



Centre for
Eye Research
Australia

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THE UNIVERSITY OF
MELBOURNE



The Royal Victorian
Eye & Ear Hospital
caring in every sense

ANNUAL REPORT

09



Centre for
Eye Research
Australia

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For regular updates on CERA research visit www.cera.org.au

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Editorial
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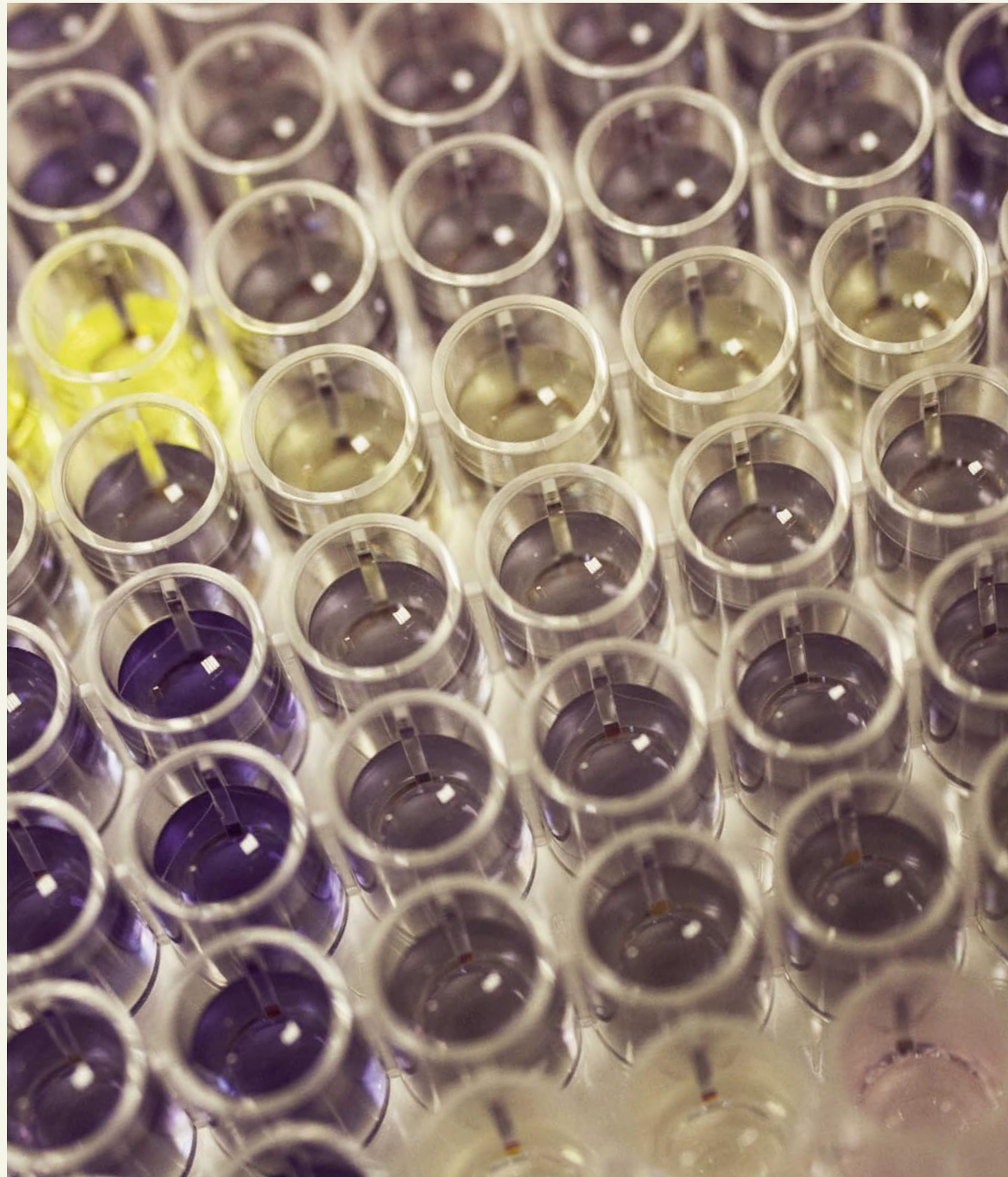
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For regular updates on CERA research visit
www.cera.org.au



Sight saving research begins here.

Mission

To eliminate the major eye diseases that cause vision loss and blindness and reduce their impact in the community.

Vision

To become a world-leading eye research institute, renowned for the discovery of the causes of eye diseases and our work in improving diagnosis, prevention, treatment and rehabilitation of eye disease, vision loss and blindness through our research, clinical work and teaching.

Partners

The Centre for Eye Research Australia (CERA) is an active member and research partner of a number of Australian and international medical research organisations and networks.

A company limited by guarantee, CERA is comprised of seven member organisations:

- University of Melbourne
- Royal Victorian Eye and Ear Hospital
- Vision Australia
- Victorian Lions Foundation
- Royal Australian and New Zealand College of Ophthalmologists
- CBM Australia
- Ansell Ophthalmology Foundation

CERA is accredited as an independent medical research institute by the National Health and Medical Research Council.

It is designated as a World Health Organisation Collaborating Centre for the Prevention of Blindness and is a core partner in the Vision Cooperative Research Centre and the Bionic Vision Australia joint venture.

From the Chairman

It is a pleasure and a privilege to preface, once again, the Centre for Eye Research Australia annual report.

In 2009, the Centre consolidated its position as Australia's leading eye research institute. This report showcases some of the results and successes of its vibrant research program, the people behind it and their outstanding research output.

From a Board perspective, the defining event in 2009 was the appointment of Professor Jonathan Crowston as Managing Director of the Centre for Eye Research Australia.

Jonathan joined the Centre in 2006, moving to Melbourne from the University of California San Diego. London born and educated, he is a leading glaucoma specialist who was recruited to strengthen basic science in ophthalmology research in Melbourne. He established CERA's new glaucoma research laboratory, assembled a team of talented researchers and students, and secured millions of dollars in competitive funding within his first three years here.

Professor Crowston holds concurrent appointments as University of Melbourne Ringland Anderson Professor of Ophthalmology and as a consultant with the Royal Victorian Eye & Ear Hospital. He combines regular clinical care for patients with research and teaching and contributes to his profession through service on numerous editorial boards, grant review panels, committees and as Vice-President of the World Glaucoma Association.

The Board is confident that under Jonathan's leadership, the Centre for Eye Research Australia will evolve further into an internationally recognised institute that will help solve many puzzling questions of eye disease and vision loss.



With the Managing Director's appointment finalised by mid-year, we embarked on a comprehensive review of strategy, complemented by a review of research quality undertaken by an international expert panel chaired by Professor Peng Khaw, Head of Ophthalmology at University College London and Moorfields Eye Hospital. Resulting from these reviews, we have agreed on a new strategic plan that charts the direction for CERA for the next decade or so and sets specific goals to be achieved over the coming three years. The short-to medium-term goals include focusing the research program increasingly on the three major blinding eye diseases – AMD, diabetic eye disease, and glaucoma; adding capacity in basic science to underpin and further strengthen the translational research that is CERA's acknowledged strength; and securing the resources that will enable the Centre to grow. The long-term objective for our work remains unchanged: to eliminate the major eye diseases that cause vision loss and blindness and limit their impact in our community.

The Eye & Ear Hospital is a critical partner in this enterprise. Ultimately, the value of medical research lies in how it improves people's lives. Where medical research is closely integrated with clinical practice and teaching in a health setting, practical benefits for patients can be achieved seamlessly. That is what we are aiming to do at the Centre for Eye Research Australia, in strong and active partnership with the Hospital and the University of Melbourne.

The Centre for Eye Research Australia with its strong track record of growth and performance in recent years is well placed to deliver on this promise. We look forward to making it one of the leading eye research institutes in the world with the help of Jonathan Crowston's leadership, guidance from our committed Board of Directors, and support from our partners who also include CBM Australia, the Victorian Lions Foundation, Vision Australia and the Royal Australian and New Zealand College of Ophthalmologists.

I thank my fellow Directors for their continued support and wise counsel during the past year, the students, staff and management at the Centre for Eye Research Australia for their outstanding work, and all our supporters in the community for your interest in our work and your generosity.

Tina McMeckan
Chairman

From the Managing Director

Over half a million people live with vision loss in Australia and around 50,000 are blind. Many more are undergoing regular treatment for eye conditions so that vision loss can be prevented. These numbers are expected to grow substantially in the next twenty years as our population ages.

