



RESEARCH UNITS, CENTRES AND INSTITUTES

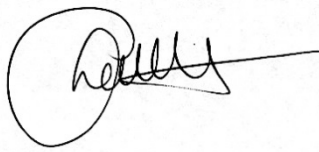

Annual Report Template

Please refer to the University of Auckland Policy on Research Units, Centres and Institutes for more information on reporting and accountability requirements (clause 2.5). A copy of this policy is available from the University Policy Register.

Section 1a - IDENTIFICATION INFORMATION:

Title of Unit, Centre or Institute:	New Zealand National Eye Centre (NZ-NEC)
Name of Director:	Professor Charles McGhee, HoD Department of Ophthalmology
Name of Deputy Director:	Professor Paul Donaldson, Head School of Medical Sciences

Section 1b - ENDORSEMENT OF REPORT:

Signatures:	<i>Please sign in appropriate space below</i>
Professor Charles McGhee - Director (Required for all Units/Centres/Institutes)	
Head of Department (Required only for Department/School Units)	
Dean (Required for Faculty/University Centres/Institutes)	

Section 2 – ADVISORY BOARDS AND MEETING DATES:

Names of Oversight Advisory Board members (for Faculty and University Centres that have Oversight Boards)	<p>Professor Charles McGhee– Chair</p> <p>Professor Paul Donaldson</p> <p>Professor Colin Green</p> <p>Mr Gordon Sanderson – External member (University of Otago)</p> <p>Hon Associate Professor O Bruce Hadden – Former President Royal Australia and New Zealand College of Ophthalmologists</p> <p>Geoff Sargent - President New Zealand Association of Optometrists</p> <p>Associate Professor Sherwin</p> <p>Professor John Fraser (or nominee)</p>
Names of Expert Advisory Board members (for Faculty and University Centres that have Expert Advisory Boards)	
Names of Management Committee Members (for University and Faculty Centres)	<p>Professor Charles McGhee</p> <p>Professor Paul Donaldson</p> <p>Sue Raynel – Manager NZ-NEC</p> <p>Hutokshi Chinoy – Administrative Manager</p>
Dates of advisory board and management committee meetings that took place during the year	<p>No Advisory board meeting held.</p> <p>2 management meetings held in 2014.</p>

Section 3 – PARTICIPATING MEMBERS AND EMPLOYEES/STUDENTS:

Names and Departments of participating members	<p>Department of Ophthalmology, Faculty of Medical and Health Sciences; Department of Optometry and Vision Science; Molecular Vision Laboratory.</p> <p>Affiliated members: New Zealand National Eye Bank; Glaucoma New Zealand; Clinical and Experimental Ophthalmology; Department of Anatomy with Radiology; Bio-engineering Institute; School of Pharmacy.</p>
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List names, positions, and FTEs of all staff employed and postgraduate students involved in the Unit or Centre	No staff are employed directly by NZ-NEC but provide assistance at discretion of the Departmental HoD's. See appendix for list of staff within NZ-NEC
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Section 4 – INTRODUCTION:

Provide here a brief introduction to the report (maximum of 300 words)	<p>The New Zealand National Eye Centre (NZ-NEC) was formally established in July 2008. The primary foci of NZ-NEC are to consolidate working relationships between University departments involved in Ophthalmology, Optometry, and Vision Sciences. The establishment of the NZ-NEC is unprecedented anywhere in Australasia within the eye health community.</p> <p>The recognition of NZ-NEC as a preeminent eye research facility is evidenced by the world wide ophthalmic community with Professor Charles McGhee identified as one of the top 100 most influential ophthalmologists in the world and members undertaking more than 30 keynote and invited speaker presentations, nationally and internationally at both ophthalmic and scientific conferences. During 2014, 84 peer reviewed publications, 1 book chapter produced and two new patents were submitted.</p> <p>We have been successful in obtaining research funding from competitive grants and philanthropic awards in excess of \$4.5 million. Grants came from a wide variety of sources including: Buchanan Charitable Trust \$2,400,000 to establish Buchanan Ocular Therapeutics Unit; Health Research Council almost \$1,600,000; Marsden Fund \$826,087; ADHB \$600,000; Auckland Medical Research Fund (AMRF) \$276,426; New Zealand Optometry and Vision Research Fund \$115,000 and the Save Sight Society \$69,176.</p> <p>We have established links with community based organisations. Currently undertaking collaborative research with Fred Hollows NZ based at the Pacific Eye Institute in Fiji.</p> <p>We continue to discuss with HWFNZ the implementation of a community based eye service to relieve the burden of eye disease on hospital departments.</p> <p>Growing eye researchers for the future is essential to NZ-NEC and we have held seminars at which PhD students are encouraged to present to peers and supervisors as well as presentations by international eye researchers. PhD students have been also successful on the national and</p>
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	international stage taking away prizes at the UoA Exposure post-graduate research exposition, Spark Ideas Challenge, Royal Australia and New Zealand College of ophthalmologists meeting (Brisbane) and New Zealand branch meeting and HOPE meeting in Japan.
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Section 5 – AIMS, GOALS AND FUTURE PLANS:

