



Centre for Eye Research Australia



Annual Report 2007



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World Sight Day, observed on the second Thursday in October each year, is an event focusing on the problem of global blindness. It aims to raise public awareness around the world about the prevention and treatment of vision loss.

In 2007, the theme for World Sight Day was "Vision for Children".

In developed countries like Australia, eye disease and vision loss predominantly affect older people. A day focusing on "Vision for Children" serves as a reminder that eye health is important for people of all ages, including the very young.

The Centre for Eye Research Australia, particularly through its Prevention of Blindness Unit and as a designated WHO Collaborating Centre for the Prevention of Blindness, is actively working on a number of programs concerned with children's eye health and children with low vision.

The children pictured on the cover of this report are part of our institute's extended family. We thank our colleagues who have shared photos of their children for this purpose. The children are part of the next generation who will benefit from advances in treating eye diseases and preventing vision loss that will be achieved through our researchers' work today. One of their parents may just be working on the break-through discovery towards a cure for glaucoma or AMD. More than likely, that parent is spending long days in a laboratory and clinic, evenings writing grants or preparing scientific papers for publication, and many days each year away from home to attend meetings. So we owe the children and families our thanks, too, for their support of a researcher's career.

This report offers a snapshot of work undertaken in 2007 at the Centre for Eye Research Australia. We commend it to you for your perusal.

Contents

2	About Us	37	Conferences, Lectures and Presentations
3	Mission and Vision	40	Staff Profile: Collin McDonnell
4	Chairman's Report	42	Knowledge Transfer
6	Managing Director's Report	44	Staff Profile: Eleanor Mitchell
8	Research	46	Community Engagement
16	Research Highlights	48	Vale Gerard Crock
17	Governance	49	Awards, Honours, Celebrations
18	Staff Profile: Mohamed Dirani	50	Staff Profile: Nicole Van Bergen
20	Staff	52	Financial Performance
23	Research Publications Output and Quality	53	Sources of Income
24	Research Publications	54	Financial Statements and Audit Opinion
28	Staff Profile: Lyndell Lim	56	Eye Research Australia Foundation
33	Visitors	57	Supporting Eye Research
34	Teaching, Training and Learning		

About Us

- > Centre for Eye Research Australia
- > University of Melbourne Department of Ophthalmology
- > Eye Research Australia Foundation



The Centre for Eye Research Australia (CERA) is Australia's leading ophthalmic research institute. An international team of around 100 staff and students are working to discover the causes of eye diseases, to find and improve therapies and treatment, and to enhance rehabilitation and support for people living with vision loss and blindness.

CERA's comprehensive research program includes groups working on cataract, glaucoma, age-related macular degeneration, diabetic eye disease, and genetics of eye conditions including myopia. Based at the Royal Victorian Eye & Ear Hospital in Melbourne, most of the Centre's research groups are led by clinician-scientists whose investigative work is informed by their involvement in current clinical practice and patient care. CERA also includes a Population Health Division internationally renowned for its work on indigenous eye health, low vision, and prevention of blindness programs.

CERA has a well established reputation for translational research and independent authoritative advice to inform health policy and planning, for instance through a series of reports prepared with Access Economics on the cost of eye disease.

CERA is accredited as an independent medical research institute by the Australian government's National Health and Medical Research Council. It was established in 1996 by Professor Hugh Taylor AC, who served as the Centre's Managing Director until the end of 2007.

The Centre for Eye Research Australia is a joint undertaking between the University of Melbourne, the Royal Victorian Eye and Ear Hospital, Vision Australia, the Victorian Lions Foundation, the Royal Australian and New Zealand College of Ophthalmologists – Victorian Chapter, CBM, and the Ansell Ophthalmology Foundation. It has been designated a World Health Organization Collaborating Centre for the Prevention of Blindness, the only such Centre in Australia, and is a core partner in the successful Vision Cooperative Research Centre.

CERA has grown out of and incorporates the University of Melbourne Department of Ophthalmology, which was established in 1963. The Department and Centre share space, staff appointments, administrative resources, equipment, expertise and external networks.

The University Department is the main focus for teaching, postgraduate and research training. Professor Hugh Taylor was Head of the Department concurrently to his CERA Directorship.

The Eye Research Australia Foundation was established in 1996 for the sole purpose of raising support for the work of CERA. In its first decade, the Foundation has laid the groundwork from which to generate more substantial discretionary revenue streams in future.

A Board of Trustees oversees the Eye Research Australia Foundation and disburses funds to CERA. The Foundation has raised approximately \$5 million so far. Its investments include a capital fund for the Gerard Crock Fellowship, and a growing endowment from realized bequests.

Mission and Vision

Mission

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

Vision

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

Guiding Values

Our organisation is committed to

- > the principles of scientific inquiry
- > the highest ethical standards in the conduct of research and patient care
- > providing outstanding teaching, research training and learning opportunities in ophthalmology
- > contributing to the continuous development of ophthalmology as a discipline and a profession
- > making our advances in knowledge widely accessible
- > respect for people – patients, students, staff, volunteers, key stakeholders and supporters – in all their diversity
- > accountability for effective and efficient management.

Strategic Objectives

The Centre for Eye Research Australia and University of Melbourne Department of Ophthalmology developed a new Strategic Plan for the period 1 January 2007 – 31 December 2010. During that period, we will give priority attention to five strategic objectives:

1. Research and Research Funding

To keep CERA at the forefront of eye research in Australia and enhance its standing internationally.

2. Teaching, Training and Learning

Continuously improve education for the next generation of ophthalmologists and foster an appreciation of the importance and excitement of research among the 'best and brightest'.

3. Knowledge Transfer

To make our research known to the community and accessible to interested parties.

4. External Relations and Fundraising

To strengthen CERA's profile in the community, with government and the media to generate income, influence and opportunity for our research.

5. Organisational Effectiveness

To align people, systems, infrastructure and resources for efficient and effective administration.

Chairman's Report

Tina McMeckan



Once again, I am delighted to present to our stakeholders and the community the annual report for the Centre for Eye Research Australia. 2007 has been a momentous year for the Centre, combining success, growth and reward with change and challenge.

This report offers a snapshot of the busy working life of a research organisation that also provides teaching and training and engages with the community.

You will find summaries of research in progress; the comings and goings of staff, students and committee members; the list of scientific publications for the year which is a traditional measure of research productivity; news of awards and achievements; and the accounts which attest to the financial strength and health of the Centre.

Success in attaining competitive grants has increased income from a critical source, researchers have published a record number of scientific papers, exciting new collaborations – for instance for the Bionic Eye project – have been established, and existing partnerships such as the Vision CRC or the RetVIC project continue to be strengthened and produce useful outcomes for the participants and the advancement of knowledge.

Hugh Taylor's leadership has been instrumental for the growth and vitality of the Centre which he founded in 1996 and nurtured from a fledgling organisation into an institute that is today internationally recognised as a centre of excellence in eye research. It was therefore with considerable regret and some trepidation that the Board received notice the middle of the year of Professor Taylor's intention to retire as Managing Director.

Appointment of a new CEO is one of the most important tasks a Board has to undertake. I am indebted to my fellow CERA Directors James Angus, John Funder, Gerard Menses and Peter Nankivell for their work and wisdom as members of the selection committee. The Board unanimously approved our recommendation that Professor Tien Wong be appointed

as the next Managing Director of the Centre for Eye Research Australia to take up this position in January 2008. We believe that Tien Wong, who was Deputy Director to Hugh Taylor at CERA for the past three years, will be an outstanding Managing Director. He combines an exceptional research track record with passion, commitment and vision for the organisation. We all look forward to working with him more closely.

A dinner held in early December at Ormond College to celebrate Hugh Taylor's achievements was for me one of the highlights of my involvement with CERA to date. It was a delightful evening among colleagues, friends, supporters and family who had gathered to pay tribute to a great doctor and researcher whose work has saved the sight of many thousands.

The dinner provided an opportunity to acknowledge also Judy Carrigan's enormous contribution to the Centre for Eye Research Australia. As Assistant to Hugh Taylor, she has been critical to effective communication and the efficiency of the Managing Director's office. She is moving with Professor Taylor to his new University of Melbourne appointment.

Our founding Company Secretary David Doyle, Philip Molyneux who was Treasurer for CERA and the Eye Research Foundation from 1996 and served on a number of committees over the years, and John Funder all retired from the Board in 2007. We will miss them and the valuable contribution each of them made. We have been fortunate in being able to recruit talented people to succeed them: Bob Palin, Finance Manager at CERA has been appointed as

Company Secretary. James Joughin who is a partner with Ernst & Young has joined the Board and is our new Treasurer, and Professor Robert Williamson has agreed to join the Board at the start of the new year to fill the vacancy created by John Funder's retirement.

These are substantial changes to absorb in the course of just one year in a relatively small organisation. Planning and sound infrastructure are essential to keep an organisation functioning and to ensure that the regular cycle of work continues to be acquitted even in times of transition. I am pleased to note that the administration within CERA is becoming increasingly professionalised and keeps improving on the support it provides to our growing institute. In the last two years we have also put in place a very helpful planning process and our strategic plan with a 2010 horizon provides a good map for the journey ahead.

Medical research is a fast moving and exciting field. It is a privilege, a challenge and a thrill to be part of the Centre for Eye Research Australia and work with so many talented and dedicated people. I commend this report to you and trust it will give you an insight into the important work of our Centre and the extraordinary people behind it.



Tina McMeckan
Chairman

Managing Director's Report

Hugh R. Taylor AC



This annual report on the Centre for Eye Research Australia's achievements and activities in 2007 is the last one I present to you as Managing Director.

I resolved in July 2007 to step down as the Centre's Managing Director and as Head of the University of Melbourne Department of Ophthalmology at the end of the year. It has been 18 years since I was appointed as Ringland Anderson Professor of Ophthalmology at the University. What an exciting and successful time it has been! I am amazed to look at the Centre for Eye Research Australia and the University Department and how they have grown, arguably into Australia's leading ophthalmic research institute.

We now have about 100 staff, and students and a total budget of around \$10 million. Among the four professors and four associate professors on our staff, and a number of honorary professors and associate professors, our Centre has engaged the absolute leaders in their respective fields of eye research, who are called to serve on advisory boards, give keynote lectures, invited to write editorials and reviews and receive accolades and awards for their outstanding work.

With the current state of development of knowledge, skills and technology, there has never been a better time to be a doctor or a researcher; to be able to make sick people better and keep healthy people well. In our case, to give people their best possible vision.

I know I am leaving CERA in great shape and in safe hands. Tien Wong has been selected by the CERA Board as the new Managing Director from 2008, and the University has appointed him as Head of the Department of Ophthalmology. Tien Wong is an outstanding academic clinician and researcher and a clear leader among the next generation of researchers. The CERA research divisions enjoy strong leadership under Jonathan Crowston, Robyn Guymer, Jill Keeffe, and Rasik Vajpayee, respectively. In each case, their divisions and units are growing well and have such bright young staff that their futures are assured.

Our administration is superbly headed up by Gerlinde Scholz who is well supported by her team. Over the last two years our organisation undertook a comprehensive restructure of administrative services. I believe that we are strongly placed to meet future needs and demands.

The CERA Board has provided excellent leadership and support for the development of our dynamic organisation over the years. I particularly want to thank Chairman Tina McMeckan who through her thoughtfulness, diligence and leadership skill has fostered a very effective and collegiate Board. Several Directors retired through the year including Philip Molyneux AM, our long serving Treasurer, and John Funder AO, who was also a Trustee of the Eye Research Australia Foundation and a member of our Research Committee. I thank them, all the continuing Board members and also our supporters, volunteers and benefactors.

The year ended on a sad note with the passing of Professor Emeritus Gerard Crock AO just before Christmas. Gerard Crock was the foundation professor of ophthalmology at Melbourne, and established much of what we recognise as the RVEEH today. He was a brilliant and innovative surgeon, a consummate clinician and a gifted teacher who trained a generation of ophthalmologists from across Australia and many international fellows as well. He was for me a teacher, mentor and friend and an enormous source of support when I returned to Melbourne to take up the Ringland Anderson Chair. We were proud to have him as an Emeritus Professor of the Department and an Honorary Governor of CERA. He is remembered in the Crock Fellowship.

There will be challenges ahead. The proposed rebuilding of the Eye and Ear Hospital which has been repeatedly postponed by government is a much needed project, and not just because CERA and our University Department require more and more appropriate accommodation. This highly specialised Hospital – unique in Australia and one of only a handful of its kind in the world is vital for the well being of our community. The change of government in Canberra at the end of the year may in time lead to different funding arrangements for research, for universities and for health service delivery – all with some potential impact on our work.

We will all watch the developments with interest and put our case for support when and where it is appropriate. The CERA team that is in place is more than equipped to meet these challenges and continue the spectacular record of achievement.

Although I am sorry to be stepping down, this is not good-bye; it is a change in my relationship with the Centre and the Department. I am taking up a new Chair in the University School of Population Health to concentrate on Indigenous Eye Health.

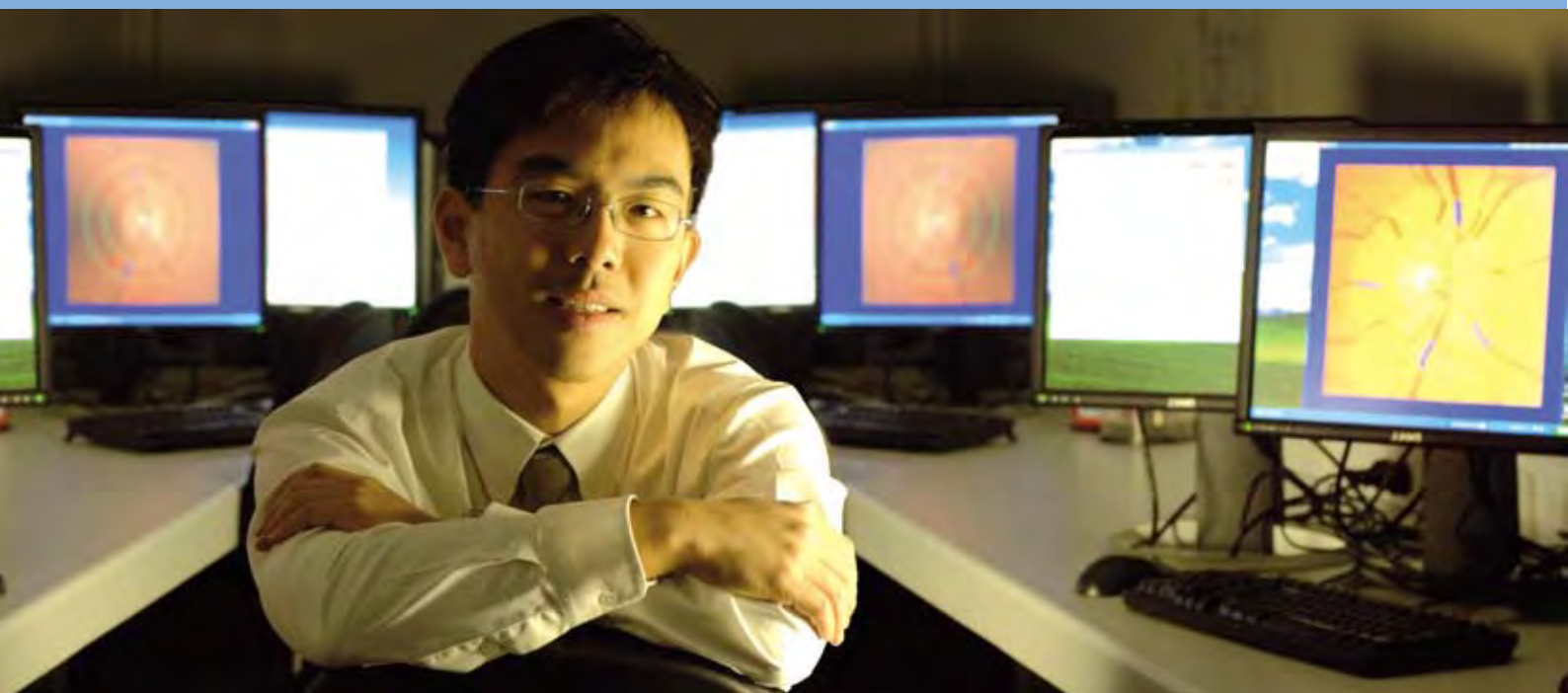
I will continue as a chief investigator on a number of research projects currently in progress at CERA, and maintain an honorary appointment at the Department of Ophthalmology. The Board has been kind enough to ask me to serve as an Honorary Governor of CERA, which I am delighted to do. So I look forward to continuing in close collaboration with my colleagues at CERA and I will watch the future development of the Centre with much interest and pride.