A growing demand for eye health services in our community will pose significant challenges to health care providers and the government.

Research undertaken now will make a critical difference in the future.

At the Centre for Eye Research Australia, we are working towards improved treatments for sight-threatening eye diseases; better eye health education; early diagnosis and prevention strategies; and novel interventions like gene therapy to eliminate eye diseases.

Helping individual patients is enormously rewarding for clinicians but it is through research that we can potentially help thousands of people in the future. Combining research and clinical practice is in my view the best way provide excellent healthcare now while working towards improved treatments and prevention of eye disease in the future.

This is particularly the case at an institute like the Centre for Eye Research Australia where many of our lead researchers are clinician-scientists.

CERA specialises in translational research and many of our projects directly benefit patients, such as the current trial of a new laser treatment for early-stage AMD to preserve vision before it is lost; or the identification of genes involved in myopia which could open the door to new therapies for short-sightedness; or the National Indigenous Eye Health Survey

launched last September that is now informing government planning and service delivery for eye health in Aboriginal communities; or our Centre for Translational Clinical Research in Major Eye Diseases. These are just some examples of the projects we are working on at CERA aimed at improving management of eye disease.

A vital ingredient for our success in translating research findings into clinical practice is our close relationship with the Eye and Ear Hospital where clinical care and research are integrated and one informs the other in a continuous feedback loop. Leading eye institutes around the world have similar, mutually beneficial relationships, like Moorfields Eye Hospital in London, which works hand-in-glove with an affiliated research institute.

This year we were very fortunate that Professor Peng Khaw of Moorfields Eye Hospital and Professor Joan Miller, Chairman of Ophthalmology at Harvard University were able to visit CERA and together with Professor Mark Cooper from the Baker IDI Heart and Diabetes Institute in Melbourne, conducted a review of our research. The review panel acknowledged CERA's strengths and successes to date yet left us in no doubt that we need to work hard to move CERA from being the best eye institute in Australia to becoming one of the global leaders in our field. This international research review focused our planning and I sincerely thank the panel members for their work.



Our Research Committee chaired by Professor Bob Williamson supports CERA through on-going, constructive assessment of our research and suggestions for future development. This important committee welcomed four new members in 2009 who are briefly profiled in this report. We greatly appreciate their invaluable contribution.

This report showcases some of the exciting research currently underway at the Centre for Eye Research Australia. It is a vibrant place that has great potential to be even better. I feel both honoured and humbled to have been entrusted with the challenge of leadership for CERA. I look forward to working with you all – partners and donors, patients, students and colleagues, and fellow directors on the Board – over the next few years and to reporting on our progress in sight saving research. Thank you for your support and your trust.

Jonathan Crowston
Managing Director

Centre for Clinical Research Excellence: Translational Clinical Research in Major Eye Diseases

In 2009, CERA was awarded a Centre for Clinical Research Excellence (CCRE) grant, one of just six CCRE grants awarded in Australia. Through the grant the CCRE for Translational Clinical Research in Major Eye Diseases was formed.

The majority of vision loss in Australia is caused by four eye diseases - age-related macular degeneration, diabetic retinopathy, cataract and glaucoma. Vision loss caused by these diseases cost the Australian community \$10 billion each year and has serious implications for the patients' quality of life and the family members of those affected.

To tackle this increasing problem, CERA has been funded to establish a world leading, broad-based, clinical and translational research program to be undertaken in Melbourne and Sydney. The new knowledge and clinical strategies developed in this CCRE will impact on clinical ophthalmology and the practice of other medical disciplines.

Head of the Retinal Vascular Imaging Centre Professor Tien Wong is the lead investigator for the CCRE which brings together specialist expertise from within CERA on each of the major eye diseases in a highly collaborative project. Six of the seven chief investigators are CERA research leaders. The project is being conducted in collaboration with the Centre for Vision Research at the University of Sydney.

The Centres of Clinical Research Excellence (CCRE) Scheme is funded by the National Health and Medical Research Council. The highly competitive scheme supports innovative, high quality clinical research. It aims to:

- Support clinical research with potential to lead to improved health outcomes for the community;
- Foster training of clinical researchers, particularly those with a capacity for independent research and future leadership roles; and
- Ensure effective translation of research outcomes into clinical practice.



RESEARCH THEMES

- Genes, environment, lifestyle and dietary risk factors and their interaction in the pathogenesis of AMD, diabetic retinopathy, glaucoma and cataract for personalised risk stratification.
- Systemic links of eye diseases with major cardiovascular, neuro-cognitive and metabolic disorders
- Ocular imaging for screening and early detection of eye diseases
- Evidence-based, cost-effective preventive strategies for eye diseases
- Novel medical and surgical approaches to eye diseases
- Translating eye research findings into evidence-based clinical practice and health policy



CCRE RESEARCH PROJECT PROFILE Screening could eliminate diabetic blindness: study

A screening program to detect the early signs of diabetic retinopathy will markedly reduce vision loss and blindness, say CERA researchers.

In a trial of Australia's first screening program for diabetic eye disease, 10 per cent of patients screened were found to have undiagnosed diabetic retinopathy.

The study also found that a third of patients with diabetes had not had their eyes tested in the last two years, putting themselves at high risk of vision loss.

Diabetic retinopathy, a complication of diabetes, is the highest cause of blindness in working-age adults.

Undetected, the condition can lead to severe vision loss and blindness.

The pilot screening program was coordinated through a Melbourne pathology centre over a six month period.

During this time, pathology staff screened 95 per cent of patients who attended the centre. Of those screened, almost all said they would continue to access the screening service if it was available in pathology centres.

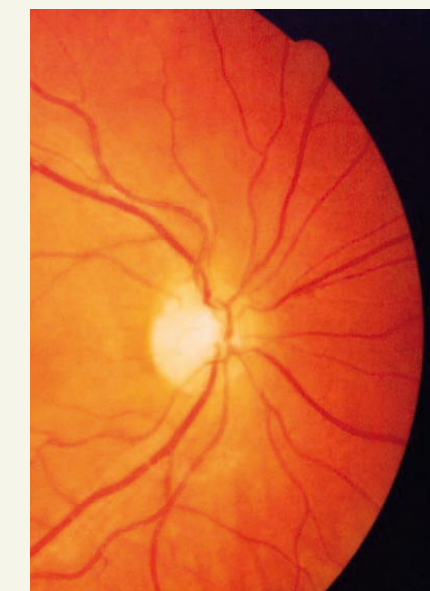
Head of the CERA Health Services Unit, Associate Professor Ecosse Lamoureux, said the high number of patients found to have undiagnosed diabetic retinopathy clearly demonstrates the need for widespread diabetic retinopathy screening of people with diabetes.

"It's unclear if patients avoid having their eyes tested because they're unaware of the risks associated with diabetes or it's the perceived inconvenience of having an eye exam," Associate Professor Lamoureux said.

"We do know however that up to 90 per cent of people with diabetes regularly attend pathology centres."

"Screening patients during their visit to these centres will allow us to catch people with diabetic retinopathy in a cost effective way and without inconvenience to the patient."

According to Associate Professor Lamoureux, despite having one of the highest rates of diabetes in the world, Australia is far behind many developed countries when it comes to detecting diabetic blindness.



A photo of a patient's retina.

"We know from the experience of countries like the UK and Iceland that screening for diabetic retinopathy significantly reduces vision loss and blindness in the population," he said.

"Ophthalmologists in Iceland, where they've implemented a screening program that works closely with diabetes clinics, maintain they've

abolished diabetes-related blindness completely. This is a staggering achievement."

To conduct the study, researchers trained pathology staff in vision screening and retinal photography. Patients attending the pathology lab were offered an eye test which involved a picture of the retina at the back of the eye.



A patient is screened for diabetic retinopathy.

If a problem was detected, the patient and their GP were alerted and a referral to an eye clinic was provided.

Over the next two years, CERA researchers aim to roll out the screening program to ten urban and rural centres in Victoria to further determine the effectiveness of a multi-centred diabetic retinopathy screening program.

Governance: Board of Directors



The sequence of photos from top left to bottom right corresponds to the order in which directors are listed below.

CERA is governed by a board of directors. The board brings together seven directors nominated by the member organisations and up to eight independent directors. The Chair and Treasurer are appointed from among the independent directors. The Board meets quarterly and holds an annual planning day.