<p>a. General Aims:</p> <p>Briefly describe the general aims (plans and objectives/goals) of the unit or centre. Identify how they address the University and Faculty Strategic Plan.</p>	<p>Vision: to eliminate preventable blindness and reduce visual impairment</p> <p>Mission: to become a foremost international vision research, clinical and teaching centre through excellence, innovation and collaboration</p> <p>Goals: To develop and increase the profile of eye health, vision research and education – in New Zealand/Aotearoa and internationally by:</p> <ul style="list-style-type: none"> Laboratory research Clinical research and Clinical Services Application of research into practice Innovation Collaboration Teaching and Learning Community Outreach Public Health Policy
<p>b. Goals for Reporting Year:</p> <p>Describe the specific goals for the reporting year.</p>	<p>Increase the number of local, national and international collaborations in 2014</p> <p>Research produces innovations with scientific and clinical application</p> <p>Continue to develop Community Outreach programmes incorporating research, education and philanthropy with a view to increasing research revenue and a better informed public on eye care and eye disease.</p>
<p>c. Plans for Upcoming Year:</p> <p>Outline the plans for the next year. Identify any resource implications.</p>	<p>We have planned a full committee meeting for April 2015 at which we plan to review the goals for the next 3 years for NZ-NEC and will consider a review of the NZ-NEC in 2016.</p>

Section 6 –MAJOR ACHIEVEMENTS AND OTHER NOTABLE ACTIVITIES:

<p>Report against the specific goals listed in 5b above</p>	<p>Collaborations: members have been very proactive and have established over 26 new local, national and international collaborations during 2014.</p> <p>1) The Connexin Biology group, under the leadership of Professor Colin Green, have established new international collaborations with Stony Brooke University, New York, USA; Queensland University; University of New South Wales and University of Technology Sydney and a Neurosurgical project with the University of Melbourne and Royal Melbourne Hospital, Australia.</p> <p>2) Buchanan Ocular Therapeutics Unit under the leadership of Dr Ilva Rupenthal has established international links with Mawson Institute, University of South Australia, Australia; University of Queensland, Brisbane, Australia, Leather and Shoe Research Association, Palmerston North, New Zealand.</p> <p>3) The Ocular Surface Laboratory (OSL) under the leadership of A/Professor Jennifer Craig has developed relationships with UNSW (Australia), Cardiff University and Aston University (UK). New Industry collaborations in 2014 have been developed with Oculeve (USA), France Medical (Australia), E-Swin (France). OSL has also received further funding from Manuka Health NZ to continue their research collaboration.</p> <p>5) Molecular Vision Laboratory led by Professor Paul Donaldson has collaborations with Departments of Biochemistry and Ophthalmology and Visual Sciences, Vanderbilt University School of Medicine, Nashville TN, USA; Department of Physiology and Biophysics, SUNY, Stony Brook, NY, USA; Institute of Biophysics, Imaging & Optical Science, The University of Nottingham, UK.</p> <p>4) The Cornea and Anterior segment team under the leadership of Professor Charles McGhee has established collaborations with the Department of Medicine, FMHS, University of Auckland; Auckland Bioengineering Institute, University of Auckland; Department of Computer Science, University of Auckland; Linköping University, Sweden; Johns Hopkins University – School of Medicine.</p> <p>5) The Genetic Eye Disease investigation Unit has established new collaborations with Ghent University, Belgium; Charles University Prague, Czech Republic; Flinders University Adelaide, and the Lions eye Institute, Australia; University of Liverpool, Manchester University, and University</p>
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	<p>College London UK.</p> <p>Innovation:</p> <ol style="list-style-type: none"> 1) Two new patents have been submitted 2) "Atlas of Anterior Eye Segment Disease" mobile app. Was produced as one of the summer student projects. The prototype app has been successfully produced and an honours student has been recruited to extend this work. <p>Community engagement:</p> <ol style="list-style-type: none"> 1) Our relationship with Fred Hollows Foundation NZ continues to develop. To date a review of diabetes and major review of cataract surgery outcomes in patients from the Pacific Eye Institute in Fiji by Fred Hollows fellows. 2 publications in peer reviewed journals and presentations of research at RANZCO main and branch meetings. We anticipate further funding in 2015 to support on-going research. 2) On-going discussions with HWFNZ and DHB's about implementing community based eye care with appropriately trained optometrists – stalled due to funding issues within DHB's. But alternative approaches are being investigated. 4) Public education has continued e.g. presentation by Professor McGhee to Poynton Retirement Village Takapuna – 'The Eye: who would believe something so small could contain the wonders of the universe? Dr Andrea Vincent presented at a Retina New Zealand meeting. Glaucoma New Zealand provided education to eight centres throughout the country. Professor Charles McGhee attended a meeting organised by UoA with the 'Freemasons' where he presented an update on the current research sponsored by the Freemason's in the Department of Ophthalmology and we are in the process of submitting an application for further funding.
<p>Summary of major developments and achievements. Identify how these activities contribute to the research capability of the department or faculty (beyond what would be achieved through the activities of the individual members). Please</p>	<p>The Ophthalmologist has listed Professor Charles McGhee was listed as one of the top 100 most influential ophthalmologists in the world. This accolade establishes the Department of Ophthalmology, UoA as a premier eye research facility.</p> <p>Professor Colin Green was one of ten Marsden 10by10 researchers highlighted for the Marsden Fund 20th anniversary. He gave two public lectures (Wanaka and Rotorua) and a Radio New Zealand Interview (Our changing world) as part of the 20th anniversary celebrations.</p>

