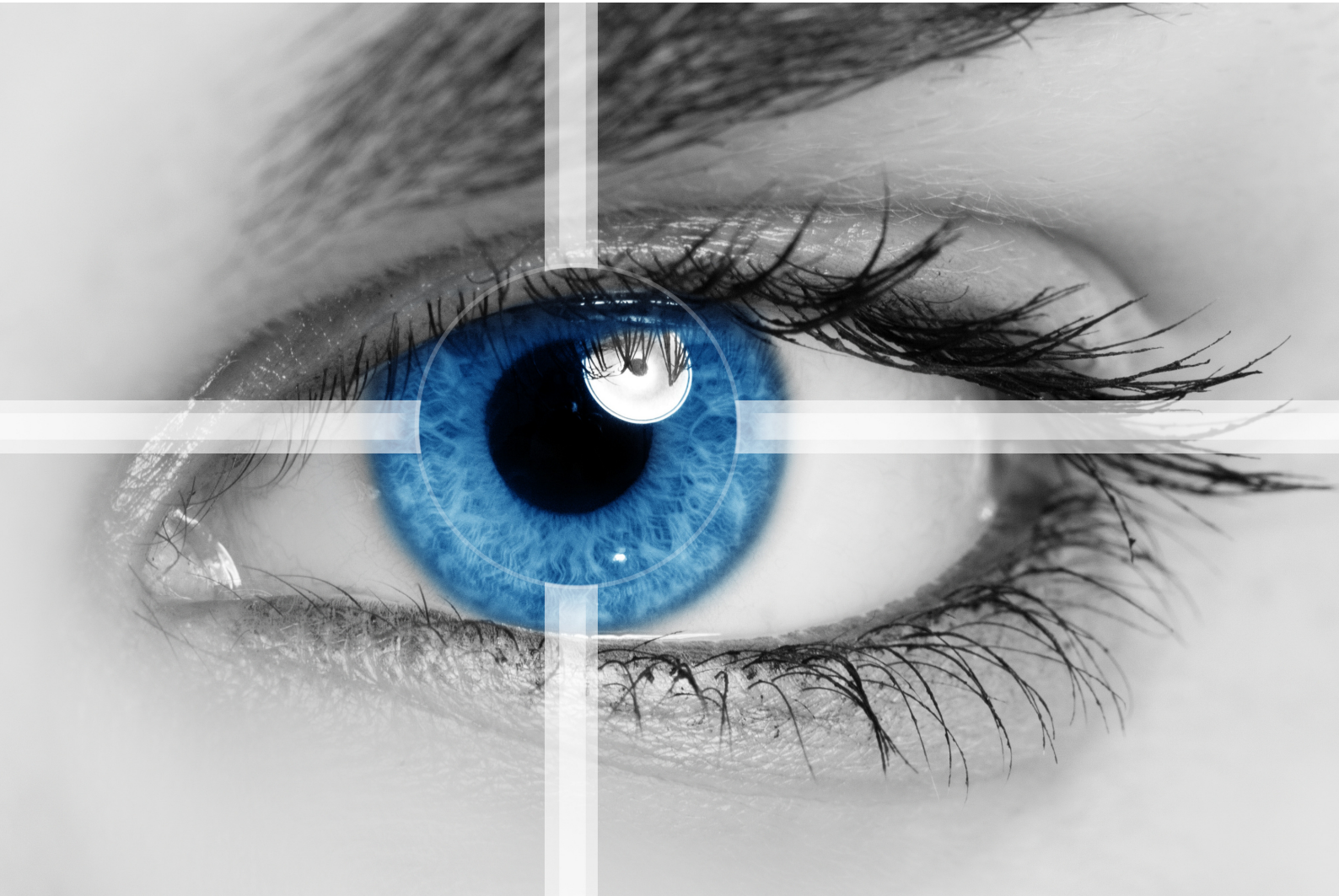




Centre for Eye Health

2020

YEAR IN REVIEW



UNSW
SYDNEY

Guide Dogs.

EXECUTIVE SUMMARY

PROFESSOR MICHAEL KALLONIATIS



The year 2020 required adaptation, change, and innovation. It was a year that saw CFEH go from strength the strength, despite operating in an extremely challenging COVID-19 impacted environment. This report is reflective of the enormous effort of the entire CFEH team during a very challenging year. The staff at the Centre adapted to constant change and showed resilience, innovation and fortitude: their efforts are acknowledged and commended.

An independent review of the Centre was conducted in early 2020 by PricewaterhouseCoopers. The analysis concluded that CFEH has prevented 10,300 Disability Adjusted Life Years, including preventing 112 deaths. To put this into context, this is the equivalent of preventing 17,200 years lived with blindness! Further, total financial savings to society were \$261 million. An amazing achievement in just 10 years of operation and one that would never have been possible without the foresight and financial support of Guide Dogs NSW/ACT (GDN).

The CFEH leadership team was fortified in 2020 with the appointment of A/Prof Gordon Doig (Head of Research) and Sarah Holland (Executive Manager). Their collaborative approach and respective expertise will help CFEH continue to innovate and evolve into the future.

The opening of the Cameron Centre in February, and subsequent collaboration with the Westmead hospital Eye Clinic through A/Prof Andrew White's Community Eye Care (C-Eye-C program) has allowed us to reach more people in areas of need and to offer low vision services in collaboration with Guide Dogs.

In 2020 we had an 18% increase on 2019 total referral numbers and 10,930 patient consultations were performed. This was achieved in spite of COVID-related closures and social distancing restrictions, through increasing efficiencies and extending clinic hours. The development of collaborative care at the Cameron Centre, particularly in low vision care delivery, will better serve our clients and help develop closer bonds with GDN client services.

After the announcement of two successful NHMRC grants in 2019, our CFEH research team had further success with the awarding of a grant from Novartis Pharmaceuticals Australia, and funding was announced in February through a Cooperative Research Centre Project (CRC-P) grant awarded to a consortium of companies including the Centre, led by Big Picture Medical. These upcoming projects have allowed us the opportunity to take on more PhD students and their work will be an invaluable contribution to our research outputs which numbered 23 peer-reviewed papers (in print or online ahead of print) in 2020, and assist to improve clinical efficiency and effectiveness.



The CFEH education team also had a busy year despite the cancellation of most face-to-face conferences. The team delivered one undergraduate and 2 post graduate courses, final year M.ClinOptom clinical rotations, gave 33 invited presentations, penned 19 industry journal articles, launched a new CPD education portal and started development of the CFEH online Atlas.

At the start of 2021 CFEH is able to capitalise on all these successes. Our clinical model is more efficient than ever, research grants that have been awarded will fund existing and new projects aimed at reducing blindness in our community, and our reputation in education is growing ever stronger, allowing us to reach more optometrists and expanding our impact.

So we enter 2021 very optimistically, seeking to continue our culture of innovation and adaptation, with the ultimate goal of reducing blindness within our community and expanding our collaborative care activities with GDN client services.

MICHAEL KALLONIATIS
ON BEHALF OF THE CFEH EXECUTIVE TEAM

STRATEGIC FRAMEWORK

VISION

To reduce the incidence of preventable vision loss.

CORE SERVICES

1. Advanced imaging and diagnostics service for early detection of eye disease.
2. Disease management services for specific conditions.
3. Expert clinical recommendations and advice on eye imaging and visual system diagnosis. Where appropriate, CFEH optometrists consult with ophthalmologists from South Eastern Sydney Local Health District for interpretation of test results and to determine suitable management of patients.
4. Provision of clinical services within a public hospital, working with hospital based ophthalmologists in a collaborative stratified care model.
5. Provision of education and raising awareness of eye disease.

STRATEGIC GOALS 2018-2023

1. To provide a triage service for public hospital ophthalmology allowing earlier access to advanced eye imaging, diagnostic services and disease management (in collaboration with ophthalmology).
2. To provide collaborative care with ophthalmology for those with stable conditions.
3. To ensure we remain a growing and financially sustainable organisation.
4. Plan and develop new clinical hubs that include integrated GDN/CFEH client services to deliver a holistic client-centric approach.
5. To enhance credibility through research and publications and to demonstrate clinical expertise through education.



CFEH EXECUTIVE TEAM 2020



Above (from left to right): Michael Yapp, Sarah Holland, A/Prof Gordon Doig, Prof Michael Kalloniatis

Professor Michael Kalloniatis is the CFEH Centre Director, a position he has held since the inception of the Centre in 2009. Michael's innovative strategic thinking and passion for the Centre's vision of reducing preventable blindness has been instrumental in the evolution of CFEH.