Ms Tina McMeckan (Chair)

B.Sc, MBA (Melb), FAICD

Ms McMeckan has 20 years experience in corporate governance, enterprise development, equity investment and industry reform as a company director and senior executive. Her specific skills are in science and technology commercialisation.

Professor James Angus

BSc, PhD, FAA

Professor Angus is the Dean of the Faculty of Medicine, Dentistry and Health Sciences at the University of Melbourne. He is on the board of a number of medical research institutes affiliated with the University of Melbourne including the Walter & Eliza Hall Institute, the Bionic Ear Institute and the Mental Health Research Institute.

Professor Jonathan Crowston

BSc, MBBS, PhD, FRCOphth, FRANZCO

Professor Jonathan Crowston is Managing Director of CERA and Ringland Anderson Professor of Ophthalmology at the University of Melbourne. A practising ophthalmologist and a clinician-scientist specialising in glaucoma, Professor Crowston heads the Glaucoma Clinic at the Royal Victorian Eye & Ear Hospital.

He undertook fellowships at Westmead Hospital, NSW and the University California San Diego, where he was later appointed to the faculty before moving to Melbourne in 2006.

Mr Alfred Hawken

Mr Hawken has been nominated by the Victorian Lions Foundation to serve on the CERA board. He has extensive experience in the community and volunteer sector.

Dr Peter Henderson

MBBS, FRANZCO

Dr Henderson is the nominated representative of The Royal Australian and New Zealand College of Ophthalmologists (RANZCO) Victorian branch. A practising ophthalmologist, he has been a RANZCO fellow for more than 40 years. He has made major contributions to RANZCO, the Ophthalmic Research Institute of Australia, the ophthalmology profession and the community.

Mr John Jeffries

BBus, MAICD

Mr Jeffries is the National Director of Christian Blind Mission Australia. He also holds directorships at Vision 2020 Australia, Servants in Hawthorn and Christian Blind Mission International, USA. He is a member of the Australian Institute of Company Directors.

The Hon Dr Barry Jones AO

MA, LLD, DLitt, DSc, DUniv, FAA, FAHA, FTSE, FASSA, FACE, FRSA, FRSV, FAIM

Former MP and Science Minister, Barry Jones, is a Professorial Fellow at the University of Melbourne. Dr Jones is a director of a number of medical research and community organisations including CARE Australia, the Burnet Institute for Medical Research and Public Health, and the Australian Stem Cell Centre. He is also chair of Vision 2020 Australia.

Mr James Joughin (Treasurer)

B.BUS, CPA GIDA

Mr Joughin is a partner in the Mergers & Acquisitions Division at Ernst & Young. He has 25 years corporate finance experience and has advised publicly listed, multi-national and private companies. He chairs the CERA Finance and Audit Committee.

The Hon Michael MacKellar

BScAgr (Syd), MA (Oxon), MAICD

Mr MacKellar is an agricultural scientist and a former Commonwealth Minister for Health. He works with a number of medical research institutes and is chair of the National Ageing Research Institute.

Mr Gerard Menses

BA(Hons), MA, MAICD, FAIM, MAPsS

Mr Menses has headed some of Australia's largest not-for-profit organisations and advised government on social policy issues. He is the CEO of Vision Australia, chair of Corporate Social Responsibility Australia and a director of both Vision 2020 Australia and the International AMD Alliance.

Mr Peter Nankivell

B Comm, LLB (Melb), LLM (London)

(Deputy Chair)

Mr Nankivell is a partner in the Corporate and Finance Division at Herbert Geer Lawyers. He has been involved with CERA in a number of different capacities since 2001 and is currently chair of the Eye Research Australia Foundation and the Ansell Ophthalmology Foundation.

Mr Tim O'Leary

MBA

Mr O'Leary is a member of the board of the Royal Victorian Eye & Ear Hospital and is the Hospital's nominated representative on the CERA board. He has been a CEO and senior manager in psychiatric services, acute hospitals, community health services, local government, aged care and migrant services.

Professor Robert Williamson AO

PhD, FRCPath, HonMD, VMRCP, FRS, FAA

Professor Williamson is a key figure in the global medical research community and one of Australia's preeminent geneticists.

A former director of the Murdoch Children's Research Institute and professor of medical genetics, Professor Williamson is now an Honorary Senior Principal Fellow (Professor) of the Murdoch Institute, the University of Melbourne and Monash University.

The Hon Dr Michael Wooldridge

FAMA, HonFRACMA, HonAFPHM, HonLID, HonD.Sc

Dr Wooldridge is a former Commonwealth Minister for Health. He is a professor in the Faculty of Medicine, Nursing and Health Sciences at Monash University and an associate professor in the Faculty of Medicine at the University of Melbourne.

Dr Wooldridge is a former chair of UNAIDS (Geneva) and the World Health Organisation East Asia/Western Pacific Region. He is a director of Neurosciences Australia and Research Australia and chairs a number of public and private companies including the Ministerial Advisory Committee on AIDS, Sexual Health and Hepatitis and the Dental CRC.

The Finance and Audit Committee

MEMBERS:

- Mr James Joughin, Treasurer (Chair)
- Professor Jonathan Crowston
- Ms Tina McMeckan
- Mr Peter Nankivell

The Eye Research Australia Foundation and the Ansell Ophthalmology Foundation

TRUSTEES:

- Mr Peter Nankivell (Chair)
- Professor Jonathan Crowston
- Ms Tina McMeckan
- Mr Gerard Menses
- Professor Tien Wong



Professor Robyn Guymer with the bionic eye prototype.
Image: Peter Casamento

Imagine not being able to see your kids grow up.

This is the frightening reality faced by Regina 'Reggie' Sorenson, the winner of the 2003 Big Brother series and mother to two-year-old Mia and 15-week-old Lucas.

At just 35, Reggie is losing her sight to retinitis pigmentosa, a genetic disease that causes the retina to slowly degenerate at the back of the eye.

With only ten per cent of her vision remaining, Reggie is legally blind.

"I want to see Mia on her first day of school, playing team sport and celebrating all the milestones in her life," Reggie said.

Recently Reggie's wish came a step closer to reality when the Federal Government awarded CERA and our partners at Bionic Vision Australia (BVA), \$42 million to develop Australia's first bionic eye.

The bionic eye will deliver improved quality of life for patients with retinal conditions such as age-related macular degeneration (AMD) and retinitis pigmentosa.

Professor Robyn Guymer is the Head of Macular Research Unit at CERA and the lead clinician-researcher working with BVA.

"The bionic eye will give hope to millions of people world-wide who suffer from irreversible vision loss and blindness," Professor Guymer said.

"Retinal blindness is largely caused by degeneration or death of the cells in the eye that receive light signals. A bionic eye will help restore sight by effectively replacing the function of these cells."

The device, which is currently undergoing testing, consists of a miniature camera mounted on glasses that captures visual input, transforming it into electrical signals that directly stimulate surviving neurons in the retina.

"The implant will enable recipients to perceive points of light in the visual field that the brain can then reconstruct into an image," Professor Guymer said.

"I want to see Mia on her first day of school, playing sport and celebrating all the milestones in her life."



Reggie and two-year-old daughter Mia.

"The device will allow recipients to move around, detect large objects and, in time, read text and recognise faces." Researchers aim to implant the device in its first recipient by 2013.

CERA is a key research partner in BVA, an Australian consortium of world-leading researchers collaborating to develop an advanced bionic eye.

CERA researchers are investigating the visual responses of the brain to electrical stimulus so the best possible outcome can be achieved.

Researchers are also investigating the functionality requirements of the device and the best way to train new bionic eye recipients and are responsible for the surgical component of the program.

Principal Investigators

- Professor Robyn Guymer
- Professor Jill Keeffe
- Dr Penelope Allen
- Dr Mark McCombe
- Dr Chi Luu

"The bionic eye will give hope to millions of people world-wide who suffer from irreversible vision loss and blindness."

Lead Investigators

The Centre for Eye Research Australia's comprehensive research program encompasses laboratory, clinical, genetic and population health research. These programs are led by a group of outstanding ophthalmologists and scientists from Australia and abroad.

Associate Professor Paul Baird

BSc Hons, PhD

Head, Ocular Genetics Unit

Associate Professor Paul Baird heads the Ocular Genetics Unit. A molecular geneticist, Associate Professor Baird began his research career in the UK after completing his PhD at the University of London. He joined CERA in 2000 after holding senior research positions at the Hanson Centre, Adelaide and the Walter & Eliza Hall Institute, Melbourne.

