

OUR vision is
your VISION



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Summary of current research interests

Epidemiology of glaucoma and refractive errors

- Specifically, early detection and treatment of glaucoma to make a major impact on blindness worldwide
- Population screening techniques using ocular biometry and imaging in detection of angle-closure glaucoma

- Examining safety and efficacy of preventive treatment for angle-closure by laser surgery
- Population-based research to identify novel environmental and lifestyle associations with glaucoma and AMD

Key achievements

Leading international opinion on public health strategies to control glaucoma blindness worldwide:

- First high-quality reports of glaucoma prevalence and risk factors in East Asia (Mongolia 1995/97, Singapore 1998/99, China 2005)
- First to demonstrate feasibility of population screening and preventive laser surgery for angle-closure glaucoma
- First to identify large numbers of angle-closure glaucoma sufferers in China (30 million at risk, 10 million affected, 2 million blind)
- Leading international opinion on diagnosis and scientific classification of glaucoma, proposing new standard diagnostic standards for glaucoma (British Journal of Ophthalmology 2000)
- First to conduct a randomised, controlled trial to demonstrate viability of preventive laser surgery for glaucoma in rural Asia.

A Randomised Trial of Screening for Primary Angle-closure (Mongolia)
Following on from our work which has demonstrated a high prevalence of angle-closure glaucoma in Asian people, and laid the foundation for population screening by detailed analysis of the biometric characteristics of eyes at risk of angle-closure, colleagues Gordon Johnson and Winifred Nolan designed this trial to establish the feasibility of mass screening and preventive laser surgery for angle-closure glaucoma in Asia. We enrolled 4,725 people in this trial in 1999. The first follow-up of subjects at 6 years post-enrollment has just been completed by project manager Dr Jennifer Yip. The 10 year program of research in Mongolia has had a significant impact on the approach of major healthcare providers, NGO's and the WHO in policy planning related to glaucoma. A successful outcome offers the most tangible chance of achieving a major reduction in blindness around the world in the foreseeable future.

Research Projects

EPIC Eye Study (Norfolk, England)

EPIC- The European Prospective Investigation of Cancer (<http://www.srl.cam.ac.uk/epic/>), is a major pan-European study of the environmental, lifestyle and genetic associations of chronic disease in old age. Together with Prof Kay-Tee Khaw at Cambridge University, and the other EPIC project investigators, we are conducting a prospective study of eye disease in 10,000 people in the EPIC Norfolk cohort. Funding has been secured for a 5 year study including an assessment of glaucoma and diseases of the macula. The parent study has generated a wealth of high-quality data including detailed dietary information over a period of 10 years, together with biological samples including measured of glycated hemoglobin, serum ascorbate and DNA. We expect this to shed important new light on the importance of diet, lifestyle and environment and eye disease, as well as laying the foundations for ground-breaking studies of gene-environment interaction.

Asymptomatic Narrow Angle Laser Iridotomy Trial and The Angle-Closure Screening Study (Singapore)

Carried out in collaboration with Dr Tin Aung at the Singapore National Eye Centre, these two studies aim to add further weight to our data on the viability of mass-screening and preventive laser treatment for angle-closure glaucoma. Performing a study similar to our project in Mongolia became necessary when we identified differences in the risk factors for angle-closure between Mongolian and Chinese people. The screening study aims to utilize cutting-edge imaging and biometric techniques such as Doppler laser interferometry and optical coherence tomography to measure dimensions of the anterior segment of the eye (having a small anterior chamber is the major risk factor for angle-closure). Participants who have abnormal test results in the screening study, or who present to SNEC's eye clinics who are at risk of angle-closure are offered the opportunity to participate in a randomised controlled trial to determine if laser iridotomy is superior to no treatment for people with asymptomatic narrow angles and early angle-closure.

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Liwan Eye Study (Guangzhou, People's Republic of China)

Dr Mingguang He, a glaucoma specialist at China's leading eye center, Zhongshan Ophthalmic Center in Guangzhou, and also a research fellow at The Institute of Ophthalmology, has carried out a large study of prevalence, risk factors and clinical characteristics as part of our on-going research programme into glaucoma in Asia. This study verifies that principles outlined in our earlier work in Mongolia and Singapore applies equally to China. In this population-based study examining 1,500, we have collected detailed biometric data, as well as high-resolution ultrasound images of eyes before and after laser treatment. The results of this study will influence eye care in the world's most population nation, which has the largest number of glaucoma sufferers anywhere in the world.

Publications [Click here for complete publications list](#)

Prevalence and clinical characteristics of glaucoma in adult Chinese- A population-based study in Liwan District, Guangzhou. He MG, Foster PJ, Ge J, Huang W, Zheng Y, Friedman DS, Lee PS, Khaw PT. Invest Ophthalmol Vis Sci 2006; 47:2782-8.

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Collaborators:

- Prof Kay-Tee Khaw, Cambridge University, England
- Dr Clare Gilbert, International Centre for Eye Health, London School of Hygiene and Tropical Medicine
- Dr Tin Aung, Singapore National Eye Centre, Singapore
- Dr Mingguang He, Zhongshan Ophthalmic Centre, Guangzhou, China
- Dr David Friedman, Johns Hopkins University & Hospital, Baltimore, USA
- Dr Tien-Yin Wong, University of Melbourne, Victoria, Australia