

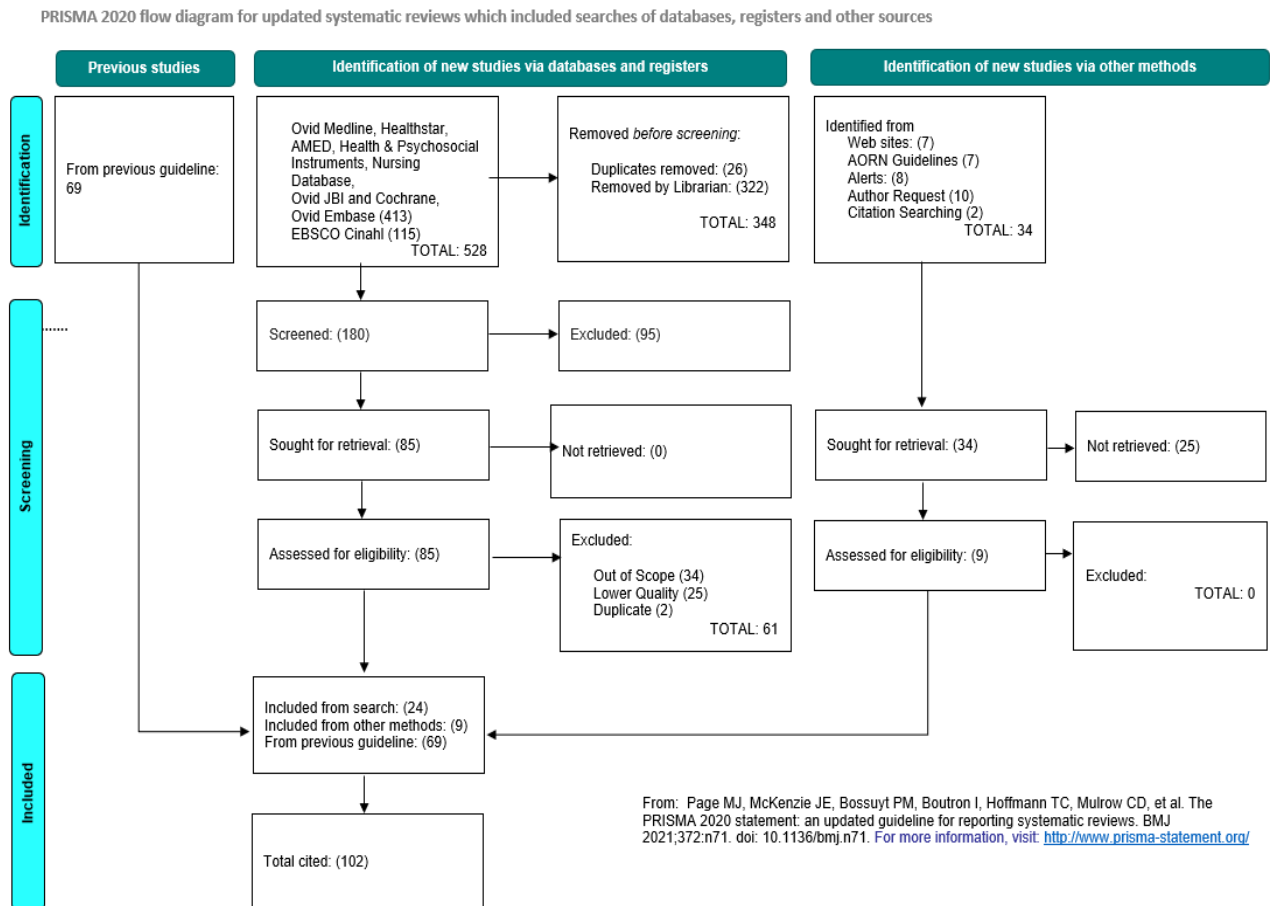
The Guideline for Manual High-Level Disinfection was approved by the AORN Guidelines Advisory Board and became effective as of October 19, 2023.

### EVIDENCE REVIEW

On August 19, 2022 a medical librarian with a perioperative background conducted a systematic search of the databases Ovid MEDLINE®, Ovid Embase®, EBSCO CINAHL®, and the Cochrane Database of Systematic Reviews. The search was limited to literature published in English from January 2017 through September 2022. At the time of the initial search, weekly alerts were created on the topics included in that search. Results from these alerts were provided to the lead author until June 2023. The lead author requested additional articles that either did not fit the original search criteria or were discovered during the evidence appraisal process. The lead author and the medical librarian also identified relevant guidelines from government agencies, professional organizations, and standards-setting bodies.

