

Disinfection of Multi-Use Ocular Equipment That Contacts the Surface of the Eye: A Review

Key Messages

- One economic analysis was identified that compared the cost-effectiveness of alcohol swabs with peroxide bleach for the disinfection of tonometers (instruments that measure the pressure inside the eye). However, a limitation is that it was based on in vitro clinical evidence.
- More research is needed to further evaluate the comparative clinical effectiveness, cost-effectiveness, and safety of various disinfection techniques for multi-use ocular equipment.

Context

In ophthalmology, certain equipment and instruments are used and reused across different patients within a medical practice. This results in indirect contact between multiple patients and could pose a risk of cross-infection. One example of such an instrument would be the tonometer – a device used to measure the pressure inside the eye to determine the risk of glaucoma. The tonometer tip is in direct contact with the patient's eye, and in vitro studies have suggested the potential for disease transmission. Therefore, equipment cleanliness is critical.

Guidance documents exist such as the Canadian Association of Optometrists' *Infection Control Guidelines*. However, in general, there is little consistency on what the best approach would be to reduce disease transmission between patients. Furthermore, the evidence to date has largely been in vitro and it is important to consider more clinically relevant and patient-important outcomes such as actual rates of disease transmission.

Technology

The evidence was evaluated regarding the disinfection of multi-use ocular equipment that contacts the surface of the eye for diagnostic and/or therapeutic purposes.

Note that the CADTH Rapid Response Report on the topic also evaluated the evidence for the disinfection of incisional surgical instruments; however, this information was beyond the scope of this In Brief summary report.

Issue

A review of the comparative clinical effectiveness, cost-effectiveness, and evidence-based guidelines regarding disinfection techniques for ocular equipment that contacts the surface of the eye will help to inform decisions regarding the most appropriate disinfection techniques in these settings.

Methods

A limited literature search was conducted of key resources, and titles and abstracts of retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Results

In the Rapid Response Report, the literature search identified 372 citations, with 14 additional articles identified from other sources. After screening the abstracts, 32 were deemed potentially relevant and went through full-text review. Two – one economic evaluation and one evidence-based guideline – met the inclusion criteria.

Of note, this In Brief summary document focuses on a smaller scope – specifically, disinfection techniques for ocular equipment that contacts the surface of the eye for diagnostic and/or therapeutic purposes but not for the purpose of incisional surgery. Given this smaller scope, only the economic evaluation met the inclusion criteria for the In Brief.

Overall, the evidence on the disinfection of multi-use ocular equipment that contacts the surface of the eye for diagnostic and/or therapeutic purposes (not including instruments used

for incisional surgery) is limited. The evidence that does exist primarily evaluates in vitro outcomes rather than considering clinically relevant and patient-important outcomes such as actual rates of disease transmission.

One Canadian economic analysis was identified that found alcohol swabs to be more cost-effective than peroxide bleach for the disinfection of tonometers. However, no details on the cleaning procedures were provided, and it was based on in vitro clinical evidence. Overall, more research is needed to further evaluate the comparative clinical effectiveness, cost-effectiveness, and safety of various disinfection techniques for multi-use ocular equipment.

Read more about CADTH and its review of the disinfection of multi-use ocular equipment for ophthalmological procedures at:

cadth.info/disinfect-multi-use-ocular-equip



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