Michael Yapp is the Centre's Head of Teaching and Clinical Operations. Since joining the Centre in 2009 his mission has been the provision of the best possible, evidence-based care for patients. He is also passionate about educating our future optometrists to provide this same level of care for their patients upon graduation.

In 2020, CFEH welcomed both Sarah Holland and Gordon Doig to the CFEH Executive team who each bring with them a wealth of experience, knowledge and new ideas to continue the CFEH culture of innovation and excellence.

Sarah Holland joined the Centre as Executive Manager in early 2020. Sarah has a background in developing strategy as well as redesigning patient pathways within England's National Health Service (NHS) oncology departments. Sarah has also taken over the financial and human resources functions of the Centre. Her fresh perspective, collaborative way of working, and innovative thinking will support and strengthen the future direction of the Centre.

A/Prof Gordon Doig joined the Centre in mid-2020 as the Head of Research. Gordon has an established research career as an epidemiologist and has worked across most areas of medicine with NSW Health. His wealth of research expertise and passion for improving patient care to achieve exceptional health outcomes will be of enormous benefit to the Centre as he guides the talented CFEH research team towards their overarching goal of reducing preventable blindness.

CFEH CLINICAL SERVICES

MICHAEL YAPP

As with all aspects of the business, COVID-19 dominated the 2020 landscape and created some significant challenges for the CFEH Clinics in 2020. However despite the pandemic, 2020 saw significant growth and development in the CFEH clinical model and patient care.

2020 KEY HIGHLIGHTS

- Restructuring processes, clinical workflow and appointment schedules to ensure patient care and maximise throughput within the COVID-19 environment
- 18% increase in referral numbers in comparison to last year
- 10,930 patient consultations performed
- Significant increase in proportion of 'management' referrals
- Opening of the Cameron Centre
- Reallocation of Sutherland Hospital Clinic resources to focus on Western Sydney

OPERATING IN A COVID-19 ENVIRONMENT

In response to the pandemic, a large number of changes were made to the operation of CFEH clinical services both during the initial lock down and in subsequent months. This included initiating telehealth consultations at the height of the pandemic to enable scaling back of face-to-face consultations to only see patients at higher risk of vision loss if prompt assessment was not undertaken. This continued for two months at the UNSW clinic only (mid-March to mid May) before full services were subsequently phased back in at both UNSW and the Cameron Centre.

In conjunction with a COVID-Safe plan, the Clinic's appointment schedule was also dramatically changed, most notably by extending working hours (8am to 7pm) to ensure that social distancing could be appropriately adhered to. This and other efficiency strategies enabled the team to clear the backlog of postponed appointments within 4 months of recommencing full services.

THE CAMERON CENTRE

The Cameron Centre opened for business on the 17th of February 2020 operating with a similar model to the Kensington clinic enabling CFEH practitioners to work at either location. Located in Parramatta, the clinic provides easier access to CFEH eye health services for those in Sydney's west.

Following a temporary closure due to COVID-19, the clinic grew rapidly to be assessing up to 100 patients a week by the end of the year. A total of 2396 patients were assessed at the Cameron Centre in 2020 with over 450 of these being part of the C-Eye-C program with Westmead eye clinic (see page six).



2020 CLINICAL MODEL

To continue working towards the goal of reducing preventable blindness within the current eye health industry environment, CFEH now offers a range of referral options.

OCULAR HEALTH ASSESSMENT

Available since the Centre began operations in 2009, this service enables optometrists to refer for a comprehensive assessment of specified ocular condition. Much like a radiology model, results and images are sent in conjunction with a report to the referring optometrist to assist with their management of the patient. In 2020, over 60% were for glaucoma and 20% were for macular disease the remainder mainly comprised of pigmented lesions, peripheral retina and corneal assessments.

OCULAR HEALTH MANAGEMENT SERVICE

To meet the needs of referrers and the industry, in 2019 CFEH offered referrers the option of the CFEH clinical team discussing the results and managing the specific referred condition. Primary care remains with the referring optometrist. This option has been embraced by referrers in 2020 with the percentage of referrals for this model of care growing significantly throughout the year.

GLAUCOMA MANAGEMENT CLINIC (UNSW)

The UNSW Glaucoma management Clinic operates as a satellite clinic of Prince of Wales Hospital with a glaucoma specialist ophthalmologist from POWH working on site alongside CFEH Optometrists. This clinic is designed to manage suitable patients that have glaucoma, or are at high risk of developing glaucoma. The clinic continued to grow in 2020 with efficiencies in internal processes, including the use of tele-ophthalmology, streamlining operations to ensure that the clinic sees all required patients while remaining cost efficient.

PUBLIC HOSPITAL COLLABORATION

PRINCE OF WALES HOSPITAL

As well as the Glaucoma management clinic, 2020 saw a continued collaboration with the Prince of Wales Hospital Eye Clinic through both the remote reviewing of CFEH reports as required by consultant ophthalmologists as well as the transfer of stable POWH patients for ongoing care at CFEH. This year also saw CFEH expand its collaboration with POWH to begin working with the hospital's Haematology department to provide screening for patients at risk of ocular complications from specific medications.

WESTMEAD HOSPITAL

CFEH began partnering with Westmead Hospital's eye clinic from the 9th of March to assess patients through the hospital's Community Eye Care (C-EYE-C) model of care. In direct synergy with CFEH's vision, this service delivery model has been established for those with, or at risk of developing, glaucoma and/or diabetic retinopathy to prevent avoidable vision loss and blindness. To assist Westmead eye clinic further during the COVID-19 pandemic, CFEH rearranged operations to increase the number of optometrists testing on certain days to free up the clinic space to enable Westmead to utilise the rooms to see their own patients up to 2 days a week.

SUTHERLAND HOSPITAL

The CFEH clinic at the Sutherland hospital was located in the outpatients clinic of the hospital. With the onset of COVID-19, this service was closed and in discussions with hospital management, given the length of the expected closure in conjunction and with a growing need in Western Sydney, it was decided in mid 2020 to shift the resources from this clinic to the Cameron Centre in Parramatta. CFEH put measures in place to ensure continuity of care for the Sutherland Hospital-based patients.

IMAGING ONLY SERVICE

CFEH continued assisting ophthalmologists in 2020 by offering imaging only services as requested. This enables practitioners to offer specialized imaging to their patients at no charge, in particular for less widely available instruments such as Ultrasound biomicroscopy, confocal microscopy (Endothelium cell counts) and electrophysiology.

LOW VISION ASSESSMENT AND MANAGEMENT (CAMERON CENTRE)

In August, a low vision clinic also commenced operations within the Cameron Centre. Patients with low vision that are referred to CFEH and clients referred to Guide Dogs NSW/ACT that live in the Sydney North region initially undergo a comprehensive telehealth consultation to determine how best to assist them. This is followed by an onsite assessment at the Cameron Centre performed by an optometrist and an orthoptist with subsequent involvement of other rehabilitation services as needed (Low Vision aids, Orientation and mobility, Occupational Therapy, Assistive Technology).

EVALUATING THE SUCCESS OF THE CFEH CLINICAL MODEL

GORDON DOIG



PREVENTING VISION LOSS.

MOVING TOWARDS THE CURE FOR BLINDNESS.

The primary research mission of CFEH has always been to help continually improve our ability to care for our patients, thus maximising health benefits for the population of NSW/ACT.

In early 2020, Guide Dogs NSW/ACT commissioned an independent report from PricewaterhouseCoopers to assess the impact of CFEH's activities from 2017 to 2019 and to project the potential benefits of CFEH over the next 5 years (to 2024). This independent report estimated that over a seven year time-frame, CFEH would:

- **Prevent 10,300 Disability Adjusted Life Years, including preventing 112 deaths.** This is equivalent to preventing 17,200 years lived with blindness, or 39,100 years lived with low vision.
- **Save the NSW Government \$132,000,000, and save society \$131,000,000.**

This impact analysis was based on patient outcomes that have now been peer-reviewed and accepted for publication (Wang and Kalloniatis, CXO 2021). This independent analysis helps to quantify the positive impact our clinical services are having on our patients, and we are deeply grateful for the ongoing financial support of Guide Dogs NSW/ACT who make this possible.