provide greater detail for anything noteworthy that may give useful publicity to the University

Several academics received local, national and international awards in recognition of their contribution to research and teaching by peers and organisations. Professor Colin Green awarded UoA Vice Chancellor's Commercialisation Medal and the Butland Award for Research Supervision 2014.

Professor Charles McGhee awarded Doctor of Science by University of Auckland by thesis submission and the Mark Tso Golden Apple award for excellence in teaching in the Asia Pacific region at Asia Pacific Academy of Ophthalmology meeting held in Japan. Dr Sue Ormonde was awarded FMHS Distinguished clinical teacher's award. Dr Jennifer Fan-Gaskin, William Good, Dr Charlotte Jordan, A/P Dipika Patel and Professor Charles McGhee received The 2014 J Lloyd Hewett Award for the most meritorious paper published by the Journal Clinical and Experimental Optometry in the past three years.

Dr Stuti Misra was the recipient of a Fulbright New Zealand Travel Award. This award enabled Dr Misra travel to the United States and visit Johns Hopkins University – School of Medicine (JHU-SOM). At JHU-SOM she had several meetings with academic members of the Wilmer Eye Institute. She also met with members of Professor Mankowski's laboratory to discuss the ongoing project and in vivo corneal confocal scanning of pigtail monkeys. Dr Misra also visited Schepens Eye Research Institute to visit Associate Professor David Sullivan's laboratory and discussed collaborative projects.

Three new post-Doctoral members of staff were appointed, in the Department of Ophthalmology, taking the post-Doc team to five – Dr Verity Oliver joined the Genetic Eye Disease team from Johns Hopkins University – School of Medicine; Dr Erika Chen joined BOTU following completion of her PhD in the Department of Ophthalmology and Dr Richard Naylor joined the team from Molecular Medicine, UoA.

Emerging researchers in NZ-NEC were successful in securing \$541,000 in HRC research funding. Dr Seyed Vaghefi Rezaei from the Department of Optometry and Visions Science (DOVS) received an emerging researcher grant of \$141,000; Dr Ellen Wang from the Department of Ophthalmology received a 3 year Clinical Research Training Fellowship of \$250,000 and Dr Angus Grey from DOVS received a Sir Charles Hercus Research Fellowship, Emerging researcher award of \$150,000.

The Buchanan Charitable Trust pledged \$2,400,000 to establish the Buchanan Ocular Therapeutics Unit (BOTU) in the Department of Ophthalmology in 2013. During 2014 the BOTU has successfully recruited – Dr Ilva Rupenthal, Senior Lecturer and programme leader, a Post-Doctoral fellow, a

	<p>Research technician, 3 PhD candidates and 1 Masters candidate. The Unit has also provided funding for two summer studentships. Staff within the Unit have published 2 peer reviewed papers, undertaken 11 conference presentations and 4 poster presentations at national and international ophthalmic, controlled release and biomechanical conferences in 2014.</p> <p>The Tom Cat Trust donated \$500,000 to the Department of Ophthalmology, in 2013, via the School of Medicine Foundation to support the appointment of post-Doctoral fellows. To date there have been 3 post-doctoral fellows who have been fully or part funded by this generous donation. They have published 8 papers in peer reviewed publications and presented their work at several international ophthalmic and optometry meetings.</p> <p>Ankita Umapathy from DOVS was one of five New Zealand delegates selected to attend the HOPE meeting in Tokyo, Japan by the Royal Society of New Zealand and the Japan Society for the Promotion of Science. Anika was also awarded Best Poster Presentation Award for her work on 'Characterising glutathione efflux pathways in the rat lens' at this meeting.</p> <p>Jeremy Mathan awarded the Wallath Prize for best summer student project. This prize is awarded annually to the medical student, or a BSc student pursuing a Studentship within a Department of the School of Medicine, who submits the best report of a Summer Studentship research project conducted by that student. Jeremy went on to complete BMedSci Hons in the Department of Ophthalmology during 2014. He was also awarded the John Parr trophy for the best presentation at the annual Royal Australia and New Zealand College of Ophthalmologists meeting in Brisbane.</p>
<p>Comment on any co-operative commercial activities, research with other University or Government laboratories or research groups</p>	<p>A/Professor Dr Jennifer Craig is involved in an International Multicentre Clinical Trial sponsored by Oculeve, USA (\$23,500). She has also received commercial research funding from France Medical, Brisbane (\$8661); Manuka Health New Zealand, NZ (\$99,407). A/P Craig also received paid expenses of \$9,000 to attend the European Association for Vision and Eye Research conference and E-Swin Headquarters, Nice, France from E-Swin, France.</p> <p>The Stem Cell group in the Department of Ophthalmology continues to expand into 'induced pluripotent stem cells' or iPS cells as novel treatments and has held discussions with UniServices. Associate Professor Trevor Sherwin has been awarded a \$28,684 Marsden Strategic award from FRDF to continue to explore iPS cells on the back of results to date</p>

