



## IMPROVING OUTCOMES TO HELP VISION LOSS

Thank you for your generous support of Brandan's Eye Research Fund and your commitment to new research for children with eye diseases. Your donations have supported the following key projects we are pleased to share.

### PROJECT #1: COMPARISON OF THE BARRETT UNIVERSAL II FORMULA TO OLDER GENERATION FORMULAS FOR PAEDIATRIC CATARACT SURGERY

In recent years, the predictability of optimum refractive outcomes after cataract surgery in adults has advanced significantly using new generation formulas such as Barrett Universal II (BUII). The BUII formula has not been validated in children.

In our study, we evaluated the effectiveness of the BUII formula in predicting postoperative refraction following paediatric cataract surgery in a homogeneous cohort. Our process evaluated 190 patients among 368 patients who had lens-related surgeries between 2012 and 2018 at SickKids. We showed that BUII formula had comparable accuracy compared to other tested formulas.

### PROJECT #2: COST-EFFECTIVE ANALYSIS OF SIMULTANEOUS BILATERAL CATARACT SURGERY IN CHILDREN

Research at SickKids using support from Brandan's Eye Research Fund has previously shown that immediate sequential bilateral cataract surgery (ISBCS) in children offer certain benefits, such as avoiding multiple anaesthesia and faster visual rehabilitation, compared with delayed sequential bilateral cataract surgery (DSBCS).

We further analysed the cost-effectiveness of ISBCS. We reviewed 37 children who had ISBCS as well as 16 children who underwent the DSBCS within eight weeks postoperatively. It turns out, ISBCS resulted in cost-savings of \$3,776 from a broader societal perspective and \$2,200 per patient when looking at the health system within Ontario, which frees up funding, resources, and operating time for other essential surgery. This demonstrates considerable cost savings potential.

### PROJECT #3: ACCURACY INVESTIGATION OF KANE FORMULA FOR INTRAOCULAR LENS POWER CALCULATION

The intraocular lens (IOL) power calculation is important before cataract surgery to find the best possible refraction outcome.

In this study, we investigated the accuracy of Kane formula for IOL power calculation. We reviewed 62 charts of children who underwent cataract surgeries between 2012 and 2018. For the first time in children, the accuracy of Kane formula was evaluated in comparison with other formulas. (All current formulas are primarily designed for adults and refinements are needed to improve accuracy in children.) The Kane formula's accuracy was comparable to other tested formulas, with a tendency to outperform the commonly used SRK/T formula.

Brandan's Eye Research Fund is essential in supporting research of children with eye and vision conditions. Thank you for your ongoing support.