CLINICAL SERVICES : OUTPUTS

SARAH HOLLAND

	2018	2019	2020	2020 BUDGET	% OF BUDGET
PATIENT NUMBERS ⁺					
REFERRALS	9540	10615	12488	11272	109%
APPOINTMENTS	9455	9729	10930	8940	109%
ACTIVE REFERRERS	710	793	802	N/A	N/A

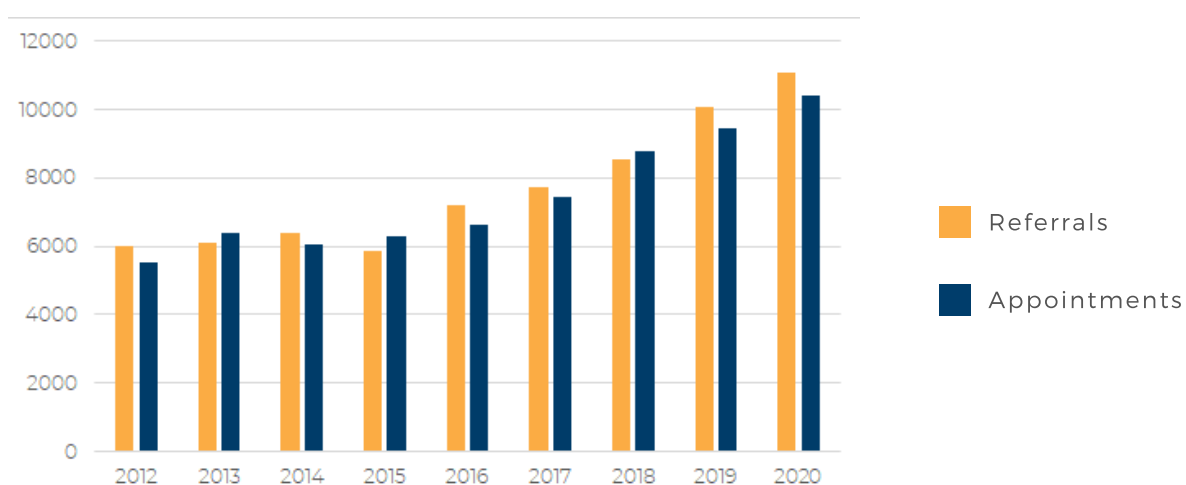
TURNAROUND TIMES (WEEKS)

REFERRAL TURNAROUND	3.9	4.4	4.0	4.0	100%
BOOKING TURNAROUND	2.4	2.6	2.8	3.0	93%

PATIENTS EXAMINED PER FTE OPTOMETRIST

PATIENTS EXAMINED	1062	1070	1171	N/A	N/A
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CFEH GROWTH 2012 - 2020



+ Figures are based on the calendar year (1st January 2020 - 31st December 2020)

CFEH OPERATIONS

SARAH HOLLAND



2020 was a challenging year for all, not least for those within outpatient health services. The Centre responded to the ever changing environment and challenges in an efficient and safe manner, that still allowed for patients with potential time critical issues to be seen. During the shutdown periods across NSW, the Centre in Kensington operated an “urgent-cases” only service. Throughout 2020 the operating model across both Centres has been constantly changing to meet with restrictions and the needs of our staff and patients.

As restrictions began to ease both Centres introduced extended operating hours to offer additional capacity (due to the backlog which had built up between April – June); FTE staff were reduced and increased accordingly across both the Optometry and Client Services teams.

Despite all of these changes, the staff continued to work diligently and we saw 10,930 patients over the course of the calendar year, the highest number ever seen at the Centre.

As the Centre is continually seeking to improve and refine processes for the benefit of both clients and referrers, additional efficiencies were found within the IT function. The Centre invested in two large new servers which ensured an optimum level of functionality as well as capacity for growth over the next 5 years. CFEH changed IT service providers, signing on with a new provider who offer a more responsive service for our needs. This also brought about significant financial savings which will be seen across the 20/21 financial year.

Finally, continued effort was made in developing and maintaining our relationship with referrers. This included the comprehensive education program, regular updates in light of the constant changes to service, free access to training materials, newsletters and social media updates. This assisted the continued growth of our active referrers to the highest number yet in 2020.

The Centre continues to provide a unique and much needed service to patients within the community and will continue to build on and evaluate these changes and efficiencies in 2021.

CFEH RESEARCH

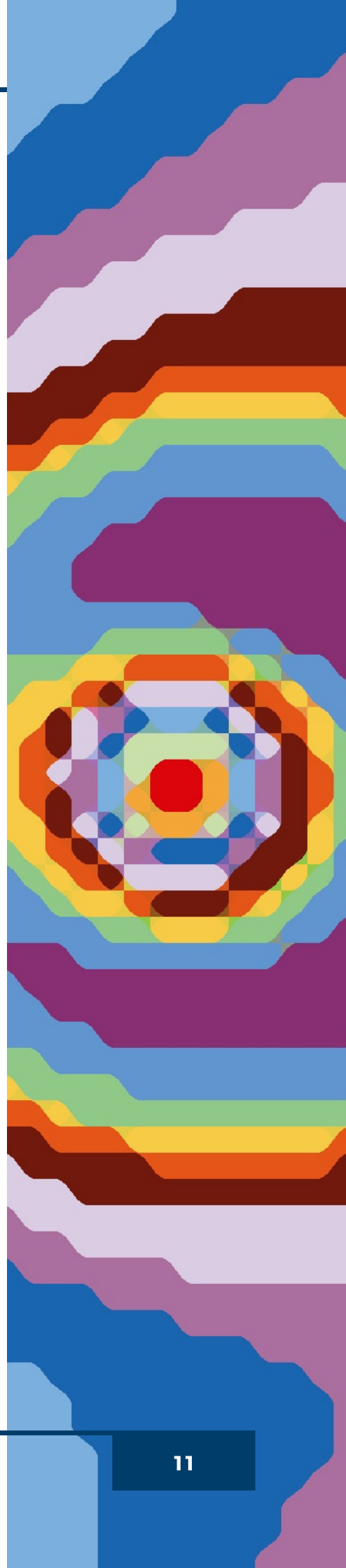
ASSOCIATE PROFESSOR GORDON DOIG

This year was a productive year for research at CFEH, with the recruitment of a new Head of Research, A/Prof Gordon S. Doig. Gordon has an outstanding research track record, with over \$37 million in research funding received during his career. This funding has led to more than 100 peer reviewed papers published, including major studies in the New England Journal of Medicine, the Journal of the American Medical Association and the Lancet. His diverse background will allow him to leverage CFEH's past research success towards ever greater impacts on patient health.

In August, Gordon presented our new strategic plan for research to CFEH Board. Over the next 5 years, we intend to build on our past successes by continuing to:

1. Attract high-calibre emerging clinician-scientists and transform them into world-class thought leaders and change advocates.
2. Deliver globally significant solutions to challenges in patient-centred eye care through technological innovation.
3. Design and evaluate implementation and change management initiatives for scaling-up technological advances to ensure they rapidly benefit people at risk of vision loss, including blindness.
4. Initiate economic analyses and return on investment studies to provide evidence on how investing in integrated people-centred models of eye care secures health, social and economic return.
5. Encourage governmental and private foundations to support the development of innovative technologies, and care models, to reduce vision loss and eliminate blindness.

Overall, 2020 was a successful year for research at CFEH with twenty three papers published (either in print or online ahead of print) and another three accepted for publication in 2021. Several of these papers were accepted by high impact journals, including three in the American Journal of Ophthalmology which speaks to the high quality of research emanating from the Centre.



Following the announcement of two successful NHMRC grants at the end of 2019, the CFEH research team has achieved further success in 2020, being awarded a grant from Novartis Australia and New Zealand to develop an enhanced multifaceted educational package to improve AMD Health Literacy and prevent blindness by increasing public awareness of all effective prevention and treatment options.

Additionally, in 2020 it was announced that CFEH is a research partner in a \$12 million Cooperative Research Centre Project (CRC-P) to develop technology to combine an optometrist's expertise with artificial technology (AI) capabilities to comprehensively analyse patient eye health data and achieve specialist-level accuracy, allowing better diagnosis and management of eye disease. This project is being led by Big Picture Medical and incorporates several other specialist research partners including the School of Optometry and Vision Science, and the School of Computer Science and Engineering (UNSW), Australian Institute of Machine Learning (University of Adelaide), Menicon Pty Ltd and the Brien Holden Vision Institute. The projected research funding for CFEH from this grant is \$3,396,126 with both the project and funding due to commence in 2021.

