



CADTH Reference List

Reprocessed Single-Use Medical Devices

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Key Message

Three nonrandomized studies were identified about the safety of reprocessed single-use critical medical devices compared with new single-use critical medical devices.

Research Question

What is the clinical evidence regarding the safety of reprocessed single-use critical medical devices compared with new single-use critical medical devices?

Methods

Literature Search Methods

An information specialist conducted a literature search on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the International HTA Database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search approach was customized to retrieve a limited set of results, balancing comprehensiveness with relevancy. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. Search concepts were developed based on the elements of the research questions and selection criteria. The main search concepts were reprocessing and single use medical devices. [CADTH-developed search filters](#) were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, indirect treatment comparisons, randomized controlled trials, controlled clinical trials, or any other type of clinical trial. The search was completed on June 22, 2023, and limited to English-language documents published since January 1, 2018. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in [Table 1](#). Full texts of study publications were not reviewed. The Overall Summary of Findings was based on information available in the abstracts of selected publications.

Table 1: Selection Criteria

Criteria	Description
Population	Patients of any age in contact with any critical medical device
Intervention	Reprocessed single-use critical medical device
Comparator	New single-use critical medical device
Outcomes	Patient safety (e.g., adverse events, infections, mortality, hospitalizations)
Study designs	Health technology assessments, systematic reviews, randomized controlled trials, nonrandomized studies

Results

Three nonrandomized studies were identified regarding the safety of reprocessed single-use critical medical devices compared with new single-use critical medical devices.¹⁻³ No health technology assessments, systematic reviews, or randomized controlled trials were identified.

Additional references of potential interest that did not meet the inclusion criteria are provided in [Appendix 1](#).

Overall Summary of Findings

All studies included in this report compared the safety of reprocessed single-use medical devices to new single-use medical devices used in surgery.¹⁻³ A prospective cohort study observed a significantly higher incidence of port-site infections with reprocessed disposable ports compared to new disposable ports in laparoscopic cholecystectomy.¹ Another study concluded that reprocessed single-use endolaser probes did not result in increased risk of endophthalmitis compared to new single-use probes.² Similarly, a study done in Brazil found that professionally reprocessed single-use suture machines and scissors achieved similar clinical results to new single-use devices.³

References

Health Technology Assessments

No literature identified.

Systematic Reviews

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

1. Jokar M, Larti N, Zarei M, et al. Comparative study of the incidence of port site infection in disposable ports and reprocessed disposable ports in laparoscopic cholecystectomy. *Surg Laparosc Endosc Percutan Tech*. 2022 Dec 01;32(6):650-654. [PubMed](#)
2. Zacharias LC, da Silva Conci L, Megnis BP, et al. Safety and cost-effectiveness of single-use endolaser probe reprocessing in vitreoretinal surgery. *Int J Retina Vitreous*. 2021 Mar 17;7(1):22. [PubMed](#)
3. de Sousa Marins B, Queiroz e Melo J, Logarinho Monteiro JL, Rente G, Teixeira Bastos P. Reprocessing of single-use medical devices: Clinical and financial results. *Port J Public Health*. 2019;36(3):150-156. <https://karger.com/pjp/article/36/3/150/289169/Reprocessing-of-Single-Use-Medical-Devices>. Accessed 2023 Jun 26.

Appendix 1: References of Potential Interest

Non-Randomized Studies

Not Specific to Reprocessed Single-Use Devices

Shah PN, Mishra DK, Shanmugam MP, et al. Incidence of post vitrectomy endophthalmitis in India - a multicentric study by VRSI study Group. *Eye*. 2023 Feb 08;08:08. [PubMed](#)

Alternative Comparator – Various Gauges

Silpa-Archa S, Kumsiang K, Preble JM. Endophthalmitis after pars plana vitrectomy with reused single-use devices: a 13-year retrospective study. *Int J Retina Vitreous*. 2021 Jan 06;7(1):2. [PubMed](#)