Let me congratulate all the staff on their wonderful achievements and wish them good luck and God's speed for their future endeavours. The future is theirs to realise.



Hugh R. Taylor AC
Managing Director (1996 - 2007)

Research



Professor Tien Wong, Head of the Clinical Epidemiology Division and the Retinal Vascular Imaging Centre, has been appointed as the new Head of the Department of Ophthalmology and Managing Director of CERA from 2008.

The main objective of our research is to identify the causes of eye diseases, to find better treatments, to make eye health information available to the community to help prevent vision loss, and improve support and services for people living with low vision.

An international team of close to 100 researchers is working on these problems, producing quality research on a broad front, as the following list of projects in progress and the publications listing for the year show. An increasing number of studies involve collaborations between CERA units, and with colleagues elsewhere in Australia and internationally.

The people associated with the units and projects are listed separately in this report.

Clinical Epidemiology

Retinal vascular change as biomarkers of cardiovascular disease

Epidemiological and clinical studies examining the relationship of retinal vascular signs to subclinical and clinical cardiovascular disease, diabetes and hypertension in Australia (Melbourne Collaborative Cohort Study, the Blue Mountains Eye Study, the AusDiab Study) and United States (Atherosclerosis Risk in Communities Study, the Multi-Ethnic Study of Atherosclerosis, the Cardiovascular Health Study, the Beaver Dam Eye Study and the WESDR). Clinical studies examining the predictive ability of retinal vascular signs as markers of stroke in an acute clinical setting (Multi-Centre Retinal Stroke Study, Retinal Vessel Endothelial Function Study). Developmental research in retinal vessel imaging in collaboration with the Department of Computer Science and Software Engineering, University of Melbourne, and School of Computing, National University of Singapore.

Clinical trials in diabetic retinopathy

These include THUNDERBIRD, RESOLVE, Posurdex, and Macugen.

Epidemiology of eye diseases

The objectives of this research program are to describe the prevalence, incidence, risk factors and impact of major age-related eye diseases, including myopia, angle-closure glaucoma, cataract, diabetic retinopathy and age-related maculopathy. This program has a particular focus on diseases that are prevalent in Asia-Pacific.

Retinal Vascular Imaging Centre (RetVIC)

RetVIC will provide capability in diagnostic analysis of retinal images for early prediction of vascular diseases. We have demonstrated through previous studies that retinal vascular changes predict the risk of heart disease, stroke, diabetes, hypertension, dementia, kidney and other vascular conditions, years before their development and independent of current diagnostic methods.

Clinical Genetics

Genetic eye diseases

Studies examining the genetic causes of glaucoma, optic atrophy, cataract, macular degeneration, retinal detachments, retinal dystrophies, strabismus, ptosis, also investigating the likely risk to relatives of developing the condition and if predictive DNA testing can identify if people are at risk of developing or carrying the disease.

More than 2,000 people with glaucoma have been examined as part of the Glaucoma Inheritance Study in Tasmania over the last 15 years with over 50 papers published in relation to this study.

Twins Eye Study in Tasmania (TEST) and Brisbane

The Twins Eye Study aims to expand the research into the genetics of glaucoma by studying the heredity of clinical parameters used in diagnosing glaucoma with a focus on what genes influence intra ocular pressure, optic disc and cup size, central corneal thickness and refraction. More than 1,000 pairs of twins have been examined to date.

Norfolk Island Eye Study

Examining the distribution of eye diseases of descendants of the Bounty Mutineers on Norfolk Island, the study aims to improve our knowledge of the factors causing eye diseases including glaucoma, myopia and AMD. The effect of UV light exposure on the eye will also be investigated.

Corneal Research

Topical cyclosporin A for acute corneal graft rejection: a double-masked randomised controlled study

To assess if Cyclosporin A 0.05% has a demonstrable effect when used in conjunction with topical steroids in the treatment of acute graft rejection. CsA 0.05% (Restasis) does not appear to have any beneficial effects in the treatment of graft rejection when intensive steroids are already being used.

A randomised, single centre study of the equivalence of two intraocular lenses (IOLs) used in cataract surgery

The main objective of this prospective randomised study is to assess the safety and efficacy of the two IOL's (Alcon IOL and Tecsoft IOL) in human eyes for the treatment of cataracts.

A comparative clinical trial of alcohol delamination versus phototherapeutic keratectomy for the treatment of recurrent corneal erosions

This prospective study seeks to investigate the clinical efficacy of alcohol delamination versus phototherapeutic keratectomy (PTK) for the treatment of traumatic recurrent corneal erosions (RCEs).

A prospective, randomised, clinical trial of Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK)

Investigation aims to determine clinical efficacy and incidence of adverse events in patients who have a corneal transplant using the DSAEK technique. A comparison will be made to patients who have a penetrating keratoplasty (PK) corneal transplant.

Differences in early and late corneal graft rejections

The aim of the study is to retrospectively analyse all cases of corneal transplants performed at the Royal Victorian Eye and Ear Hospital since July 1991 to 2007, and those with episodes of corneal graft rejection. Postoperative events, like persistent epithelial defect, wound dehiscence, suture related complications, and others, would also be assessed in all the cases.

Determinants of informed consent. Why do patients enter a clinical trial?

This study seeks to understand why patients choose or decline to participate in clinical trials and what are the determinants of patient's participation in a clinical trial are.

Research *continued...*

A prospective, randomised, clinical trial of corneal collagen cross-linking in keratoconus

The aim of the project is to evaluate the clinical usefulness and efficacy of collagen cross-linking in people with progressive keratoconus and to confirm its safety profile. We are also investigating the effects of the treatment on corneal microstructure and keratocytes, thickness, curvature and the accuracy of tonometric measurements.

Glaucoma Research

Ageing and glaucoma

Using laboratory techniques, this study is investigating specific cellular changes associated with aging in order people to determine what makes aged nerve cells (retinal ganglion cells) more vulnerable to damage in glaucoma. By identifying these key mechanisms that render an aged optic nerve susceptible to injury, we seek to identify therapeutic targets to protect the optic nerve and prevent vision loss from glaucoma.

Mitochondria and glaucoma

This work is investigating the role of age-related changes in mitochondria on the ability of the optic nerve to withstand injury such as that induced by elevated eye pressure. Mitochondria are cellular organelles that produce energy that is vital for a cell to function and repair itself from damage. Research has identified chemical mediators that protect mitochondria from aging and the effect of these on the response of the optic nerve to elevated eye pressure is being explored.

Dietary restriction and glaucoma

Calorie restriction by fasting has been shown to decrease the susceptibility of age related processes is shown to improve resistance of cultured neurons to damages. This study investigates the mechanisms of calorie restriction on the resistance of the optic nerve to glaucoma, and is using novel therapeutic polyphenol compounds that mimic the calorie restriction process.

Wound healing – Avastin effect on wound healing in vitro and in vivo

Post-operative scarring is a major threat to successful glaucoma surgery and this study is working to find the best methods for lowering intraocular pressure, by regulating post-operative scar formation. Using standard and novel laboratory techniques we are gaining an understanding of the cellular response to anti-scarring agents that are of potential benefit in the post-glaucoma surgery clinic.

Development of glaucoma surgical devices

Glaucoma filtration surgery success depends on preventing excess scar tissue formation around the wound site. This project is investigating how bio-mechanical forces in healing wounds modify the wound healing process. This will provide key information for improving surgical techniques and designing new surgical devices that promise to improve the outcome of glaucoma surgery.

Macular Research

Determining the genetic components of AMD: AMD inheritance study

This study uses a database of AMD cases and their families as one of the largest in the world. The database is used to study genes that might influence AMD.

Australia – India collaboration: Developing an AMD risk assessment chip

The development of a risk assessment chip; standardisation of Indian and Australian AMD patient repositories; identification of a common molecular signature (haplotypes) for the complement gene; identification of haplotypes in other genes and correlate these with clinical phenotype and progression. The project is funded under the Commonwealth government Australia–India Strategic Research Fund.

National Institutes of Health (NIH) collaboration

Collaboration with Prof Greg Hageman at the University of Iowa in the USA. To standardize the clinical grading of the cases included in the genetic association studies and to subtype end stage disease to further characterize the genetics of AMD across two different cohorts.

Understanding epidemiological risk factors in AMD, Health 2000. The Melbourne Collaborative Cohort Study (MCCS)

The project aims to investigate simultaneously dietary genetic and other potential risk factors for age-related macular degeneration in a large cohort of elderly participants of the Health 2000 study.

Identification of Chlamydia pneumoniae in the macular tissue from the eyes affected by AMD

Exposure to *Chlamydia pneumoniae* infection has been associated with AMD progression. This study aims to examine AMD-affected and non-affected macular tissue from donor eyes for the presence of *Chlamydia pneumoniae*.

Exposure to Chlamydia pneumonia infection and incidence of AMD: the Blue Mountain Eye Study

A collaboration between three research groups in Australia and USA to test *C. pneumoniae* antibody titers in the plasma from the participants of the 5-year follow up Blue Mountain Eye Study. The Blue Mountain samples have been collected, analysed and no association was found in this cohort.

Cardiovascular Health and Age-related Maculopathy (CHARM) study

The CHARM study looked at the associations between cardiovascular disease and age-related maculopathy. Several papers have been published and others submitted or in progress.

Delaying the progression of AMD: Age-related maculopathy statin study

The study aims to determine whether statin (cholesterol-lowering drugs) treatment for three years, to people with high risk characteristics but not CNV, can slow the progression of AMD. We are not only determining progression by traditional fundus but also by conducting a range of novel visual function tests.

A functional predictive test of AMD: Recruit AMD cases and controls for testing

The aim is to develop a visual function test that looks at how the retina functions in early AMD. These tests will be used to assess the risk of progression of visually devastating complications of AMD. Tests were also performed on patients with glomerulonephritis and drusen and in Sorsby's fundus dystrophy.

Pathogenesis of AMD: Collect retinal tissue and conduct immunohistochemical studies

Collections form part of work investigating links with Alzheimer's disease and provides tissue for Chlamydia work. Collecting eyes and examining them for signs of AMD continues.

International drug trials in AMD: Alcon AMD prophylactic study (Anecortave Acetate)

Responsible Parties This trial aims to demonstrate that Anecortave Acetate Depot Suspension is superior to Placebo after 60 months in preventing the development of choroidal neovascularization, or causes a decrease of three or more lines of visual acuity as compared to baseline in the study eye.

Novartis anti VEGF study

All excite and sustain patients have been offered enrolment in the secure study which aims to follow patients who have had several doses of an anti vascular endothelial growth factor (VEGF) treatment.

Novartis PTK inhibitor (oral anti VRGF)

An investigation of the safety of PTK787 administered in conjunction with photodynamic therapy with Visudyne to patients with predominantly classic, minimally classic or occult with no classic subfoveal choroidal neovascularization secondary to age-related macular degeneration.

Small interfering RNA treatment for AMD Allergan

An assessment of the safety and efficiency of multiple intravitreal injections of AGN 211745 in patients with subfoveal choroidal neovascularization secondary to age-related macular degeneration.

C-02-60: Alcon

A retrospective analysis to evaluate the efficiency and treatment rationales of Lucentis (ranibizumab) in clinical practice in patients with subfoveal choroidal neovascularisation (CNV) secondary to AMD.

Macular telangiectasis: National Eye Institute collaboration. Understanding the natural history of type 2 macular telangiectasis

This work seeks to understand the natural history of type 2 macular telangiectasis. Researchers are consulting family members for genetic studies. The study will be the first centre in Australia to begin looking at the genetics of this disease.

Bionic Eye

A collaboration between the Bionic Ear Institute, Centre for Eye Research Australia, NICTA (National Information Communications Technology Australia) and University of New South Wales to advance the bionic eye implant. The Biocompatibility & Efficacy study is the first phase of seven core projects centred on the development of a high resolution bionic eye.

Biomarkers of AMD. A proteomic approach

To identify diagnostic proteins in bodily fluids for AMD and develop a simple biochemical test that can be obtained from a bodily fluid such as blood or urine that can predict AMD development and monitor its progression.

Ocular Inflammatory Disease Research

In-vivo confocal imaging of ocular inflammatory disease

The study involves the imaging of keratic precipitates with the HRT II and Rostock Corneal Module in various ocular inflammatory diseases, with the premise that the images obtained will have diagnostic significance. Recruitment and imaging has commenced with preliminary results expected mid-2008.

Genetics of uveitis

This study aims to investigate the genes associated with various ocular inflammatory diseases through an international collaboration with the Casey Eye Institute. Preliminary results from blood sample analysis are promising, with the emergence of a possible candidate gene for anterior uveitis and sarcoidosis related uveitis.

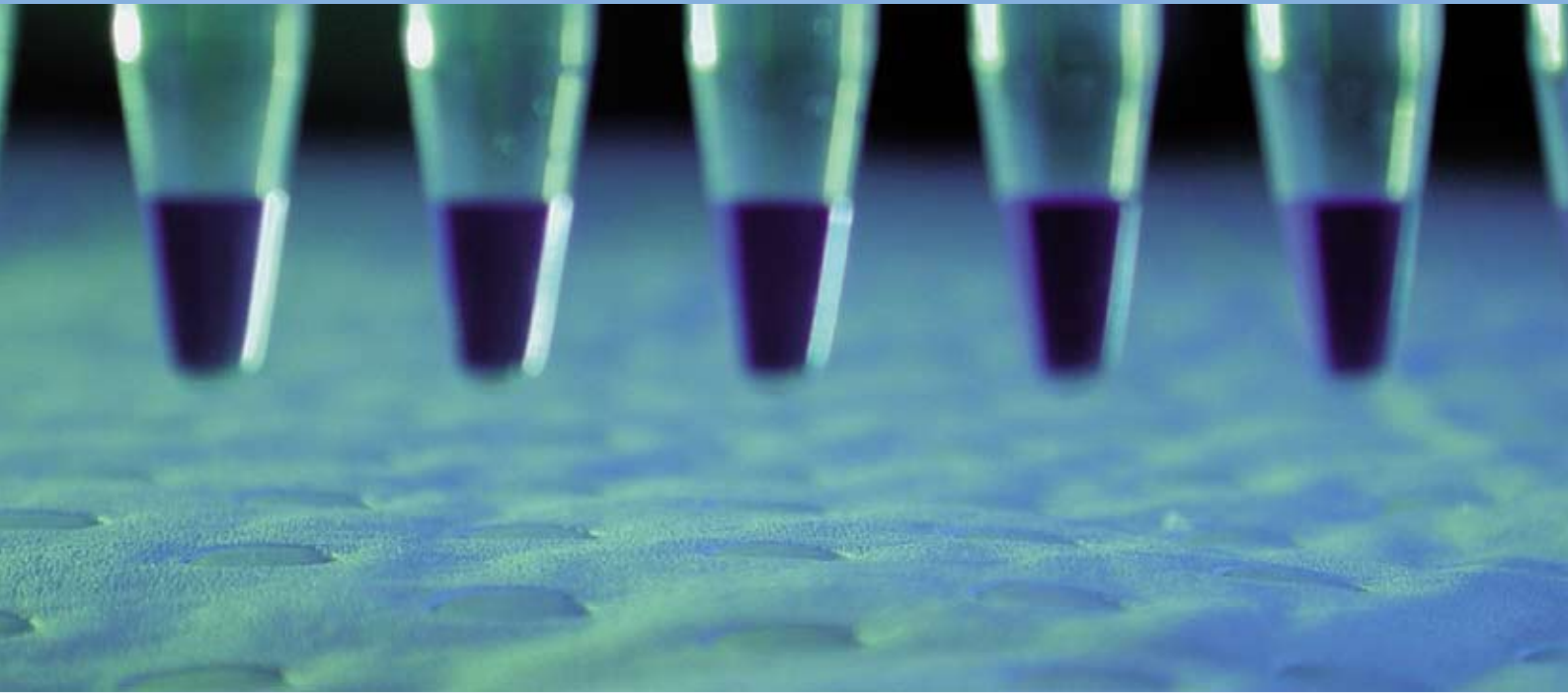
Investigation of inflammatory biomarkers of progression in AMD

This project aims to investigate the association between systemic markers of inflammation and the prediction of progression and overall prognosis in those with AMD. Recruitment has commenced with samples being collected for batch analysis for inflammatory marker assays.