Included were research and non-research literature in English, complete publications, and publications with dates within the time restriction when available. Historical studies were also included. Excluded were non-peer-reviewed publications and older evidence within the time restriction when more recent evidence was available. Editorials, news items, and other brief items were excluded. Low-quality evidence was excluded when higher-quality evidence was available, and literature outside the time restriction was excluded when literature within the time restriction was available. Articles identified in the search were provided to the project team for evaluation. The team consisted of the lead author and one evidence appraiser. The lead author and the evidence appraiser reviewed and critically appraised each article using the AORN Research or Non-Research Evidence Appraisal Tools as appropriate. A third appraiser was consulted if there was a disagreement between the lead author and the primary evidence appraiser. The literature was independently evaluated and appraised according to the strength and quality of the evidence. Each article was then assigned an appraisal score. The appraisal score is noted in brackets after each reference as applicable. Each recommendation rating is based on a synthesis of the collective evidence, a benefit-harm assessment, and consideration of resource use. The strength of the recommendation was determined using the AORN Evidence Rating Model and the quality and consistency of the evidence supporting a recommendation. The recommendation strength rating is noted in brackets after each recommendation. See the PRISMA 2020 flow diagram (Figure 1) below for more information about the systematic review and nature of included studies and resources.

**Figure 1: PRISMA 2020 Flow Diagram**



On August 29, 2022, a medical librarian with a perioperative background conducted a systematic search of 16 health science databases, the names and date coverage of which are given in Table 1. These results were screened by the medical librarian, and then the lead author.

**Table 1: Databases searched and coverage**

Database	Coverage
AORN Full Text Journals@Ovid	Current
Books@Ovid	September 10, 2022
JBI EBP Database	Current to August 29, 2022
EBM Reviews: ACP Journal Club	1991 to August 2022
EBM Reviews: Cochrane Central Register of Controlled Trials	August 2022
EBM Reviews: Cochrane Database of Systematic Reviews	2005 to September 8, 2022
EBM Reviews: Cochrane Clinical Answers	August 2022
AMED (Allied and Complementary Medicine)	1985 to August 2022
Embase	1974 to 2022 September 10
Health and Psychosocial Instruments	1985 to June 2022
Ovid Healthstar	1902 to 1998, 1999 to May 2022
Ovid MEDLINE(R) ALL	1946 to September 10, 2022
Ovid Nursing Database	1946 to September week 1 2022
CINAHL complete via EBSCOhost	1937 to September 2022

Search strategy development process: The medical librarian referred to a search strategy used for the previous Guideline. A draft search strategy was developed using terms listed in the previous strategy and additional search terms identified from a meeting with the lead author. Using the MeSH Subject Headings database, additional search terms were identified and added to the search strategy. The strategy was limited following the constraints in the eligibility criteria outlined by the lead author.

**Editor’s note:** MEDLINE is a registered trademark of the US National Library of Medicine’s Medical Literature Analysis and Retrieval System, Bethesda, MD. Embase is a registered trademark of Elsevier B.V., Amsterdam, The Netherlands. CINAHL, Cumulative Index to Nursing and Allied Health Literature, is a registered trademark of EBSCO Industries, Birmingham, AL.

Search Strategies

Ovid (Medline, Cochrane, and Embase)

1. (Bronchoscopes or Endoscopes).mp. or "Ultrasonography, Interventional".de,sh,hw. or ("Anesthesia equipment" or "Respiratory therapy Equipment" or "Heat sensitive reusable medical devices" or "Endoscopic Ultrasound-Guided Fine Needle Aspiration Ultrasonography" or "Diagnostic Ultrasound").ti,ab,kw. or (Ultraso\$ adj3 (Imaging or Tomography)).ti,ab,kw. or ((endocavity or vaginal or rectal or "transesophageal") adj5 probe\$).ti,ab,kw. [mp=ti, ab, tx, ct, bt, hw, sw, kw, ot, fx, sh, tn, dm, mf, dv, kf, dq, ac, de, md, sd, so, nm, ox, px, rx, ui, sy, dw]
2. Disinfection\*/mt or Disinfect\$.de,sh,hw. or (Biocides or "soaking containers" or "high-level disinfection" or "hydrogen peroxide" or glutaraldehyde or "ortho-phthalaldehyde" or "semi critical" or semicritical or "enzymatic detergent").ti,ab,kw. or (manual adj3 \$process\$).ti,ab,kw.
3. 1 and 2
4. "Cross Infection"/pc or "Disease Transmission, Infectious"/pc or "Equipment and Supplies"/mi
5. 1 and 4
6. Papillomaviridae/ip or "Papillomavirus Infections"/pc or "Papillomavirus Infections"/tm, vi or Alphapapillomavirus.de,sh,hw.

