

Audit of sterilisation protocol for contact lenses used for laser treatment

Rupinder Kainth¹, Hyunjung Leslie Lee¹, Miles Kiernan²

¹ UCL Medical School, London

² North Middlesex University Hospital, London

INTRODUCTION

Contact lenses used during retinal laser photocoagulation come into direct contact with ocular mucous membranes. Under the Spaulding classification these semi-critical devices require high-level disinfection. National guidance from the Royal College of Ophthalmologists, and the College of Optometrists, outline specific steps for cleaning, disinfecting and rinsing these devices; however, adherence in real-world outpatient practice is variable and prolonged immersion times can be impractical within high-throughput laser clinics. Failure to follow recommended protocols may compromise patient safety and damage lenses.

Aims:

- Assess compliance with sterilisation guidelines for semi-critical contact lenses in outpatient settings
- Identify deviations from national and manufacture guidance
- Evaluate whether an alternative, rapid high-level disinfection method improves consistency, efficiency and infection control

METHODS

A prospective observational audit was conducted in outpatient retinal laser clinics within a single district general hospital. Twelve procedures were observed in separate clinics, and all steps of the lens decontamination process were recorded.

Data collected:

- Use of detergent cleaning
- Type of disinfectant
- Duration of lens submersion
- Rinsing method
- Drying process

Observations were compared with guidance from the Royal College of Ophthalmologists, the College of Optometrists and the cleaning instructions provided by lens manufacturers (Volk and Ocular Instruments).

RESULTS

The department used Milton (troclosene sodium 19.5%) solution (*Fig 1*) requiring 15 minutes of submersion for high-level disinfection.

- Detergent cleaning (soap and water) prior to disinfection, was performed in only half of cases.
- Mean submersion time in Milton was 12 minutes, falling short of the 15-minute requirement set by Milton.
- Submersion times varied, with a range of 40 minutes.
- In two cases, lenses were placed in sterile water alone, meaning high-level disinfection was not achieved.
- Rinsing practices also varied, with tap water used instead of sterile water on two occasions, contrary to manufacturer guidance and with potential risk of contamination and lens damage from mineral deposits.



Figure 1 – Kidney dish containing sterile water (left) and Milton solution (right) with lens submerged

CONCLUSION

This audit demonstrated significant inconsistency between observed outpatient lens-cleaning practices and national or manufacturer-recommended sterilisation standards within a single district general hospital ophthalmology department. Suboptimal or incomplete decontamination risks infection transmission, accelerates lens wear and damages optical surfaces.

A chlorine-dioxide-based rapid disinfection system, such as the Tristel Trio Wipes method, offers a potential alternative. This system achieves high-level disinfection within thirty seconds, requires no prolonged submersion time and are already widely used in other semi-critical devices (i.e flexible nasoendoscopes).

FUTURE WORK

This system has now been introduced within the department, offering a more practical and standardised method of lens decontamination that supports improved compliance and safer care in the outpatient laser clinic setting

A re-audit will be conducted following implementation of the new system to assess improvements in compliance and consistency. Further evaluation will include time efficiency, staff usability and potential impact on infection control outcomes. Broader adoption across similar outpatient settings may also be explored.