	<p>with a view to re-submitting for Marsden funding in 2015.</p> <p>Two new patents applied for in 2014:</p> <ul style="list-style-type: none"> • Methods for the treatment of cancer. Inventors Colin Richard Green, Louise Frances Basford Nicholson, Helen Victoria Danesh-Meyer. PCT/NZ2014/000022 (from NZ Provisional Application Nos. 607310 and 618362) Filing date 24 February 2014. • Methods of Treatment (Tonabersat). Inventor Colin Richard Green. NZ Provisional 510369, Filing date 22 August 2014. <p>Professor Colin Green is a consultant for CoDa Therapeutics, Inc. (USA)</p>
<p>Comment on any courses given or workshops and seminars held</p>	<p>We hold bi-monthly seminars for disseminating current research findings and issues but they have also have been an avenue for generating collaboration amongst researchers who otherwise would not have had contact.</p> <p>Several high profile international guest lecturers have presented at NZ-NEC seminars in 2014:</p> <ol style="list-style-type: none"> 1. Professor Dale Laird – Canada Research and Gap Junctions & Disease, Dept of Anatomy & Cell Biology, University of Western Ontario, Canada. Professor Colin Green received a UoA Research Committee Distinguished Visitor Award of \$8080.00 to assist with Dr Lairds expenses for the visit. 2. Dr Harendra S. Parekh, Senior Lecturer and Group Leader – Drug/Gene Delivery Pharmacy Australia Centre of Excellence, University of Queensland, Brisbane, Australia. 3. Professor Marjorie F. Lou – School of Veterinary Medicine and Biomedicla Science, and Redox Biology Centre, Univeristy of Nebraska-Lincoln, Lincoln, NE and Dept of Ophthalmology, Univeristy of Nebraska Medical Centre, Omaha, NE, USA 4. Nico Heussner – Karlsruhe Institute of Technology, University of St. Andrews, Germany. <p>Summer students presented their projects at the “Excellence in Ophthalmology and Vision Research Prize Evening”. Students were given guidelines for their 10 minute presentations which were judged by academics external to NZ-NEC – Professor Andrew Shelling and Professor Louise Nicolson. The winner in 2013-14 was Rachel Ng-Waishing whose studentship was supported by the Tom Cat Trust. She was supervised by Dr Stuti Misra and Professor Charles</p>

	<p>McGhee.</p> <p>In collaboration with Johnson & Johnson an evening seminar was held for eye health professionals on the Ocular Surface. Guest speakers were Professor James S Wolffsohn, Deputy Executive Dean of Life and Health Sciences, Aston University, Birmingham, UK and Professor David A Sullivan, Senior Scientist & Margaret S. Sinon Scholar in Ocular Surface Research, Schepens Eye Research Institute, Boston, USA.</p> <p>Members of NZ-NEC participate in the MBChB, optometry undergraduate and the optometry ocular therapeutics programmes as well as vocational training for the Royal Australian and New Zealand College of Ophthalmology vocational scheme. They also provide education to ophthalmic nurses, health facilities and community organisations eg participation in ADHB nurses study days such as the corneal study day; Professor Charles McGhee talked to the Poynton Retirement Village his talk was entitled 'The Eye - Who would believe something so small could contain the wonders of the Universe?'</p>
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Section 7 - Reviews

<p>Date of last review</p>	<p>To date NZ-NEC has not been reviewed</p>
<p>Review Recommendations</p> <p>List the recommendations of the review and give an update of progress on addressing the recommendations.</p>	

Section 8 – FINANCIAL REPORT

<p>State whether the Unit or Centre has its own Activity Centre/s and list the Activity Centre/s being used</p>	<p>NZ-NEC does not have its own cost centre</p>
<p>State sources of funding, for example, from research funds from outside bodies, from the Department or Faculty, or other</p>	<p>There is an NZ-NEC account held in the SOMF to which the public is able to make donations and the current balance stands at \$9596.</p>
<p>List any significant resource allocation decisions taken by the Oversight Board during this reporting year (if applicable)</p>	<p>Nil</p>
<p>Include a statement of financial performance (contact Faculty Accountant for assistance), or give a clear explanation of the reasons if there has been no financial activity</p>	<p>N/A</p>

