mEYEstro:
Charting Refractive Surgery

Working away in the McGill Refractive Surgery Research Unit, Canadian doctors Avi Wallerstein MD FRCSC and Mathieu Gauvin PhD encountered drawback after drawback resulting in inefficacy and lower scientific productivity while performing analyses.

According to Dr Wallerstein, available analytical software would not allow easy comparisons between two groups, would not do statistical analyses automatically, and were not user friendly or prone to error.

The duo's solution was to develop the best tool with the intention of providing it to the entire scientific community — *mEYEstro.*

The software *mEYEstro* addresses need for a user-friendly solution to perform statistical analysis and produce standarised refractive surgery graphs at record speed.

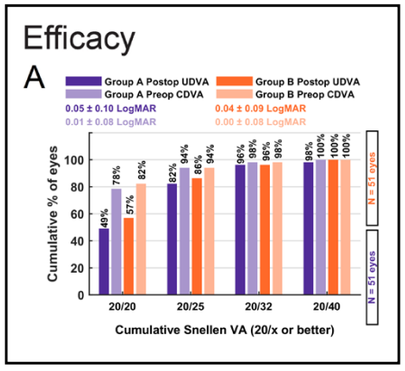
It is currently understood to be the only free software of its kind, with functionality that includes automated comparative groups analyses and statistical analyses — a deliberate move Dr Wallerstein notes is to make the power of data analytics accessible to all practitioners, regardless of their budget or institution size.

What value does this software offer ophthalmologists?

mEYEstro offers immense value to ophthalmologists, enabling them to accurately comprehend and present clinical outcomes in accordance with current peer-reviewed journal standards for corneal and intraocular refractive surgery.

It is designed to help clinicians, surgeons and researchers better understand and improve their surgical outcomes, making it a valuable asset to both academic research and clinical practice.

The user-friendly nature of *mEYEstro*, along with its automation of standardised graphs, can revolutionise the way we approach refractive surgery outcomes.



Inset image: mEYEstro trial example

How can efficiently analysing refractive surgery outcomes through this software help surgeons improve patient outcomes or best clinical practice?

By providing graphs and clinical indices, this software assists in understanding clinical outcomes and comparing the efficacy, safety, accuracy, and stability of different procedures or technologies.

By identifying patterns and trends in these outcomes, surgeons can tailor their approaches, making evidence-based decisions to optimise patient outcomes.

The software also produces scattergram for attempted versus achieved SEQ correction, and another for attempted versus achieved astigmatism correction.

Both graphs employ linear regressions. These features allow surgeons to create nomograms and adjust their surgical parameters based on the patterns observed.

Do you foresee this software becoming an essential asset in refractive surgery outcome reporting?

Its standardised reporting aligns with the latest standards prescribed by major ophthalmology journals — such as JRS, JCRS, and Cornea — enhancing the reproducibility and comparability of surgical outcomes.

The software also generates each graph separately for PowerPoint presentations, making it perfect for sharing with colleagues at ophthalmology meetings such as AAO, ARVO, ASCRS, ESCRS, etc.

Read more about mEYEstro in BMC Ophthalmology

Download the free software

Watch a tutorial

Dr Avi Wallerstein MD FRCSC

Mathieu Gauvin PhD

Learn more about Drs Wallerstein and Mathieu Gauvin

We are expecting to see more and more studies and graphs generated by *mEYEstro* in various meetings and journals.

We also anticipate doing regular software updates to avoid obsolescence and provide new features. In the spirit of open collaboration, we invite users to provide feedback and suggest improvements for future updates.

What happens to the data that is input into the system and is it stored securely?

mEYEstro is a standalone software application, meaning it operates locally on a user's computer.

Therefore, any data input into the system is not stored on any servers or cloud services; it resides only on the local machine where the software is installed.

Consequently, we, as developers, do not have any visibility into the data input by users.

All data provided by users remain anonymised and are processed locally.

We strongly advise users to manage their data cautiously and responsibly, keeping patient confidentiality and data security in mind.