive at 6.00pm to sign in)
CPD points: 6 therapeutic points
Please register online at : http://go.unimelb.edu.au/mem6

Presentation summaries:

A/Prof Andrew Metha - Looking up-close at retinal vascular structure and function – now and into the future

Abstract: Increasing the spatial resolution of retinal imaging systems using Adaptive optics (AO) has already brought many benefits, making visible photoreceptor cells and fine elements of the human vascular tree. But enhanced spatial contrast itself is not enough to appreciate physiological processes; sequential images need to be gathered in rapid succession, using light that perturbs function in known ways if at all. We use a flood-illumination AO-ophthalmoscope equipped with a sensitive, high frame-rate areal camera to observe directly the stimulus-induced re-distribution of blood flow through the retina’s narrowest vascular elements: pre-capillary arterioles, the capillaries themselves, and post-capillary venules. We’ve characterized the range of immediate light-induced changes of vessel diameters to confirm the action of neurovascular coupling (functional hyperaemia) at the capillary level in living humans. We’ve also begun to survey the pulsatile nature of individual red cell flow through single capillaries, and how this is related to cardiac output. A full characterization of pulsatility heterogeneity in normal retinas permits comparisons to be made with diseased eyes, such as in diabetes where increased cell adhesion is hypothesized from animal models.

Dr Christine Nguyen - Looking beyond the eye: what the retina can tell us about the brain

Abstract: Imaging the retina has the capacity to tell us more than what is simply going on in the eye. As the retina is an extension of the central nervous system it can inform us about cortical health. This concept is familiar in vascular disease where regular optometric examinations form an essential component of diabetic management. Increasing evidence indicates this logic may extend to neurological diseases. Patients with multiple sclerosis, Alzheimer’s disease and Parkinson’s disease often complain of vision problems and exhibit changes to the retina that can be quantified with retinal assessment and imaging. This presentation will outline the current evidence and suggest ways in which optometrists can incorporate this knowledge into their everyday practice.
2018 has brought a number of changes to the optometric staffing at UMeyecare. Amongst the exciting news is that Tim Martin has been promoted to Level B by the University. Tim is the first Clinical Teaching Instructor that we have had since inception in 2008 that has been promoted to Level B.

A second piece of exciting news is that we have our first staff member on maternity leave. Maria Bui is now the proud mother of healthy baby girl. In her absence we have employed Wei-lin Tsai to take on most of Maria’s clinical teaching load. Joe Wang has also joined the core Clinical Teaching Instructor team 3 days a week. From last year, rather than having external CTI’s providing one session of teaching per week or per fortnight, we have been trialing having clinical supervisors attend for the whole day. Katrina Yap on Mondays, Justin Maher on Tuesdays (supervising the paediatric clinic) and Lahiru Kulathunga on Wednesdays are providing an energy and teaching consistency that is benefiting the students. Our overall staffing mix of two thirds time, full day a week, sessional and academic staff members is a good balance of consistency, engagement, and novel ideas that a teaching clinic thrives on. With all clinic staff involved in of a range outside activities including private practice, research, lecturing and preclinical teaching the students have access to a wide range of views and experience. What we would like to see is a few older heads in the clinic. Richard Vojlay, Russell Lowe and myself bring a different perspective again gained by years of experience in the profession. We would like to talk to other experienced practitioners that could bring their voice to the mix of clinical teachers.

Services

We have two recent equipment arrivals at UMeyecare: a Zeiss IOL Master and a Swept-source Tocpon Triton OCT-A.

The main function of the IOL Master is in the assessment of patients for cataract surgery at the RMH Ophthalmology@UMeyecare clinic on Friday mornings. A side advantage of having the A scan is in the monitoring of patients undergoing myopia management. We are seeing increasing numbers of patients seeking myopia management and the A scan is a valuable tool in these burgeoning therapies.

Swept Source OCT-A is still in its early days clinically. A group of patients that we have been using the new OCT on are patients with diabetic retinopathy. UMeyecare is collecting data on diabetic retinopathy through the Diabetic Eye Screening and Investigation Clinic (DESIC). Data is being collected on all enrolled diabetic patients at UMeyecare and for two collaborative research projects (involving CERA, Royal Melbourne Hospital, and the Royal Women’s Hospital).

Remember that private practitioners are welcome to refer their patients in to utilise all or part of the services provided by UMeyecare. We are happy to provide a consulting service to assist practitioners in managing complex contact lens fitting (including ortho K), myopia management (including atropine therapy), glaucoma assessment (with Graham Lakkis), occupational colour vision assessment (with John Parkes), and diabetes screening.
The association between retinal vein pulsation pressure and optic disc haemorrhages in glaucoma.