Section 9 – RESEARCH OUTPUTS

<p>Include a list of publications and other research outputs</p>	<p>Book Chapters:</p> <p>Dakin, S. C. Seeing statistical regularities: Texture and pattern perception In Oxford Handbook of Perceptual Organization, J. Wagemans (Ed.), Oxford University Press., Oxford, UK</p> <p>Peer reviewed Publications:</p> <ol style="list-style-type: none">1. Anstice, N. S., & Thompson, B. (2014). The measurement of visual acuity in children: An evidence-based update. <i>Clinical and Experimental Optometry</i>, 97 (1), 3-11.2. Hess, R. F., Babu, R. J., Clavagnier, S., Black, J., Bobier, W., & Thompson, B. (2014). The iPod binocular home-based treatment for amblyopia in adults: Efficacy and compliance. <i>Clinical and Experimental Optometry</i>, 97 (5), 389-398.3. Hess, R. F., Babu, R. J., Clavagnier, S., Black, J., Bobier, W., & Thompson, B. (2014). The iPod binocular home-based treatment for amblyopia in adults: efficacy and compliance. <i>Clinical & experimental optometry : journal of the Australian Optometrical Association</i>, 97 (5), 389-398. doi:10.1111/cxo.121924. Hamm, L. M., Black, J., Dai, S., & Thompson, B. (2014). Global processing in amblyopia: a review. <i>Frontiers in psychology</i>, 5, 583. doi:10.3389/fpsyg.2014.005835. Craig JP. Meibomian Gland Dysfunction. (Review) <i>Optometry In Practice</i> 2014 April; 15(2): 57-70.6. Stapleton F, Garrett Q, Craig JP. The Epidemiology of Dry Eye Disease. In: <i>Dry Eye: A Practical Approach</i>. (ed. Chan C.), Springer, 2014 (ISBN 978-3-662-44105-3) (in press).7. Greene, C. A., Green, C. R., & Sherwin, T. (2014). Transdifferentiation of chondrocytes into neuron-like cells induced by neuronal lineage specifying growth factors. <i>Cell biology international</i>. doi:10.1002/cbin.103588. Davidson, J. O., Drury, P. P., Green, C. R., Nicholson, L. F., Bennet, L., & Gunn, A. J. (2014). Connexin hemichannel blockade is neuroprotective after asphyxia in preterm fetal sheep. <i>PLoS One</i>, 9 (5), e96558. doi:10.1371/journal.pone.0096558
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9. Guo, C. X., Tran, H., Green, C. R., Danesh-Meyer, H. V., & Acosta, M. L. (2014). Gap junction proteins in the light-damaged albino rat. *Mol Vis*, 20, 670-682.
10. Greene, C. A., Chang, C. Y., Fraser, C. J., Nelidova, D. E., Chen, J. A., Lim, A., ... Green, C. R. (2014). Cells from the adult corneal stroma can be reprogrammed to a neuron-like cell using exogenous growth factors. *Exp Cell Res*, 322 (1), 122-132. doi:10.1016/j.yexcr.2013.12.013
11. Chen, Y-S., Green, C.R., Danesh-Meyer, H.V. & Rupenthal, I.D. Neuroprotective role of connexin43 gap junction channel blockers in the treatment of glaucoma. *Euro J Pharmaceutics and Biopharmaceutics*. Submitted.
12. Zhang, J., O'Carroll, S. J., Henare, K., Ching, L. -M., Ormonde, S., Nicholson, L. F. B, & Green, C. R. (2014). Connexin hemichannel induced vascular leak signals a new paradigm for cancer therapy. Review in *FEBS Letters*. 588:1365 - 1371.
13. Mallard, C., Davidson, J. O., Tan, S., Green, C. R., Bennet, L., Robertson, N. J., & Gunn, A. J. (2014). Astrocytes and microglia in acute cerebral injury underlying cerebral palsy associated with preterm birth. Review in *Pediatric Research*, 75 (1-2), 234-240.
14. Chavez, Johanna, Almut Kelber, Misha Vorobyev, and Olle Lind. "Unexpectedly low UV-sensitivity in a bird, the budgerigar." *Biology letters* 10, no. 11 (2014): 20140670.
15. Siebeck, U. E., Wallis, G. M., Litherland, L., Ganeshina, O., & Vorobyev, M. (2014). Spectral and spatial selectivity of luminance vision in reef fish. *Frontiers in neural circuits*, 8.
16. de Ibarra, N. Hempel, M. Vorobyev, and R. Menzel. "Mechanisms, functions and ecology of colour vision in the honeybee." *Journal of Comparative Physiology A* (2014): 1-23.
17. Martínez-Harms, J., N. Márquez, R. Menzel, and M. Vorobyev. "Visual generalization in honeybees: evidence of peak shift in color discrimination." *Journal of Comparative Physiology A* 200, no. 4 (2014): 317-325.
18. Patel DV, Bolland M, Nisa Z, Abuwsi F, Singh M, Horne A, Reid IR, McGhee CN. Incidence of ocular side effects with intravenous zoledronate: secondary analysis of a randomized controlled trial. *Osteoporosis International* 2014 (EPub ahead of print)