Intravitreal Avastin in macular oedema and uveitis

To investigate the effect of intravitreal Avastin (Bevacizumab) in the treatment of macular oedema secondary to diabetic retinopathy and uveitis; and in the treatment of choroidal neovascularisation secondary to uveitis.

Research *continued...*



Autoimmune hepatitis and uveitis

To investigate a possible relationship between uveitis and autoimmune hepatitis. All data has been collected and the manuscript is currently in press (American Journal of Ophthalmology).

Ocular Genetics

Myopia: Heritability and modelling

Spherical equivalent and biometric traits were obtained from 120 myopia families collected through the Genes in Myopia (GEM) study. The results indicated that variance could be attributed to both genetic and environmental components for spherical equivalent whereas for axial length a substantial proportion of the variance was due to genes. Model fitting for both traits indicated that an additive, common and unique environmental model best fitted the data.

Linkage analysis

Three of the larger families collected as part of the GEM study were genotyped. The largest family contains 35 people with 18 affected with myopia. Linkage analysis followed by fine mapping has allowed us to narrow the myopia gene containing region to 0.8cM (~ 800,000 base pairs) on chromosome 2 in these families. Six known genes and 6 hypothetical genes have been identified in this region.

SNP analysis of the MYP2 region

Sixty single nucleotide polymorphisms (SNP's) have been genotyped across 150 hypermetropes, 150 emmetropes, 150 low/moderate myopes and 150 high myopes of the Myopia-2 locus (MYP2) on chromosome 18p11. Association analysis was undertaken on 2 candidate genes in a myopia-linked region on chromosome 18 but no association was evident.

Myopia twin studies

Twin analysis on 620 twin pairs is now complete. A number of papers are being written up resulting from this analysis.

Quantitative trait linkage analysis (QTL) in twins

Four regions of the genome, previously identified as myopia QTL regions were genotyped. Analysis of our data did not replicate the QTL regions for refraction nor implicate them in biometric measures.

Personality and myopia

The International Personality Item Pool (IPIP) questionnaire was conducted on 633 twin and 278 members from myopia families in the GEM study. Analysis revealed that the personality traits of introversion and conscientiousness were not associated with myopia dispelling the stereotyped image that currently exists for myopia.

SNP analysis of other candidate genes

Association of SNPs in 2 candidate genes was undertaken in our myopia case control cohort. We identified two SNPs in one candidate gene that were associated with low/ moderate myopia. Further sequencing of this gene identified eight other SNPs that showed segregation of variants with myopia. Further analysis is underway in a larger cohort to confirm our findings. The second candidate gene showed no association.

Age-related macular disease: Protein expression studies in AMD eyes

Donor eye tissue continues to be collected and sections from donor eyes have undergone immuno-histochemical analysis and western blotting for a range of antibodies against proteins typically associated with neurodegenerative disorders including Alzheimer's disease. Analysis of these samples is ongoing.

Analysis of the complement factor H gene

The recently described Y402H change in the complement factor H (CFH) gene of the alternative complement pathway was examined using the Mass Array System of the Australian Genome Research Facility in our collection of AMD patients.

Extension of this analysis to include other single nucleotide polymorphisms (SNP) within this gene has revealed a number of risk and protective haplotypes for this gene. Characterisation of SNPs in our different study cohorts including AMD progression, twins and AMD families is ongoing. Genotype/ phenotype analysis is also underway. The interaction of the pathogen *Chlamydia pneumoniae* with Y402H was also undertaken and significant interaction identified in AMD progression patients. A novel technique of using repeat motifs to determine risk of AMD at the CFH region is also being explored with Genetic Technologies Ltd and the C.Y. O'Connor ERADE Foundation in Perth.

Analysis of SNPs in the RDS gene

The RDS gene is a candidate gene for involvement in AMD due to its role in a number of other retinal diseases. However, we found no association of SNPs in this gene with AMD.

Analysis of SNPs in the VEGF gene

Vascular endothelial growth factor (VEGF) is thought to be a major player in the stimulus of abnormal growth of blood vessels that might be involved in AMD. We undertook an association study using SNPs in this gene but did not find any association with AMD.

Analysis of SNPs in other AMD genes

An analysis of SNPs in a number of AMD disease associated genes including the CFH, BF, C2, PRSS, LOC, PLEK and CFHR1-5 genes is being undertaken in case control, progression and twin cohorts. A DEST funded Australia – India collaborative grant with the LVP Eye Institute in Hyderabad will assess these findings in an AMD biochip.

Linkage analysis in AMD families

Three of our largest AMD families, each with a minimum of eight affected individuals have undergone whole genome scan analysis. Two gene regions have been identified through genetic linkage studies and are being fine mapped in these and other AMD families to narrow the regions of interest in order to uncover disease genes.

Twin analysis

340 twin pairs over the age of 50 years have been recruited and examined through the Australian Twin Registry. A questionnaire, eye exam and DNA sample have been taken from each twin. Psychophysical and phenotypic features have been assessed and statistical analysis is ongoing.

Proteomic analysis of AMD

Proteomic analysis has been undertaken in people with different APOE genotypes. Both cases and controls have been compared to assess differences on 2D gels, Mass spectrometry and DIGE to identify candidate biomarkers in disease. A number of protein changes have been identified between cases and controls and extension of this project to collect other body fluids is also being undertaken.

Population Health Research

Health Services Research

Vision impairment and quality of life: The development of a new education and self-management program

This study investigates the effectiveness of a new low vision rehabilitation model. A structured course to improve participants' abilities and confidence to manage low vision is currently being evaluated as a supplement to the current low vision care. The program is called 'Living with Low Vision.'

The impact of low vision rehabilitation services on family and friends

This study aims to assess the impact of a significant other attending the self-management program together with a person with low vision.

Depression in Individuals with vision impairment

To investigate the severity and predictors of depressive symptoms in a sample of people with vision impairment attending tertiary eye care clinics.

Research *continued...*



Identifying depression in people with vision impairment and developing pathways to care

This study seeks to improve the eye health professional's identification of co-morbid depression in people with vision impairment and develop pathways to care. The project involves two stages: a state-wide survey of eye health practitioners to assess the current practice of identifying and managing depression in people with vision impairment across Victoria; and the development of a training program to help staff working with people with vision impairment to identify and respond to depression.

Environment and Vision Optimisation in Residential Care (ENVORC)

This project aims to determine the effectiveness of interventions targeting intrinsic and extrinsic vision factors to improve vision, independence, safety and quality of life in people living in low-level residential care settings.

A prospective cohort study to examine the relationship between medication adherence and ocular signs and symptoms in patients treated with anti-glaucoma eye-drops

This project aims to determine if ocular signs and symptoms could be utilised as a proxy measure of anti-glaucoma medication adherence.

Factors associated with non-adherence to ocular hypotensive treatment

To determine the frequency and predictors of intentional and non-intentional non-adherence to anti-glaucoma medication. This study aims to explore adherence in glaucoma patients and determine the relative frequency of both intentional and non-intentional non-adherence, and the reasons for intentional and non-intentional non-adherence.

Prevention of Blindness

National Trachoma Surveillance and Reporting Unit

The National Trachoma Surveillance and Reporting Unit (NTSRU) is funded by the Commonwealth Department of Health and Ageing. It aims to improve the quality and consistency of data collection and reporting on trachoma in Australia, consistent with the Communicable Disease Network Australia (CDNA) 'Guidelines for the Public Health Management of Trachoma in Australia, 2006'. Data from Western Australia, South Australia and the Northern Territory has been collected and analysed to report on trachoma prevalence and control activities within the states and territory and monitor antibiotic resistance to azithromycin.

Eye care delivery models: Low vision services for children in Fiji

The establishment and evaluation of a low vision service for children in Fiji including a needs analysis to gather data on vision impairment in children 0 – 18 years. The program will increase awareness of and advocacy for low vision services. Results from the epidemiology aspect of this project were used in a statement for the Minister of Health on World Sight Day.

Mapping low vision models and programs in developed and developing countries

The project aims to produce a global map of low vision services and evaluate existing models in developed and developing countries to identify priority work areas. The program seeks to design a survey to obtain data on systems and types of services provided in developed and developing countries; to identify critical success factors associated with effective low vision models of care and delivery of services in two selected countries; and inform the World Health Organization of priority areas of work in low vision care and services. The survey data will be entered into the WHO InfoBase in 2008.

Development of a model of support services for children with low vision

This study aims to develop tools to assess the service needs for children with low vision, including the development and

validation a quality of life questionnaire for children with low vision derived from the perspectives of parents, teachers and specialist instructors, and the community.

Barriers to the use of eye care services among socio-economically disadvantaged inner city residents

To develop an understanding of the barriers to the use of health and eye care services in inner-city Neighbourhood Renewal projects.

Critical success factors in the utilisation of a new low vision service: The Centre for Vision Independence

An investigation of facilitators and barriers to the use of the Centre for Vision Independence (a collaborative venture between Guide Dogs Victoria and the RVEEH). The Centre's close proximity to the RVEEH was found to facilitate referral uptake. However, inadequate understanding of the potential benefits of CVI and of low vision services generally were key barriers to use.

Enabling technology: Development of new non-mydriatic retinal camera

Development of the Prototype 2 camera progresses to field tests to assess effectiveness of the camera in detecting diabetic retinopathy and to demonstrate

the camera's integration into eye and health care programs.

Impact of visual field loss on driving

A simulator validation study to assess the impact of visual field loss on driving involving participants with glaucoma, hemianopia / quadrantopia, retinitis pigmentosa, and age-related macular degeneration.

Personal costs of vision impairment

A documentation of the direct and indirect personal costs of vision impairment, involving an innovative approach to establishing the personal costs associated with vision impairment.

National Indigenous Eye Health Survey

This program seeks to establish the prevalence, causes and impact on quality of life of vision loss and blindness in indigenous Australians, via a national survey conducted in randomly selected indigenous communities across urban, rural and remote communities. The protocol and questionnaire have been finalised with both being trialled in a pilot project in Moree (NSW).

Research Highlights

Corneal cultivation restores vision



A corneal patch, grown from a single adult stem cell, has been used to restore a man's vision.

The patch, which replicates the cornea at the front of the eye, was cultivated from a donor eye and was transplanted to the surface of the patient's eye.

The research team was led by the Centre for Eye Research Australia's Dr Mark Daniell and Dr Erik Thompson from the Bernard O'Brien Institute of Microsurgery.

The process is known as a 'limbal stem cell transplant,' and is thought to be the first of its kind in Australia.

Dr Daniell's patient had considerable vision loss, caused by stem cell failure on the surface of the eye, causing scarring and a vascularised and opaque appearance. The man had reduced mobility, and could not read or work as a result of his vision loss.

Dr Daniell says his patient has now resumed duties as an accountant and enjoys his sight again. "He has increased mobility and quality of life and renewed optimism, as a result of this successful technique. This technique can now assist people with alkaline burns who have damage to the surface of their eyes."

The Centre for Eye Research Australia and the Bernard O'Brien Institute of Microsurgery are now working together to develop a bio-engineered cornea, using a stem cell extracted from a person's body other than from the eye.

Bionic Eye collaboration

The Centre for Eye Research Australia is part of a collaboration to develop a bionic eye implant.

The ultimate goal is to develop a bionic implant capable of restoring reading vision to people with macular degeneration (AMD). Initially, however, the patient group most likely to benefit from a bionic eye are those suffering from a less common condition called retinitis pigmentosa.

The first 18-months phase of the project started in 2007. It involves a preliminary biocompatibility screening study; feasibility of microstimulation to restore vision; and testing of chronic implantation of passive and electrically stimulated implants.

CERA researchers led by Associate Professor Robyn Guymer and Professor Hugh Taylor contribute expertise about eye diseases and vision, eye surgery techniques and clinical trials to the collaboration. Vitreo-retinal surgeons Dr Penny Allen and Dr Mark McCombe who have performed preliminary studies to improve the surgery technique are also part of the CERA team.

"Exciting progress has been made in the early stages of the project with promising results," said Associate Professor Chris Williams, lead researcher on the bionic eye project with the Bionic Ear Institute.

The Bionic Ear Institute brings expertise in the development of clinical devices and biocompatibility of implants in humans to the project. Other collaborators are researchers from the Department of Biomedical Engineering at the University of NSW who have developed a medium resolution stimulator array; the Machine Vision group of National ICT Australia (NICTA) in Canberra; and NICTA's Melbourne node together with the University of Melbourne Department of Electrical Engineering with expert knowledge on high performance wireless and integrated circuits.

The Ian Potter Foundation and the John T. Reid Charitable Trusts are generously supporting this work.

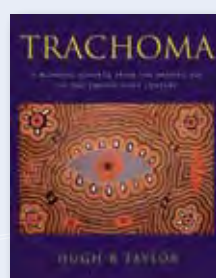
Indigenous eye health

Indigenous eye health has been a focus for CERA for some time with Professor Hugh Taylor as the chief investigator on key projects.

In 2007, these included a field study to assess the efficacy of a new point-of-care diagnostic test for trachoma infection; the National Trachoma Surveillance and Reporting Unit; and the start of a National Indigenous Eye Health Survey – the first comprehensive update of the data since Fred Hollows with a young Hugh Taylor as his deputy undertook the original work some 30 years ago.

The importance of this work and specifically the goal to eliminate trachoma from Australia provided the impetus for Hugh Taylor's retirement from management positions at CERA and the Department of Ophthalmology to allow a return to full-time research.

"Trachoma is an infectious disease that disappeared from urban, white Australia more than 100 years ago. Once diagnosed, it can easily be treated, but left untreated will lead to blindness. Remote Aboriginal communities in Australia are the only place in the developed world where trachoma continues to exist. It is a disgrace that so little has changed for the better, and in some communities things have got worse, in the three decades since Fred Hollows and I first visited these communities. It is a matter of social justice as much as of eye health policy and service delivery to ensure that trachoma is eliminated from all of Australia," says Professor Taylor who has been appointed to the newly established Harold Mitchell Chair in Indigenous Eye Health at the University of Melbourne School of Population Health.



He maintains an ongoing involvement in the above projects at CERA.

Professor Taylor completed a book on Trachoma in 2007 which was published early in the New Year.

Governance

The Board met six times during the year, and in addition held a strategic planning session in August.

Board of Directors

Professor James Angus
 Professor John Funder AO (*retired December 2007*)
 Dr Peter Henderson
 Mr Graeme Houghton
 Mr John Jeffries
 Hon Dr Barry Jones AO
 Mr James Joughin (*appointed September 2007*)
 Ms Tina McMeckan (Chairman)
 Mr Gerard Menses
 Mr Philip Molyneux AM (*retired August 2007*)
 Mr Peter Nankivell
 Ms Susanne Owen
 Professor Hugh Taylor AC (*retired December 2007*)
 Hon Dr Michael Wooldridge
Company Secretary:
 Mr David Doyle (*retired May 2007*)
 Mr Robert Palin (*appointed May 2007*)

Finance and Audit Committee

Mr James Joughin
 (*appointed September 2007*)
 Ms Tina McMeckan
 Mr Philip Molyneux AM (Chairman)
 (*retired August 2007*)
 Mr Peter Nankivell
 Professor Hugh Taylor AC
 (*retired December 2007*)
 Four meetings of the Finance & Audit Committee were held.