To facilitate the projects funded by these four grants, the Centre has taken on five new PhD students and one MPhil student.

STUDENTS ENROLLED OR RECRUITED IN 2020

1. Daniel Rafla - Phenotyping open angle glaucoma for treatment and progression outcomes
2. Elisa Li - Attitudes and barriers to care in age-related macular degeneration
3. Hallur Reynisson - Seeing through the haze: developing optimal stimulation for bionic eyes
4. Janelle Tong - Application of novel techniques enabling detection of early function deficits in ocular pathologies
5. Kenny Wu - Clinical outcomes of novel methods for the recognition of prognostic biomarkers in macular disease
6. Sharon Ho - The efficacy and implementation of primary care clinical decision support tools in retinal disease
7. Matt Trinh - Inner retinal changes in non-neovascular age-related macular degeneration, and its link to disease progression
8. Vincent Khou - Novel CLINical markers into Eye care models (INCLINE) in Australia to improve management of diabetic complications
9. Wilson Luu - Improving function and mobility using virtual reality in patients with ocular diseases
10. Jessie Huang - Evaluation of a novel collaborative care model for glaucoma and identification of clinical predictors for conversion & progression

In 2020, Dr Jessie Huang successfully completed her studies and had her degree conferred. We would like to congratulate Jessie on this noteworthy accomplishment and wish her all the best as she embarks on her academic career with the School of Optometry and Vision Science at UNSW.



CFEH EDUCATION

MICHELE CLEWETT

UNSW SCHOOL OF OPTOMETRY AND VISION SCIENCE TEACHING (BSC, MCLIN OPTOM)

The COVID-19 global pandemic changed the delivery of university education nationwide in 2020, creating some unique challenges for the CFEH education team.

The third year undergraduate course run by CFEH from June to September each year (Disease Processes of the Eye 2) needed to be re-imagined. The goal was to adapt our traditional face-to-face teaching to an online experience that was as engaging and inclusive as possible through the application of new interactive teaching technologies.

Student feedback from the 2020 cohort indicated that the adaptations and innovations made by the teaching team were highly successful. Below is a graph of showing the mean score across all categories for OPTM3205 alongside comparative scores for SOVS, the Science Faculty and UNSW as a whole.

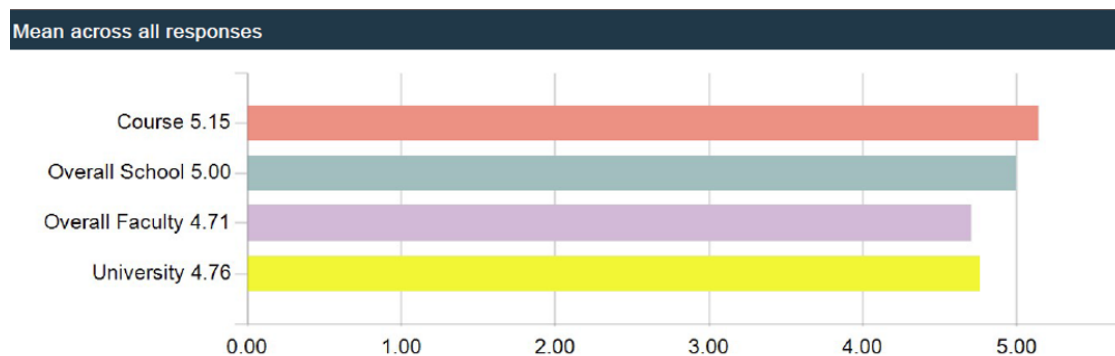


Figure 1: Comparison statistics from My Experience report - 2020 Term 2, OPTM3205 Disease Processes of the Eye 2

Below are some comments submitted anonymously through UNSW's My Experience feedback:

"I have never felt more supported in my learning, both face-to-face and online, than I have in this course. I really appreciate the efforts of all the teaching staff to be willing to adapt to the challenges of online teaching, and to further make the cohort feel supported during this difficult time."

"All staff members were very supportive and worked to the best of their ability to deliver lecture content and clarify any details. They were responsive to emailed questions and queries raised in class. All staff members should be commended for their dedication and efforts to delivering the OPTM3205 course online."

"We were provided with many resources that helped me to learn. The interactive modules were especially helpful."



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2020 OPTM3205 TEACHING TEAM Additional team members not pictured: Prof Mark Willcox and Dr Barbara Zangerl



Michele Clewett
Course convenor



Prof Michael Kalloniatis
CFEH Centre Director



Dr Jack Phu
CFEH Lead Clinician
(glaucoma)



Dr Angelica Ly
CFEH Lead Clinician
(macula)



A/Prof Michele Madigan
SOVS, UNSW



Paula Katalinic
CFEH Lead Clinician
(vascular)



Dr Lisa Nivison-Smith
UNSW Scientia Fellow



Pauline Xu
CFEH Lead Clinician
(dystrophies)

2020 POSTGRADUATE TEACHING

Throughout 2020, the CFEH education team also ran the post-graduate ocular disease course OPTM7511 (Advanced Ocular Disease) twice online - once in Term 1 and again in Term 2 in response to demand generated by the Federal Government funding for short university courses.

2020 FINAL YEAR M.CLINOPTOM: CLINICAL ROTATION

The Centre normally hosts the final year M.Optom students for a 6 week clinical rotation where they are able to undertake patient imaging and practice their clinical skills. Due to the COVID pandemic, in 2020 this was reduced to 4 weeks for some rotations. The CFEH Lead Clinicians and Staff Optometrists discuss interesting cases with the students and interactive tutorials are delivered by senior CFEH staff members.

At the end of each rotation, students are asked for their feedback so that we can constantly work to improve the experience we offer. As in previous years, the 2020 student cohort rated the CFEH clinical rotation very highly with an average score across all categories of 4.6 out of a possible 5. (Please see Appendix E for more detail and a summary of responses).

A sample of some of the feedback about CFEH supervising optometrists in 2020:

"He was very dedicated to student learning, understanding of our difficulties while still very much maintaining high expectations and pushing us to be better optometrists."

"The one-on-one feedback was very helpful, as was allowing me to view gonioscopy on patients and taking the time to explain things once the patient has left."

"I think the most helpful was the one-on-one tutorials where I could ask any questions I had."

PROVISION OF CONTINUING PROFESSIONAL EDUCATION (CPD)

CFEH ONLINE EDUCATION

During 2020, the CFEH education team presented 10 live webinars and two workshops as part of the annual CPD package. The team also designed and developed a new custom-built learning portal to cater for the new CPD regulations effective 1 December 2020.

A key feature of the new portal was the introduction of a "Learning Log" where users are able to enter their CPD achievements, reflect upon their learning, and identify directions for future learning - all the components required by the new regulations. Initial feedback has been very positive and further uptake is anticipated as the CPD year gets underway in 2021.

OPTOMETRY AUSTRALIA COLLABORATION

In 2020, Optometry Australia co-broadcast two CFEH webinars as part of their offering to members. CFEH educators were also invited to speak at the inaugural Optometry Australia online conference (Optometry Virtually Connected) which was attended in very large numbers.

CFEH was also charged by Optometry Australia to develop an innovative new CPD concept allowing small-group education to be run by optometrists within their practice using a "host pack" developed by the Centre. Testing with small groups of optometrists has been positive and Optometry Australia has indicated this concept will be further expanded upon in 2021.

During 2020, the Centre's clinicians supplied a number of articles for the Optometry Australia publication *Pharma*, and CFEH Lead Clinician Angelica Ly was invited to be guest editor for one issue. A full list of these contributions may be found in Appendix D.

NEW ZEALAND OPTOMETRISTS ASSOCIATION COLLABORATION

CFEH continued its successful collaboration with the NZAO in 2020, an agreement that provides members of the association access to CFEH online education. A live glaucoma debate was run exclusively for NZAO members, which was both well attended and well received.

INVITED NATIONAL AND INTERNATIONAL PRESENTATIONS

Most national and international conferences in 2020 were either cancelled or moved online due to the COVID-19 pandemic. Although some initial speaking invitations were rescinded due to event cancellation, CFEH educators still presented at several high-profile conferences including the American Academy of Optometry and Optometry NSW/ACT's Super Sunday conferences.

CFEH ATLAS

During the latter part of 2020, work commenced on an exciting new initiative: the CFEH Atlas. Aimed at optometry students and practicing optometrists, this online resource will illustrate posterior eye disease using multi-modal imaging. The Atlas will exhibit multiple presentations of each disease with detailed captions to aide practitioners in interpretation and diagnosis, and also features a powerful pictorial search function. The Atlas will be launched in March 2021.