*We explored the potential relationship between optic disc haemorrhage, venous pulsation pressure (VPP), ocular perfusion pressure and visual field change in glaucoma. Higher VPP is associated with disc haemorrhage but the effect size is small.*

Can Home Monitoring Allow Earlier Detection of Rapid Visual Field Progression in Glaucoma?

Anderson AJ, Bedggood PA, George Kong YX, Martin KR, Vingrys AJ.


*We use computer simulations to show that increasing test frequency via home-monitoring helps detect rapid visual field progression in glaucoma sooner, despite assuming imperfect compliance and that home-monitoring tests are noisier than conventional perimetry.*

Orientation of the Temporal Nerve Fiber Raphe in Healthy and in Glaucomatous Eyes.


*We report marked population variability in retinal nerve fibre trajectories. This has potential importance for glaucoma assessment, where sensitivity could be improved by alignment of visual field and OCT data.*

Impact of supervised student optometry consultations on the patient experience.

Bentley SA, Trevaskis JE, Woods CA, Guest D, Watt KG.


*ACO patients view student involvement in their care as a highly positive and important experience. Concerns about patient satisfaction are unwarranted and should not prevent students being involved in patient care.*

Professor Algis Jonas Vingrys: optometry teacher, research collaborator and innovator.

Bui BV.


*An article highlighting the career and many achievements of the Department’s own Professor Algis Vingrys.*

Laser scanning in vivo confocal microscopy (IVCM) for evaluating human corneal sub-basal nerve plexus parameters: protocol for a systematic review.

De Silva MEH, Zhang AC, Karahalios A, Chinnery HR, Downie LE.


*This is a protocol for the first systematic review to consider the level of methodological rigour applied when using laser scanning in vivo confocal microscopy (IVCM) for clinical research.*
Blue-light filtering ophthalmic lenses: to prescribe, or not to prescribe?
Downie LE.

This editorial discusses the importance that claims and clinical recommendations relating to the prescription of blue-light filtering ophthalmic lenses remain consistent with the current, best-available research evidence.

Tear film evaluation and management in soft contact lens wear: a systematic approach.
Downie LE, Craig JP.

This review summarises knowledge relating to the effects of soft contact lenses on the tears and ocular surface, and provides a systematic approach to diagnosing and managing tear film anomalies.

Long-term sensorimotor adaptation in the ocular following system of primates.
Hietanen MA, Price NSC, Cloherty SL, Hadjidimitrakis K, Ibbotson MR.

When catching a ball, the eyes first saccade towards the ball, then an automatic eye tracking mechanism takes over. We show that repeated training leads to improved eye tracking, even though it was previously thought to be an entirely reflexive behaviour.

Retinal and Cortical Blood Flow Dynamics Following Systemic Blood-Neural Barrier Disruption.

To consider whether imaging retinal vasculature may be used as a marker for cortical vessels, we compared fluorescein angiography flow dynamics before and after pharmacological disruption of blood-neural barriers, and showed that disruption may be detected earlier in the eye.

Methods for In Vivo CRISPR/Cas Editing of the Adult Murine Retina.

Whilst CRISPR/Cas-based technology has been used to modify genes in mammalian cells in vitro, delivery into mammalian tissue and/or organs is more difficult. We outline a method to edit the genome in mouse retina using a using a dual adeno-associated virus vector-mediated CRISPR/Cas9 system.

Neural basis of forward flight control and landing in honeybees.
Ibbotson MR, Hung YS, Meffin H, Boeddeker N, Srinivasan MV.

Bees use the speed at which images move across their eyes to control safe landing.
The effect of blue-light blocking spectacle lenses on visual performance, macular health and the sleep-wake cycle: a systematic review of the literature.

Lawrenson JG, Hull CC, Downie LE.

This systematic review finds a current lack of high quality evidence to support using blue-blocking spectacle lenses for the general population to improve visual performance or sleep quality, alleviate eye fatigue or conserve macular health.

Mismatched summation mechanisms in older adults for the perception of small moving stimuli.

McDougall TJ, Nguyen BN, McKendrick AM, Badcock DR.

Previous studies have found evidence for reduced cortical inhibition in aging visual cortex. Here we investigate how such changes may influence the motion perception in older observers.

Daily vision testing can expose the prodromal phase of migraine.

McKendrick AM, Chan YM, Vingrys AJ, Turpin A, Badcock DR.
Cephalalgia. 2017 Jan 1:333102417741130. [Epub ahead of print]

Using home vision-testing methods used daily, we show that testing the perceptual surround suppression of contrast fluctuates during the migraine cycle, supporting the utility of this measure as an indirect, non-invasive assay of the balance between cortical inhibition and excitation.

Acute caffeine ingestion affects surround suppression of perceived contrast.


We find that acute caffeine ingestion alters the perceived contrast of targets presented against a non-uniform background, suggesting that acetylcholine, a brain neuromodulatory chemical, is involved in perceptual surround suppression.