Research Committee

Professor John Funder AO
 (*retired December 2007*)
 Professor John Hopper AM
 Mr Philip Molyneux AM
 (*retired August 2007*)
 Professor Terence Nolan
 Dr Richard Stawell (Chairman)
 Professor Hugh Taylor AC
 (*retired December 2007*)
 Professor Robert Williamson AO
 The Research Committee met twice in 2007.

Vision CRC

Professor Hugh Taylor AC served as an Executive Director of the Vision CRC.
 Associate Professor Jill Keeffe OAM is the Program Director, Vision Care Delivery of the Vision CRC.
The Vision CRC Research Advisory Committee within the Centre for Eye Research Australia consists of the following members:
 Professor John Funder AO
 (*retired December 2007*)
 Associate Professor Jill Keeffe OAM
 Professor Terence Nolan
 Dr Richard Stawell
 Professor Hugh Taylor AC (Chairman)
 (*retired December 2007*)
 Professor Robert Williamson AO
 This Committee held two meetings during the year.

WHO Collaborating Centre for the Prevention of Blindness

The Centre for Eye Research Australia was officially re-designated as a WHO Collaborating Centre on 6 February 2007. This current designation is valid until 2011. Professor Hugh Taylor AC was the Director of the Collaborating Centre.
 The Terms of Reference for the Collaborating Centre are:

- > To participate actively in the development of activities for the prevention of blindness.
- > To provide facilities for the training of personnel at different professional levels, especially from developing countries.
- > To conduct applied field research on the epidemiology, management and operational aspects of avoidable blindness.
- > To foster a multidisciplinary approach to the promotion of eye health and to the delivery of eye care, including rehabilitation, to all.
- > To participate in the collection, elaboration and distribution of pertinent information.

Mohamed Dirani



Early career researcher ocular genetics unit

Working with twins to understand the genetics of myopia better has doubled my enjoyment and commitment to medical research.

I was raised in Sydney, Australia where my father worked in aluminium trade, until he developed an eye injury. He then had a corneal transplant that was done by Fred Hollows. His injury had a significant impact on my family and to an extent, was a catalyst for my interest in eye research.

Myopia is also known as short-sightedness. It's a complex eye disease and is thought to be influenced by genetic and environmental exposures.

Twins offer a valuable and unique study population to measure the heritability component of diseases including myopia, to understand whether our genes play a prominent role. I've been working to determine this genetic basis and have found a higher similarity for myopia status in identical twins compared to non-identical twins.

If we can learn about the genetic components of myopia, we can potentially isolate the genes responsible for the disease and that would open the door to developing gene based therapies. It's a long-term prospect but also really exciting.

It is professionally fulfilling to work in the early stages of my career on the largest twin study in the world investigating refractive errors and ocular biometrics in an adult population.

Personally, it's been rewarding to work on my PhD in an area that has a special connection to my family experiences. My PhD supervisors have nominated my thesis for a University medal. I was really pleased to have their confidence in my work and their support expressed like that.

Now we want to use our twin data for genetic linkage analysis, which will help in identifying the exact genes responsible for myopia development. That way we can possibly determine ways to prevent the disease.

I am now managing a study in Singapore, which will become the largest and most comprehensive eye study to investigate the causes of myopia, lazy eyes and squints using a large cohort of Singaporean children.

Staff

Professor Hugh Taylor, AC
Managing Director (until December 2007)

Ms Judy Carrigan
Executive Assistant to Managing Director
(until December 2007)

BASIC SCIENCES DIVISION

Professor Jonathan Crowston
Division Director
Head, Glaucoma Research Unit

Mr Karl Bromelow
Research Assistant (from September 2007)

Mrs Judy Coleman
Division Administrator
(February - November 2007)

Ms Fleur O'Hare
Clinical Trials Coordinator

Associate Professor Julian Rait
Principal Fellow

Dr Jon Ruddle
Research Fellow

Dr Ian Trounce
Senior Fellow

Ms Nicole Van Bergen
Research Assistant / Laboratory Manager
[2007 CERA Research Award](#)

Ms Lina Xiang
Research Assistant (from September 2007)

Summer Research Students

Ms Queena Qin
Mr Dalveer Singh

Advanced Medical Science (AMS) Students

Mr Houstin Li Guorong
Ms Queena Qin

CLINICAL EPIDEMIOLOGY DIVISION

Professor Tien Wong
Division Director
Head, Retinal Vascular Imaging Centre

Ms Fulya Torun
Executive Assistant

Clinical Genetics Unit

Associate Professor David Mackey
Unit Head / Principal Fellow

Ms Lisa Kearns
Research Orthoptist

Dr Ya-Ling Ma
Research Fellow (until November 2007)

Retinal Vascular Imaging Centre

Ms Jessica Alessi
Research Assistant

Ms Theresa Dolphin
Grader (until August 2007)

Ms Julie Ewing
Research Assistant

Dr Alex Harper
Senior Lecturer

Ms Lauren Hodgson
Research Assistant (from June 2007)

Dr Amirul Islam
Research Fellow

Ms Lisa Jones
Clinical Trials Assistant

Dr Andreas Kreis
Research Fellow

Mrs Kim Yu Lee
Research Assistant

Dr Damien Louis
Research Fellow

Ms Rachel McIntosh
Clinical Projects Manager

Ms Sophie Rogers
Epidemiologist

Dr Cong Sun
Research Assistant

Dr Khay-Lin Teoh
Commercial Manager
[2007 CERA Administration Award](#)

Dr Gabriella Tikellis
Research Fellow

Associate Professor Jie Jin Wang
Senior Research Fellow

Summer Research Student

Ms Christina Guo

Masters Candidates

Dr Michelle Baker
Dr Danny Cheung

PhD Candidates

Dr Thanh Nguyen
Dr Cong Sun

Advanced Medical Science (AMS) Students

Ms Wen Lim
Mr Justin Sherwin

CLINICAL RESEARCH DIVISION

Associate Professor Robyn Guymer
Division Director
Head, Macular Research Unit

Dr Khin Zaw Aung
Research Assistant

Ms Melinda Cain
Research Assistant

Dr Peter Dimitrov
Research Assistant

Ms Theresa Dolphin
Research Assistant / Retinal Photographer
(until August 2007)

Ms Nicola Hunt
Research Orthoptist
(until February 2007)

Dr Galina Makeyeva
Research Assistant

Ms Rebecca Maxwell
Research Assistant / Personal Assistant
to Unit Head

Dr Kira Michalova
Medical Retina Research Fellow
(from February 2007)

Dr Luba Robman
Research Fellow

Ms Mary Varsamidis
Research Orthoptist

Ms Tiam Yap
Clinical Research Assistant
(from June 2007)

Dr Jonathan Yeoh
Medical Retinal Research Fellow
(until January 2007)

Ocular Genetics Unit

Associate Professor Paul Baird
Unit Head

Dr Mohamed Dirani
Research Fellow (from February 2007)

Mr Ross Dunn
Database Manager

Dr Amirul Islam
Statistician

Ms Kelly Pertile
Research Assistant

Ms Andrea Richardson
Research Assistant

Dr Maria Schache
Research Fellow

Ms Melissa Leung
Research Assistant

Crock / Mankiewicz-Zelkin Fellow

Dr Lyndell Lim

Honours Student

Mr Robert Van De Berg

PhD Candidates

Dr Christine Chen (until December 2007)

Dr Elaine Chong

Dr Peter Dimitrov

Undergraduate Research Opportunities Program (UROP) Student

Mr Timothy Yeo (August – October 2007)

Advanced Medical Science (AMS) Students

Mr Sundar Veerappan

Mr Jonathan Lim

Mr Jonathan Goh

Ms Chong Chyn Chua

Mr Eng Kiat Ang

Summer Research Student

Mr Sundar Veerappan

Vacation Student

Mr Ian Luk (July – December 2007)

POPULATION HEALTH DIVISION

Associate Professor Jill Keeffe OAM
Division Director

Dr Ecosse Lamoureux
Deputy Director

Mrs Jessica Hallett
Executive Assistant (until October 2007)

Mrs Anna Macrae
Executive Assistant (from November 2007
– Maternity Leave Replacement)

Health Services Research Unit

Dr Ecosse Lamoureux
Unit Head and Senior Research Fellow

Dr Gwyneth Rees
Research Fellow

Ms Eva Fenwick
Research Assistant (from November 2007)

Ms Jennifer Hassell
Research Assistant

Ms Melanie Larizza
Research Assistant

Prevention of Blindness Unit

Associate Professor Jill Keeffe OAM
Unit Head

Dr Trish O'Connor
Research Fellow

Ms Yutong Ding
Administrative Assistant to IAPB
Coordinator (June - December 2007)

Mr Ross Dunn
Database Manager

Dr Alex Harper
Senior Lecturer

Dr Cherylee Lane
Research Fellow

Dr Richard Le Mesurier
IAPB/Vision 2020 Regional Coordinator

Mr Collin McDonnell
Research Assistant

Dr Tomer Shemesh
Public Health Research Fellow
(from June 2007)

Mr John Simpson
Lions Eye Health Promotion Program
Manager

Ms Betty Tellis
Research Assistant

Dr Elaine Wong
Research Fellow

Summer Research Students

Mr Wayne Hoskins

Mr Aaron Wong

Masters Candidates

Dr Ana Cama
Ms Manjula Marella
Dr Anu Mathew

PhD Candidates

Mr Nigel Charles
Ms Peggy Chiang (2007 CERA Travel Award)
Ms Gillian Cochrane
Ms Elke Ponczek

Advanced Medical Science (AMS) Students

Ms Omega Leong
Ms Anthea Linquist

SURGICAL RESEARCH DIVISION

Professor Rasik Vajpayee
Division Director

Ms Monica Mauer
Executive Assistant

Corneal Research Unit

Professor Rasik Vajpayee
Unit Head

Mr Marios Constantinou
Clinical Trials Coordinator

Dr Mark Daniell
Senior Lecturer

Staff *continued...*

Lions Eye Donation Service

Dr Graeme Pollock
Manager

Dr Prema Finn
Senior Transplant Coordinator

Dr David Shearer
Transplant Coordinator

Dr Christine Wittig
Research Fellow

Melbourne Excimer Laser Group

Mr Terry Couper
Unit Manager

Ms Caroline Gibbs (until May 2007)
Orthoptist

Ms Ilona Probyn
Receptionist

Dr Grant Snibson
Medical Director

Education Unit

Associate Professor Deborah Colville
Senior Lecturer and Unit Head

Summer Research Student

Mr William Tao

Advanced Medical Science (AMS) Student

Mr Chandran Perera

CORPORATE SERVICES DIVISION

Ms Gerlinde Scholz
General Manager

Mr Muhamed Bekir
IT Manager (from February 2007)

Mr Matthew Carter
IT Support Officer (from June 2007)

Mr Peter Coates
Finance Officer

Ms Holly Custance
Human Resources Officer (from July 2007)

Mr Stephen D'Arcy
Communications Officer

Ms Romy Johnston
External Relations Manager
(until August 2007)

Ms Sarah Jordan
Human Resources Officer (until July 2007)

Mrs Irina Kalpakidis
Finance Officer

Mr Nicholas Lowe
IT Support Officer (until June 2007)

Ms Lauren Metcalfe
Fundraising Officer

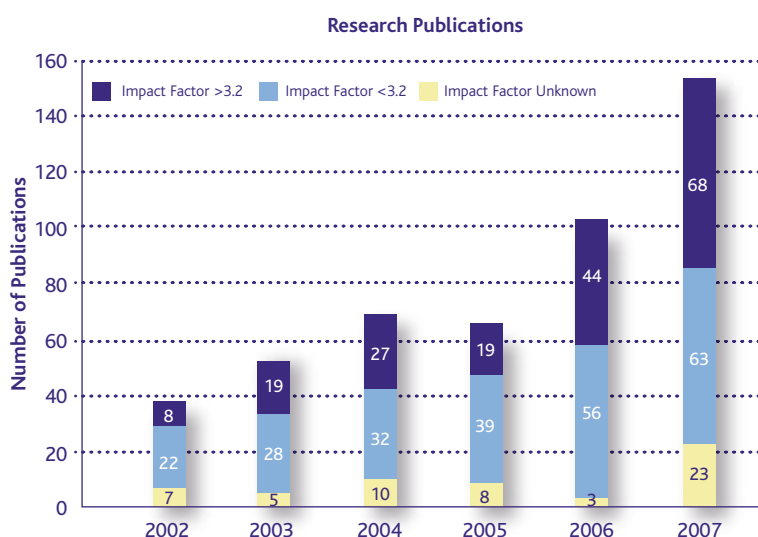
Mrs Kelly Mikunda
Executive Assistant

Dr Eleanor Mitchell
Grants and Projects Officer
(from April 2007)

Mr Tin Nguyen
Administrative Assistant (from June 2007)

Mr Robert Palin
Finance and Resources Manager

Research publications output and quality

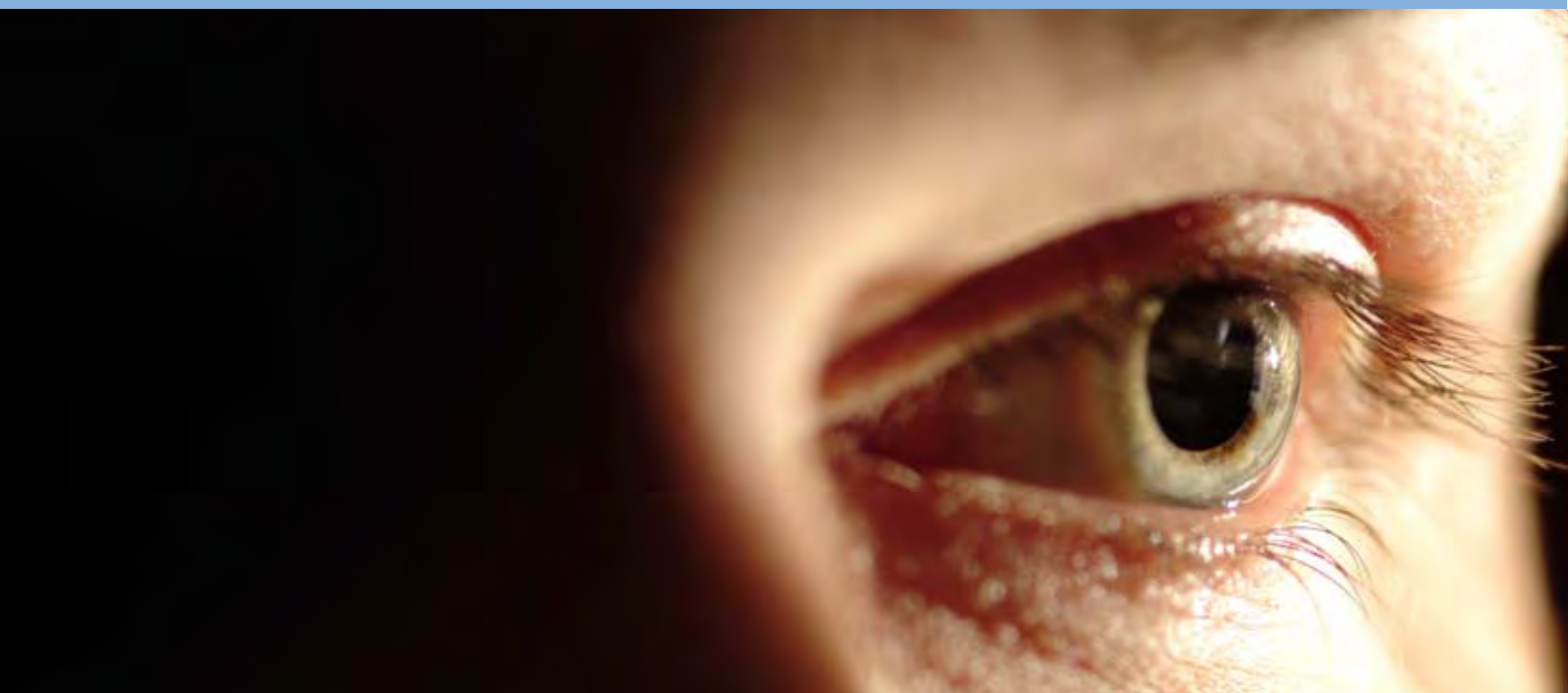


* Additional 50 publications by Bruce A, O'Day J, Mckay D & Swann P. 2007. Optician.