KEY COLLABORATIONS

Despite the obstacles of the COVID-19 pandemic, CFEH has continued to collaborate virtually with key industry partners. The opening of the Cameron Centre in early 2020 allowed the Centre to forge a stronger working relationship with **Guide Dogs NSW/ACT** and we look forward to building upon these foundations as both the country and our organisations slowly settle into a new normal.

There are many other important collaborators working with the Centre that we would like to acknowledge:

- **School of Optometry and Vision Science (SOVS, UNSW):**
The CFEH education team provided undergraduate and postgraduate education through SOVS in 2020, including a third year course covering pathophysiology and posterior eye disease, as well as hosting final year optometry students for rotations of 4-6 weeks. Several CFEH clinicians also contribute to other SOVS courses, and many CFEH researchers work closely with their SOVS colleagues on various projects. In 2021 we are looking forward to the new opportunities for collaboration that we anticipate may come with the move of SOVS from the Faculty of Science to the Faculty of Medicine and Health.
- **Community Eye Care Program (C-Eye-C):** 2020 saw the launch of a new collaborative eye care venture for the Centre as part of the C-Eye-C program led by A/Prof Andrew White. Under this program, the Centre's optometrists at the Cameron Centre are involved in the collaborative assessment of patients who have been referred to Westmead Hospital Ophthalmology. The program is aimed at reducing wait times, thereby reducing the risk of vision loss from the referred condition or concurrent eye disease in the interim. In the spirit of collaboration, Westmead Ophthalmology also utilised the Cameron Centre's clinic rooms during the pandemic, reducing the risk associated with elderly patients attending a hospital setting.
- **Brien Holden Vision Institute consortium (includes Australian College of Optometry, Optometry Australia and Aboriginal Health Council of South Australia):** 2020 was the last full year of a joint project with this consortium, with the Federal Government project due to be completed at the end of June 2021. For this project, CFEH collaborated with the other consortium members around the delivery of an

educational program for general practitioners, aimed at developing their ability to identify signs of diabetic retinopathy as part of a project to install retinal fundus cameras into remote areas of Australia.

- **Optometry Australia (OA):** During 2020, CFEH supplied four national webinars (two as part of the virtual conference in June), as well as a prototype of a new style of CPD that optometrists will be able to run themselves with small groups of other practitioners. Additionally, CFEH clinicians provided several articles for Mivision and Dr Ly was guest editor of the March edition.
- **Optometry NSW/ACT:** Michael Yapp currently serves on the Council of Optometry NSW/ACT.
- **Glaucoma Australia (GA):** Dr Jack Phu represents CFEH on the Glaucoma sub-committee. All GMC patients with a glaucoma diagnosis are given the opportunity to sign up as a member of GA. In 2020, the Centre was asked to provide some images and text for patient information material to be disseminated by GA.
- **Macular Disease Foundation (MDF):** In 2020, the Centre's collaborations with the MDF were led by Dr Angelica Ly. The Centre was invited to contribute a monthly case report to the MDF's practitioner newsletter, and we also provided some images for their website.
- **Australian Health Alliance (AHRA):** Prof Michael Kalloniatis was on a national steering committee to develop a national system to improve health pathways.
- **Sydney Partnership for Health Education and Research and Enterprise (SPHERE):** Prof Michael Kalloniatis sits on the council and the Centre is one of the founding institutions of this partnership.
- **Western NSW Eye Health Project:** This project aims to develop a coherent system of coordinated eye health services in Western NSW LHD with a focus on Aboriginal eye care. Sarah Holland sits on this committee.

At the end of 2020, the Centre is looking forward to expanding our collaborations with the imminent launch of the Big Picture Medical project. We are excited to have the opportunity to work as part of a multi-disciplinary team incorporating machine learning, the CFEH database and diagnostic skills as well as software development. This project aims to produce artificial intelligence capabilities to aid the diagnosis of eye disease by optometrists, and is the largest project we have undertaken to date.



UNSW
SYDNEY



Guide Dogs.



Health
South Eastern Sydney
Local Health District



Health
Western Sydney
Local Health District

THE FUTURE

As we look forward, we are certain of one thing in an increasingly uncertain world: future CFEH activities will continue to build on the Centre's strong history of collaboration and innovation. As CFEH joins with the UNSW Faculty of Medicine and Health in 2021, this is an exciting new platform to continue to grow on these foundations and we look forward to the new opportunities this will bring.

In our clinical activities, we will continue to foster collaborations with public hospitals to target those who need our services the most and evaluate the best way to implement and evaluate collaborative clinical service. The PricewaterhouseCoopers study (previously detailed in this report) quantified and really highlighted to the executive team just how much we have achieved to date. It also inspired the entire CFEH team to continue this trajectory, positively influencing people's lives by providing our diagnostic and management services and looking at areas in which we can expand these and reach more people in need.

An important part of our future planning is an on-going analysis of our models of care and its impact on health policy. The potential cost savings of the Centre's collaboration with ophthalmology are two-fold. Firstly, savings in government Medicare expenditure are made possibly under the CFEH model whereby optometrists undertake routine review of low-risk, chronic conditions, allowing public hospital ophthalmologists to see more complex cases. Further, our research team is developing innovative models to predict clinical load using various clinical guidelines to predict clinical load and healthcare costs thereby providing an evidence-based approach to modify health policy. Health policy and implementation of health care will also be impacted through CFEH being involved in large scale clinical trials, 'big data' analysis, and development of AI algorithms applied to our large clinical data set.

The second potential savings of the CFEH model relate to reducing vision loss and associated costs within our society. The collaborative CFEH approach has been shown to reduce waiting lists significantly (Huang et al. CXO 2019), reducing the risk of preventable vision loss in the time between referral and appointment and thus reducing the associated personal, social and monetary costs. Further, our innovations in developing apps that will help the clinician and orientation and mobility professionals demonstrates the value of multidisciplinary approach to health care delivery.

The Centre will be looking for appropriate opportunities to expand operations in areas of need into the future, and to push forward in our quest for funding to help facilitate the ongoing services of the Centre. The upcoming CFEH strategy meeting will provide suitable direction.

The value of what we do is clear – to our patients, to our referrers and to society as a whole. Together, through adaptation, innovation and collaboration, the CFEH team will continue to work towards reducing preventable blindness within our community.

