Cataract BOOST – Briefing Note and Frequently Asked Questions

Background – What is Cataract BOOST?

- Cataract BOOST (Better Operative Outcomes Software Tool) is a simple, free and easy-to-use app to help surgeons monitor and improve cataract surgical outcomes.

- Un-operated cataract remains the world's leading cause of blindness: 35% of people who are blind worldwide suffer as a result of cataracts.

- Visual acuity after cataract surgery has traditionally been measured weeks after the operation. In many low and middle-income countries, postoperative follow-up rates are very low (20-30% in some cases), because of poor transportation and other costs. Surgeons need a simple tool to help measure and improve quality, even when patients do not return.

- BOOST is based on the PRECOG study at 40 hospitals in 12 low and middle-income countries, showing that measuring vision immediately after surgery is a valid indicator of quality.

- BOOST enables hospital administrators and surgeons to record results the day after surgery, then analyse and benchmark their results against other users around the world. It also suggests strategies to improve surgical quality where results are poor. All data is 100% anonymous.

- Assessment tools are vital for training to build surgical capacity, and existing software is cumbersome and inaccessible.

How does BOOST work?

- The BOOST app takes users through a step-by-step process to measure and analyse results through two phases:
- **Phase I:** Assesses existing cataract surgical quality based on post-operative uncorrected VA measured 1-3 days after surgery.
  - Data is recorded and automatically analysed against a baseline (from the PRECOG study)
  - All patient data is de-identified and includes:
    - Age and Gender
    - Pre-op Corrected VA and post-op Uncorrected VA in operated eye
    - Surgical technique
  - After entering 60 records, users can choose to share and compare their data anonymously against other users, either locally or globally

- **Phase II:** Analyses results from 20 consecutive cases where poor vision (<6/60) is measured at > 6 weeks after surgery.
  - Causes of Poor Visual Outcome are recorded (Inappropriate case selection/co-morbidities; Surgical Complication; Refractive problems)
  - BOOST then suggests specific measures to correct issues and helps users determine most common causes for poor outcomes, helping to identify training needs and improve quality

- All data is stored locally in the app and automatically backed up via the BOOST server.

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How can I access BOOST?

For Android Smartphones
- The BOOST smartphone app is available for free download by searching 'BOOST Cataract' at the Google play store

For Desktop Computers
- The BOOST desktop app is available for free download at **https://boostcataract.org**

For Apple phones or Mac Computers
- Currently the BOOST app is not supported for ios including iPhones and Mac computers

How can I get involved with the BOOST project?

- **Download and start using the free app today!** The app is available in seven languages, including English, Spanish, French, Chinese, Russian, Bahasa Indonesian and Vietnamese on both desktop computers and Android Smartphones.
- **Participate in the BOOST acceptability study.** The BOOST project team will soon commence a research project to understand why and how surgeons use the tool, whether using BOOST improves surgical practice, and how BOOST can be strengthened to increase its uptake. The study will run from June 2018 to December 2019 and aims to recruit 75 hospitals or surgical centres as participants. Contact BOOST@hollows.org for more information.
- Visit https://cataractboost.org for more information.

Who supports BOOST?

- **BOOST has been supported by a consortium of leading eye health organisations:**
  - International Agency for the Prevention of Blindness
  - International Council of Ophthalmology
  - The Fred Hollows Foundation
  - Orbis International
  - Sightsavers International
  - Aravind Eye Care Systems
  - Standard Chartered Bank's Seeing is Believing Fund

What are the Benefits of BOOST?

- **Easy to access:** The Cataract BOOST app is a small file, available for download at a wide variety of websites.
- **Easy to use:**
  - The Cataract BOOST app is designed for use across a variety of convenient platforms, including Android cell phones, laptops and desktops.
  - BOOST guides users through simple steps to collect and analyse data to assess and improve their surgical quality.
- **Built on experience:** By designers of the most widely-used existing surgical monitoring systems at ICEH and Aravind.
- **Informative and evidence based:** The Cataract BOOST app allows users (surgeons and hospital administrators) to benchmark performance against data in the cloud, either locally or globally.

Initially, benchmarking will be carried out against baseline data on 4000 patients from the PRECOG dataset, and subsequently against other users. Benchmarking compares the proportion of patients with good (>= 6/18) and poor (< 20/200) vision outcomes at a facility against others, providing percentile values and simple visual displays.

- **Private:** No patient identifiers are collected (other than age and gender), and outcomes are only uploaded (anonymously) to the cloud if users select this option.
- **Responsive to user requirements:** The design of the Cataract BOOST app is based on the results of an extensive needs analysis carried out at nearly 100 hospitals in Africa, Asia, Latin America and the Pacific in 2015.

How does BOOST improve quality?

- **Assess quality:** By stepping the users through the process of collecting uncorrected visual acuity immediately after surgery on 60 consecutive patients, BOOST will allow them to rapidly assess surgical quality. The app calculates for what percentage of surgeries the post-surgical visual acuity is better than the minimum standard (this is a mechanical calculation).
- **Improve quality**: After guiding the user to select one of 3 reasons (Inappropriate case selection/co-morbidities; Surgical Complication; Refractive problems) among 20 consecutive patients with poor vision results at 6 weeks after surgery, BOOST will automatically suggest changes to improve quality, based on the most common cause (Example: Suggests comprehensive pre-operative examination if "other eye problem" is most common cause of poor results.) These suggestions are based on extensive experience of the developers.
- **Change the monitoring paradigm:** Currently, few facilities routinely monitor surgical quality. By widely promoting the Cataract BOOST app for free through NGOs, IAPB, national ophthalmic societies and the WHO, assessment of after cataract surgery will become standard, creating a global cloud-based database. This can be used locally and nationally to facilitate allocation of training resources, validate quality of current training approaches and identify institutions as potential training centres.

What evidence is there to support BOOST?

- Validity of early vision assessment: The PRECOG study (Congdon et al, Lancet Global Health, 2013) showed that measuring acuity < 3 days after surgery was highly predictive of vision outcomes after 6 weeks
- Monitoring improves surgical quality: Previous studies (Limburg H et al, BJO, 2005) have shown when hospitals assess their surgical outcomes, results improve.

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