

EVIDENCE REVIEW

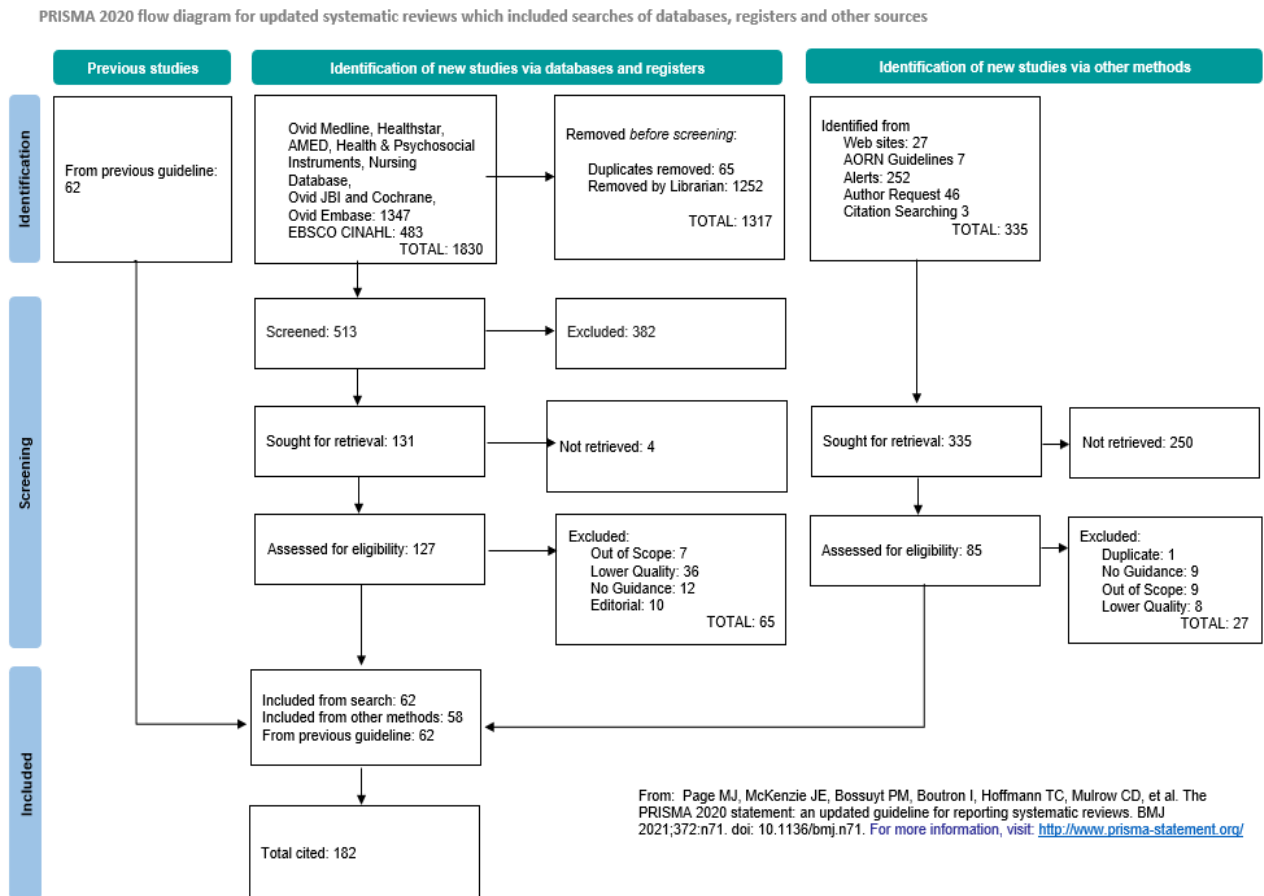
The Guideline for Transmission-Based Precautions was approved by the AORN Guidelines Advisory Board and became effective January 16, 2025.

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 initial search was limited to literature published in English from May, 2017 through May, 2022. Once the project stakeholders were ready to proceed with the Guideline, the search was run again for literature published in English from January, 2022 through January 2024.

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 May, 2024. 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 May 15, 2022, a medical librarian with a perioperative background conducted searches for relevant publications on websites of organizations selected by the author (including government departments). Full details of these supplementary searches is included in the Supplementary Content on the aorn.org web site. These results were also screened by two screeners: the medical librarian, and then the lead author. The author reviewed these results again in 2024, when the project stakeholders were ready to proceed with the Guideline.

