# An Audit Evaluating Refractive Outcomes in Patients Undergoing Cataract Surgery at Russells Hall Hospital

Alisha Hussain[1], Fathimah Saqib[1], Dilraj Sahota[2]

1. College of Medical and Dental Sciences, University of Birmingham; 2. Ophthalmology, Russells Hall Hospital

## Introduction

- Achieving targeted refractive outcomes is a marker for high quality cataract surgery and depends on both accurate biometrical measurements and surgical technique.
- Reducing postoperative refractive error can prevent further corrective surgeries and improve a patient's quality of life.

## Aims

Audit rationale: Ensure our performance aligns with established standards, ensuring high-quality cataract surgery services and patient satisfaction.

Standard: Royal College of Ophthalmologists (RCOphth) 2004 biometry guideline: 85% of patients should achieve a spherical-equivalent postoperative refraction within 1D of the predicted value and 55% within 0.5D. [1]

Aim: Evaluate whether Russells Hall meet these standards.

## Methods

- Retrospective data from October 2021 – October 2024 using Medisoft EMR: SN60WF IOL selection based on SRK-T formula.
- Excluded complicated or combined surgeries and surgeries without recorded preoperative or postoperative values.
- Demographics (n=965): Age (71-90, 75%), Diabetic (26%), Sex (Male 39%) Ethnicity (74% White British, 18% Unknown).

Data Analysis

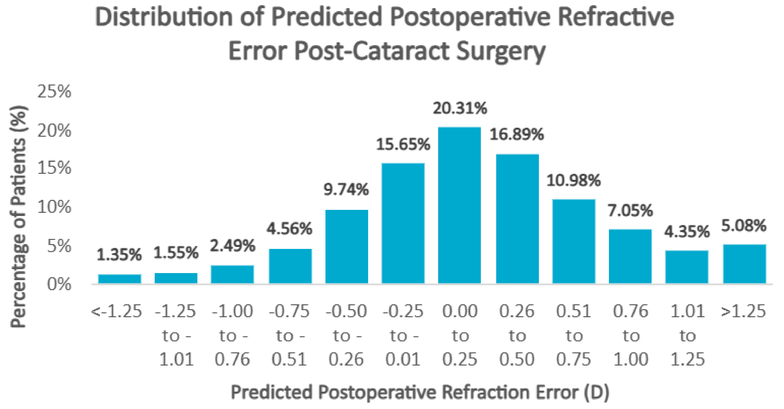
- Biometry: Collection of preoperative aim for spherical equivalent and postoperative spherical equivalent refraction.
- Outcome Measurement: Mean refractive deviation from the predicted postoperative refraction.

## References

[1] The Royal College of Ophthalmologists [Internet]. London: RCOPHTH; 2010 [cited 2024 November 01]. 45 p. Available from: https://www.amedeolucente.it/pdf/cataract_surgery_guidelines.pdf

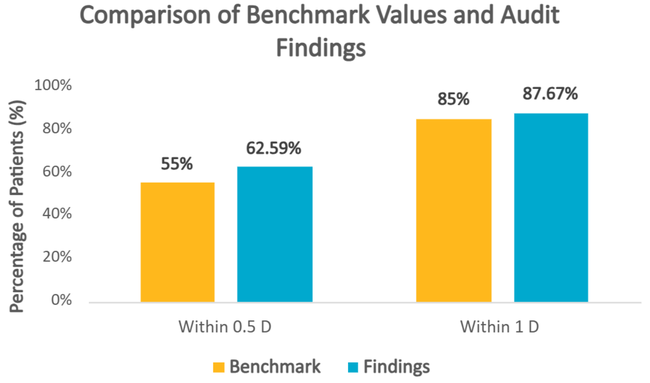
## Results

- Figure 1 illustrates how accurately the postoperative refraction of 965 patients aligns with the initial predicted outcome.




## Discussion

- Figure 2 shows performance is above the outlined standard, reflecting well on biometry measurements and surgical practice.




## Recommendations

- Use the optimal biometric formula and A-constant to improve accuracy in predicting refractive outcomes, reducing the risk of refractive surprise.
- Use the gold standard Barrett Universal II Formula to guide IOL selections, as this is only available on IOLMaster system and not on Medisoft due to licensing restrictions.
- Consider mean deviation when selecting the IOL power.
- Re-audit in six months.

## Conclusions

Our audit confirmed the refractive outcomes met the published standard in the audited time frame.

The **mean postoperative deviation = +0.22D**

63% eyes within 0.5D of refractive aim and 88% eyes within 1.0D.

## Limitations

- Findings may not be representative as only 38% of patients in our dataset had a recorded postoperative refraction.
- Data is mostly from autorefraction done at the postoperative clinic, not subjective refraction which is the gold standard for refining lens power.
- Biometry relies on older formulas, possibly reducing accuracy.