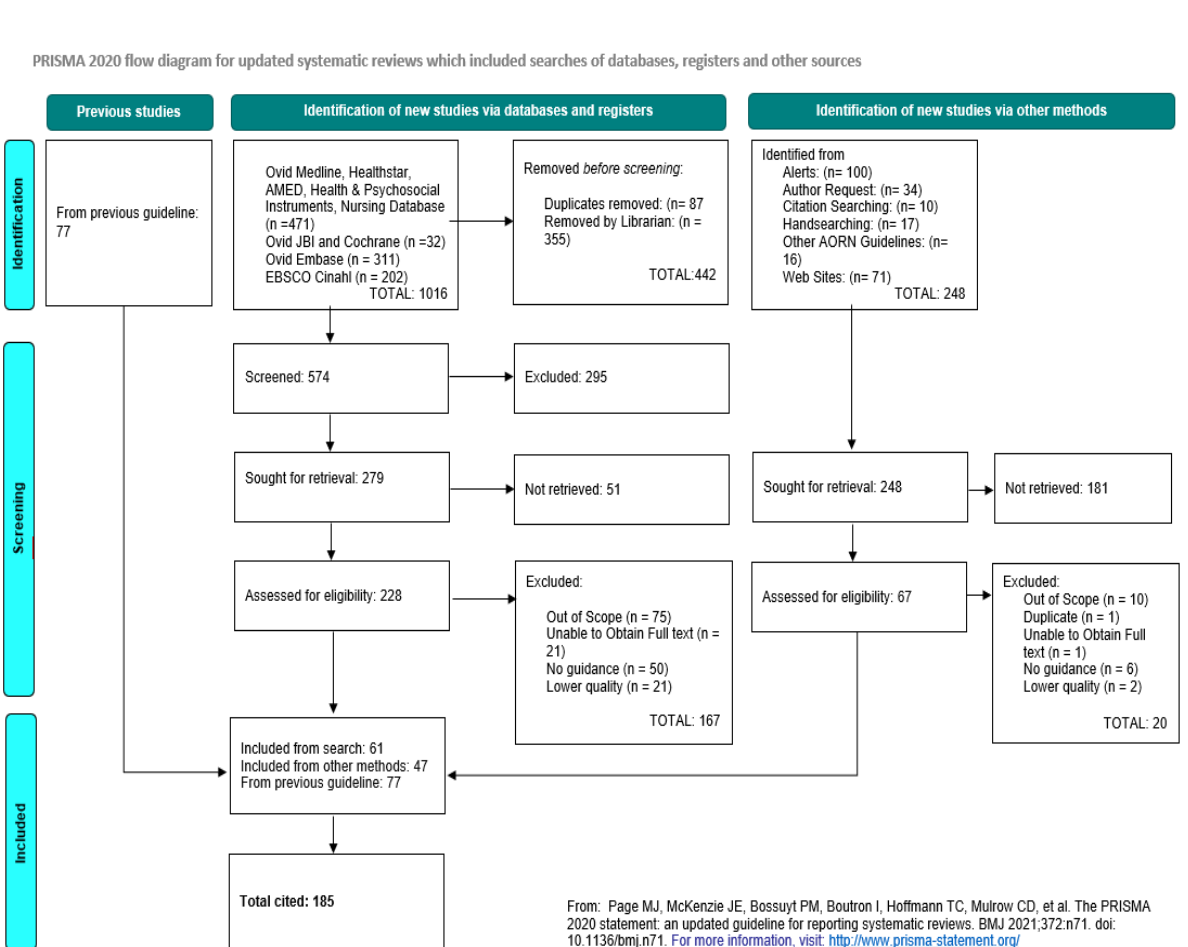


EVIDENCE REVIEW

On October 27, 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 April 2018 through October 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 October 17, 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	October 10, 2022
JBI EBP Database	Current to October 12, 2022
EBM Reviews: ACP Journal Club	1991 to July 2022
EBM Reviews: Cochrane Central Register of Controlled Trials	September 2022
EBM Reviews: Cochrane Database of Systematic Reviews	2005 to October 12, 2022
EBM Reviews: Cochrane Clinical Answers	September 2022
EBM Reviews: Cochrane Methodology Register	3rd Quarter 2012
EBM Reviews: Database Of Abstracts Of Reviews Of Effects	1st Quarter 2016
EBM Reviews: Health Technology Assessment	4th Quarter 2016
EBM Reviews: NHS Economic Evaluation Database	1st Quarter 2016
AMED (Allied and Complementary Medicine)	1985 to September 2022
Embase	1974 to 2022 October 17
Health and Psychosocial Instruments	1985 to July 2022
Ovid Healthstar	1902 to 1998, 1999 to September 2022
Ovid MEDLINE(R) ALL	1946 to October 17, 2022
Ovid Nursing Database	1946 to October week 2 2022
CINAHL Complete via EBSCOhost	1937 to October 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 fires.ti,ab,kw,de,sh,hw. or (fire and (blanket or triangle or safety or prevention or extinguisher or suppression or evacuation or drill)).ti,ab,kw. 43922

