

Patient views highlight potential for Peek smartphone suite to transform eye health

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The Portable Eye Examination Kit (Peek) has real-world potential to transform global eye health, according to new research from the London School of Hygiene & Tropical Medicine and Amref Health Africa in Kenya. Patients, healthcare providers and stakeholders in ophthalmic service provision have given a positive evaluation of Peek in a parallel study to the Nakuru Eye Disease Cohort Study, funded by The British Council for the Prevention of Blindness, Fight for Sight, the Medical Research Council, and the International Glaucoma Association.

An estimated 285 million people worldwide are visually impaired, of whom 39 million are blind. Up to 80% of blindness and visual impairment is avoidable but a lack of trained specialists and the high cost of buying and transporting the right equipment is a major challenge. This is especially true in rural areas and in the low-income nations of Africa and Asia that share the largest proportion of the burden.

Peek is a smartphone-based system developed to be an affordable userfriendly alternative for performing comprehensive eye exams anywhere in the world. It consists of a suite of apps, a unique hardware adaptor for the phone's camera, integrated systems to share the data with specialists and a programme of training.

Dr Andrew Bastawrous is an ophthalmologist and clinical lecturer in international eye health at the London School of Hygiene & Tropical Medicine and Co-Founder of the Peek Vision Foundation, a UK based charity. He initiated and is leading the Peek project as it is developed



and tested. In the current qualitative study Dr Bastawrous, Ms. Karanja (Amref Health Africa in Kenya) and their teams worked together alongside the cohort study, to find out about its acceptability and usability. These are factors that could affect whether the system can successfully be adopted, nationally and internationally.

Patients, healthcare providers and decision-makers in ophthalmic healthcare provision in Kenya were interviewed to help the team understand 1) the context in which Peek would be used; 2) how patients feel about this approach to eye health; 3) the usability of Peek itself; and 4) whether it benefits eye care provision.

Results published in JMIR mHealth uHealth, a leading health informatics peer-reviewed journal, show a clear positive response towards Peek from all participant groups. The study also highlights some key considerations that need to be addressed if Peek is to become a sustainable solution to the shortfall in ophthalmic health care.

"There are no mobile eye doctors like you doing the rounds creating awareness on eye issues," said one patient who participated in the study. "Someone like I will wait until I am sick to seek treatment because there is no one giving people information to help prevent these problems."

"It's portable and one can be able to access rural areas where infrastructure is poor," said a participating healthcare provider. "You will be able to get to people who could not think of getting help."

"I can gather data from the field and it gives me some clear information on decisions that I am about to make," said a stakeholder. "It is able to separate those who need to see a doctor urgently and those who do not."

Key challenges identified in the study included the need for government support to deploy Peek, building capacity to train healthcare providers



and mobilising community health volunteers. Ensuring data protection and access to low-cost smartphone technology also emerged as important themes.

"There are multiple human factors that need to be understood because ultimately, the technology has no value when not appropriately used in the right hands, with the right support and right information being generated", said Dr Bastawrous. "So it is encouraging to find that Peek is perceived to be valuable as a tool that would increase access to highquality eye services in rural, hard-to-reach areas. The technology has already demonstrated its accuracy, repeatability and consistency and we now know that Peek is an acceptable solution that supports patients' needs and can help strengthen the eye health system."

"Mobile technology has great potential to transform eye-healthcare delivery and it's important that we have this evaluation of people's views about Peek," said Dr Dolores M Conroy, Director of Research at Fight for Sight. "The technology may be possible, but people have to be able to use it and to want to. Here we can see that they can and do. With the right commitment and backing there will be a real opportunity to overcome the current barriers to universal <u>eye health</u>."

The research also received funding from the Department for International Development and The Queen Elizabeth Diamond Jubilee Trust.

More information: Lodhia V, Karanja S, Lees S, Bastawrous A. Acceptability, Usability, and Views on Deployment of Peek, a Mobile Phone mHealth Intervention for Eye Care in Kenya: Qualitative Study. JMIR mHealth and uHealth. 2016 May; 4(2):e30. <u>mhealth.jmir.org/2016/2/e30/</u>



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