	<p>19. Crawford AZ, Krishnan T, Ormonde SE, McGhee CNJ, Patel DV. Treatment adherence following penetrating corneal transplant in a New Zealand population 2000-2009. <i>Cornea</i> 2014 (In press)</p> <p>20. Bahr N, Ali N, Patel DV, McGhee CN, Hunter P, Ho H. Modelling the Deformation of the Healthy Human Cornea Produced by a Focussed Air Pulse. <i>Computational Biomechanics for Medicine</i> 2014 (In press)</p> <p>21. Zhang J, Patel DV. The pathophysiology of Fuchs' endothelial dystrophy – a review of molecular and cellular insights. <i>Experimental Eye Research</i> 2014 (In press)</p> <p>22. McDonald E, Patel DV, McGhee CN. Clinical characteristics of patients with viral keratitis presenting to an emergency eye clinic in Auckland, New Zealand. <i>Cornea</i> 2014 (In press)</p> <p>23. Vellara HR, Patel DV. Biomechanical properties of the keratoconic cornea: a review. <i>Clinical and Experimental Optometry</i> 2014 (In press)</p> <p>24. Ali NQ, Patel DV, McGhee CN. Biomechanical responses of healthy and keratoconic corneas measured using a non contact Scheimpflug tonometer. <i>Investigative Ophthalmology and Visual Science</i> 2014; 55(6):3651-9</p> <p>25. McDonald EM, Ram F, Patel DV, McGhee CN. Topical antibiotics for the management of bacterial keratitis: an evidence-based review of high quality randomized controlled trials. <i>British Journal of Ophthalmology</i> 2014; 98(11):1470-1477</p> <p>26. Lockington D, Wang EF, Patel DV, Moore SP, McGhee CN. Effectiveness of cataract phacoemulsification with toric intraocular lenses in addressing post-keratoplasty astigmatism. <i>Journal of Cataract and Refractive Surgery</i> 2014 (Epub ahead of print)</p> <p>27. Lockington D, Fan Gaskin JC, McGhee CN, Patel DV. A prospective study of acute corneal hydrops by in vivo confocal microscopy in a New Zealand population with keratoconus. <i>British Journal of Ophthalmology</i> 2014; 98(9):1296-302</p> <p>28. Fan Gaskin JC, Patel DV, McGhee CN. Acute corneal hydrops in keratoconus – new perspectives. <i>American Journal of Ophthalmology</i> 2014;157(5):921-928</p>
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29. McDonald EM, Patel DV. Cranial nerve palsies as a complication of herpes zoster ophthalmicus. *Journal of Neurosciences in Rural Practice* 2014;5(2):182-183
30. Lockington D, Ali NQ, Al-Taie R, Patel DV, McGhee CN. Outcomes of scleral sutured conventional and aniridia intraocular lenses performed in a university hospital setting. *Journal of Cataract and Refractive Surgery* 2014;40(4):609-17
31. Lockington D, Johnson R, Patel DV, McGhee CNJ. Healthcare and a holiday: the risks of LASIK tourism. *Clinical and Experimental Optometry* 2014; 97(4):370-2
32. Jordan C, Patel DV, Abeysekera N, McGhee CN. In vivo confocal microscopy analyses of corneal microstructural changes in a prospective study of collagen cross-linking in keratoconus. *Ophthalmology* 2014;121(2):469-74
33. Patel DV, McGhee CN. Hanging by threads: ectopia lentis. *Lancet* 2014; 384(9946):893
34. Misra S, Craig JP, McGhee CN, Patel DV. A prospective study of pterygium excision & conjunctival autograft with human fibrin tissue adhesive: effects on vision, refraction & corneal topography. *Asia Pacific Journal of Ophthalmology* 2014;3:202-206
35. Goh YW, McGhee CN, Patel DV, Barnes R, Misra S. Treatment of Herpes zoster related corneal neovascularisation and lipid keratopathy by photodynamic therapy. *Clinical and Experimental Optometry* 2014;97(3):274-7
36. Chong C, Patel DV, Hadden P, McGhee CN. Conservative biopsy excision and management of a large iris melanoma. *Clinical and Experimental Optometry* 2014;97(3):278-9
37. McDonald EM, Ram FSF, Patel DV, McGhee CN. Effectiveness of topical antifungal drugs in the management of fungal keratitis: a systematic review and meta-analysis of randomised controlled trials. *Asia Pacific Journal of Ophthalmology* 2014;3(1):41-47
38. Ali NQ, Patel DV, Lockington D, McGhee CN. Citation analysis of keratoconus 1900-2013: the most influential publications, authors, institutions and journals. *Asia Pacific Journal of Ophthalmology* 2014;3(2):67-73