2 ((hazardous adj2 (chemical\$ or material\$)) or (anesthetic and gas\$) or (inhal\$ and anesthetic\$)).ti,ab,kw. or (hazardous adj1 (waste or substances)).de,sh,hw. or ("waste products" or "anesthetics, inhalation" or "hazardous waste disposal").de,sh,hw. 98143

3 (occupational adj1 (illnesses or accidents)).ti,ab,kw. or ("protective clothing" or "accidents, occupational" or (occupational adj1 (injur\$ or disease\$))).de,sh,hw. 279292

4 2 and 3 2767

5 "electrical equipment and supplies".ti,ab,kw,de,sh,hw. or "electrical equipment".ti,ab,kw. 3854

6 ("clinical alarms" or noise).hw,de,sh,ti,ab,kw. or ("alarm fatigue" or "alert alarms" or "activation indicators" or "control of noise and distractions").ti,ab,kw.478398

7 (slip\$ adj10 trip\$ adj10 fall\$).ti,ab,kw. 1152

8 ("latex hypersensitivity" or "dermatitis, allergic contact" or latex).de,sh,hw. or (allerg\$ adj5 latex).ti,ab,kw. 60090

9 (skin adj1 (color\$ or tone\$)).ti,ab,kw. or "skin pigmentaiton".de,sh,hw. 16876

10 8 and 9 16

11 ((solution or blanket) and (thermal adj3 injur\$)).ti,ab,kw. 535

12 ("cost-benefit analysis" or "financial impact analysis" or "costs and cost analysis" or "economics, hospital" or "decision making" or "resource allocation" or "technology assessment, biomedical").de,sh,hw,ti,ab,kw. or ("budget impact analy\$" or "cost study" or "economic evaluation" or "health economics" or "health technology").ti,ab,kw. 1598879

13 "operating rooms".de,sh,hw. or (surgicenters or "operating room personnel" or "perioperative nurses").ti,ab,kw. or ("ambulatory surgery" and (center or facility)).ti,ab,kw. or (operating adj1 (theat\$ or suite\$)).ti,ab,kw. 64557

14 1 or 4 or 5 or 6 or 7 or 8 or 10 or 12 2180931

15 11 or (13 and 14) 6017

16 limit 15 to english language 5561

17 limit 16 to yr="2018 -Current" 1089

18 remove duplicates from 17 579

EBSCOhost (CINAHL)

S19 S17 OR S18 202

S18 S7 AND (("perioperative nurses" OR "circulator" OR "circulating nurse" OR "theatre nurse"))
Limiters - Published Date: 20180101-20221031; English Language; Peer Reviewed 1

S17 (S13 AND S14) OR (S11) Limiters - Published Date: 20180101-20221031; English Language; Peer Reviewed 201

S16 (S13 AND S14) OR (S11) 1,808

S15 S13 AND S14 1,752

S14 S1 OR S4 OR S5 OR S6 OR S7 OR S8 OR S10 OR S12 103,064

S13 (MM "Operating Room Personnel") OR (MH Perioperative Nursing") OR (MH "Surgicenters") OR (MH "Operating Rooms") OR (MH "Surgical Technologists") OR ""operating rooms" or (surgicenters or "operating room personnel" or "perioperative nurses") or ("ambulatory surgery" and (center or facility)) or (operating N1 (theat* or suite*)) 31,352

S12 (MH "Cost Benefit Analysis") OR (MH "Costs and Cost Analysis") OR (MH "Health Facility Costs") OR (MH "Cost Control") OR (("cost-benefit analysis" or "financial impact analysis" or "costs and cost analysis" or "economics, hospital" 66,944

or "decision making" or "resource allocation" or "technology assessment, biomedical") or ("cost study" or "economic evaluation" or "health economics" or "health technology")) OR budget ADJ3 impact ADJ3 analy*

S11 (solution or blanket) AND thermal N8 injur* 56

S10 S8 AND S9 0

S9 (MH "Skin Pigmentation") OR "(skin N1 (color* or tone*)) or "skin pigmentaiton" 1,228

S8 MM "Latex Hypersensitivity") OR (MH "Latex") OR ("latex hypersensitivity" or "dermatitis, allergic contact" or latex) or (allerg* N5 latex) 2,765