Researchers at the Centre and Department published a record number of papers in 2007, continuing a growth trend of recent years. Output increased by 55% over the previous year and more than 40% of 2007 papers appeared in the highest ranking ophthalmology journals.

Research Publications

Centre for Eye Research Australia and
University of Melbourne Department of Ophthalmology



1. Agarwal T, Jhanji V, Dutta P, Tandon R, Sharma N, Titiyal JS & Vajpayee R. 2007. Automated vitrector-assisted optical iridectomy: customized iridectomy. *Journal of Refractive Surgery*. **33** (6): 959-961.
2. Augusteyn R. 2007. Growth of the human eye lens. *Molecular Vision*. **13** (29): 252-257.
3. Baird P, Richardson A, Islam FMA, Lim L & Guymer R. 2007. Analysis of the RDS/peripherin gene in age-related macular degeneration. *Clinical and Experimental Ophthalmology*. **35** (2): 194-195.
4. Baker M, Marino Larsen EK, Kuller LH, Klein R, Klein BEK, Siscovick DS, Bernick C, Manolio TA & Wong T. 2007. Retinal microvascular signs, cognitive function, and dementia in older persons: the cardiovascular health study. *Stroke*. **38** (7): 2041-2047.
5. Balaratnasingam C, Morgan WH, Nelson J, Mackey D, Dimasi DP & Lam G. 2007. Abnormal iris processes may be a maker of glaucoma gene carrier status in some cases of primary infantile glaucoma. *Ophthalmic Genetics*. **28** (3): 157-162.
6. Barr EL, Zimmet PZ, Welborn TA, Jolley D, Magliano DJ, Dunstan DW, Cameron AJ, Dwyer T, Taylor H, Tonkin AM, Wong T, McNeil J & Shaw JE. 2007. Risk of cardiovascular and all-cause mortality in individuals with diabetes mellitus, impaired fasting glucose, and impaired glucose tolerance: the Australian Diabetes, Obesity, and Lifestyle Study (AusDiab). *Circulation*. **116** (2): 151-157.
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11. Charles NT & Manthorpe J. 2007. FACS or Fiction? The impact of the policy fair access to care services on social care assessments of older visually impaired people. *Practice*. **19** (12): 143-156.
12. Chen CYC, Hooper CY, Chiu D, Chamberlain M, Karia N & Heriot W. 2007. Management of submacular hemorrhage with intravitreal injection of tissue plasminogen activator and expansile gas. *Retina: the journal of retinal and vitreous diseases*. **27** (3): 321-328.
13. Chen CYC, Keeffe J, Garoufalos P, Islam FMA, Dirani M, Couper T, Taylor H & Baird P. 2007. Vision-related quality of life comparison for emmetropes, myopes after refractive surgery, and myopes wearing spectacles or contact lenses. *Journal of Refractive Surgery*. **23** (8): 752-759.
14. Chen CYC, Scurrah K, Stankovich J, Garoufalos P, Dirani M, Pertile KK, Richardson A, Mitchell P & Baird P. 2007. Heritability and shared environment estimates for myopia and associated ocular biometric traits: the genes in myopia (GEM) family study. *Human Genetics*. **121** (3-4): 511-520.
15. Chen CYC, Stankovich J, Scurrah K, Garoufalos P, Dirani M, Pertile K, Richardson A & Baird P. 2007. Linkage replication of the MYP12 locus in common myopia. *Investigative Ophthalmology and Visual Science*. **48** (10): 4433-4439.
16. Chen CYC, Wong T & Heriot WJ. 2007. Intravitreal Bevacizumab (Avastin) for neovascular age-related macular degeneration: A short-term study. *American Journal of Ophthalmology*. **143** (3): 510-512.
17. Cheung N, Bluemke DA, Klein R, Sharrett AR, Islam FMA, Cotch MF, Klein BEK, Ciqui MH & Wong T. 2007. Retinal arteriolar narrowing and left ventricular modelling: the multi-ethnic study of atherosclerosis. *Journal of the American College of Cardiology*. **50** (1): 48-55.
18. Cheung N, Islam FMA, Jacobs DR, Sharrett AR, Klein R, Polak JF, Cotch MF, Klein BE, Ouyang P & Wong T. 2007. Arterial compliance and retinal vascular caliber in cerebrovascular disease. *Annals of Neurology*. **62** (6): 618-624.
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21. Cheung N, Saw SM, Islam FMA, Rogers S, Shankar A, De Haseth K, Mitchell P & Wong T. 2007. BMI and retinal vascular caliber in children. *Obesity*. **15** (1): 209-215.
22. Cheung N, Shankar A, Klein R, Folsom AR, Couper DJ & Wong T. 2007. Age-related macular degeneration and cancer mortality in the atherosclerosis risk in communities study. *Archives of Ophthalmology*. **125** (9): 1241-1247.
23. Cheung N, Tikellis G & Wang JJ. 2007. Diabetic retinopathy. *Ophthalmology*. **114** (11): 2098.
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25. Cheung N, Wang J, Wong T, Mitchell P & Klein R. 2007. Relationship of hemoglobin A1c with the presence and severity of retinopathy upon initial screening of type II diabetes mellitus. *American Journal of Ophthalmology*. **144** (4): 639-670.
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30. Cheung N, Sharrett AR, Klein R, Ciqui MH, Islam FMA, Macura KJ, Cotch MF, Klein BEK & Wong T. 2007. Aortic distensibility and retinal arteriolar narrowing: the multi-ethnic study of atherosclerosis. *Hypertension*. **50** (4): 617-622.
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33. Cheung N, Wang J, Klein R, Couper DJ, Sharrett AR & Wong T. 2007. Diabetic retinopathy and the risk of coronary heart disease. The atherosclerosis risk in communities study. *Diabetes Care*. **30** (7): 1742-1746.

Research Publications *continued...*

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Lyndell Lim



Gerard Crock & Annemarie Mankiewicz-Zelkin Fellow macular research unit

Friends in Portland, Oregon in the United States have memories of me running most mornings in Forest Park before clinics. Now I spend a lot of time running after my young son, Rahul.

I'm investigating leukocyte interactions within the eye, to determine better treatments for ocular inflammation. I want to learn more about how our immune system works and how damage to the system can lead to disease. This potentially affects millions of people.

Leukocytes are immune cells in our blood and act to fight infections. They can sometimes attack normal cells, causing autoimmune disease, including uveitis – an inflammation to the middle vascular layer of the eye that can cause vision loss.

Ocular inflammation, or uveitis, commonly affects younger people aged between 20 to 50 years, so the outcomes of this study could affect a significant proportion of our population.

Current treatments for uveitis dampen all types of inflammation including that which fights infection.

If we can better understand the process of the disease by learning how and why the immune cells attack normal cells, then we can perhaps target our treatments to minimise or eliminate side effects.

We're now also looking at the role of inflammation and immunity in the development of age-related macular degeneration (AMD). Studies suggest AMD may be caused by inflammation. It is thought that AMD is a systemic inflammatory or autoimmune disease that manifests only in the eye as AMD.

I'm looking forward to developing more collaborations locally and in the United States and Europe to advance my research so that future generations, including my son, can avoid ocular inflammation or AMD.

Dr Lyndell Lim returned from the USA to Melbourne in 2006 when she was awarded the inaugural Gerard Crock Fellowship by the Eye Research Australia Foundation and the Annemarie Mankiewicz-Zelkin Fellowship in by the University of Melbourne. Both fellowships have been endowed through the generosity of donors to support early career researchers in ophthalmology.

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Visitors

January

Prof Chris Hammond,
St Thomas' Hospital, London, UK

Dr John Barlow,
National Ageing Research Institute

Jacques Joubert,
National Ageing Research Institute

Dr Michael Dutescu,
Marburg, Germany

February

Professor Glyn Davis AC,
Vice Chancellor, University of Melbourne

Professor James Angus,
Dean Faculty of Medicine, Dentistry and Health Sciences, University of Melbourne

Mr Graeme White,
Guide Dogs Victoria

March

Prof Greg Hageman,
University of Iowa, USA

Prof Judy Savige,
Northern Hospital

Dr Noriko Mochizuki,
Yamagata University, Department of Ophthalmology, Japan

Dr Feng Hua Wang,
Tongren Eye Hospital, China

Mrs Margaret Ross and Board members,
John T Reid Charitable Trusts

April

Professor Virinder Sangwan,
LV Prasad Eye Institute, Hyderabad

Mrs Janet Hirst,
Chief Executive Officer, The Ian Potter Foundation

Prof Kong Wah Ng,
St Vincent's Hospital

Prof Glenn Ward,
St Vincent's Hospital

Dr Judith Charlton,
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Mr. Greg Koennecke,
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Mr Peter Zwar,
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Mr Matthew Wolf,
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Prof Judy Savige,
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Dr Janetta Culvenor,
Department of Pathology, University of Melbourne

Dr Ting Choon Meng,
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Dr Nigel Morlet,
Alcon Visiting Professor

His Excellency Shanker Bairagi,
Ambassador to Nepal

Dr Andrew Milner,
Neurosciences Victoria

July

Professor Robert Short,
Director of the Mawson Institute, University of South Australia

Dr G. Chandra Sekha,
Director of the LV Prasad Eye Institute

August

Professor Robert Short,
Director of the Mawson Institute, University of South Australia

Mr Peter Zwar,
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Ms Rosemary Pacquola,
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Dr Mei-Ling Tay-Kearney,
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Dr Edwin Lo,
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Miss Anna Higgins,
NMRC Singapore

September

Lions International Past President Frank Moore III,
Alabama USA

Ms Marion Fee,
Executive Dean, School of Enterprise, University of Melbourne

Professor James Dunbar,
Director, Greater Health

October

Dr Herbert Jelinek,
Charles Sturt University

Professor Deborah Sweeney,
CEO, Vision CRC

November

Akira Murakami, MD, PhD,
Director of Ophthalmology, Juntendo University

Shunichi Fukuhara, MD, MSc, Professor,
Department of Epidemiology and Health Care Research, Kyoto University

Masakazu Yamada, MD, PhD,
Executive Board of Trustees, Japan Ophthalmologists Association, Chief of Department of Ophthalmology, National Hospital Organization Tokyo Medical Center

Yoshimune Hiratsuka, MD, MPH, PhD,
Board of Trustees, Japan Ophthalmologists Association, Associate Professor, Juntendo University

December

Dr Walther Vilser,
Imedos, Germany

Dr Nag Rao,
IAPB, India

Teaching, Training and Learning



Our aim is to continuously improve education for the next generation of ophthalmologists and foster an appreciation of the importance and excitement of research among the 'best and brightest'.

Two students completed a PhD in 2007:

Dr Mohamed Dirani

Title of Thesis: "The heritability of spherical equivalent and ocular biometrics - a classical twin study: the genes in myopia (GEM) twin study".

Supervisors: Associate Professor Paul Baird / Associate Professor Robyn Guymer

Citation:

Mohamed Dirani investigated the genetic basis of short-sightedness (myopia) through the recruitment of one of the largest twin cohorts in the world. His work unequivocally demonstrates that genes play a major role in the development of myopia which will allow for their identification leading to future improved treatment options.

Dr Heathcote Wright

Title of Thesis: "Trachoma in Australia: an evaluation of the SAFE strategy and the barriers to its implementation".

Supervisors: Professor Hugh Taylor / Associate Professor Jill Keeffe

Citation:

Trachoma is a leading cause of infectious blindness worldwide and a major public health problem in many developing countries. However, there are parts of Australia where blinding trachoma is still endemic.

Dr Heathcote Wright investigated the epidemiology of trachoma in indigenous Australian populations. He demonstrated that trachoma is still a major public health concern in Indigenous Australian populations, and that previous methods of surveying populations were unreliable in identifying individuals with trachoma or chlamydial infections. He further demonstrated that components of the SAFE strategy can be an effective intervention method in reducing trachoma blindness.

Other research students' work in progress in 2007:

Master of Medicine	Title of Thesis
<i>Michelle Baker</i>	Retinal microvascular signs in acute stroke and its relationship to MRI findings
<i>Danny Ning Cheung</i>	Retinal vascular changes in children and adults: pathophysiological and prognostic relevance in cardiovascular disease.

Master of Science	Title of Thesis
<i>Anasaini Cama</i>	Low vision services for children in Fiji
<i>Manjula Marella</i>	Visual disability questionnaire
<i>Anu Mathew</i>	Factors contributing to the presence of trachoma in the Pacific Islands
<i>David Shearer</i>	Eye donation in hospitals- a needs assessment for quality service provision

Doctor of Medicine	Title of Thesis
<i>Marc Sarossy</i>	Novel quantitative outcome measures for the anti VEGF treatment of retinal diseases

PhD	Title of Thesis
<i>Nigel Charles</i>	Low Vision: models of provision, service outcomes and implications for policy and practice
<i>Christine Yi-Chin Chen</i>	Eye spy: identification of genetic components in myopia: the Genes in Myopia (GEM) study
<i>Peggy Pei-Chia Chiang</i>	Low vision services and models of care in developed & developing countries
<i>Elaine Chong</i>	Dietary risk factors for age-related macular degeneration
<i>Gillian Cochrane</i>	Development of a model for support services for children with low vision
<i>Peter Dimitrov</i>	Predicting progression of age-related macular degeneration
<i>Thanh Tan Nguyen</i>	Novel predictors of retinal vascular calibre and flow in Type 2 Diabetes
<i>Elke Ponczek</i>	Psychological effect of a self-management program for people with low vision
<i>Cong Sun</i>	Genetic and environmental determinants of retinal vascular signs
<i>Christine Wittig</i>	Cross linking for Keratoconus

Teaching, Training and Learning *continued...*

Scholarships are vitally important for emerging researchers while they are completing their studies. Sources of support include the government, which makes available Australian Postgraduate Awards and other scholarships through the NHMRC, AusAID and under the CRC program; and the University of Melbourne.

The Department of Ophthalmology and Centre for Eye Research Australia are also able to offer support from donated scholarship funds.

Hector Maclean Scholarship:

Seven summer studentships were awarded to Christina Guo, Wayne Hoskins, Queena Qin, Dalveer Singh, William Lingwei Tao, Sundar Veerappan and Aaron Jun Ning Wong.

Leon Mow Scholarship:

Ms Anu Mathew

Hugh Noel Puckle Scholarship:

Dr Christine Wittig

In 2007, the Harold Mitchell Foundation offered two travel awards each year for five years to medical research institutes in Victoria for a postgraduate and a postdoctoral applicant, respectively. At the Centre for Eye Research Australia, these were awarded to

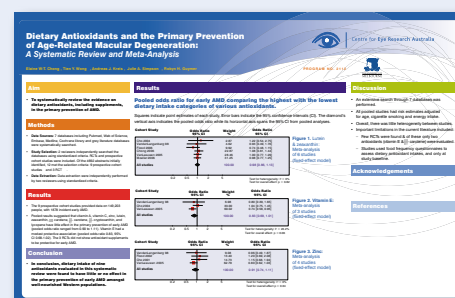
Harold Mitchell Foundation Postgraduate Travel Fellowship:

Dr Elaine Chong

Harold Mitchell Foundation Postdoctoral Travel Fellowship:

Dr Lyndell Lim

Elaine Chong presented her work on dietary effects on age-related macular degeneration at the 2007 Association for Research in Vision and Ophthalmology (ARVO) conference. Her paper was selected from 6,043 abstracts as one of only 44 'hot topic' presentations. There were four CERA papers among the 44 'hot topics' – representing the best ophthalmology research in the world at present.