39. Champ, Connor, Guy Wallis, Misha Vorobyev, Ulrike Siebeck, and Justin Marshall. "Visual Acuity in a Species of Coral Reef Fish: *Rhinecanthus aculeatus*." *Brain, behavior and evolution* 83, no. 1 (2014): 31-42.
40. Tibber, M.S., Anderson, E.J., Bobin, T., Carlin, P., Shergill, S.S. & Dakin, S.C. Local and global limits on visual processing in schizophrenia. *PLOS One*. In press
41. Bellacosa Marotti, R. & Dakin, S.C. Visual coding of natural contours leads to poor discrimination of object-shape around canonical views. *Journal of Vision*. In press
42. Wiecek, E., Lashkari, K., Dakin, S.C. & Bex, P.J. (2014). Novel quantitative assessment of metamorphopsia in maculopathy. *Investigative Ophthalmology and Visual Science* In press.
43. Wiecek, E., Lashkari, K., Dakin, S.C. & Bex, P.J. (2014). Prevalence, patterns and repeatability of metamorphopsia in macular disease: A statistical analysis of 7,106 Amsler Grids, *Ophthalmology*
44. Wiecek, E., Dakin, S.C. & Bex, P.J. (2014). Metamorphopsia and letter recognition. *Journal of Vision*
45. Wiecek, E., Lashkari, K., Dakin, S.C. & Bex, P.J. (2014) Metamorphopsia and Interocular suppression in monocular and binocular retinopathy. *Acta Ophthalmologica*
46. Manning, C., Dakin, S.C., Tibber, M. & Pellicano, E. Averaging, not internal noise, limits the development of coherent motion processing, *Developmental Cognitive Neuroscience*, 10C, 44-56.
47. Bizrah, M., Dakin, S.C., Guo, L., Rahma, F., Parnell, M., Normando, E., Nizari, S., Younis, A. & Cordeiro, M.F. A Semi-Automated Technique for Labeling and Counting of Apoptosing Retinal Cells, *BioMed Central*, 15, 169
48. Morgan, M.J., Raphael, S., Tibber, M.S. & Dakin, S.C. A texture-processing model of the 'visual sense of number', *Proceedings of the Royal Society*, B, 281
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Keynote and invited addresses:

Members of NZ-NEC were keynote or invited speakers at more than 30 major international conferences and institutions during 2014 including Johns Hopkins University, School of Medicine, Baltimore, USA; 7th Asia-Pacific Organization For Cell Biology Congress, Singapore; European Vision Eye Research, Nice, France; World Ophthalmology Congress, Japan; European Society of Cataract and Refractive Surgery, London; Asia Cornea Society Meeting, Taipei; Association for Research in Vision and Ophthalmology Orlando, Florida; XXI International Congress of Eye Research, San Francisco, USA; BCLA, Birmingham, UK;

Please forward your report to your Head of Department or Faculty Office for endorsement (Section 1B above). Note: Annual Reports to be submitted to Research Committee must reach the Research Office by 28 February.

Appendix**Department of Ophthalmology**

Academic Staff

Professor Charles McGhee (HOD)
Professor Colin Green
Professor Helen Danesh-Meyer
Associate Professor Trevor Sherwin
Associate Professor Dipika Patel
Associate Professor Jennifer Craig
Dr Susan Ormonde (Senior Lecturer)
Dr Andrea Vincent (Senior Lecturer)
Dr Ilva Rupenthal (Senior Lecturer)
Dr Hussain Patel (Senior Lecturer)
Dr Rasha AlTaie (Senior Lecturer)

Clinical Research Fellows

Dr Peter Wilson (Cornea)
Dr Remin Nath (Surgical Retina)
Dr Christopher Waite (Paediatrics)
Dr Priya Samalia (Medical Retina)
Dr Neena Peters (Oculoplastics)

Research Fellows

Dr Kalipy Matheos / Dr Aaron (Optic Nerve)
Dr Thiran Jayasundera (Maurice & Phyllis Paykel)
Dr Riyaz Bhikoo / Dr Jay Meyer (Fred Hollows)
Dr Ellen Wang HRC clinical fellowship
Dr Bia Kim

Post-Doctoral Research Fellows

Dr Jie Zhang
Dr Stuti Misra
Dr Verity Oliver
Dr Richard Naylor
Dr Erica Chen

PhD Candidates

Professor Helen Danesh-Meyer
Carol Green
Hannah Kirsten
Elissa McDonald
Yeri Kim
Akilesh Gokul
Naveed Yasim
Isabella Cheung
Sanjay Marasini
Rohit Bisht
Swathi Kanduri
Hans Vellara
Ellen Wang