Research interest

Associate Professor Baird's research interest is the identification of genes and determinants involved in major eye diseases such as glaucoma, age-related macular degeneration and myopia. He recently led a group of Australian and international researchers investigating the genetic basis of myopia. He also leads a team of Australian and Indian scientists investigating AMD.

Professor Jonathan Crowston

BSc, MBBS, PhD, FRCOphth, FRANZCO

Head, Glaucoma Research Unit and Managing Director, CERA

Managing Director Professor Jonathan Crowston, is a clinician-scientist specialising in glaucoma. He completed his ophthalmology training at Moorfields Eye Hospital, London.

After completing subspecialty training in glaucoma, Professor Crowston undertook fellowships at Westmead Hospital, NSW and the Hamilton Glaucoma Centre, University California San Diego, where he was later appointed to the faculty. In 2006, he moved to Melbourne to take up an

appointment as Professor of Glaucoma at the University of Melbourne.

Research interest

Professor Crowston and his team focus on molecular pharmacology and neuro-protection of the optic nerve in glaucoma. They currently investigate the cellular processes related to ageing and mitochondrial dysfunction that affect the vulnerability of retinal ganglion cells to injury. This work is intended to develop new therapeutic approaches for protecting the optic nerve in glaucoma.

Concurrent positions

Ringland Anderson Professor and Head of Department of Ophthalmology, University of Melbourne Head, Glaucoma Clinic, Royal Victorian Eye & Ear Hospital.

Associate Professor Ecosse Lamoureux

B. Ed, Grad. Dip, M. Appl. Sci, PhD

Head, Health Services Research Unit

Associate Professor Ecosse Lamoureux, a public health researcher, is head of the Health Services Research Unit. Associate Professor Lamoureux completed his undergraduate and postgraduate studies at Deakin University, Melbourne. He joined CERA in 2002 as a research fellow and is now a principal researcher and an NHMRC Public Health Fellow. Ecosse Lamoureux is also an adjunct associate professor with Duke Graduate Medical School (Singapore) and the National University of Singapore.

Research interest

Associate Professor Lamoureux and his team investigate the functional,

emotional, and economic impact of vision loss; barriers to optimal management of diabetic retinopathy and glaucoma; the development of a novel screening model and an item bank for diabetic retinopathy; and clinical trials to improve adherence to medication and disease management for people with eye disease.

Professor Robyn Guymer

MBBS, PhD, FRANZCO

Head, Macular Research Unit

Professor Robyn Guymer, a retinal specialist, leads the Macular Research Unit. Professor Guymer completed her PhD at the Walter & Eliza Hall Institute of Medical Research and her ophthalmology training in Melbourne before completing a medical retinal fellowship at Moorfields Eye Hospital, London.

Research interest

In 1997, Robyn began the genetic study of age-related macular degeneration (AMD) and established the McComas molecular genetics laboratory. Her research team conducts clinical trials into the treatment of AMD and epidemiological studies into its risk factors, and has been responsible for introducing new treatments and investigative tools into clinical practice. She is CERA's lead investigator on the bionic eye project.

Concurrent positions

Deputy Director, CERA

Deputy Head, Department of Ophthalmology, University of Melbourne

Medical retinal consultant at the Royal Victorian Eye and Ear Hospital



Top row: Paul Baird; Jonathan Crowston; Ecosse Lamoureux

Middle row: Robyn Guymer; Jill Keeffe OAM; David Mackey

Bottom row: Rasik Vajpayee; Tien Wong

Lead Investigators

Professor Jill Keeffe OAM

BA, PhD

Head, Population Health Unit, CERA

Professor Jill Keeffe leads the Population Health Unit. Professor Keeffe combined her knowledge of teaching vision impaired children with her experience in paediatric ophthalmology to complete her PhD on the educational implications of low vision in children. In 2007, Professor Keeffe was recognised for her services to public health with the award of the Order of Australia Medal.

Research interest

Professor Keeffe and her team specialise in the prevention of vision loss and blindness in Australia and developing countries.

The unit aims to develop models for effective vision care delivery; develop enabling technology for eye care delivery in underresourced areas; and understand the magnitude of vision loss and blindness problems around the world.

Concurrent positions

Director, World Health Organisation Collaborating Centre for Prevention of Blindness at CERA

Program Director, Vision CRC Vision Care Delivery Program

Professor David Mackey

MBBS, MD, FRANZCO, FRACS

Professor David Mackey carries out genetics research into inherited eye diseases. After completing medical training at the University of Tasmania and ophthalmology training at the Royal Victorian Eye and Ear Hospital, Professor Mackey worked at the Murdoch Institute in Melbourne, Johns Hopkins Center for Hereditary Eye Diseases in the USA and Moorfields Eye Hospital in London.

He runs genetic eye clinics at the Eye & Ear Hospital, Melbourne. In late 2009, Professor Mackey took up an appointment as Professor of Ophthalmology at the University of Western Australia and Managing Director of the Lion's Eye Institute, Perth. He continues to lead his established research program at CERA in an honorary capacity.

Research interest

Professor Mackey investigates the genetics of glaucoma, optic atrophy and congenital cataract, retinal detachment, strabismus and ptosis. He has been awarded for his work on the Glaucoma Inheritance Study and the Twins Eye Study into Glaucoma. In 2007 he set up the Norfolk Island Eye Study.

Professor Rasik Vajpayee

BSc, MBBS, MS, FRCSEd, FRANZCO

Head, Surgical Research Unit

Professor Rasik Vajpayee is Head of the Surgical Research Unit. On completion of his ophthalmology training at the Gandhi Medical College in India, he undertook clinical fellowships at the Royal Victorian Eye and Ear Hospital and the Massachusetts Eye and Ear Infirmary.

A faculty member of the All India Institute of Medical Sciences, New Delhi until 2006, Professor Vajpayee is now also consultant surgeon and Head of the Corneal Unit at the Royal Victorian Eye & Ear Hospital.

Research interest

Professor Vajpayee conducts research into the improvement of surgical techniques used to treat corneal diseases, cataract, stem cell transplantation and kerato-refractive surgery. He has been recognised for his introduction of innovative techniques in the field of corneal transplantation.

Professor Tien Wong

MBBS, MPH, FRCSE, PhD, FRANZCO

Head, Retinal Vascular Imaging Centre

Professor Tien Wong, a retinal specialist, heads the Retinal Vascular Imaging Centre (RetVIC) and leads epidemiology research into retinal diseases. A Singapore trained ophthalmologist, Professor Wong attained his PhD at Johns Hopkins University in the USA and completed his epidemiology research fellowship at the Wilmer Eye Institute, followed by an American Diabetes Association fellowship at the University of Wisconsin.

Research interest

Professor Wong leads research into the correlation between environmental, systemic and genetic factors and retinal vascular diseases such as diabetic retinopathy and age-related macular degeneration. His particular research interest is the use of retinal vascular signs as predictors of cardiovascular disease.

Concurrent positions

Director, Singapore Eye Research Institute, National University of Singapore

Closing the Gap in Indigenous Eye Health

ANNUAL REPORT

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The rate of blindness in indigenous adults is more than six times higher than non-Indigenous Australians, according to a study by researchers at CERA and the University of Melbourne.

The National Indigenous Eye Health Survey launched in September by Governor General Quentin Bryce, is the first comprehensive study into the impact of eye disease in indigenous communities since Fred Hollows pioneered a national study into trachoma in the 1970s.

Head of CERA's Population Health Unit Professor Jill Keeffe said cataract, optic atrophy, refractive error, diabetic eye disease and trachoma are the major causes of vision loss in indigenous adults.

"Ninety four per cent of the vision loss associated with these diseases is preventable or treatable, so the figures are unacceptable," Professor Keeffe said.

Conversely, the study found that indigenous children are five times *less* likely to experience vision loss than their non-indigenous peers.

"INDIGENOUS KIDS ARE BORN WITH BETTER EYESIGHT THAN NON INDIGENOUS KIDS. YET ALARMINGLY, THEY'RE SIX TIMES MORE LIKELY TO BE BLIND AND THREE TIMES MORE LIKELY TO HAVE LOW VISION IN ADULTHOOD."

While the report's findings are discouraging, Professor Keeffe is confident the information will help to achieve equitable eye health services for Aboriginal and Torres Strait Islander people.