APPENDIX A: PUBLICATIONS

CFEH PEER-REVIEWED PUBLICATIONS 2020

1. AGRAWAL, R., DING, J. SEN, P., ROUSSELOT, A., CHAN, A., NIVISON-SMITH, L., WEI, X., MAHAJAN, S., KIM, R., MISHRA, C., AGARWAL, M., SUH, MH., LITHRA, S., MUNK, M., CHEUNG, C., GUPTA, V. Exploring choroidal angioarchitecture in health and disease using choroidal vascularity index. *Progress in Retinal and Eye Research* 2020 Jul 77:100829. [doi:10.1016/j.preteyeres.2020.100829](https://doi.org/10.1016/j.preteyeres.2020.100829).
2. CHEN, E., LUU, W., CHEN, R., RAFIK, A., RYU, Y., ZANGERL, B., KIM, J. Virtual reality improves clinical assessment of the optic nerve. *Frontiers in Virtual Reality*. 1(4) 2020. doi.org/10.3389/frvir.2020.00004
3. HUANG, J., PHU, J., KALLONIATIS, M., ZANGERL, B. Determining Significant Elevation of Intraocular Pressure Using self-tonometry. *Optometry and Vision Science*, vol. 97, pp. 86 - 93, doi.org/10.1097/OPX.0000000000001478
4. JAGADEESH, K., PHILIP, K., FEDTKE, C., JONG, M., LY, A., SANKARIDURG, P. Posterior segment conditions associated with myopia and high myopia *Clinical and Experimental Optometry*. Vol 103(6) p756-765. [doi:10.1111/cxo.13060](https://doi.org/10.1111/cxo.13060)
5. HUANG, J. HENNESSY, M., LY, A., MASSELOS, K., AGAR, A., KALLONIATIS, M., ZANGERL, B. Impact of referral refinement on management of glaucoma suspects in Australia. *Clinical and Experimental Optometry*. 2020 Sept;103(5) pp675-683. [doi: 10.1111/cxo.13030](https://doi.org/10.1111/cxo.13030)
6. KIM, J., LUU, W., PALMISANO, S., Multisensory integration and the experience of scene instability, presence and cybersickness in virtual environments. *Computers in Human Behavior*. 2020. Vol 113 (106484) doi.org/10.1016/j.chb.2020.106484
7. LONG, J., BLAKELY, B., MAHMOUD, Z., CLAY-WILLIAMS, R., LY, A. KALLONIATIS, M., ZANGERL, B., BRAITHWAITE, J. Evaluation of the Centre for Eye Health Clinic at The Sutherland Hospital: experience of staff and referrers. *British Medical Journal Open* 2020.
8. LUU, W. KALLONIATIS, M., BARTLEY, E., TU, MEGAN., DILLON, L., ZANGERL, B., LY, A. A holistic model of low vision care for improving vision-related quality of life. *Clinical and Experimental Optometry*. 2020 Vol 103 (6) pp733-741. [doi: 10.1111/cxo.13054](https://doi.org/10.1111/cxo.13054)
9. LY, A., WONG, E., HUANG, J., YAPP, M., MASSELOS, K., HENNESSY, M., KALLONIATIS, M., ZANGERL, B. Glaucoma community care: does ongoing shared care work? *International Journal of Integrated Care*. 20(3), p5. doi.org/10.5334/ijic.5470
10. NIVISON-SMITH, L., KHANDELWAL, N., TONG, J. MAHAJAN, S., KALLONIATIS, M., AGRAWAL, R. Normal aging changes in the choroidal angioarchitecture of the macula. *Scientific Reports* 10, 10810 (2020). doi.org/10.1038/s41598-020-67829-2
11. PHU, J., KALLONIATIS, M. A strategy for seeding point error assessment for retesting (SPEAR) in perimetry applied to normal, suspect and glaucoma patients. *American Journal of Ophthalmology*. 2020 Vol 221 pp115-130. doi.org/10.1016/j.ajo.2020.07.047
12. PHU, J., KALLONIATIS, M. Ability of 24-2C and 24-2 grids in identifying central visual field defects and structure-function concordance in glaucoma and suspects. *American Journal of Ophthalmology*. 2020 Vol 219 pp317-331 doi.org/10.1016/j.ajo.2020.06.024
13. PHU, J., TONG, J., ZANGERL, B., KALLONIATIS, M., Cluster analysis reveals patterns of age-related change in anterior chamber depth for gender and ethnicity: clinical implications. *Ophthalmic and Physiological Optics*, 2020 Vol 40(5) pp632-649. [doi:10.1111/opo.12714](https://doi.org/10.1111/opo.12714)

14. PHU, J., WONG, B., LIM, T., KALLONIATIS, M. Assessment of angle closure spectrum disease as a continuum of change using gonioscopy and anterior segment optical coherence tomography. ***Ophthalmic and Physiological Optics***, 2020 Vol 40(5) pp617-631. doi: [10.1111/opo.12721](https://doi.org/10.1111/opo.12721)
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18. TONG, J., ALONSO-CANEIRO, D., YOSHIOKA, N., KALLONIATIS, M., ZANGERL, B. Custom Extraction of Macular Ganglion Cell-inner plexiform layer thickness more precisely co-localises structural measurements with visual fields test grids. ***Scientific Reports***. 2020 Oct 28;10(1):18527. doi:[10.1038/s41598-020-75599-0](https://doi.org/10.1038/s41598-020-75599-0)
19. TRINH, M. TONG, J., YOSHIOKA, N., ZANGERL, B., KALLONIATIS, M., NIVISON-SMITH, L. Macula ganglion cell thickness changes display location-specific variation patterns in intermediate age-related macular degeneration. ***Investigative Ophthalmology & Visual Science***. 2020 Vol.61, 2. doi.org/[10.1167/iovs.61.3.2](https://doi.org/10.1167/iovs.61.3.2)
20. WANG, H., KHUU, S., LAM, S., LIN, C., KALLONIATIS, M., PHU, J. Validation of a novel functional test for assessing metamorphopsia using epiretinal membranes as a model ***Scientific Reports*** 10 (14938) 2020. doi.org/[10.1038/s41598-020-71627-1](https://doi.org/10.1038/s41598-020-71627-1)
21. WANG, H., LY, A., YAPP, M., ASSAAD, N., KALLONIATIS, M. Multimodal Imaging Characteristics of Congenital Grouped Hyper- and Hypo-Pigmented Fundus Lesions. ***Clinical and Experimental Optometry***. 2020 Sep 103(5) pp641-647. doi:[10.1111/cxo.13030](https://doi.org/10.1111/cxo.13030).

CFEH PAPERS PUBLISHED ONLINE AHEAD OF PRINT IN 2020

1. MARKOULLI, M., FEDTKE, C., CORONEO, M., KALLONIATIS, M., WHATHAM, A., ZANGERL, B. Clinical Utility of irx3 in Kerataconus. ***Clinical and Experimental Optometry***. doi.org/[10.1111/cxo.13133](https://doi.org/10.1111/cxo.13133)
2. PHU, J., AGAR, A., WANG, H., MASSELOS, K., KALLONIATIS, M. Management of open-angle glaucoma by primary eye-care practitioners: toward a personalised medicine approach. ***Clinical and Experimental Optometry***. doi.org/[10.1111/cxo.13114](https://doi.org/10.1111/cxo.13114)

CFEH PAPERS ACCEPTED IN 2020 (FOR PUBLICATION IN 2021)

1. TONG, J., HUANG, J., KHOU, V., MARTIN, J., KALLONIATIS, M., LY, A. Topical review: assessment of binocular sensory processes in low vision. ***Optometry and Vision Science***.
2. TRINH, M., KHOU, V., ZANGERL, B., KALLONIATIS, M., NIVISON-SMITH, L. Modelling normal age-related changes in individual retinal layers using location-specific OCT analysis. ***Scientific Reports***.
3. WANG, H., KALLONIATIS, M. Clinical outcomes of the Centre for Eye Health: an intra-professional optometry-led collaborative eye care clinic in Australia. ***Clinical and Experimental Optometry***.
4. WANG, H., MASSELOS, K., KALLONIATIS, M., PHU, J. Does Latanoprost trigger migraine headaches in open-angle glaucoma? ***Clinical and Experimental Optometry***



CFEH Head of Research - A/Prof Gordon Doig

PUBLICATIONS BY STAFF BASED AT CFEH IN 2020

1. DIXON, B., SMITH, R., CAMPBELL, D.J., MORAN, J.L., DOIG GS, RECHNITZER, T., MACISAAC, C.M., SIMPSON, N., VAN HAREN, F.M.P., GHOSH, A.N., GUPTA, S., BROADFIELD, E.J.C., CROZIER, T.M.E., FRENCH, C., SANTAMARIA, J.D. Nebulised heparin for patients with or at risk of acute respiratory distress syndrome: a multicentre, randomised, double-blind, placebo-controlled phase 3 trial. *Lancet Respiratory Disease*, 2020 (in press)
2. DOIG, G.S. Comment on The Impact of Preoperative Immune Modulating Nutrition on Outcomes in Patients Undergoing Surgery for Gastrointestinal Cancer: A Systematic Review and Meta-analysis. *Annals of Surgery* 2020 (ePub ahead of print 14 Feb).
3. KANG, P., LAM, M., DOIG, G.S., STAPLETON, F. The Myopia Movement. *Clinical and Experimental Optometry* 2020;103(2):129-130.
4. HEIGHES, P.T., DOIG, G.S. Evidence summary resources may influence clinical decision making: A case-based scenario evaluation of an evidence summary tool. *Journal of Critical Care*. Feb;2020;55:9-15.
5. PU, H., HUANG, X., ALLINGSTRUP, M.J., DOIG, G.S., LIANG, Z. Airway reconstruction supported by venovenous extracorporeal membrane oxygenation for patients with malignant critical central airway obstructions: A case series. *Journal of Clinical Anesthesia*. 2020;61:109690