Conferences, Lectures and Presentations

Associate Professor Paul Baird

9th International Congress of the Ocular Inflammation Society, Paris, France, September, **'Inflammation and AMD - genetic association'**

CERA Age Related Macular Degeneration Symposium, Melbourne Australia, October, **'What's new in Age-related macular degeneration?'**

LV Prasad Eye Institute, Hyderabad, India, October, **'Genetic Update of AMD'**

Professor Jonathan Crowston

Asia ARVO, Singapore, February, **'Mouse models in Glaucoma Research'**

AOPT, San Diego, USA, February, **'In vivo Imaging'**

ANZGIG 2007 Scientific Meeting, Adelaide, Australia, March

ARVO, Fort Lauderdale, Florida, USA, May, **'The role of the FP receptor in prostaglandin-mediated MMP up-regulation in the mouse eye'; 'Elevated hydrostatic pressure triggers release of OPA1 and cytochrome C and induced apoptotic cell death in differentiated RGC-5 cells'; 'Oxidative stress is an early event in hydrostatic pressure induced retinal ganglion cell damage in glaucoma models'**

CERA Public Education Forum, Melbourne, Australia, April, **'Focusing on Glaucoma'**

Pfizer Four Seasons Education Meeting, Melbourne, Australia, May, **'New Research Findings from ARVO 2007: Implications for Clinical Practice'**

Glaucoma Australia, Melbourne, Australia, June, **'Putting Glaucoma under the Microscope'**

Protecting the Optic Nerve Series, Geelong, Canberra and Sydney, Australia, June, **'IOP & Beyond'**

VCO Technical Meeting, Melbourne, Australia, June, **'The Optic Nerve in Glaucoma'**

World Glaucoma Conference, Singapore, July, **'Watching ganglion cells die'; 'Implications of the modulation of wound healing to clinical practice'; 'Imaging sick and dying retinal ganglion cells'**

Neuroprotection Symposium, Singapore, July, **'Recent Advances in Glaucoma Neuroprotection'**

Peripheral Vision 2007, Seminar Series for Ophthalmologists, Melbourne, Australia October, **'Optic disc imaging in glaucoma'**

ANZGIG Symposium, RANZCO Congress, Perth, Australia, November, **'Basic Science of IOP'**

ORIA Symposium, Perth, Australia, November, **'Inhibiting fibrosis after trabeculectomy – what is all the Fas about?'**

Associate Professor Robyn Guymer

IV International Symposium of the German Ophthalmology Society (DOG), Baden-Baden, Germany, September, **'Age-Related Macular Degeneration- Pathogenesis and Treatment'**

LV Prasad Eye Institute, Hyderabad, India, October, **'Bruch's membrane changes in Age-Related Macular Degeneration'**

The Geelong Macular Group Annual General Meeting, Geelong, Australia, October, **'Frontiers of Research'**

CERA Age-Related Macular Degeneration Symposium, Melbourne, Australia, October, **'An overview of Age-related Macular Degeneration'; 'Practical Management of AMD'**

Macular Vision Loss Support Society of Australia, Annual General Meetings and Sub Branch Meetings, Ballarat, November

The 39th Annual Scientific Congress of the Royal Australian and New Zealand College of Ophthalmologists, Perth, November, **'Anti-VEGF symposium. Anti-VEGF treatment for AMD'; 'Treatment for AMD symposium. Even newer treatments for AMD'**

The General Practitioner Conference & Exhibition, Melbourne, Australia, November, **'New developments in Age-Related Macular Degeneration'**

Associate Professor Jill Keefe

ICEVI 2007 Pacific Regional Forum, Perth, Australia, January

LV Prasad Eye Institute, Hyderabad, India, February, **'Assessment of Visual Functioning and Quality of Life'**

World Congress on Refractive Error, Durban, March, **'Economic impact studies'; 'Outcomes and impact of low vision services'; 'Low vision assessments in children'**

ARVO Conference, Fort Lauderdale, Florida, USA, May, **'Overview of Health Services Research - Patient Centered Issues'; 'Contribution of Costs From Lost Productivity of Carers to Eye Care Costs'**

Optometrists Association of Australia, Melbourne, Australia, July, **'CERA / RVEEH Low Vision Clinic'**

Royal Victorian Eye and Ear Hospital Grand Rounds Lecture, Melbourne, Australia, August, **'Improving Quality of Life: how we can better understand patients' needs'**

WHO Collaborating Centre for Prevention of Blindness, Nossal Institute for Global Health Forum, October

Pediatric Ophthalmology National Seminar, Bandung, Indonesia, September, **'Epidemiology of vision impairment in children'; 'Setting up a low vision service'; 'Measuring the Outcomes of Eye Care and Rehabilitation in Children'**

Fiji Society for the Blind, World Sight Day, Fiji, October, **'Vision and Children'**

Refractive Error and Low Vision Course, Cairo, Egypt, November

Conferences, Lectures and Presentations *continued...*



Associate Professor David Mackey

North American Neuro-ophthalmological Society Meeting, Snowbird, Utah, USA, February **'Heritability of optic disc morphology in the Australian Twin Eye Studies'**

Glaucoma Club, Adelaide, Australia, March, **'FEVR, Congenital Cataract, Myopia & POAG Segregating in a Family'**

Paediatric Special Interest Group, Gold Coast, Australia, June, **'Do Your Parents Speak English as a Second Language?'**

Royal Victorian Eye and Ear Hospital Registrars, Melbourne, Australia, June, **'Draw the Family Tree, Ophthalmic Genetics'**

Paediatric Special Interest Group, Gold Coast, Australia, June, **'Should I send Patients with Behaviour Problems to a Behavioural Optometrist?'**

Murdoch Children's Research Institute, Melbourne, Australia, June, **'Eye Diseases where DNA testing is clinically useful'**

World Glaucoma Congress, Singapore, July, **'Understanding the genetic basis of glaucoma: its role in clinical practice'**

Hobart, Australia, August, **'Ophthalmic Genetics in Tasmania under the Shadow of J Bruce Hamilton'**

Melbourne, Australia, August, **'Genetic Research into Glaucoma'**

RANZCO Tasmanian State Meeting, Hobart, Australia, October, **'The association between maternal smoking in pregnancy, other early life characteristics and childhood vision: the Twins Eye Study in Tasmania'; 'Congenital Cataract, Familial Exudative Vitreoretinopathy, Myopia & Primary Open Angle Glaucoma co-segregating in a family'**

Professor Hugh Taylor AC

All India Ophthalmological Society Meeting, Hyderabad, India, February, **'The Cost of Vision Loss'**

Prevalence of Eye Disease Workshop, Keynote Speaker, Toronto, Canada, February

Alcon Research Institute Meeting, Fort Worth, Texas, USA, February

ARC Centre of Vision Excellence Meeting, Australian National University, Canberra, February

22nd Congress of the Asia Pacific Academy of Ophthalmology, Lahore, Pakistan, February, **'Enhancing Training to Meet Public Needs'; 'Increasing Support for Eye Care within Countries'**

Asia ARVO Meeting, Singapore, March, **'Cost of visual impairment in Australia: implications for other populations in the Asia-Pacific region'**

2007 Ophthalmological Society of South Africa Congress, Cape Town, South Africa, March, **'Co-Chair, Symposium on Diagnostic Imaging in Ophthalmology'**

11th Meeting of the WHO Alliance for the Global Elimination of Trachoma, Cairo, Egypt, April

ARVO Conference, Fort Lauderdale, Florida, USA, May, **'Economic Impact of Vision Loss'; 'River Blindness and Ivermectin: A Trail Blazing Model for Public Private Partnership?'**

37th Meeting of the Mectizan Expert Committee Meeting, Geneva, Switzerland, May

Department of Anatomy and Cell Biology, University of Melbourne, Melbourne, Australia, August, **'Avoidable Vision Loss'**

Clinical Research Excellence 07 Conference, Melbourne, Australia, August, **'CRCs roles in the innovative process as related to clinical research and application'**

Paulus de Jong Farewell Symposium, Amsterdam, The Netherlands, September, **'What are the main obstacles to meeting the Vision 2020 goals world-wide?'**

IV International Symposium of the German Ophthalmological Society, Baden-Baden, Germany, September, **'AMD – burden of illness in the western world'**

Economic Analyses for Eye Care Workshop, Vancouver, Canada, September

IAPB Board of Trustees and Council of Members Meetings, Vancouver, Canada, September

RANZCO Conference, ICO Talk, Perth, Australia, November, **'Preventable and Treatable Vision Loss: What can we do?'**

AOVSM, Fred Hollows Lecture, Canberra, Australia, December, **'Why are people still going blind from trachoma?'**

Professor Rasik Vajpayee

Eye Bank Meeting, Auckland, New Zealand, February

ASCRS-ASOA 2007 Symposium & Congress, San Diego, USA, April-May

Victorian College of Optometry, Lecture, Melbourne, Australia, July

Cornea & Contact Lens Society of New Zealand, invited lectures, Auckland, Palmerston North, Dunedin, Christchurch, New Zealand, August, **'Dysfunctional Tear Syndrome'**

RANZCO Congress, Perth, Australia, November

AAO 2007 Annual Meeting, New Orleans, USA, November

Madan Mohan Cornea Society Symposium on Diagnostic & Surgical Updates & Newer Modalities in Keratorefractive Surgeries, Invited Symposium Lecture, New Delhi, India, December, **'Management Trends in Keratoconus'**

Associate Professor Jie Jin Wang

Fourth U.S. Symposium on Ocular Epidemiology, Sarasota, Florida, January, **'Joint effects of the LOC387715 polymorphism with smoking and inflammatory or hemostatic factors on the risk of age-related maculopathy'**

Asia ARVO, Singapore, March, **'Recent findings in the prevalence and risk factors for age-related macular degeneration in Asian populations: Similarities and differences with white populations'; 'Mitochondrial DNA Haplogroups and age-related maculopathy'**

CERA Lecture, Melbourne, Australia, April, **'Retinal vascular signs and 10-year incident hypertension'**

ARVO Conference, Fort Lauderdale, Florida, USA, May, **'Complement Factor H, smoking, dietary fish consumption and age-related macular degeneration: population-based findings'; 'Frequently Used Statistics in Epidemiological Studies'; 'Issues with retinal vascular measurements'**

Professor Tien Wong

4th NIH-NEI US Symposium on Ocular Epidemiology, Sarasota, Florida, January, Invited Symposium Lecture, **'Population-based studies: Where do we go from here?'**

Royal Victorian Eye and Ear Hospital, Invited Ground Rounds Lecture, Melbourne, Australia, February, **'An eye exam can save your life! Retinal vascular signs as early signals of cardiovascular disease'**

26th Alcon Research Institute Awards Symposium, Alcon Research Institute Award Lecture, Fort Worth, Texas, USA, February, **'Retinal microvascular signs and cardiovascular diseases'**

Allergan Retina Symposium, Asia ARVO Meeting, Invited symposium lecture, Singapore, March, **'Macula edema secondary to retinal vein occlusion: An evidence-based update'**

Asia ARVO Meeting, Invited symposium lecture, Singapore, March, **'Patterns of visual impairment and related causes in Asian and western populations'; 'The natural history and prognosis of neovascular age related macular degeneration'; 'Imaging of the retinal vasculature and its use in cardiovascular disease prediction'**

NHMRC Council Keynote lecture, Canberra, Australia, March, **'Imaging of the retinal vasculature and its use in cardiovascular disease prediction'**

Middle East and African Conference on Ophthalmology Congress, Dubai, United Arab Emirates, March, Invited symposium lecture, **'A new era in the treatment of wet AMD'**

Centres for Clinical Research Excellence lecture series, Melbourne, Australia, April, Invited Lecture, **'The relationship of fasting glucose to retinopathy: revisiting a key criterion in diabetes definition'**

World Glaucoma Congress, Singapore, July

Novartis Annual AMD Symposium, Sydney, NSW, July

Queensland Institute of Medical Research, Invited Guest Lecturer, Queensland, Australia, July

Melbourne Ophthalmic Alumni, Lecturer, Royal Victorian Eye and Ear Hospital, Melbourne, Australia, August

ADVANCE Investigators Meeting, Consultant, Vienna, Austria, August

Yamagata University, Invited Lecturer, Department of Ophthalmology Conference, September

Department of Epidemiology, Monash University, Invited Speaker, Melbourne, Australia, September, **'Epidemiology of diabetic retinopathy: Patterns and Impact'**

Collin McDonnell



Research assistant population health division

I have always had an interest in technology and health. I am particularly intrigued by bionic implants and how they bridge these two areas of research.

With this in mind, I studied neuroscience and psychology at the University of Melbourne and completed my honours research with the Bionic Ear Institute and the Department of Otolaryngology at the Royal Victorian Eye & Ear Hospital. I worked with cochlear implant patients, studying their perception of different cochlear implant signal properties. There are many different signal properties that can be adjusted in the cochlear implant and some of them are still not completely understood. I found it very rewarding to work directly with patients towards the overall goal of improving speech perception. Although my research was not aimed directly at speech perception, the information gathered will hopefully assist people in developing future speech processing strategies.

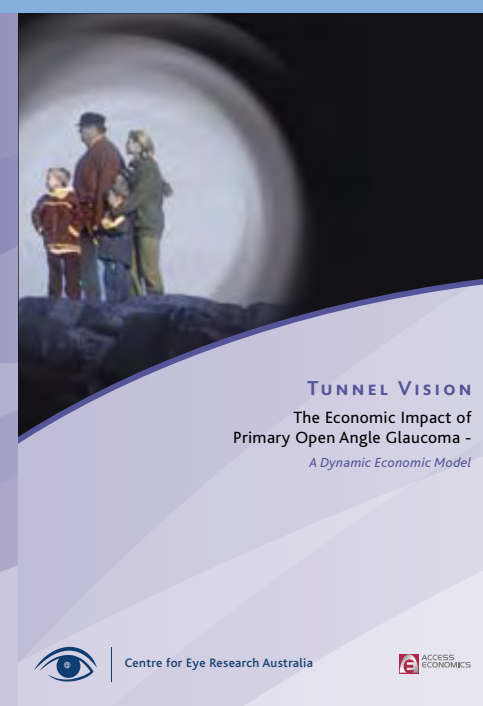
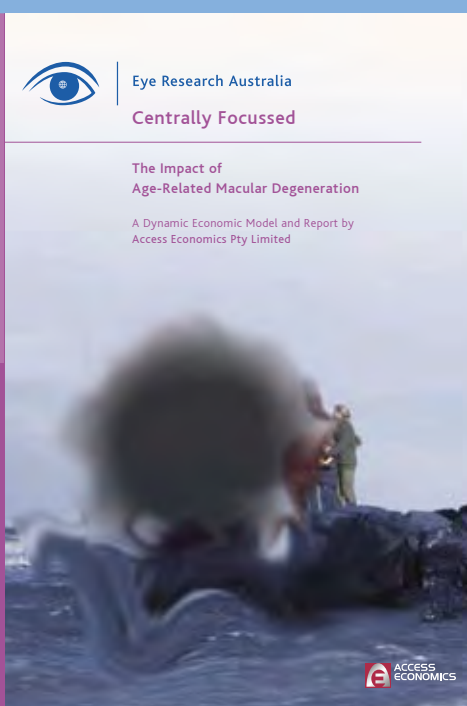
After completing my honours year, I wanted to find work in other areas of health research. My current role as a research/administrative assistant with the Prevention of Blindness and Health Services Research Units at CERA was just the right opportunity. I'm using skills and knowledge gained in my honours studies but it's different from what I did before so I'm learning on the job and getting new experience.

My interest in technology has proven to be useful in several ways I didn't expect. For example, I revised an educational CD, "Trachoma Grading – Self Directed Learning". My computer and photo-editing skills were put to very good use and the final product from the designers looked fantastic; it was a really exciting project to work on and a very satisfying result.

My current work includes developing and expanding on a resource centre, as part of our World Health Organisation Collaborating Centre accreditation. The resource centre is starting off as a website to provide easy access to the materials and publications we produce here at CERA. It is primarily aimed at health care professionals and students but also the interested public. Hopefully, with time the resource centre will grow and we will be able to offer more information and better opportunities to communicate with the community. I am also assisting with the production of some additional resources including a curriculum for low vision and web-based learning modules to be used as part of a project with the RVEEH.