"Understanding the extent of the problem is the first step towards sustainable and meaningful change," Professor Keeffe said.

"Over the next six months, there will be a review into the eye health services available in indigenous communities. This will inform our recommendations to Government on the best way to deliver the services to these communities."

The Federal Government has committed more than \$58 million over four years to improve eye and ear health in indigenous Australians. The figure includes \$16 million to tackle trachoma, a disease eliminated from mainstream Australia more than one hundred years ago, but still prevalent in the indigenous population.



To conduct the survey, researchers collected data from almost 3,000 indigenous adults and children living in major cities, rural and remote areas.

The National Indigenous Eye Health Survey was headed by Professor Hugh Taylor, Harold Mitchell Chair of indigenous Eye Health at the University of Melbourne and a part time consultant with CERA, and Professor Jill Keeffe. To download the full report visit www.cera.org.au

Key facts

- Overall, 94 per cent of vision loss in indigenous Australians is preventable or treatable but 35 per cent of adults have never had an eye examination
- Indigenous children are five times less likely to have vision loss than non-indigenous children. However, by the time they reach adulthood, they're six times more likely to be blind and three times more likely to have low vision
- Australia is the only developed country where trachoma still exists and in many remote indigenous communities, the rates of trachoma are as high as anywhere in the world
- The rates of blindness and vision loss in indigenous Australians are at least ten times higher than in mainstream Australians

Research Key Performance Indicators

2009 was CERA's most successful year to date for publications and grant success.

CERA researchers published 191 scientific papers in 2009, a 10% increase over the previous year. Around a quarter of papers appeared in the highest ranked eye journals and journals outside the ophthalmology field with impact factors above 5. Twenty-one CERA publications to date have been cited over 100 times. Including books and book chapters, the grand total of CERA publications in 2009 was 222.

Grant success

CERA received close to \$11 million in grant income in 2009, some \$4.98 million of that in competitive funding. NHMRC income exceeded \$2.2 million. Infrastructure funding from state and federal government sources amounted to around \$1 million.

More than 80 new funding applications were submitted in 2009 with 45% of them to funding sources listed on the Australian Competitive Grants register or international funding bodies. The overall grant success rate for 2009 applications was 41%.

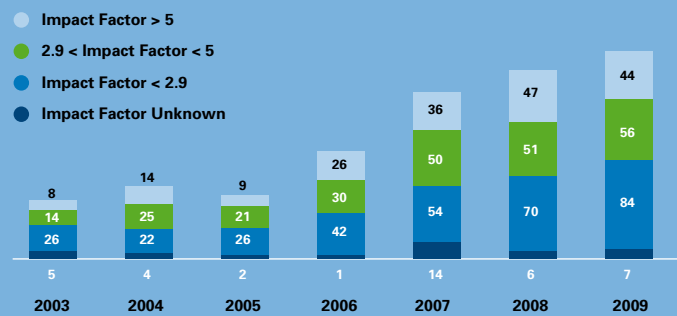
Among applications to the National Health and Medical Research Council (NHMRC), four out of ten Project Grants were successful, and eight out of twelve requests for people support - Fellowships or Scholarships. CERA was also awarded a Development Grant. In addition, CERA researchers are named chief investigators on another four NHMRC Project Grants that will be administered by other institutions.

CERA submitted eleven applications to the Ophthalmic Research Institute of Australia (ORIA), six of which were successful, resulting in half of 2009 ORIA funding being awarded to CERA.

CERA is a participant in a number of collaborations and consortia that were successful in their funding bids in 2009. The Bionic Vision Australia Consortium submitted a funding application to the Australian Research Council and was awarded \$42 million over four years commencing in 2010. The Vision Cooperative Research Centre made a successful bid for extension of funding; it will receive \$22 million over the next five years starting in July 2010. A consortium of eight organisations, CERA included, coordinated by Vision 2020 Australia is leading the implementation of the Avoidable Blindness Initiative in the Asia Pacific region funded by the Commonwealth government through AusAID with \$45 million over two years.

CERA also received Operational Infrastructure Support from the Victorian Government.

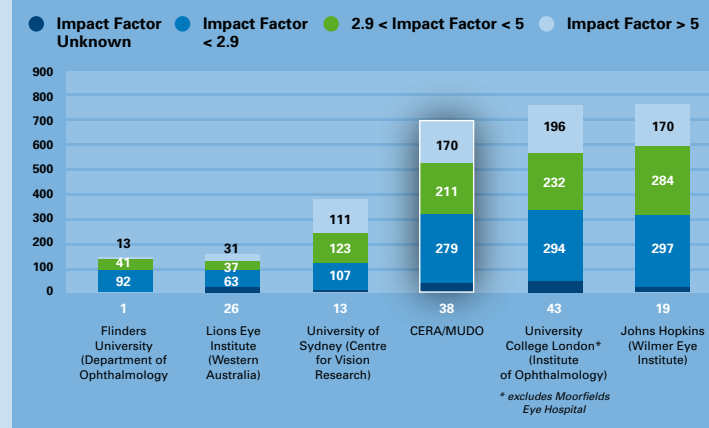
Scientific papers published



Source: Web of Science

Cumulative data for the last five years show that CERA produces more publications than other eye research institutes in Australia and is performing well in comparison with selected international institutes in the field.

Publications in comparison 2005-2009



Source: Web of Science

Research Committee

The Research Committee, chaired by Professor Robert Williamson AO, is a group of eminent scientists formed to advise CERA on research strategy and planning, and review research performance.

In 2009, several new members joined the Committee to broaden the expertise and networks that this important Committee can contribute to CERA's research strategy development.

Committee members

Professor Robert Williamson AO

PhD, FRCPath, HonMD, MRCP, FRS, FAA

Professor Williamson is a key figure in the global medical research community and one of Australia's preeminent geneticists. A former director of the Murdoch Children's Research Institute and Professor of Medical Genetics, Professor Williamson is now an Honorary Senior Principal Fellow (Professor) of the Murdoch Institute, the University of Melbourne and Monash University.

Professor Mark Cook

MBBS, FRACP, MD

A neurologist specialising in the treatment of epilepsy, Professor Cook is a professor and director of Neurology at St Vincent's Hospital. He is an editor of *Epilepsia*, a director of the Bernard O'Brien Institute of Microsurgery, serves on several advisory boards and chairs the Neurosciences Victoria Scientific Review Committee.

Professor Jonathan Crowston

BSc, MBBS, PhD, FRCOphth, FRANZCO

Professor Crowston is Managing Director of CERA and the Ringland Anderson Professor of Ophthalmology at the University of Melbourne. A practising ophthalmologist and a clinician-scientist specialising in glaucoma, Professor Crowston heads the Glaucoma Clinic at the Royal Victorian Eye & Ear Hospital. He gained fellowships at Westmead Hospital, NSW and the University California San Diego, where he was later appointed to the faculty. In 2006, Professor Crowston was appointed professor of glaucoma at the University of Melbourne.

Dr Mirella Dottori

BSc(Hons), PhD

Dr Dottori completed a Bachelor of Science (Hons) at the University of Melbourne and PhD studies at the Walter and Eliza Hall Institute. She also completed a fellowship at the Salk Institute for Biological Studies in the USA. She has established her own Stem Cell Laboratory within the Neural Regeneration group at the Centre for Neuroscience, University of Melbourne.

Professor John Hopper AM

BA, BSc, MSc, PhD

Professor Hopper is one of nine inaugural Australia Fellows awarded by NHMRC in 2007. He is a professorial fellow with a PhD in mathematical statistics, and is currently director (research) of the Centre for Molecular, Environmental, Genetic and Analytic Epidemiology in the Department of Public Health at the University of Melbourne.

Professor Terry Nolan

MBBS, BMedSc, PhD

Professor Nolan is foundation head of the Melbourne School of Population Health at the University of Melbourne and Associate Dean of the Faculty of Medicine, Dentistry and Health Services.

He was a member of the NHMRC's Research Committee and the deputy chair in the last triennium. He serves as head of the Vaccine and Immunisation Research Group and is a director of the NHMRC Centre for Clinical Research Excellence (CCRE) in Child and Adolescent Immunisation.

Associate Professor Ravi Savarirayan

MBBS, MD, FRACP, HGSA, ARCPA

Associate Professor Savarirayan is a clinical geneticist and head of the Royal Children's Hospital Clinical Genetics Service in Melbourne. His special area of expertise is in the inherited disorders of the skeleton that cause short stature, arthritis and osteoporosis in both children and adults. He is the foundation director of the Southern Cross Bone Dysplasia Centre and an elected member of the International Skeletal Dysplasia Society.