PAPERS BY STAFF BASED AT CFEH-AVAILABE ONLINE AHEAD OF PRINT

1. DIXON, B., SMITH, R.J., ARTIGAS, A., LAFFEY, J., MCNICHOLAS, B., SCHMIDT, E., NUNES, Q., SKIDMORE, M., DE LIMA MA, MORAN J.L., VANHAREN, F. DOIG, G., GHOSH, A., SAID, S., GUPTA, S., SANTAMARIA, J. Protocol of the Can Nebulised Heparin Reduce Time to Extubation in SARS-CoV-2 (CHARTER) Study. *medRxiv* 2020.04.28.20082552; doi.org/10.1101/2020.04.28.20082552.
2. HONG, P., XU, Y., DOIG, G., ZHOU, Y. Screening and managing of suspected or confirmed novel coronavirus (COVID-19) patients: experiences from a tertiary hospital outside Hubei province. *medRxiv* 2020.03.20.20038679; doi.org/10.1101/2020.03.20.20038679
3. HONG, P.U., PHILLIPPA, T. H., SIMPSON, F., WANG, Y., LIANG, Z, WISHCMEYER, P., HUGH, T.J., DOIG, G. Early Oral Protein-Containing Diets Following Elective Lower Gastrointestinal Tract Surgery in Adults: A Meta-Analysis of Randomized Clinical Trials. *ResearchSquare* 2020 doi.org/10.21203/rs.3.rs-29449/v1

APPENDIX B: RESEARCH PRESENTATIONS

SCIENTIFIC PRESENTATIONS 2020

AMERICAN ACADEMY OF OPTOMETRY CONFERENCE (NASHVILLE) - ONLINE, OCTOBER 2020

1. PHU, J. MASSELOS, K. KALLONIATIS, M. Determining the Impact of Review Periods on the Glaucoma Suspect Management in Clinician Attendance and Health Care Costs.
2. PHU, J. MASSELOS, K. KALLONIATIS, M. Intraocular Pressure Profiling using the Water Drinking Test and Icare HOME Self-tonometry: Implications for Glaucoma Management.
3. NAM, J. NIVISON-SMITH, L. LY, A. KALLONIATIS, M. Improving Monitoring of Drusen Changes in Age-related Macular Degeneration (AMD) via a Customised Clinical Decision Support Tool.
4. NIVISON-SMITH, L. NAM, J. LY, A. KALLONIATIS, M. Effectiveness of an Intermediate-tier Collaborative Clinic as a Referral Pathway for Non-urgent Anterior and Posterior Eye Conditions

SCIENTIFIC POSTERS 2020

AMERICAN ACADEMY OF OPTOMETRY CONFERENCE (NASHVILLE) - ONLINE, OCTOBER 2020

1. NIVISON-SMITH, L. Effectiveness of an Intermediate-Tier Collaborative Clinic as a Referral Pathway for Non-Urgent Anterior and Posterior Eye Conditions.
2. TONG, J. Does Topical Treatment Impact Diurnal Intraocular Pressure Fluctuations Measured with Self-Tonometry in Glaucoma Patients? A Clinical Trial.

VIRTUAL NUTRITION 2020 CONFERENCE (SEATTLE) - JUNE 2020

1. KALU, K. LY, A. MCMONNIES, C. ARCOT, J. Dietary Lutein, Zeaxanthin and Omega-3 Essential Fatty Acid Intake and Risk of Age-Related Macular Degeneration in a Selected Australian Population.

APPENDIX C: CFEH GRANTS

NEW GRANTS ANNOUNCED IN 2020

COOPERATIVE RESEARCH CENTRE PROJECT (CRC-P): \$12,086,227

Co-Investigators: Big Picture Medical, Centre for Eye Health (CFEH), School of Optometry and Vision Science (UNSW), Australian Institute of Machine Learning (University of Adelaide), Menicon Pty Ltd, Brien Holden Vision Institute

CFEH income from grant: \$3,396,126. Funding commences 2021.

Project Description: To develop technology that will combine an optometrist's expertise with artificial technology (AI) capabilities to comprehensively analyse patient eye health data to achieve specialist-level accuracy, allowing better diagnosis and management of eye disease. The extensive CFEH patient database will be integral to the development of the AI database.

UNIVERSITY OF NEW SOUTH WALES SCIENTIA FELLOWSHIP SUPPORT PACKAGE 2020-2023: \$200,000 OVER 4 YEARS

Recipient: Dr Lisa Nivison-Smith

This program recruits early to mid-career researchers in the top 10% of their field and provides support to develop them into leaders of their field.

NOVARTIS AUSTRALIA AND NEW ZEALAND

Lead Investigators: Dr Angelica Ly and Prof Michael Kalloniatis

Project Title: Attitudes and Barriers to Care in Age-Related Macular Degeneration: The ABC's of AMD.

GRANTS ACTIVE IN 2020

NHMRC IDEAS GRANT 2020-2022 \$476,764 OVER 3 YEARS

Title: Predicting visual function from structural data in health and ocular disease

Lead Investigator: Prof Michael Kalloniatis

Co-investigators: Barbara Zangerl, David Alonso-Caneiro (QUT), Siew Khuu (SOVS, UNSW)

Description of grant: To fund the continuing research into retinal structure and function of Dr Zangerl and Dr Kalloniatis. Funding commenced in 2020.

NHMRC INVESTIGATOR GRANT 2020-2024: \$628,690 OVER 5 YEARS

Lead investigator: Dr Lisa Nivison-Smith

Description of grant: The grant is to support research using advanced imaging to better understand the early stages of Age related macular degeneration which can facilitate better early detection, diagnosis and management. Funding commenced in 2020.

APPENDIX D: EDUCATION PRESENTATIONS

EDUCATIONAL PRESENTATIONS 2020

AMERICAN ACADEMY OF OPTOMETRY (NASHVILLE) - PRESENTED ONLINE IN 2020

1. PHU,J. Assessing Glaucoma Progression for Effective Holistic Care. (October 2020)
2. PHU,J. Contemporary Glaucoma Management for 2020: Where Are We Now? (October 2020)
3. PHU,J. Evidence-based Practice in Angle Closure Glaucoma. (October 2020)
4. PHU,J. WANG,H. Is This Glaucoma? Systematic Approaches to Differential Diagnosis. (October 2020)
5. PHU,J. WANG,H. OCT From Front to Back for the Primary Care Optometrist. (October 2020)

AMERICAN ACADEMY OF OPTOMETRY STUDENT ONLINE CLINICAL CASE EDUCATION PROGRAM (SOCCEP)

6. PHU,J. The Glaucoma Red Flag Showdown (April 2020)
7. WANG,H. Assessing the Optic Nerve: Does Retinal Vasculature Matter? (April 2020)

AUSTRALIAN COLLEGE OF OPTOMETRY

8. KALLONIATIS,M. Glaucoma: Collaborative Care, Patient Management and the Future (January 2020)
9. KALLONIATIS,M. Colour Vision: Basic Concepts and Cutting-Edge Clinical Techniques Applied to Clinical Practice (August 2020)

AUSTRALIAN VISION CONVENTION

10. PHU,J. The Optometrist's Guide to Angle Closure Spectrum Disease. (April 2020)
11. PHU,J. Does This Patient have Glaucoma? Critical Appraisal of Clinical Information (April 2020)

CENTRAL AND EASTERN SYDNEY PRIMARY HEALTH NETWORK

12. LY,A. Bright Eyes Cataract Update: Referral Options for Cataract Surgery

DOCTOR OF OPTOMETRY STUDENT CONFERENCE

13. LY,A. Keynote presentation: Collaborative Care: What is the Future for Optometry? (September 2020)

MACULAR DISEASE FOUNDATION AUSTRALIA

14. LY,A. The Role of the Optometrist in AMD: Your Partner in Eye Care
15. LY,A. Research Update: Game Changers in AMD

NZAO NATIONAL WEBINAR

16. PHU, J.; YAPP, M. The Glaucoma Red Flag Showdown (March 2020)

OPTOMETRY AUSTRALIA (NATIONAL WEBINARS)

17. LY, A. The future of optometry in AMD and how it can change the way your practice today. (May 2020)

18. LY, A. TONG, J. YAPP, M. Integrating Eye, Brain and Body. (October 2020)

OPTOMETRY AUSTRALIA VIRTUALLY CONNECTED CONFERENCE

19. JACOME, G. Galoyan, M. Vascular Disease Myths Busted (June 2020)

20. XU, P. ZHANG, S. OCT Masterclass - Hone Your Skills in the Diagnosis and Management of Macular Disease. (June 2020)

OPTOMETRY NSW/ACT

21. PHU, J. YAPP, M. The Glaucoma Red Flag Showdown. (March 2020)

OPTOMETRY NSW/ACT AND THE SCHOOL OF OPTOMETRY AND VISION SCIENCE (UNSW) - NEW GRADUATE SURVIVE AND THRIVE EVENT

22. LY, A. Optometry Outside the Consulting Room

THINK GP

23. JACOME, G. Video on Eye Health for GPs (October 2020)

WEBINAR SERIES (CFEH ONLINE EDUCATION)