MD Candidates

Dr Catherine Wheeldon
Dr Jennifer Fan-Gaskin
Dr Bruce Hadden
Dr Alexandra Crawford
Dr Andrea Vincent
Dr Leo Sheck
Honours students
Yosra Agban

Department of Optometry and Vision Science

Academic staff

Professor Steven Dakin (HoD)
Associate Professor Robert Jacobs
Associate Professor Benjamin Thompson
Dr Geraint Phillips (Senior Lecturer/Clinic Director)
Dr John Phillips (Senior Lecturer)
Dr Misha Vorobyev (Senior Lecturer)
Dr Monica Acosta (Lecturer)
Dr Nicola Anstice (Lecturer)
Mr Andrew Collins (Senior Tutor/tutor)
Dr Jason Turuwhenua (Lecturer)
Dr Jo Black (Lecturer)
Dr Ehsan Vaghefi (Lecturer)

Professional Teaching Fellows

Wanda lam
Bhavini Solanki
Thomas Cossick
Kate Vanweerd
Richard Johnson
Melinda Calderwood
Ken Robertson
Jonathan Payne
Lisa Silva
Kathryn Sands
Kerry Atkinson
Melinda Calderwood
Michelle O'Hanlon
Jason Dhana
Marcy Tong
Jaymie Rogers

Research Fellows and Postdoctoral Fellows

Dr Keith Pine
Dr Cindy Guo

PhD Candidates

Phil Turnbull
Alice Lagas
Martin Loertscher
Sandy Yu
Victor Borges
Ankita Umaphy
Arjit Chakraboka
Nabin Paudel
Tanya Poppe
Myra Leung
Tanya Poppe
Samuel Chiang
Tuna Gao

MSc Candidates

Jason Dhana
Zoe Smith

Technicians

Bruce Tetley – Lab Manager

<p>Jeremy Mathan (BMedSci)</p> <p>Research and Technical Staff Jane McGhee – senior research technician Judy Loh – research technician Salim Ismail – research technician Katherine van Bysterveldt – research technician Fraser Coutinho – research technician</p> <p>Administration Hutokshi Chinoy – PA to HoD and Administrative Manager of NZ-NEC Maree McInerney – Departmental secretary Susanne Raynel – Research and Development Manager and NZ-NEC Manager</p> <p>Visiting Lecturers/ Honorary Academic Clinical A/Professor Philip Polkinghorne Clinical A/Professor Hadden, Osmond Bruce Professor Grupcheva, Hristina Nikolova, Bulgaria Dr Koppens, Joanna Marie Dr Ahmad, Nadeem Dr Pendergrast, David Dr Sharp, Dianne Margaret Dr Gray, Trevor Buchanan Dr Dai, Shuan H Dr Ring, Charles Peter Dr Ku, Yu-Fen Judy Dr Barnes, Rachel Mary Dr Bennett, Sonya Louise Dr McAllum, Penelope Jane Dr Sims, Joanne Lesley Dr Riley, Andrew Francis Cameron Dr Mora, Justin Stewart Dr Welch, Sarah Helen Dr Meyer, Derrell Graham Dr Malik, Tahira Yasmin Dr Hart, Richard Hamilton Dr Dean, Simon John Dr Murdoch, David Dr Donaldson, Mark Liston Dr Best, Stephen James Dr Hadden, Peter William Dr Kane, Sam Dr Murray, Neil Dr Watts, Andrew Dr Carroll, Stuart</p>	<p>Administration Alison Richardson – Operations Manager Cherry Clark – Department Administrator Julie Bishop – Postgraduate Administrator Olive Palmiano – Department Coordinator</p> <p>Visiting Lecturers/Honorary Academic Associate Professor Jennifer Craig Prof Paul Donaldson</p> <p>Molecular Vision Laboratory Professor Paul Donaldson</p> <p>Research Fellows Dr Julie Lim (Senior Research Fellow) Dr Gus Grey Dr Irene Vorontsova</p> <p>Technical Staff Ivy Li – research technician Rebecca Perwick – research technician</p> <p>Collaborative Partners/Affiliated Members</p> <p>School of Pharmacy Professor Julia Kennedy</p> <p>New Zealand National Eye Bank Louise Moffatt Helen Twohill Nigel Brookes</p> <p>Clinical and Experimental Ophthalmology (RANZCO Journal) Victoria Cartwright – Editor in Chief</p> <p>Glaucoma New Zealand Helen Mawn Ginny Harwood Karen Farmer</p> <p>Department of Anatomy with Radiology Professor Louise Nicolson Dr Simon O’Carrol (post-doctoral research fellow)</p> <p>Bio-engineering Dr Jason Tarawhenua</p>
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