Occipital GABA levels in older adults and their relationship to visual perceptual suppression.


Studies have attributed certain visual perceptual alterations in older adults to a likely decrease in GABA (Gamma Aminobutyric Acid) in visual cortex. We found performance on two visual tasks hypothesised to be related to GABAergic inhibition were not correlated with GABA concentrations measured using magnetic resonance spectroscopy, however.
Come visit a special University of Melbourne ‘Clinical Practice Tools’ booth in the trade exhibition at the SRC on Saturday 26th May - Sunday 27th May 2018. We welcome alumni, staff, colleagues and students to drop by for a visit!

**Stop by our booth to:**

- learn about a [free, online tool](https://commercial.unimelb.edu.au/custom-education/search-courses/optometry/myopia) that helps you provide up-to-date diagnosis & management of [age-related macular degeneration (AMD)](#).
- earn therapeutic CPD points by participating in our free, in-practice [pilot program](#) of the tool.
- help shape the next generation of practice tools, by taking a [short survey](#) about blue light exposure.

---

**2018 Myopia Management Masterclass**

Further to the success of our 2017 program, we are pleased to announce the dates for the 2018 Myopia Management Masterclass.

This two-day, interactive course is designed for optometrists seeking to further their expertise in the management of childhood myopia.

The course will be held at the University of Melbourne, and will be facilitated by a team of experienced researchers and clinicians, to provide practical insight into contemporary myopia management.

The program, coordinated by Dr Laura Downie, will involve a combination of lectures, case scenarios, collaborative discussions and workshops. The course includes a practical, clinic-based session to provide a hands-on experience with orthokeratology contact lens fitting.

**Dates:** Saturday 1st and Sunday 2nd September 2018  
**Where:** The University of Melbourne – Parkville campus  
**Cost:**  
1) Early bird at $900 + GST ($990), register on or before the 1st August.  
2) Later registration at $1200 + GST ($1320).  
**CPD points:** 36 points, with 18 of these as therapeutic points (pending approval)


Email: [tl-optometry@unimelb.edu.au](mailto:tl-optometry@unimelb.edu.au)  
Ph: (03) 9035 3480.


Catering (morning tea, lunch and afternoon tea), course materials and a certificate of attendance will be provided.

Please note: numbers are strictly limited, so please enquire early to register your interest.
UMOSS Update

2017

The year culminated with the most enchanting of Eyeball’s held at The Park (Albert Park), which saw white-coats traded in for a sophisticated evening of gowns, dancing, party suits and even a special 2D celebrity guest appearance. We thank the UMOSS committee of 2017 many times over for their tireless efforts and enthusiasm in providing a more than memorable year for all, and wish the best of luck to the graduated class of 2017 as you kick-start your exciting new careers.

During December, three members of the OD class of 2018 (Lanka Wickramaarachchi, Menaka Wimalarathna and Erica Barclay) participated in a volunteer outreach eye camp to Sri Lanka, in partnership with Global Hand Charity. The team, consisting of both Australian and Sri Lankan optometrists, OD students and charity staff performed vision screenings, basic refraction and dispensing services in four separate underprivileged village locations. Over the week, 2000 patients were seen and 2400 pairs of spectacles were prescribed. Despite the days being very long and hot, seeing the immediate difference which could be made to the quality of life for so many, and the incredibly warm Sri Lankan hospitality made it an undeniably worthwhile venture. Congratulations to all involved!

2018

The UMOSS committee of 2018 is endeavouring to make this year equally outstanding as those past. We have been reaching out to industry more than ever in the hope to connect our peers with the wider optometric community as best we can. Plans are underway to hold the first ever joint event with Deakin University’s Optometry Student Society (DOSS) which could mark the beginning of a new era of collaboration with all optometry schools nation-wide. Furthermore, the committee has secured a SSAF grant with the industrious help of Dr Kwang Cham to promote the inter-professional development and networking of medical and allied health students within MDHS, as well as employment opportunities within individual job markets. Keep your eyes peeled for updates!

Amongst the return of annual student-favourite events, continuing in 2018 will also be the ever-growing Big Brother Big Sister (BBBS) program coordinated by OD2 students, expansion of the D15 colour vision project with Dr John Parkes to include making the Adam’s and H16 tests more commercially available, and the return of the rising DOVS futsal team in search of their inaugural piece of silverware.

Along with the department, we have warmly welcomed the new OD1 students with a BBQ during O-week and cannot wait to move forwards and upwards with you all in 2018!

Best Regards,

Scott Panozza
(UMOSS President 2018)
The donation in 2017 by Mr. Bob Tupper of A.C.T. towards the research conducted by the Visual & Cognitive Neuroscience Laboratory headed up by Trichur Vidyasagar