All in all, this is a great job for a recent graduate. It has variety, lots of opportunity to learn, and I like working in an organisation that is really about helping people.

Knowledge Transfer



What do eye diseases like glaucoma and AMD cost us, as a community or as individuals, financially and in other ways? The Centre for Eye Research Australia has been collaborating with Access Economics on a series of reports that assess the costs of eye diseases.

- > *Centrally Focussed: The Impact of Age-Related Macular Degeneration* was published in 2006.
- > *Tunnel Vision: The Economic Impact of Primary Open Angle Glaucoma* is due for release in May 2008.

Previous reports published with Access Economics, and new releases, are available for downloading from www.cera.org.au or call 1300 737 757 to request a printed copy.

Knowledge transfer is about research intensive and information rich organisations like a university or a research institute making advances in knowledge accessible to the community. In turn, they are enriched by the community's engagement with ideas and the people who are working on new discoveries.

Knowledge Transfer is one of three core elements in the University of Melbourne's Growing Esteem strategy.

The Centre for Eye Research Australia has also made a commitment in its strategic plan to strengthening knowledge transfer "to make our research known to the community and accessible to interested parties".

Activities conducted by the Centre as a WHO Collaborating Centre for the Prevention of Blindness, as a coordinating point for the International Agency for the Prevention of Blindness, as a member of the global initiative Vision2020: the Right to Sight and Vision2020 Australia, or its work within the Vision CRC all have strong knowledge transfer aspects.

In 2007, two key events designed to update the interested public on new developments in eye research stood out.



Focus on Glaucoma

The information session *Focusing on Glaucoma* attracted an audience of close to 100 in April. Professor Jonathan Crowston, who is Australia's only professor of glaucoma and head of the Glaucoma Research Unit and Laboratory at CERA, hosted the session jointly with Associate Professor Julian Rait. They presented an overview of glaucoma, discussed the research priorities of the unit and addressed management and quality of life issues associated with the condition.

Glaucoma is a major cause of vision impairment for which there is currently no known cure. In Australia more than 150,000 people are affected with many cases going undiagnosed. One in 10 Australians over 80 will develop glaucoma. In an aging population, glaucoma is expected to become a growing problem.

After the presentations, guests appreciated the rare opportunity to talk to two of Australia's leading glaucoma experts in-depth about the condition. One participant commented "I learnt more today about this disease than I have in all the years of having glaucoma."

'What's new in age-related macular degeneration?'

Age-related Macular Degeneration (AMD) is the leading cause of blindness in Australia and is responsible for around a quarter of vision loss in the over-40s that cannot be corrected through glasses.

By the age of 70, close to one third of people will develop AMD; the rate rises to almost two out of three people in their 90s. The Eye & Ear Hospital reports that AMD inquiries make up the large majority of information requests from the public to the Hospital.

AMD is a hot topic. It was thus no surprise that a one-day symposium hosted by CERA in October drew a capacity audience.

Associate Professor Robyn Guymer, Head of CERA's Macular Research Unit is internationally renowned as an AMD expert who specialises exclusively on this disease in both her clinical work and her research.

She organised the symposium with a range of speakers to discuss the latest trends in AMD management including new treatment options and support services. A presentation on AMD from a patient's perspective was also included in the day.

"We want people to be able to live with this condition, instead of suffering from it", said Robyn Guymer in her opening remarks. "Support groups are a valuable source of information about the disease and practical solutions for living with age-related macular degeneration."

The development of Lucentis and its recent addition to the pharmaceutical benefits scheme schedule have revolutionised the treatment of the wet form of AMD. The drug works by blocking the growth of abnormal blood vessels under the retina that leak and cause the wet form of the condition. It is now more affordable and more widely available.

The symposium was supported by the Macular Vision Loss Support Society of Australia and Vision Australia.

Eleanor Mitchell



Grants & projects officer

I have been with the Centre for Eye Research Australia for about one year now. Research administration is a new experience for me. Before joining CERA, I was at Monash University where I completed my PhD in urinary tract developmental biology, examining the structural and molecular development of the ureter and kidneys.

A science and research background is really useful for my current job. The role has three major aspects to it: grants support, managing information on research publications, and collating performance information for the evaluation cycle.

I provide administrative support and quality control for grants that our researchers write. This is particularly important for the major nationally competitive grants, the ones funded by the NHMRC [National Health and Medical Research Council] and for our institute also by the Ophthalmic Research Institute Australia [ORIA], but there are many others. There are usually very detailed formal requirements for these grants. I make sure that our submissions comply with the rules and I proof-read the applications. I imagine it's easier to do this and give constructive feedback if you understand a bit about the science behind the application.

Grants support can get pretty hectic when a major deadline is looming and all the research units are sending me their drafts with very little time to spare before the submissions are due. Though I am used to working odd hours from my time in a lab, where the PhD students usually get to do the tasks that require attendance in the middle of the night. It was one of the reasons I opted out of active research after finishing my PhD and looked for a job where I could use my science background for something research-related. Thankfully, my CERA job does not quite require round-the-clock input.

I am also the publications coordinator for the Centre and Department of Ophthalmology, which means I get to see every published paper that any of our researchers have authored or contributed to and I maintain a database listing of the publications. The information is used by the University for reporting to Canberra, and internally by management for monitoring research output and performance.

Apart from putting together lists and counts of what has been published, how many grants have been applied for and so on, we also try to get an idea of quality measures. For instance, I look at impact factors for journals in which our researchers publish, and compile benchmark information how our Centre compares to others working in the same field, or medical research institutes more generally. I also have a role in scholarship administration, I am minute secretary to the CERA Research Committee, and have major input to our infrastructure support application. It is a really broad and varied job, which is one of the things I like about it.

I am keen to learn more about the management side of medical research as my career develops but I also want to keep my options open and may not be a research administrator forever. Earlier in the year when I discussed some suggestions on an NHMRC project grant with a senior researcher here he told me that he had never seen me so animated as in that discussion. I guess that's when I realised that I do miss the hands-on work in the lab a bit, though I definitely don't miss the smell of the animal house!

Community Engagement



World Sight Day

The second Thursday each October is World Sight Day. In keeping with the 2007 World Sight Day theme "Vision for Children", Dr Mark Daniell and Ms Melanie Larizza (pictured above) of the Centre for Eye Research Australia conducted a children's eye health information session for pre-schoolers at the University of Melbourne Queensberry Street Children's Centre.

- > Associate Professor Jill Keeffe and Dr Richard LeMesurier participated in World Sight Day activities in Fiji.
- > Professor Hugh Taylor made a presentation about his work on river blindness (oncocerciasis) and trachoma to staff at Merck Sharp and Dohme Australian headquarters in Sydney on World Sight Day. Professor Taylor has been honoured with the Merck Mectizan Award 'in recognition of his numerous important contributions and sustained dedication to the fight against river blindness'.

Lions Ride for Sight

The Lions Ride for Sight has been held each autumn for 15 years now. In March 2007, fifty riders got on their bikes at Lang Lang in regional south-east Victoria and rode 400 kilometres through Phillip Island, Wonthaggi and Poowong.

Australian football celebrity Peter 'Crackers' Keenan was the ride patron and got everyone off to a good start. Centre for Eye Research Australia staff Elaine Chong and Jennifer Hassell (above right) were among the riders; Jenny has been a regular participant on the ride for a number of years. The event raises money for eye research.

The ride was accompanied by the Lions Eye Health Program road show that visited San Remo, Cowes, Wonthaggi and Leongatha along the route to provide information about vision loss, the Lions Eye Health Program, the Centre for Eye Research Australia and Latrobe Health.

"Lions Eye Health is a community-based public awareness program that operates in all Australian Lions districts," said John Simpson, Manager of the Program at CERA. The program raises awareness of avoidable vision loss through the promotion of regular eye examinations that can detect early signs of eye disease. The ride raised \$50,000 for a fellowship in CERA.

The corner stone of our community program are the "Come & See" visits, or donor tours, for supporters of the Centre and the Eye Research Australia Foundation.

The four tours offered in 2007 were attended by some 120 guests, most of them active donors to eye research. Participants meet the Centre's team of researchers, view the facilities and learn about recent developments in eye health through presentations from research units, and there is an opportunity for questions and discussion. Long-time supporter Nancy James said the tour she attended was very stimulating, 'and it is great to see how donations are used within the Centre and to meet researchers who are benefiting from our support'.

Attendance at donor tours has doubled since the year before, and some adjustments had to be made to the format of the visits. "Unfortunately, some CERA research facilities simply do not accommodate a comfortable visit for a group of 20 or 30 people", says Lauren Metcalfe of the External Relations Unit who manages these events. "Our visitors are also often surprised by the distances between the three sites CERA occupies in and near the Eye & Ear Hospital, the extent of walking involved, and that the McComas laboratory is only accessible by climbing a flight of stairs in a Victorian terrace!"

For people interested in our work who cannot visit the Centre, the CERA Community Outreach Program takes eye research to the audience. Five such events were arranged in 2007.

- > Classic Residences Aged Care Facility, Brighton: Presentation on Low Vision by Dr Ecosse Lamoureux, Head of the Health Services Research Unit (March)
- > Royal Children's Hospital Mt Waverley Auxiliary: AMD presentation by Melinda Cain, Macular Research Unit, and "Common Eye Conditions in the Community" presentation by Jennifer Hassell, Health Services Research Unit (May)
- > Soroptimist International Melbourne Club: 'Genetics and Eye Research', Associate Professor David Mackey, Head Clinical Genetics Unit (August)
- > University of the Third Age, Stonnington: AMD presentation by Kira Michalova, Macular Research Unit (September)
- > Children's eye health information session, at the University of Melbourne Queensberry Street Children's Centre in the lead-up to World Sight Day (October).

If you are interested in attending a tour of the Centre or if you would like to arrange a speaker on eye research for your club, association or interest group, please contact Lauren Metcalfe on 03 9929 8424.

Vale Gerard Crock

On Sunday 23rd December 2007, Emeritus Professor Gerard Crock AO died peacefully at home surrounded by his family.

Professor Crock was the Foundation Professor of Ophthalmology at the University of Melbourne, taking up his position on 1 May 1963. As the Head of the first ophthalmic academic department in Australia, he made a wide range of contributions in teaching, research and clinical care.

He was a brilliant and innovative surgeon whose major research contribution revolved around the conception of new microsurgical instrumentation, which revolutionized the way ocular surgery was performed. A consummate clinician, Professor Crock introduced to Australian practice many of the techniques and procedures now seen as the standard of care. He was simultaneously a world class specialist in retina, cornea and glaucoma and the first clinician to perform cataract microsurgery here.



Gerard Crock was a gifted teacher who trained a generation of Australian and many international ophthalmologists. He contributed to the profession as Director of the Vitreo Retinal Unit at the Royal Victorian Eye and Ear Hospital and Chairman of the Senior Medical Staff at the Hospital and chaired the Research Committee of the Ophthalmic Research Institute of Australia. He was the first Australian to become a member of the International Council of Ophthalmology, a position he held for many years.

In 1985 he was made an Officer of the Order of Australia, and a Knight of St John in 1990.

He helped first with the establishment of the Ansell Ophthalmology Foundation and then with the Eye Research Australia Foundation. He is remembered through the Gerard Crock Fellowship, established by the Eye Research Australia Foundation to honour his work and recognise the significant contributions he made to ophthalmology in this country.

Gerard Crock is sadly missed and fondly remembered by staff, students and associates of the University of Melbourne Department of Ophthalmology and the Centre for Eye Research Australia.

The Eye Research Australia Foundation welcomes additional contributions to the Crock Fellowship fund from those in our community who wish to remember him in this practical way.

Awards, Honours, Celebrations

The dedication and expertise of several CERA people was recognised in 2007 by their professional peers or the community at large through significant awards.

Associate Professor Jill Keeffe OAM, Head, Population Health Division

- > Order of Australia Medal, June 2007, "for services to public health particularly in the area of vision testing and as a contributor to the advancement of eye care education and practice".
- > 2007 Victorian Lions Foundation Leo Tyquin Award "in recognition of exemplary service in sight conservation and work for the blind".

Mr Philip Molyneux AM, Director and Treasurer of Centre for Eye Research Australia 1996 – 2007

- > Member of the Order of Australia, January 2007, "for service to a range of medical research, health and community organisations through the provision of financial management expertise".

Professor Rasik Vajpayee

- > Dr K.P. Jain Oration Award, Delhi Ophthalmological Society, India

Professor Tien Wong, Deputy Director and Head, Retinal Vascular Imaging Centre

- > The Australian Society for Medical Research AMGEN Medical Researcher Award in recognition of his outstanding work predicting the risk of heart disease using a simple eye scan.
- > Achievement Award, American Academy of Ophthalmology (USA) for contributions made to the Academy, its scientific and educational programs and to ophthalmology.

Celebrating Hugh Taylor's achievements

Professor Hugh Taylor AC, founder of the Centre for Eye Research Australia and its Managing Director for 11 years, retired from that role at the end of 2007. He also stepped down as Head of the University of Melbourne Department of Ophthalmology, a position he had held for some 18 years.

Board members, industry partners, donors, colleagues, family and friends gathered in December for a farewell dinner at Ormond College where he lived and studied before embarking on his career in ophthalmology and research.

A number of speakers paid tribute to Hugh Taylor's achievements as Head of the University Department and of CERA, to his entrepreneurialism, energy and enthusiasm, and expertise as a clinician scientist and researcher in ophthalmology.

His charm and people skills helped create loyalty among staff, attract funds and friends and build networks of influence and opportunity for the organisation locally and internationally.

Honorary Degree for Nag Rao

Dr Gullapalli Nageswara Rao (universally known as "Nag"), long-time collaborator and friend of CERA, was awarded a Doctorate of Medicine *honoris causa* by the University of Melbourne in December.

Dr Rao is President of the International Agency for Prevention of Blindness [IAPB], and founder of the L V Prasad Eye Institute in Hyderabad, India. Trained in ophthalmology in the United States, Indian born Dr Rao is a world leader in blindness prevention. He has dedicated his professional life to the elimination of avoidable blindness in developing countries.

The Centre for Eye Research Australia acts as the Regional Coordinator (Western Pacific) for IAPB programs and CERA and the L V Prasad Eye Institute are both core partners in the successful Vision Co-operative Research Centre.



Jill Keeffe, Nag Rao, and Hugh Taylor, 8 December 2007

The two institutes have been awarded a joint grant under the Commonwealth Government Australia-India Strategic Research Fund program, with matching funding from the Indian government, to work on the development of a risk assessment chip for age-related macular degeneration.

Nicole Van Bergen



Laboratory manager glaucoma research unit

Sampling beer at Carlton & United Breweries for quality assurance gave me a special taste for science. Now I manage a research laboratory working to cure glaucoma.

About seven million people globally have glaucoma - a condition that damages the fine optic nerve from the eye to the brain. Left untreated, it can cause blindness. After completing a biochemistry degree with Honours I worked at CSIRO Molecular & Health Technologies. I was engineering recombinant proteins to create a diagnostic assay to be used in point-of-care applications. The assay was a scaffold base that could be adapted as a diagnostic to a range of disease protein biomarkers for immediate results.

In 2006, I joined the Centre for Eye Research's then newly created glaucoma research unit as laboratory manager, to establish a functional laboratory and start experiments.

In hindsight, I now appreciate that it is quite a challenge to establish an effective laboratory from the ground up. When I joined, the lab was not much more than a shell with the fixtures and fittings, with little equipment, no consumables, and neither staff nor working protocols in place. By the end of 2007, we had achieved a fully equipped research lab and we are now growing our research team. To get from then to now required grants being written for equipment and project funding, arranging competitive quotes, commissioning and installing new equipment and preparing laboratory protocols, EHS manuals and safe work procedures. It's been great on-the-job experience.

My research is about gaining a more detailed understanding of glaucoma at a molecular level and the processes that damage the optic nerve in glaucoma. I am working towards a PhD and was really pleased to receive a Melbourne Research Scholarship.