Dr Ehud Zamir

MBBS, MD, FRANZCO

Dr Zamir is a fellowship-trained specialist ophthalmologist. He completed his medical training at the Hebrew University-Hadassah Medical School, Jerusalem followed by a clinical fellowship in Uveitis and Ocular Pathology at the Doheny Eye Institute, Los Angeles, California.

He is a fellow of the Royal Australian and New Zealand College of Ophthalmologists and director of training for RANZCO for the state of Victoria. He currently holds the position of director of clinical training at the Royal Victorian Eye and Ear Hospital.

Study Tackles Diabetic Eye Disease

"I KNOW THAT IF I DON'T LOOK AFTER MYSELF NOW, THERE'S A VERY REAL CHANCE I'LL LOSE MY SIGHT IN THE FUTURE."

Diabetes patient Sally Godfrey with 12-week-old Lenny



Just 15 per cent of people with diabetes keep their blood sugar levels within the optimal range, fueling an increase in vision loss from diabetic retinopathy.

This is one of the findings by CERA researchers who are conducting Australia's first major study into the factors that prevent good diabetes management.

Diabetic retinopathy, a complication of diabetes, is the leading cause of blindness in working-age adults.

Study Manager Mohamed Dirani said that while most diabetic patients will develop diabetic retinopathy at some point in their lives, severe vision loss caused by the disease is preventable.

"Diabetic retinopathy is usually the result of untreated or poorly controlled diabetes. Studies show that proper control of blood glucose levels and hypertension significantly reduces the progression of the disease," Dr Dirani said.

Sally Godfrey, 30, joined the study to help other people with diabetes.

Diagnosed with type 1 diabetes four years ago, Sally says controlling her blood glucose levels is a balancing act that requires organisation and self discipline.

The new mum says the long-term health risks associated with poor diabetes management motivate her to stay on top of her condition.

"I know that if I don't look after myself now, there's a very real chance I'll lose my sight in the future," Sally said.

"My sight is incredibly important to me. In addition to being a mum, I manage the Knox City Council Arts Program. I also teach a weekly cooking class. I couldn't do any of these things if I lost my sight."

"When I was first diagnosed, I knew very little about managing my condition and the risks associated with the disease. That's why education is so important," she said.

Dr Dirani said despite the numerous education programs available, many high risk patients are not adequately managing their condition.

"From the study, we hope to get a better understanding of the factors that prevent patient's from effectively managing their condition," Dr Dirani said.

The results of the study will help medical professionals better support and educate patients about their treatment needs.

Diabetes is a major health problem in Australia and our fastest growing chronic disease. It affects more than 1.5 million Australians and a further 275 people are diagnosed with the condition every day.

The Diabetes Management Project (DMP) project is being undertaken in collaboration with the University of Melbourne, the Royal Victorian Eye and Ear Hospital and Diabetes Australia, Victoria. The project is funded by the Australian Research Council.

Principal Investigators

Associate Professor Ecosse Lamoureux

Professor Tien Wong

Dr Mohamed Dirani

Visitors and Events

January

February

24 February - Victorian Governor Professor David de Kretser launched the Inaugural Gerard Crock Lecture to honour the memory of Professor Gerard Crock AO

Professor David Mackey captivated the audience with his highly acclaimed lecture, *The 'I' in Personalised Genetics*

Pictured right: Victorian Governor Professor David de Kretser with Professor David Mackey and members of the Crock family



March

25 March - The Hon Gavin Jennings, Victorian Minister for Innovation (below, with Prof Jonathan Crowston)

26th-29th March - Lions' Ride for Sight



May

19 May - CERA Annual General Meeting held at KPMG (pictured right)



June

1 June - Reception for Herbert Geer Lawyers Murray-to-Moyne cyclists

3 June - Supporter Information Session on AMD

23 June - Peggie & Leslie Cranbourne Foundation representatives toured CERA (pictured right)



April

6 April - Visit by the University of Melbourne Floral Group

21 April - Supporter Information Session on Diabetic Retinopathy (pictured right)



July

August

11 August - Supporter Information Session on Glaucoma



September

28 September - Launch of the National Indigenous Eye Health Survey by Governor General Quentin Bryce, pictured below with survey leaders Professors Hugh Taylor and Jill Keeffe and staff from the CERA Population Health Unit.



October

November

11 November - Mrs Jacqueline Crock and representatives of Perpetual Trustees (pictured below)

19 November - Senator Bob McMullan (pictured left) launched the Vision 2020 Global Consortium at Parliament House, Canberra

27 November - Expert briefing by Professor Paul Dodson, Director, Heart of England Diabetic Retinopathy Screening Centre, Birmingham UK



December

1-3 December - International Research Review

Review panel (pictured below), l to r: Professor Mark Cooper, Baker IDI Institute, Melbourne
Professor Peng Khaw, Director National Institute for Health Research Biomedical Research Centre in Ophthalmology, Moorfields Eye Hospital and UCL Institute of Ophthalmology, London
Professor Joan Miller, Chairman Department of Ophthalmology, Harvard University Medical School, Massachusetts Eye and Ear Infirmary, Boston.



The Centre for Eye Research Australia (ABN: 72 076 481 984) for the year ended 31 December 2009

STATEMENT OF COMPREHENSIVE INCOME	2009	2008
<i>Revenue</i>		
Federal Government	3,520,890	2,351,175
State Government	809,939	761,276
Charitable Contributions & Other Income	6,083,100	5,153,814
Total Revenue from operating activities	10,413,929	8,266,265
Less Expenditure on operating activities	9,588,016	8,707,693
Surplus / (Deficit) on operating activities	\$825,913	(\$441,428)
<i>Net Financial income</i>		
Net Financial income	495,191	36,663
Capital Grants	2,214,841	-
Net Surplus / (Deficit)*	\$3,535,945	(\$404,765)
STATEMENT OF FINANCIAL POSITION		
Current Assets	7,995,097	3,226,309
Non-Current Assets	1,164,696	1,479,918
Total Assets	9,159,793	4,706,227
<i>Current Liabilities</i>		
Payables	995,514	378,372
Provisions	539,252	454,319
Other	839,058	663,205
Total Current Liabilities	2,373,824	1,495,896
Non-Current Liabilities	127,039	87,346
Total Liabilities	2,500,863	1,583,242
Net Assets	6,658,930	3,122,985
<i>Asset Replacement Reserve</i>		
Asset Replacement Reserve	5,000,000	-
Accumulated funds	1,658,930	3,122,985
Total Equity	6,658,930	3,122,985

CERA receives Operational Infrastructure Support from the Victorian Government.

* The Centre for Eye Research Australia Limited is a not for profit organisation. Accumulated surpluses are held in the form of working capital and fixed assets to support committed and planned research projects.

Publications	24
Staff and Students	32
Conference Presentations	35

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Dr George Yu Xiang Kong

Ms Nicole Van Bergen

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Dr Robyn Troutbeck
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Mr William Tao

Masters Candidate

Mr Bobby Babak Amin

MD Candidate

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Ms Srujana Sahebjada

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Mr Mohammed Nazim Uddin (from March 2009)

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Ms Holly Custance
Human Resources Officer
Ms Sue Griffin
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Ms Lauren Metcalfe
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Mr Robert Palin
Finance and Resources Manager
Mr Sanjeewa Perera
IT Support Officer
Mr David Sumner
IT Manager

Conference Presentations

ANNUAL REPORT

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January : ASIA ARVO, Hyderabad, India

Vajpayee R.B., 'Double Bubble DALK'
Vajpayee R.B., 'Sutureless DSAEK Triple Procedure'
Wong T.Y., 'Prevalence and Risk Factors of Diabetic Retinopathy'
Wong T.Y., 'Novel Retinal Vascular Imaging Analysis from Digital Photographs and Potential Clinical Applications'
Wong T.Y., 'Retinal Vessels in Children: New Findings from Population Studies'
Kiran D., Khanna R., Raman U., Keeffe J.E., Williams J.D., 'Child-to-Child and Child-to-Family Communication as a Strategy to Improve Awareness and Uptake of Eye Care Services in Rural South India'
Marmamula S., Keeffe J.E., Raman U., Rao G.N., 'Barriers to the uptake of eye care services in the South Indian state of Andhra Pradesh – Rapid assessment of refractive errors (RARE) study'
Hassell J., Rees G., Larizza M., Keeffe J.E., Lamoureux E.L., 'The pilot evaluation results of the "Living with Low Vision" trial: a new self management program in people with low vision'

January : 4th Congress of the International Society for Vascular Behavioural and Cognitive Disorders (VAS-COG), Singapore

Wong T.Y., 'Retinal Vascular Imaging: a non-invasive biopsy of the cerebral microvasculature'

February : St. Vincent's Hospital Research In Progress Seminar Series, Melbourne

Trounce I.A., 'Mitochondrial dysfunction in Autosomal Dominant Optic Neuropathy'

February : Australian Neuroscience Society Annual Meeting, Canberra

Kong Y., Bui B.V., Trounce I.A., Vingrys A.J., Crowston J.G., 'Calorie Restriction Reverses Age-Related Vulnerability of Retinal Ganglion Cells to Pressure-Induced Oxidative Stress'

March : Victorian State Branch Meeting.