24. XU, P, MOORE, L. What's White and Fluffy and Retina All Over? Differential Diagnosis of White Retinal Lesions. (February 2020)

25. FUNG, A. More Than Meets the Eye - Retinal Signs of Systemic Disease. (March 2020)

26. SPARGO, M. Ocular Disease in the Paediatric Population. (April 2020)

27. YAPP, M. Scalable Workshop: How to Host a CPD Event. (May 2020)

28. YAPP, M. Demonstration of Practical Examination Techniques. (June 2020)

29. PHU, J. Evidence-Based Practice in Angle Closure Glaucoma. (July 2020)

30. KATALINIC, P. Dealing With the Patient With Type 1 Diabetes. (August 2020)

31. HENNESSY, M. BOYLE, F. Cancer and the Eye. (September 2020)

32. PHU, J. WANG, H. Interactive Workshop: Is It Glaucoma? Systemic Approaches to Differential Diagnosis. (October 2020)

33. KATALINIC, P. A Pandemic View of the Most Intriguing Cases of 2020. (November 2020)

ICARE

34. HUANG, J. Monitoring diurnal intraocular pressure in glaucoma: the role of Icare HOME. (August 2020)

AUSTRALIAN COLLEGE OF OPTOMETRY SEMINAR SERIES

35. HUANG, J. ACO alum, where are they now? A catch up and discussion with previous ACO staff. (October 2020)

EDUCATIONAL (NON-PEER REVIEWED) PUBLICATIONS

MIVISION

1. LY,A. NAM,J. NIVISON-SMITH,L. AI in the Eye: Driving Solutions for Public Health (January 2020)
2. KALLONIATIS,M. Evolution of the Centre for Eye Health (CFEH) - 10 years on. (February 2020)
3. PHU,J. FORD,B. Making inroads with Collaborative Care Models. (March 2020)
4. WANG,H. Finding Your Path Under Pressure. (March 2020)
5. PHU,J. Should I be Using SITA Faster or SITA Standard Algorithms for my Glaucoma Patient? (April 2020)
6. WANG, H. Should Pupils be Dilated for Visual Fields? (June 2020)
7. ZANGERL,B. The Eye - a Window to the Soul or the Brain? (July 2020)
8. PHU,J. Does the 24-2C Represent a Paradigm Shift in Visual Field Testing in Glaucoma? (September 2020)
9. YAPP,M. Glaucoma Shared Care Model Improves Outcomes. (October 2020)

PHARMA

1. WANG,H. To Treat or not to Treat: The Value of Optometry-Led Collaborative Care for Glaucoma. (March 2020)
2. XU,P. Demistifying Bull's Eye Maculopathy. (March 2020)
3. LY,A. Editorial (March 2020)
4. CFEH Chairside Reference: Ocular Toxicity. (June 2020)
5. LY,A. TRINH,M. AMD Masterclass:Your Reticular Pseudodrusen Questions Answered. (September 2020)
6. KATALINIC,P. Diabetic Retinopathy - Risks, Detection and Signs (September 2020)
7. PHU,J. Glaucoma Progression Analysis and the Evidence on Intervention (September 2020)
8. HENNESSY,M. YAPP,M. Collaborative Care of Patients With Cataracts. (September 2020)

MACULAR DISEASE FOUNDATION NEWSLETTER FOR HEALTH CARE PROFESSIONALS

1. LY,A. Getting into the Zone With OCT Angiography. (July 2020)
2. ZHANG,S. Doubling Down on Macular OCT. (November 2020)

Dr Angelica Ly was invited to be Guest Clinical Editor for the March 2020 edition of *Pharma*



APPENDIX E: STUDENT FEEDBACK: FINAL YEAR CLINICAL ROTATION

	2015 n=65	2016 n=40	2017 n=45	2018 N=67	2019 N=66	2020 N=47	Average
Non cognitive factors							
1. The CFEH clinical rotations helped motivate me to learn	4.7	4.9	4.5	4.6	4.5	4.7	4.7
2. The hands-on CFEH clinical rotations was useful in helping me improve my clinical confidence and understanding of testing protocols	4.8	4.9	4.6	4.6	4.7	4.8	4.7
Assessment methods							
3. I received helpful feedback on how I was going in the CFEH clinical rotations	4.3	4.7	4	4.1	4.2	4.5	4.3
Teaching methodologies							
4. The tutorials held during the rotation were useful both for clinical knowledge and the CFEH rotations themselves	4.7	5	4.7	4.8	4.7	4.6	4.8
5. The course materials provided for the CFEH clinical rotations were useful (podcasts, PBLs etcetera)	4.8	5	4.7	4.8	4.6	4.6	4.8
6. The CFEH teaching staff showed an interest in the needs of the students	4.6	4.8	4.3	4.4	4.4	4.6	4.5
7. I found the CFEH clinical update presentations useful (Tuesday lunchtime)	4.5	4.8	4.3	4.3	4.3	4.2	4.4
8. The volume of work in the CFEH clinical rotations was appropriate	4	4.4	3.8	4.0	3.9	4.2	4.1
Learning outcomes							
9. The CFEH clinical rotations was useful in helping me improve my differential diagnostic capabilities	4.7	4.9	4.4	4.5	4.6	4.7	4.6
10. The CFEH clinical rotations improved my knowledge and understanding of the role and interpretation of ocular imaging and other diagnostic tests	4.9	4.9	4.7	4.8	4.7	4.8	4.8
11. The CFEH clinical rotations helped deepen my understanding of ocular disease diagnosis and management	4.8	4.9	4.5	4.6	4.7	4.8	4.7
12. I had a clear understanding of what was expected of me in the CFEH clinical rotations	4.5	4.6	4.4	4.3	4.4	4.2	4.4
Satisfaction							
13. Overall, I was satisfied with the quality of the CFEH clinical rotations	4.8	4.9	4.6	4.6	4.6	4.7	4.7
14. Overall, I was satisfied with experience provided during the CFEH clinical rotations	4.8	5	4.5	4.6	4.7	4.7	4.7
Average score over all aspects	4.6	4.8	4.4	4.5	4.5	4.6	4.6

Note: each question has a maximum of 5 points

CFEH TEAM MEMBERS

CENTRE DIRECTOR

- Prof Michael Kalloniatis

CLINICAL TEAM

- Michael Yapp
- Dr Angelica Ly
- Dr Jack Phu
- Agnes Choi
- Amanda Sobbizadeh
- Carol Chu
- Elizabeth Wong
- Gonzalo Jacome
- Janelle Tong
- Henrietta Wang
- Jessie Huang
- Lindsay Moore
- Meri Galoyan
- Paula Katalinic
- Pauline Xu
- Penny Chen (Electrophysiology)
- Rebecca Tobias
- Sophia Zhang

CONSULTANT OPHTHALMOLOGISTS

- Dr Esra Sanli
- Dr Jenna Besley
- Dr Katherine Masselos
- Dr Nagi Assaad
- A/Prof Michael Hennessy
- Dr Matt Spargo
- Dr Warren Apel

EDUCATION TEAM

- Michele Clewett
- Karin Mavromatis
- Clinical and Research team support

RESEARCH TEAM

- A/Prof Gordon Doig
- Dr Barbara Zangerl
- Dr Lisa Nivison-Smith
- Dr Angelica Ly
- Dr Jack Phu
- Daniel Rafla (MPhil student)
- Elisa Li (PhD candidate)
- Hallur Reynisson (PhD candidate)
- Henrietta Wang (Director Support)
- Janelle Tong (PhD candidate)
- Judy Nam (NHMRC funded technical assistant)
- Karen Ly (NHMRC funded technical assistant)
- Kenny Wu (PhD candidate)
- Matt Trinh (PhD candidate)
- Natalie Eshow (Honours student)
- Sean Sivieng (NHMRC funded technical assistant)
- Sharon Ho (PhD candidate)
- Vincent Khou (PhD candidate)
- Wilson Luu (PhD candidate)

OPERATIONS TEAM

- Sarah Holland
- Alexandra Prenc-Sadler
- Ashleigh Neville
- Crystal Petrushevsky
- Demetra Nicolaou
- Jessica Sheaves
- Joanne Collier
- Kayleigh Dowdeswell
- Natalia Croft
- Natalie Borstein



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