S7 (MM "Accidental Falls") OR "(slip* N10 trip* N10 fall*)" 15,972

S6 MH "Equipment Alarm Systems") OR (MM "Noise") OR ("clinical alarms" or noise) or ("alarm fatigue" or "alert alarms" or "activation indicators" or "control of noise and distractions") 5,972

S5 (MH "Electrical Equipment and Supplies") OR (MM "Surgical Equipment and Supplies") OR ""electrical equipment and supplies" or "electrical equipment" 3,536

S4 S2 AND S3 183

S3 (MM "Accidents, Occupational/AE/ED/EP/ES/MT/PC/RF/ST") OR (MM "Occupational Diseases/EC/ED/EP/ET/RF/TM") OR (MH "Injury, Occupational Disease, Poisoning") OR (MH "Occupational-Related Injuries") OR (MH "Air Pollutants, Occupational") OR "(occupational N1 (illnesses or accidents)) or ("protective clothing" or "accidents, occupational" or (occupational N1 (injur* or disease*))) 17,059

S2 (MH "Hazardous Materials") OR (MM "Anesthetics, Inhalation+/AE/CT/PO") OR (MM "Medical Waste Disposal/MT/AE/EC/ED/ES") OR (MH "Waste Products/AE/EC/ED/ES/MT") OR "((hazardous N1 (waste or substances)) or ("waste products" or "anesthetics, inhalation" or "hazardous waste disposal") OR ((hazardous N2 (chemical* or material*)) or (anesthetic and gas*) or (inhal* and anesthetic*)) 4,801

S1 ((MH "Fire Safety") OR (MM "Surgical Fires/AE/EP/PC/RF")) OR (fire and (blanket or triangle or safety or prevention or extinguisher or suppression or evacuation or drill)) 8,308

Web Searches// All searches conducted in 2022.

10/27: Used google.com to navigate to Govinfo's citation search form.> Entered relevant information to find most recent version of CFR.> Saved for author review. (x8)

10/31: Used google.com to navigate to Govinfo's citation search form.> Entered relevant information to find most recent version of CFR.> Saved for author review. (x5)

10/31: Used google.com to navigate to epa.gov web site.> Didn't see relevant information in broad topics on home page.> Expanded "Environmental Topics."> Clicked on "A to Z Topic Index"> Scrolled to "Hazardous Waste."> Saved for author review.

10/31: Used google.com to navigate to epa.gov web site.> Didn't see relevant information in broad topics on home page.> Expanded "Environmental Topics."> Clicked on "A-Z topic index" at bottom of selection, browsed to result.> Saved for author review. (x2)

10/31: Used google.com to navigate to epa.gov web site.> Didn't see relevant information in broad topics on home page.> Expanded "Environmental Topics."> Clicked on "Chemicals and Toxics".> Saved for author review.

10/31: Used google.com to navigate to epa.gov web site.> Didn't see relevant information in broad topics on home page.> Searched EPA's web site for "ethylene oxide."> Browsed results and saved for author review.

10/31: Used google.com to navigate to epa.gov web site.> Didn't see relevant information in broad topics on home page.> Expanded "Environmental Topics."> Clicked on "Land, Waste, and Cleanup."> Scrolled to "A to Z Directory of Topics" under the "Resources" heading.> Browsed topics, and found "Medical Waste."> Saved for author review.

11/1: Used google.com to navigate to fda.gov web site.> Clicked menu at top RIGHT; scrolled down to "SEARCH MEDICAL DEVICE DATABASES"; chose "MAUDE (Manufacturer and User Facility Device Experience) Database."> Saved for author screening.

11/1: Used google.com to navigate to fda.gov web site.> Clicked menu at top RIGHT; scrolled down to "Regulatory Information" under "Topics."> Clicked "Search for FDA Guidance Documents."> Put "latex" in the search bar.> Chose first result; saved for author screening.

11/1: Used google.com to navigate to fda.gov web site.> Clicked menu at top RIGHT; scrolled down to "Regulatory Information" under "Topics."> Clicked "Search for FDA Guidance Documents."> Put "electros" in the search bar.> Chose first result; saved for author screening. (x2)

11/2: Used google.com to navigate to fda.gov.> Scrolled to "PRODUCTS WE REGULATE" heading.> Chose "Medical Devices."> Scrolled to "FIND GUIDANCE DOCUMENTS" heading, chose "Final Guidances."> Reviewed list, saved for author review.

11/2: Used google.com to navigate to fda.gov.> Under "Menu" on top right corner, scrolled to "Topics", and then chose "Regulatory Information."> Clicked "Learn more" in the "Search for FDA Guidance Documents" panel.> Entered "surgical staplers and staples" in the search box.> Scrolled to result, saved for author screening.