Guymer R.H., 'Update on management of wet AMD'

March : Delhi Ophthalmological Society Annual Conference

Vajpayee R.B., 'Lamellar Keratoplasty: Evolution & Revolution'

March : International Women's Day Breakfast

Guymer R.H., 'Seeing into the Future'

March : Regional Ophthalmology Congress, Kuala Lumpur, Malaysia

Wong T.Y., 'The Retinal and ME (Macular edema)'

March : 7th International Workshop on Structure And Function Of The Vascular System, Paris, France

Wong T.Y., 'Retinal microcirculation and cardiovascular disease'

March : SNEC-Duke-NUS Medical Retinal Updates & Ophthalmic Imaging Course, Singapore

Wong T.Y., 'Patterns of Retinal Diseases in Singapore and Asia'

Wong T.Y., 'Evidence-based Management of Diabetic Retinopathy'

Wong T., 'Epidemiology and Natural History of RVO'

March : American Glaucoma Society, San Diego

Crowston J.G., 'Diet modification and neuroprotection'
Kong Y., Bui B.V., Trounce I.A., Vingrys A.J., Crowston J.G.,

'Intermittent Fasting Reverses Age-Related Vulnerability of Retinal Ganglion Cells to Pressure-Induced Oxidative Stress' (selected for "Best of AGS" by AGS program committee)

March : Tri-State Conference, Albany

Moore K., Lamoureux E.L., Hill K., Fenwick E., Borschmann K., Lin X., Iaic M., 'Are Vision and Environmental factors adequately addressed in low level residential aged care facilities?'

April : Singapore General Hospital Annual Scientific Meeting, Singapore

Wong T.Y., 'Principles in the Management of Diabetic Retinopathy'

May : Joint Congress of Asia Pacific Academy of Ophthalmology and American Academy of Ophthalmology, Bali, Indonesia

Wong T.Y., 'Diabetic Retinopathy in Asia: Epidemiology, Trends and Impact'

Wang J.J., 'Retinal vascular imaging and potential clinical relevance'

May : ARVO Fort Lauderdale, USA

Jhanji V., Constantinou M., Beltz J., Vajpayee R.B., 'Corneal Wound Configuration After Penetrating Keratoplasty using Anterior Segment Optical Coherence Tomography'

Vajpayee R.B., Jhanji V., Mackey A., Pollock G., Beltz J., 'Effect of Storage of Donor Lenticule with Anterior Corneal Lamella-On/Off in Organ Culture Corneal Storage System on Descemet Stripping Automated Endothelial Keratoplasty Donor Tissue'
Vajpayee R.B., 'Evaluation of Intrastromal Voriconazole Injection as an Adjunct in the Management of Deep Recalcitrant Fungal Keratitis'

Vajpayee R.B., 'Evaluation of Plasma Knife for in situ Excision of Donor Corneas for Keratoplasty'

Vajpayee R.B., 'Evaluation of Umbilical Cord Serum Therapy in Acute Ocular Chemical Burns'

Guymer R.H., Schlingemann R., Axer-Siegel R., Eldem B. on behalf of EXCITE study group, 'Corneal endothelial cell density in patients with neovascular age related macular degeneration treated with ranibizumab in the EXCITE study'

Schlingemann R., Schmidt-Erfurth U., Eldem B., Guymer R.H. on behalf of EXCITE study group., 'Safety and efficiency of quarterly versus monthly ranibizumab injections in patients with neovascular age-related macular degeneration: 12 months results of the EXCITE study'

Eldem B., Bartz Schmidt K., Schlingemann R., Guymer R.H., Axer-Siegel R. on behalf of EXCITE study group., 'Visual acuity response profiles in patients with neovascular age-related macular degeneration treated quarterly after 3 initial doses with ranibizumab in the EXCITE trial'

Aung K., Wickremasinghe S.S., Makeyeva G., Robman L., Guymer R.H., 'The prevalence of idiopathic macular telangiectasia type 2 (IMT): The Melbourne Collaborative Cohort Study'

Robman L., Baird P.N., Richardson A., Dimitrov P.N., Guymer R.H., 'Interaction of inflammatory and genetic risks of prevalent AMD and AMD progression'

Lim J.H., Wickremasinghe S.S., Chauhan D.S., Xie J., Robman L., Richardson A., Baird P.N., Guymer R.H., 'Predictors of treatment outcomes with anti-vascular endothelial growth factor

Conference Presentations

in neovascular age-related macular degeneration'

Keeffe J.E. 'Reducing Sex and Gender Disparities in Eye Disease and Treatment: Translation of Research into Public Health Action'
Keeffe J.E., 'The Impact of Vision Loss on the Individual: Assessment of the Impact of Vision Loss on Participation and Quality of Life'

Bourne R.R., Leasher J.L., Keeffe J.E., A S.G., Naidoo K., Pascolini D., et al. 'Global Burden of Diseases, Injuries, and Risk Factors Study (GBD)- The Vision Loss Group: Methodology and Results of Systematic Review'

Chiang P.P., Xie J., Le Mesurier R.T., Keeffe J.E., 'Critical Success Factors in the Delivery of Low Vision Services and Implications for Health Policy'

O'Connor P.M., Keeffe J.E., Pesudovs K., Marella M., Lamoureux E.L., 'Comparing the psychometric performance of the Impact of Vision Impairment (IVI) and the National Eye Institute Functioning Questionnaire-25 (NEI VFQ-25)'

Xie J., Lamoureux E.L., Rees G., Keeffe J.E., 'Is adaptation to vision loss an independent predictor of vision-specific quality of life in older Australian adults?'

Crowston J.G., Kong G.Y., Trounce I.A., Weinreb R.N., Vingrys A.J., Bui B.V., 'Intermittent Fasting Reverses Age-Related Vulnerability of Retinal Ganglion Cells to Pressure-Induced Oxidative Stress, Program' (Selected for New Ideas Symposium, as a top 6 abstract of 750+ abstracts)

Kong Y., Bui B.V., Trounce I.A., Vingrys A.J., Crowston J.G., 'Age-Related Susceptibility of Retina and Optic Nerve to Intraocular Pressure Injury'

Van Bergen N.J., Trounce I.A., Mackey D.A., Hewitt A.W., Kong G., Crowston J.G., 'Decreased Mitochondrial Oxidative Phosphorylation in Autosomal Dominant Optic Atrophy'
Trounce I.A., Van Bergen N.J., Chidlow D.A., Johns G., Casson R., Crowston J.G., 'Re-Characterization of the RGC-5 retinal ganglion cell line'

O'Connor P.M., Keeffe J.E., Pesudovs K., Marella M., Lamoureux E.L., 'Comparing the psychometric performance of two vision-related instruments: The IVI and the NEIVFQ-25'

Lamoureux E.L., Leung O., Crowston J.G., Rees G., 'Factors associated with non-adherence to ocular hypotensive treatment in patients with glaucoma'

Xie J., Lamoureux E.L., Rees G., Keeffe J.E., 'Is Adaptation to Vision Loss an Independent Predictor Of Vision-specific Quality of Life In Older Australian Adults?'