7. 2 and 6
8. Fomites/mi or ("Host-Pathogen Interactions" or "Viral Load\*").de,sh,hw.
9. 1 or 2 or 4
10. 8 and 9
11. "Cervix Uteri"/vi or "mucous membrane".ti,ab,kw,de,sh,hw.
12. 4 and 11
13. 3 or 5 or 7 or 10 or 12
14. remove duplicates from 13
15. limit 14 to english language
16. limit 15 to yr="2017 -Current"

EBSCOhost (CINAHL)

S15	S3 OR S5 OR S7 OR S10 OR S12  Limiters- Published Date: 20170101-20220931; English Language; Peer Reviewed; Exclude MEDLINE records	115
S14	S3 OR S5 OR S7 OR S10 OR S12  Limiters- Published Date: 20170101-20220931; English Language; Exclude MEDLINE records	162
S13	S3 OR S5 OR S7 OR S10 OR S12	990
S12	S4 AND S11	11
S11	(MH "Mucous Membrane") OR (MH "Cervix")	5,709
S10	S8 AND S9	99
S9	S1 OR S2 OR S4	73,109
S8	(MH "Viral Load") OR (Fomites OR "Host-Pathogen Interactions")	8,910
S7	S2 AND S6	16
S6	((MH "Papillomavirus Infections/PC/TM") OR (MH "Papillomaviruses")) OR alphapapillomavirus	8,769
S5	S1 AND S4	443
S4	(MH "Cross Infection/PC") OR (MH "Disease Transmission, Professional-to-Patient/PC") OR (MH "Disease Transmission, Patient-to-Professional/PC") OR (MH "Surgical Equipment and Supplies")	20,777
S3	S1 AND S2	538
S2	((MH "Sterilization and Disinfection/MT") OR (MH "Disinfectants")) OR (Biocides or "soaking containers" or "high-level disinfection" or "hydrogen peroxide" or glutaraldehyde or "ortho-phthalaldehyde" or "semi critical" or semicritical or "enzymatic detergent") OR (manual N3 *process*)	10,816
S1	((MH "ENT Endoscopes") OR (MH "Endoscopes") OR (MH "Endosonography")) OR bronchoscopes OR "Ultrasonography, Interventional" OR ("Anesthesia Equipment" or "Respiratory therapy Equipment" or "heat sensitive reusable medical devices" or "Endoscopic Ultrasound-Guided Fine Needle Aspiration Ultrasonography" or "Diagnostic Ultrasound") OR ((Ultraso* N3 (Imaging or Tomography))) OR (((endocavity or vaginal or rectal or "transesophageal") N5 probe*))	43,583

Web Searches// All searches conducted in 2022.

9/14: Used google.com to search "facilities guidelines institute"> Clicked "Beyond Fundamentals" drop down menu on top of screen; chose "Beyond Fundamentals Library"> Scrolled down to resource, saved for author screening.

9/14: Used google.com to navigate to ecri.org> Logged in and used search function for "high level disinfection" (all content, sorted by relevance vs date)> Scrolled through results, saved for author screening (x3)

9/14: Used google.com to search for "Reprocessing surface ultrasound transducers"> chose second result, "Reprocessing Surface Ultrasound Transducers" (<https://www.jointcommission.org/blogs...>)> searched "ultrasound transducers"> chose second result, saved for author screening. (x2)

9/14: Used google.com to search for "American institute of ultrasound in medicine"> Chose "Official Statements" from "Resources" drop-down menu> Scrolled to result, saved for author screening.

## RESULTS

Studies that offer insights that can inform perioperative nursing practice about the safe use of manual high-level disinfection were included in this review. Studies that appeared to meet the inclusion criteria were excluded if they were of lower quality, provided no guidance, were duplicates of already-included studies, full text was not available in English, the results were not applicable or generalizable to the perioperative practice setting, were the wrong setting, or wrong population. A synthesis of the study results informed for formation of practice recommendations and this synthesis is described briefly in the corresponding rationales that follow each practice recommendation. Additional information about each included study is found in the [evidence table](#) that corresponds to the published guideline.

## REGISTRATION

PROSPERO Registration: CRD42021274097