Transforming research results into useful tools for global health: BOOST


Published in:
The Lancet Global Health

Document Version:
Publisher's PDF, also known as Version of record

Queen's University Belfast - Research Portal:
Link to publication record in Queen's University Belfast Research Portal

Publisher rights
Copyright © 2016 Congdon et al. Open Access article distributed under the terms of CC BY.
This is an open access article published under a Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution and reproduction in any medium, provided the author and source are cited.

General rights
Copyright for the publications made accessible via the Queen's University Belfast Research Portal is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy
The Research Portal is Queen's institutional repository that provides access to Queen's research output. Every effort has been made to ensure that content in the Research Portal does not infringe any person's rights, or applicable UK laws. If you discover content in the Research Portal that you believe breaches copyright or violates any law, please contact openaccess@qub.ac.uk.

Download date: 11. Oct. 2017
Transforming research results into useful tools for global health: BOOST

We reported the results of the PRECOG study1 in the inaugural issue of The Lancet Global Health (July, 2013). Although visual outcomes of cataract surgery have usually been assessed weeks or months after surgery, this study of 4000 patients at 40 hospitals in low-income and middle-income countries (LMICs), where few patients return after operations, demonstrated that assessment of vision the day after surgery could reliably measure operative quality. We felt the readers of The Lancet Global Health might be interested in hearing about the next chapter of this work.

A group of the non-governmental organisations (NGOs) who supported PRECOG are now working with Aravind Eye Hospital (Madurai, India), one of the largest eye care facilities in the world, to create an app leading users in LMICs through data collection protocols validated in PRECOG. An informal market survey of 90 hospitals in LMICs showed strong demand for user-friendly software allowing users to measure and benchmark their surgical results against other practitioners in a cloud-based database, while also providing simple advice on improving outcomes.

On the basis of this feedback, our app, called BOOST (Better Operative Outcomes Software Technology), steps the user through two rounds of data collection. First, uncorrected (without glasses) visual acuity the day after surgery is measured for 60 consecutive patients. This round allows outcome quality (proportion of patients with good [≥6/18] and bad [≤6/60] visual acuity) to be benchmarked, initially against the PRECOG database, and subsequently against other BOOST users. Second, users choose from among three reasons for poor vision outcomes (refractive problems, surgical misadventure, presence of ocular comorbidity) for each of 20 consecutive patients returning 6 weeks or more after surgery with presenting vision of 6/60 or less. The app then suggests changes in practice to remediate the most common cause of poor vision identified for a user.

At this point, programmers at Aravind have completed a Microsoft Windows version of the software, which will be field-tested at facilities participating in the initial market survey. Hospitals performing cataract surgery in LMICs and interested to test and provide feedback on V1.0 of BOOST are welcome to contact the authors. Funding is being sought to modify V1.0 on the basis of user feedback, and migrate it to the Android platform. The app will be made freely available on websites of supporting NGOs, eye hospitals, and national ophthalmic organisations. We hope in this way to transform our research result into a practical tool to improve cataract surgical quality in areas of limited resources.

We declare no competing interests. NC is supported by a Thousand Man Plan programme grant from the Chinese Government, and by the Ulverscroft Foundation. No payment was received by any funder or outside source for the writing of this letter.

Copyright © Congdon et al. Open Access article distributed under the terms of CC BY.

*Nathan Congdon, Ganesh-Babu Suburaman, Thulasiraj Ravilla, Beatrice Varga, Serge Resnikoff, Joan McLeod, Hugh Taylor, Hans Limburg, Van Lansingh, Elena Schmidt, Richard LeMesurier
ncongdon1@gmail.com
Centre for Public Health, Queen’s University Belfast, Belfast BT12 6BA, UK (NC); Preventive Ophthalmology and State Key Laboratory, Zhongshan Ophthalmic Center, Sun Yat-sen University, Guangzhou 510060, China (NC); Orbis International, New York, NY, USA (NC, JM); Aravind Eye Care System, Madurai, India (G-BS, TR); Fred Hollows Foundation, Sydney, NSW, Australia (BV); Brien Holden Vision Institute, Sydney, NSW, Australia (SR, RLM); Centre for Eye Research Australia, Melbourne, VIC, Australia (HT); International Centre for Eye Health, London School of Hygiene & Tropical Medicine, London, UK (HL); International Agency for the Prevention of Blindness/VISION 2020 Latin America Regional Office, Miami, FL, USA (VL); and Sight Savers International, London, UK (ES)