11/2: Used google.com to navigate to fda.gov.> Scrolled to "RESOURCES AND PROGRAMS" heading.> Chose "MedWatch: Safety Alerts."> Saved for author review.

11/2: Used google.com to navigate to jointcommission.org.> Chose "Resources" drop-down tab from top navigation bar.> Chose "Sentinel Event" on LEFT navigation bar.> Scrolled down to "Overview," and clicked on "Sentinel Event Statistics" tab.> Clicked "Sentinel Event Data Summary."> Chose "Download more information on summary data on sentinel events." > Saved for author screening. (x2)

11/2: Used google.com to navigate to jointcommission.org.> Chose "Resources" drop-down tab from top navigation bar.> Chose "Sentinel Event" on LEFT navigation bar.> Scrolled down to "Overview," and clicked on "Sentinel Event Statistics" tab.> Clicked "Sentinel Event Data Summary."> Chose "Download data on sentinel event general information." > Saved for author screening.

11/2: Used google.com to navigate to jointcommission.org.> Chose "Resources" drop-down tab from top navigation bar.> Chose "Sentinel Event" on LEFT navigation bar.> Scrolled down to "Overview," and clicked on "View the full list of Sentinel Event Alert publications" link.> Browsed results; saved for author screening.

11/3: Used google.com to navigate to jointcommission.org.> Chose "Resources" drop-down tab from top navigation bar.> Chose "The Physical Environment" on LEFT navigation bar.> Saved for author screening. (x2)

11/7: Used google.com to navigate to acgih.org> Clicked on the "Publications" link on the menu bar.> Scrolled down to the link for "Downloadable TLV and BEI Documentation."> Browsed results, saved for author review.

11/7: Used google.com to navigate to acgih.org> Clicked on the "Publications" link on the menu bar.> Scrolled down to the link for "Publications Store", chose "Signature Publications."> Browsed results, saved for author review.

11/17: Used google.com to navigate to NIOSH web site, <https://www.cdc.gov/niosh/index.htm>> Scrolled to "Publications & Products."> Clicked link for "Index of all NIOSH-issued Publications."> Sorted by results by title, browsed results, saved for author review.

11/7: Used google.com to navigate to ecri.org> Logged in as a member, and typed "warming cabinets" in to R hand search bar.> Adjusted search for "All content" (versus content from past 3 years).> Browsed results, saved for author review. (x3)

11/7: Used google.com to navigate to ecri.org> Logged in as a member, clicked on "Browse Library"> Brought me to "Browse Topics," looked at topics. > Chose "Hazard and Recall Management."> Scrolled down to "Top 10 Health Technology Hazards" in box on LEFT side.> Scrolled about halfway to "Top 10 Health Technology Hazards Solutions Kit"> In "Related Resources" box on RIGHT side, chose "Top 10 Health Technology Hazards: Complete Archive."> Scrolled to result, saved for author screening. (x5)

11/7: Used google.com to navigate to ecri.org> Logged in as a member, and typed "Compressed Gases" in to R hand search bar.> Adjusted search for "All content" (versus content from past 3 years).> Browsed results, saved for author review. (x2)

11/7: Used google.com to navigate to ecri.org> Logged in as a member, and typed "Compressed Gases" in to R hand search bar.> Adjusted search for "All content" (versus content from past 3 years).> From "Ask HRC: Preventing...", clicked "Surgical Fires" in box labeled "Related Resources."> Browsed results, saved for author review.

11/7: Used google.com to navigate to ecri.org> Logged in as a member, clicked on "Browse Library"> Brought me to "Browse Topics," looked at topics. > Chose "Hazard and Recall Management."> Scrolled to "Falls"> Browsed Results, saved for author review. (x7)

11/7: Used google.com to navigate to ecri.org> Logged in as a member, clicked on "Browse Library"> Brought me to "Browse Topics," looked at topics. > Chose "Hazard and Recall Management."> Scrolled to "Environmental Health"> Browsed Results, saved for author review. (x12)

11/7: Used google.com to navigate to ecri.org> Logged in as a member, clicked on "Browse Library"> Brought me to "Browse Topics," looked at topics. > Chose "Hazard and Recall Management."> Scrolled to "Environmental Health"> Browsed Results, noticed item was linked in the body text for RWs# 446.> Followed link to AHRQ document, saved for author review.

11/17: Used google.com to navigate to ecri.org> Logged in as a member, used right side search bar to search for "surgical fires."> Browsed Results, saved for author review. (x5)

11/17: Used google.com to navigate to ecri.org> Logged in as a member, used right side search bar to search for "surgical fires."> Browsed Results, saw result as a primary source in one of the listed results.> Followed link in article to primary

RESULTS

Studies that offer insights that can inform perioperative nursing practice in the area of a safe environment of care in the perioperative setting 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