Huang O.S., Tay W.T., Sandar M., Lamoureux E.L., Wang J.J., Wong T.Y., 'Glycemic and Blood Pressure Control in Community-living Individuals with Diabetes and Diabetic Retinopathy: The Singapore Malay Eye Study'

Finger R.P., Kleinemas U., Lamoureux E.L., Owsley C., Scholl F., G. Holz, 'Adaptation and Evaluation of the German Version of the Impact of Vision Profile (IVI) and the Low Luminance Questionnaire (LLQ) in Geographic Atrophy in Age-Related Macular Degeneration'

Pesudovs K., Gothwal V.K., Wright T., Lamoureux E.L., 'Enabling the measurement of visual disability with an item bank from 19 questionnaires'

Schache M., Chen C.Y., Pertile K.K., Garoufalos P., Richardson A.J., Baird P.N., 'Identification of a Novel Susceptibility Locus for Myopia on Chromosome 2q37 Reveals a Genetic Association of an Intergenic SNP with the Condition'

Kawasaki R., Thanh N.T., Wang J.J., Shaw J., Wong T.Y., 'Relationship of dynamic and static retinal vessel diameter changes to diabetic retinopathy'

Mcauley A.K., Hodgson L.A.B., Cheung N., Hamzah H., Hsu W., Lau Q.P., Lee M.L., Kawasaki R., Wang J.J., Wong T.Y., 'Inter- and Intra-Grader Reliability of Computer-Assisted Measurement of Retinal Vascular Geometry'

Yau J.W., Kawasaki R., Rogers S., McIntosh R., Chong E.W., Cheung N., Jenkins A.J., Wong T.Y., 'Diabetic Retinopathy and Risk of Cardiovascular Disease: A Systematic Review and Meta-Analysis'

Chua C., Mackensen F., Xie J., Lim :, 'The application of confocal microscopy in uveitis: a comparison of confocal techniques in the imaging of Keratic Precipitates (KP)'

Wong T.Y., Tay W.T., Mitchell P., Tan A.G., Fong P.C., Sangeetha N., Sandar M., Aung T., Wang J.J., Saw S.M., 'Prevalence and Risk Factors for Age-Related Cataract: The Singapore Malay Eye Study'

Mackey D.A., Kearns L.S., Wilson C., Silvestri G., Hewitt A.W., Ruddle J.B., Martin N.G., Craig J.E., Hammond C.J., 'Ocular Dominance, Refraction and Axial Length in Australian Twins'

O'Hare F., Jeganathan V.E., Rokahr C.G., Rogers S.L., Crowston J.G., 'Readability of Prescription Labels and Medication Recall in a Population of Tertiary Referral Glaucoma Patients'

May : Center for Mitochondrial Medicine, UCA Irvine, Los Angeles CA USA

Trounce I.A., 'Modeling mtDNA/nuclear mismatch with xenomitochondrial mice'

June : Excitable Cells Neuroscience Annual Conference, Melbourne

Trounce I.A., 'Amyloid precursor protein mediated neuroprotection in a Parkinson's Disease cellular model'

June : World Glaucoma Congress, Boston, Massachusetts

Crowston J.G., 'Natural history of glaucomatous disease'

June : Pfizer ARVO Update meeting, Melbourne

Guymer R.H., 'Hot topics in Age Related Macular Degeneration'

Crowston J.G., 'Hot topics in Glaucoma'

Wong T.Y., 'Hot topics in Diabetic Retinopathy'

June : Pfizer Ophthalmology Forum, Brisbane

Wong T.Y., 'Diabetic retinopathy'

July : Pfizer Cardiovascular Forum, Sydney

Wong T.Y., 'How do we refine vascular risk assessment?'

July : 1st University of Malaya Eye Research Centre Meeting, Kuala Lumpur, Malaysia

Wong T.Y., 'Trends and Patterns of Retinal Diseases in Asia'

July : Global Lecture Series organized by LV Prasad Eye Institute, Singapore

Wong T.Y., 'Diabetic Retinopathy Management 2009'

August : Annual Meeting of the Indian Intraocular Implant & Refractive Society of India (IIRSI)

Vajpayee R.B., 'Precision in Vision 2009'

August : Australian Diabetes Society Annual Scientific Meeting, Adelaide

Januszewski A.S., Ma B., Zhang Y., Blake R., Kelly D.J., Trounce I.A., Jenkins A.J., 'Experimental diabetes in a novel mouse model of mitochondrial dysfunction – testing the "Unifying Hypothesis"'

September : 1st Clinical Bioinformatics Symposium on Applied Sciences, Singapore

Wong T.Y., 'Translational Research and Bioinformatics in Singapore: Advances, Breakthroughs and Initiatives - a Clinician Perspective'

September : Baker-IDI Heart and Diabetes Institute, Melbourne

Wong T.Y., 'Re-visiting the relationship of glucose to microvascular complications and implications for diabetes diagnosis'

September : 20th Tianjin Medical University Eye Centre Anniversary International Meeting, Tianjin, China

Wong T.Y., 'Retinal Vein Occlusion - 2009 Update'

Wong T.Y., 'Is Intravitreal Triamcinolone plus Laser better than Laser alone for treatment of Diabetic Macular Edema?'

September : Inaugural World Congress of Paediatric Ophthalmology and Strabismus, Barcelona

Keeffe J.E., 'Information that the schools need from ophthalmologists for Individual Educational Plans of children with impaired vision with or without other problems'

September : BPS DHP Annual Conference, Birmingham

Rees G., Fenwick E., Keeffe J.E., Mellor D., Lamoureux E.L., 'Detection and management of depression in people with vision impairment'

September : British Psychological Society DHP Annual Conference, Aston University

Rees G., Fenwick E.K., Keeffe J.E., Mellor D., Lamoureux E.L., 'Detection and management of depression in people with vision impairment: A survey of current practice among eye health professionals and vision rehabilitation staff in Victoria, Australia'

October : The beyondblue Victorian Centre of Excellence Research Forum 2009

Rees G., Fenwick E.K., Keeffe J.E., Mellor D., Lamoureux E.L., 'Detection and management of depression in people with vision impairment: A survey of current practice among eye health professionals and vision rehabilitation staff in Victoria, Australia'

October : Tong Ren Hospital and Beijing School of Ophthalmology, Beijing, China

Wang J.J., 'Challenges in research in the genomic era'

October : Forum Dean's Lecture Series, University of Melbourne

Vajpayee R.B., 'Change the cornea – keep the optic nerve!'

October : Combined American Society of Retinal Specialist and Macular Society Meeting, New York, USA

Wong T.Y., 'Effect of Intravitreal Triamcinolone on Outcomes of Laser Photocoagulation for Diabetic Macular Edema: 6- Month Data from a Randomised Controlled Trial'

October : University of Malaya, Kuala Lumpur, Malaysia

Wong T.Y., 'Pearls to publishing papers in high impact journals'

November : RANZCO 41st Annual Scientific Congress

Vajpayee R.B., 'Deep anterior lamellar keratoplasty by Double Bubble Technique'

Vajpayee R.B., 'Computer Simulation-Assisted Rotational Autokeratoplasty with Pupillary Enlargement for management of cases with partial corneal opacification'

Taylor H.R., Keeffe J.E., Arnold A-L., Fox S., Xie J., 'Visual impairment in Aboriginal and Torres Strait islander people'

Taylor H.R., Keeffe J.E., Arnold A-L., Fox S., Dunn R., 'Trachoma in Aboriginal and Torres Strait Islander people'

Dhillon R., Crock C., O'Connor P.M., Keeffe J.E., 'A Critical Review of Existing Resources to Manage Ocular Emergencies in Australia'

Ong D.N., Crock C., Disler P., Keeffe J.E., Crowston J.G., 'Rural Emergency Doctors' Training from an Ophthalmology Perspective'

Crowston J.G., Ida Mann Lecture 'Glaucoma and the Ageing Optic Nerve'

Crowston J.G., 'Wound healing in the post-op period'

Crowston J.G., 'All the blood flows dark'

Kong G., Bui B.V., Kreis A., Trounce I.A., Wong T.Y., Vingrys A.J., Crowston J.G., 'Age-related susceptibility of retinal function and blood flow to intraocular pressure challenge'

November : RVEEH Annual General Meeting

Guymer R.H., 'Treatment of Age-related Macular degeneration (AMD) at the Royal Victorian Eye and Ear Hospital-taking full advantage of translational research'

November : South Australia Optometrist Congress, Adelaide, Australia

Wong T.Y., 'Current understanding and treatment of diabetic retinopathy'

Wong T.Y., 'Are patients with AMD more likely to develop cardiovascular disease?'

November : Update on Diabetic Nephropathy and Retinopathy, Lido di Camaiore, Lucca, Italy

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