



Evidence and
Implementation
Summit 2023
9-11 October

Melbourne, Australia & Online



Behavioural and Implementation
Science Interventions
Yong Loo Lin School of Medicine



Centre for
Evidence and
Implementation

www.eisummit.org

[@EISSUMMIT2023](https://twitter.com/EISSUMMIT2023)

[#EIS2023](https://twitter.com/EISSUMMIT2023)

#307 - Implementation of a Community-based Eye Screening Program Using a Suite of Novel Devices in Singapore

Implementation of an optometrist-led

Presenting Author(s)*:

Mr Rubin Yong¹

Mr Azri Razali¹

Mr Adrian Tay²

Ms Lynn Quek¹

Ms Rayven Chua¹

Dr Tham Yih Chung¹

A/Prof Victor Koh^{1,2}

Affiliation

1. National University of Singapore, Singapore
2. National University Hospital, Singapore

Country of residence Singapore

Objectives/aims

Chronic eye diseases – cataract, glaucoma, age-related macular degeneration and diabetic retinopathy are major causes of visual impairment in the elderly. These conditions, such as glaucoma, are often undiagnosed, and early detection is crucial for disease management.

In Singapore, at-risk individuals are detected through opportunistic screening in the tertiary hospitals. However, in current clinical practice, routine chronic eye disease screening is not recommended due to the expensive equipment and highly skilled specialists required. Furthermore, there is a lack of information supporting practical adoption and implementation of chronic eye disease screening services.

The lack of cost-effective and scalable access to chronic eye disease screening is an urgent need that should be addressed to cater for the ageing population in Singapore. In our study, we propose the implementation of a community-based eye screening model that is run by optometrists, using a suite of novel devices developed at the National University Hospital (Singapore).



Evidence and
Implementation
Summit 2023
9-11 October

Melbourne, Australia & Online



www.eisummit.org

[@EISSUMMIT2023](https://twitter.com/EISSUMMIT2023)

[#EIS2023](https://twitter.com/EISSUMMIT2023)

The objective of this study is to evaluate the clinical and cost effectiveness of a technology-enabled, optometrist-led model of care for glaucoma screening in a primary care setting.

Methods

This study uses effectiveness-and-preliminary-implementation (hybrid type 1) design, which primary aim is to validate the clinical accuracy and cost-effectiveness of a suite of novel community-friendly eye screening medical devices, in comparison with corresponding gold standards. The secondary aim is to assess the acceptance of our proposed model by the elderly, and determine the feasibility of its adoption in real-world settings.

This is a prospective study in which elderly participants (age >60 years) who are not under any regular follow-up from an eye doctor were invited to participate. In total, 270 elderly patients were screened using both commercially-available devices as gold standard devices, and the proposed novel devices for clinical validation, between January 2022 and May 2023. The glaucoma screening tests involve visual acuity, visual field, intra-ocular pressure measurement and colour fundus imaging. Upon completion of the tests, the patients are allowed to leave the screening location without any doctor consultation session; there would be an asynchronous off-site review of the test results by an eye specialist. If there is any abnormality in the investigations, the patients will be referred to the outpatient specialist clinic. Cost-analysis was performed to assess the screening effectiveness and cost-effectiveness of the different models of care. Post-trial surveys and interviews with stakeholders were conducted to examine its acceptance and scalability.

Main findings

Of the 270 participants enrolled in the study, 61% of them were screened positive to have an eye disorder, and were sent for follow-up specialist review. Amongst which, 10% required urgent referral within 1 month, 47% were advised to see a doctor within 1-6 months, and 4% were advised to follow-up after 6 months. Importantly, all of them were asymptomatic and were not on regular follow-up with an eye specialist. The suite of novel devices have a good clinical concordance rate of 86% with the gold standard devices. 94% of the participants surveyed were supportive of an optometrist-led eye clinic for eye screening. Potential challenges to implementation of this model of screening include lack of any symptoms (92%), lack of confidence without an actual clinical consultation with an eye specialist (58%) and cost (6%).

www.eisummit.org



Evidence and
Implementation
Summit 2023
9-11 October

Melbourne, Australia & Online



Behavioural and Implementation
Science Interventions
Yong Loo Lin School of Medicine



Centre for
Evidence and
Implementation

www.eisummit.org

[@EISSUMMIT2023](https://twitter.com/EISSUMMIT2023)

[#EIS2023](https://twitter.com/EISSUMMIT2023)

Findings from this project support the potential of a cost-effective model of eye screening, and help establish a framework for implementing optometrist-led eye screening services in the community setting in Singapore.

www.eisummit.org