One of the things I really enjoy about working at CERA is that as an early career researcher I have direct interaction with top researchers in the field. Professor Jonathan Crowston who heads the Glaucoma Research Unit is an internationally recognised clinician-scientist in glaucoma research and is Australia's only professor of glaucoma. We are also collaborating with Associate Professor David Mackey, who is a world leader on glaucoma genetics.

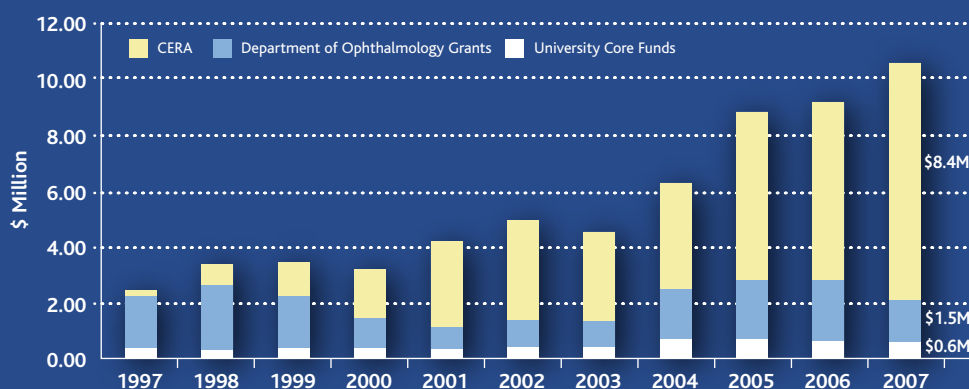
I was recently asked to make a presentation about my research to the CERA Board of Directors. The Board includes two former federal ministers for health and Professor Bob Williamson who is a leader in biomedical research. My presentation sparked a lively and interesting discussion around the table. Discussions are central to a research organisation, and the size of the Centre for Eye Research allows such interactions to occur quite easily, which may not necessarily be the case in a larger institute.

I enjoy surfing and cycling and was a member of the RVEEH team in the 520km Murray-to-Moyne cycle relay in April. It was exhausting but a great experience. A bit like research!

Nicole Van Bergen won the Centre for Eye Research Australia 2007 Research Award.

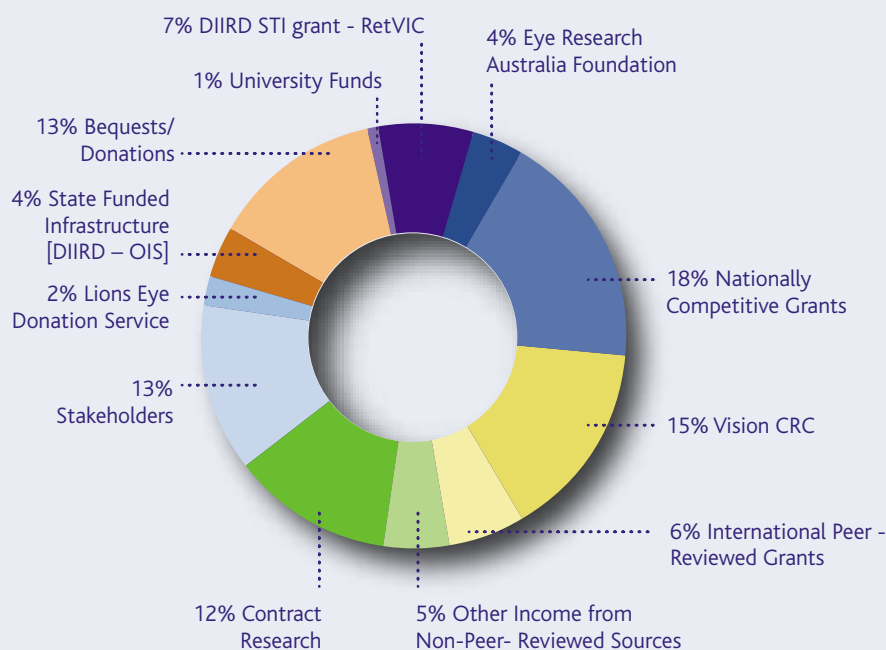
Financial performance

Income growth



Financial performance in 2007 was strong. Increases in income continued a growth trend established over the past five years.

Centre for Eye Research Australia Limited 2007 Income



Income for the Centre is derived from a diverse range of sources, including competitive and infrastructure grants, service and contract income, and philanthropic support.

Sources of income

The Centre for Eye Research Australia received income from:

Federal Government Grants

Australian Research Council (ARC)
Department of Education,
Science & Technology
Department of Health and Ageing
National Health and Medical Research
Council (NHMRC)
Vision Co-operative Research Centre

State Government Grants

Department of Human Services
Department of Innovation, Infrastructure
and Regional Development – Operational
Infrastructure Support*
Department of Innovation, Infrastructure
and Regional Development – Science
Technology and Innovation Grant
RVEEH Continuing Medical Education
Scheme
RVEEH Research Committee

* In the 2007/08 funding round, the Centre for Eye Research Australia was the only Victorian medical research institute to receive the maximum 30% increase available under the state government's Operational Infrastructure Support (OIS) program out of 15 participating institutions.

Other income in the form of grants, clinical trials income, contracts, sponsorships and donations was received from:

Alcon Australia
Allergan Australia
Bausch & Lomb
Bennelong Foundation
Brockhoff Foundation
BUPA Australia Health
Cheltenham Eye Centre
Christian Blind Mission
Clifford Craig Medical Trust
CRC Program Director Income
Eli Lilly Australia
Fred Hollows Foundation
Glaucoma Australia
Greenfield Glaucoma Research Trust
Harold Mitchell Foundation
HCF Health & Medical Research Foundation
Ian Potter Foundation
International Centre for Eye Care Education
International Diabetes Institute
John T Reid Charitable Trusts
L Alan Wilson
L.E.W. Carty Charitable Trust
La Trobe University
Leon Mow Nominees
Lions Eye Institute
Lowy Medical Research Institute
Macular Vision Loss Support Group
Merck Sharp & Dohme
Miss Dorothy Adele Edols Trust
Myra Stoicesco Charitable Trust
Nitecs
Novartis Pharmaceuticals
Novotech
Ophthalmic Research Institute of
Australia (ORIA)
Parxel International
Peggy & Leslie Cranbourne Foundation

Peter Wilson
Pfizer Australia
Pharmaceutical Research Network
PPD Developments
RANZCO
RANZCO Eye Foundation
Reece Australia Ltd
RVEEH - MUST Trial
St Vincent's Hospital Melbourne
State Trustees Australia Foundation
Sunshine Foundation
The Callanan Foundation
The CASS Foundation Limited
The Margaret Miller Foundation
The Menzies Foundation
The Myer Foundation
The Vision Group
University of Adelaide
University of Melbourne
University of NSW
University of Sydney
Victorian Lions Foundation
Vision Australia
Wagstaff Fellowship

Overseas Sources

Allergan Inc
American Health Assistance Foundation
International Agency for the Prevention of
Blindness (IAPB)
Lions Clubs International
Macular Society
Pharmaceutical Research Network
Singapore National Eye Centre
The J A COM Foundation
UCLA
University of Southern California
World Health Organisation

We acknowledge the support of funding agencies, business partners, sponsors and donors with sincere appreciation.

Financial statements and audit opinion

Centre for Eye Research Australia Ltd Abridged Financial Statements

for the year ended 31 December 2007

INCOME AND EXPENDITURE	2007	2006
Revenue		
Federal Government	1,990,023	1,065,206
State Government	1,129,090	1,126,634
Charitable Contributions & Other Income	5,261,869	3,596,699
Total Revenue	8,380,982	5,788,539
Less Expenditure	6,978,629	4,941,506
Surplus / (Deficit) for the year*	1,402,353	847,033

BALANCE SHEET

Current Assets	3,981,846	2,037,818
Non-Current Assets	1,302,818	1,518,182
Total Assets	5,284,664	3,556,000
Current Liabilities		
Payables	549,278	297,878
Provisions	355,651	359,748
Other	781,924	730,703
Total Current Liabilities	1,686,853	1,388,329
Non-Current Liabilities	70,061	42,274
Total Liabilities	1,756,914	1,430,603
Net Assets	3,527,750	2,125,397
Total Equity	3,527,750	2,125,397

* 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.



Independent audit report to the members of Centre for Eye Research Australia Limited

Scope

We have audited the financial report of Centre for Eye Research Australia Limited (the "Company") for the financial year ended 31 December 2007, consisting of the income statement, statement of recognized income and expense, balance sheet, statement of cash flows, accompanying notes 1 to 22, and the directors' declaration, set out on page 12. The Company's directors are responsible for the financial report. We have conducted an independent audit of the financial report in order to express an opinion on it to the members of the Company.

Our audit has been conducted in accordance with Australian Auditing Standards to provide reasonable assurance whether the financial report is free of material misstatement. Our procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial report and the evaluation of significant accounting estimates. These procedures have been undertaken to form an opinion whether, in all material respects, the financial report is presented fairly in accordance with the Australian Accounting Standards and other mandatory professional reporting requirements in Australia and statutory requirements, so as to present a view which is consistent with our understanding of the Company's financial position, and its performance as represented by the results of its operations and its cash flows.

The audit opinion expressed in this report has been formed on the above basis.

Audit opinion

In our opinion, the financial report of Centre for Eye Research Australia Limited is in accordance with:

- a) the Corporations Act 2001, including:
 1. giving a true and fair view of the Company's financial position as at 31 December 2007 and of its performance for the financial year ended on that date; and
 2. complying with Australian Accounting Standards and the Corporate Regulations 2001; and
- b) other mandatory professional reporting requirements in Australia.


KPMG

Peter Jovic
Partner

Melbourne
16 April 2008

KPMG is a member firm of the KPMG network of independent member firms affiliated with KPMG network, a Swiss entity.



Lead Auditor's Independence Declaration under Section 307C of the Corporations Act 2001

To the directors of the Centre for Eye Research Australia Ltd

I declare that, to the best of my knowledge and belief, in relation to the audit for the financial year ended 31 December 2007 there have been:

- (i) no contraventions of the auditor independence requirements as set out in the Corporations Act 2001 in relation to the audit; and
- (ii) no contraventions of any applicable code of professional conduct in relation to the audit.



KPMG

Peter Jovic
Partner

Melbourne
16 April 2008

Eye Research Australia Foundation

The Eye Research Australia Foundation raises funds to support the vital work of the Centre for Eye Research Australia

 Eye Research Australia Foundation <small>Supporting the CENTRE FOR EYE RESEARCH AUSTRALIA</small>		
Abridged Financial Statements		
for the year ended 31 December 2007		
INCOME AND EXPENDITURE	2007	2006
Revenues from ordinary activities	957,665	846,401
Less Expenditure	188,247	219,519
Surplus from ordinary activities	769,418	626,882
Less Distribution to CERA (see note 1)	577,531	75,000
Surplus / (Deficit) for the year	191,887	551,882
BALANCE SHEET		
Current Assets	1,645,340	1,469,377
Non-Current Assets	0	0
Total Assets	1,645,340	1,469,377
Total Liabilities	(43)	15,880
Net Assets	1,645,384	1,453,497
Total Equity	1,645,384	1,453,497

The Foundation has disbursed close to \$1 million to CERA since 2004. Its growing investments include a capital fund for the Gerard Crock Fellowship and a general endowment sourced primarily from realised bequests. The Foundation is governed by a Board of Trustees, who met four times in 2007.

Trustees

Mr David Doyle (retired May 2007)
 Professor John Funder AO
 Ms Tina McMeckan
 Mr Philip Molyneux (retired August 2007)
 Mr Peter Nankivell (Chairman)
 Professor Hugh Taylor AC

In 2007, the Foundation achieved its best annual financial outcome since its establishment, with revenue of more than \$950,000.

Costs have been contained, resulting in more than three quarters of a million dollars in funds available for distribution or for investment for the year, an increase of over 20% compared to the previous year.

Revenue in 2007 included a number of targeted gifts, bequests and sponsorships.

- > A special \$100,000 gift for glaucoma research from an individual donor who prefers to remain anonymous
- > A grant of \$128,000 (rounded) for ocular genetics research from the Singapore based J A COM Foundation
- > Around \$68,000 in contributions to the Gerard Crock Fellowship Fund
- > Some \$90,000 (rounded) in gifts and sponsorships earmarked for specific research areas – AMD, glaucoma and keratoconus.

Projects supported in 2007

The Trustees approved funding from general fundraising revenue for the following projects:

- > Purchase of an Optical Coherence Tomography (OCT) machine used for the diagnosis and management of retinal diseases and glaucoma, for shared use by all research units in CERA that have a need for it
- > Purchase of an epifluorescent inverted microscope and imaging system for in-vivo imaging of fluorescent biomarkers to develop methods for identifying sick and dying retinal ganglion cells evident in glaucoma sufferers
- > Installation of computerized grading stations in the Retinal Vascular Imaging Centre
- > Purchase of laboratory equipment in the Clinical Research Division for the study 'In Vivo Imaging of leucocyte-endothelial Dynamics in Ocular Inflammatory Diseases'
- > Upgrading of the central computer back up system to support management of research databases and thousands of images
- > Contribution to the salary of a new Research Assistant in the Clinical Research Division

- > Travel grant to enable Dr Christine Wittig to communicate results of her Cross Linking for Keratoconus Study at a number of international scientific meetings: the American Academy of Ophthalmology, the Cornea Sub Specialty Day and the International Cross Linking Congress.

We sincerely thank all donors to the Eye Research Australia Foundation for your support that has helped make these grants possible.

Supporting eye research

The Centre for Eye Research Australia is supported financially by grants from government and non-government sources for research projects and infrastructure; by income earned through contract research; and through philanthropic gifts including from the Eye Research Australia Foundation. Donations and bequests make a vital contribution to our work.

Your support helps the Centre for Eye Research Australia continue its work in the discovery of the causes of eye diseases, developing treatments, educating the community about prevention and providing assistance to people with low vision. Your gift for eye research will ultimately benefit more than 500,000 Australians who suffer from some form of vision loss.

Donations to the Eye Research Australia Foundation over \$2 are tax deductible.

MAIL

Cheques should be made payable to the Eye Research Australia Foundation and addressed to:

Eye Research Australia Foundation
Level 1/32 Gisborne St
East Melbourne VIC 3002

TELEPHONE

Credit card donations can be made by telephoning (TOLLFREE) 1300 737 757

The Foundation accepts MasterCard, Visa and American Express cards.

ONLINE DONATIONS

To make a secure on-line donation, visit www.cera.org.au and click 'support us.'

BEQUESTS

Leaving a bequest for eye research helps ensure that the important work towards the elimination of eye diseases, vision loss and blindness can continue beyond our life time for the benefit of future generations. A bequest can provide a fellowship for a young researcher, or fund equipment purchases, laboratory and other project costs for research in a specific area like AMD or glaucoma. Subject to the wishes of a benefactor, bequests received by the Eye Research Australia Foundation are invested to preserve and grow their value. The income generated is used to support the work of the Centre for Eye Research Australia.

MEMORIAL GIFTS

A memorial donation is a gift to honour the memory of someone you care about - a family member, friend or respected colleague, for instance - who is deceased. The Eye Research Australia Foundation welcomes memorial gifts and can provide special donation envelopes for distribution at a funeral or memorial service.

REGULAR GIVING

Regular giving via automatic credit card donation is a convenient way to make an on-going commitment to eye research. It allows you to schedule contributions in advance, reduces the amount of mail you receive from us and helps our Foundation save mailing and administrative costs. Pledge arrangements can be amended at any time to suit changing circumstances.

IN-KIND SUPPORT

We welcome in-kind support in the form of goods or services from individuals or organisations, including product donations, professional assistance or volunteering of time.

To obtain a copy of our bequest information booklet, request **Memorial Gift Envelopes**, or for further information about any of these programs please contact our Foundation staff toll free on 1300 737 757 or email erf-info@unimelb.edu.au



Centre for Eye Research Australia



THE UNIVERSITY OF
MELBOURNE

Discovering solutions
for eye disease and
vision loss to benefit
our community

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