On May 5, 2022, a medical librarian with a perioperative background conducted a systematic search of 18 health science databases. On January 5, 2024, a medical librarian with a perioperative background conducted the same systematic search of 18 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	January 5, 2025
Books@Ovid	February 05, 2024
JBI EBP Database	Current to January 17, 2024
EBM Reviews: ACP Journal Club	1991 to January 2024
EBM Reviews: Cochrane Central Register of Controlled Trials	December 2023
EBM Reviews: Cochrane Database of Systematic Reviews	2005 to January 31, 2024
EBM Reviews: Cochrane Clinical Answers	January 2024
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 October 2023
Embase	1974 to 2024 February 05
Health and Psychosocial Instruments	1985 to January 2024
Ovid Healthstar	1999 to October 2023
Ovid MEDLINE(R) ALL	1946 to February 05, 2024
Ovid Nursing Database	1946 to January Week 4 2024
CINAHL Complete via EBSCOhost	1937 to Current

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	("blood-borne pathogens" or "disease transmission, infectious" or "Infectious disease transmission, patient-to-professional" or "Infectious disease transmission, professional-to-patient" or "patient isolation or communicable diseases" or "universal precautions" or "Transportation of patients").de,sh,hw. or ("Infectious disease transmission, horizontal" or Doffing or Donning or "droplet precautions" or "isolation precautions" or "airborne precautions" or "standard precautions" or "transmissible infections" or "Patient placement" or "transmission-based precautions" or "universal pandemic precautions" or "special droplet precautions" or "enhanced droplet precautions").ti,ab.	76741
2	(Ebola virus or "chemical terrorism" or "biological warfare agents" or bioterrorism or "latent tuberculosis" or "meningitis, viral" or "extensively drug-resistant tuberculosis" or "HIV infections" or tuberculosis or "hemorrhagic fever, Ebola" or "Hemorrhagic fevers, viral" or "tuberculosis, central nervous system" or "tuberculosis, cutaneous" or "tuberculosis, gastrointestinal" or "tuberculosis, meningeal" or "tuberculosis, multidrug-resistant" or "tuberculosis, ocular" or "tuberculosis, pulmonary" or "biological warfare" or "chemical warfare" or herpesviridae or "SARS-CoV-2" or "COVID-19" or "SARS virus" or "Hepatitis, viral, human" or "Hepatitis c" or "Meningitis, viral" or "Skin diseases, viral" or "Skin diseases, bacterial" or "Skin diseases, parasitic" or "Skin diseases, infectious" or "aerosolized particles and droplets").de,sh,hw. or (Ebola or "Ebola virus" or "SARS-CoV-1" or "HIV-infected patients" or "viral hepatitis" or "viral meningitis" or "infectious skin diseases" or "viral skin diseases" or "aerosol-generating procedures").ti,ab.	2186621
3	("gram-negative bacteria" or "gram-negative bacterial infections" or "gram-positive bacteria" or "disease outbreaks" or "methicillin-resistant Staphylococcus aureus" or "Staphylococcus aureus" or "Clostridioides difficile" or "vancomycin-resistant Enterococci" or "Candida auris").de,sh,hw. or ("Clostridium difficile" or "multidrug resistant organism").ti,ab.	670075
4	("drug resistance, microbial" or "methicillin resistance" or "needlestick injuries" or Quarantine or "vancomycin resistance" or "Disaster planning").de,sh,hw. or ("Antibiotic resistance" or "TB precautions in tissue" or "public health emergency" or "microbial drug resistance" or "needle stick injuries" or "tuberculosis cutaneous precautions" or "tuberculosis precautions" or "tuberculosis tissue precautions" or "antifungal resistance" or "droplet nuclei" or "emergency preparedness").ti,ab.	337992
5	("personal protective equipment" or Vaccines or "Respiratory Protective Devices").de,sh,hw. or ("HEPA filter" or "negative pressure environment" or "airborne infection isolation room" or "ultraviolet germicidal irradiation" or "portable anteroom system" or "elastomeric respirators" or "universal masking").ti,ab.	405161
6	(Contamination and "personal protective equipment").ti,ab,de.	2086
7	("social determinants of health" or "minority groups" or "healthcare disparities" or "minority health").de,sh,hw. or ("difference in treatment" or "discrepancies in treatment" or "unequal treatment" or minorities or disparities or "health care inequalities" or "racial disparities" or "people of color").ti,ab.	399841
8	("surgical procedures, operative" or "operating rooms" or "ambulatory surgical procedures").de,sh,hw. or ("surgical suite" or "procedure room" or "perioperative nurse" or "operating room staff" or "surgical technologist").ti,ab,kw. or (operating and (theatre or theater)).ti,ab,kw.	204899
9	(1 or 2 or 3 or 4 or 5 or 6) and 8	6279
10	7 and 8	606
11	9 or 10	6867
12	limit 11 to english language	5585
13	limit 12 to yr="2017 -Current"	2615
14	limit 13 to human	2470
15	remove duplicates from 14	1206
16	limit 12 to yr="2022 -Current"	400
17	remove duplicates from 16	215

EBSCOhost (CINAHL Complete)

#	Query	Limiters/Expanders	Results
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S21	S17 OR S18	Limiters - Publication Date: 20220501-20240231; English Language; Peer Reviewed; Exclude MEDLINE records	175
S20	S17 OR S18	Limiters - Publication Date: 20170101-20220531; English Language; Peer Reviewed; Exclude MEDLINE records	458
S19	S17 OR S18		2,951
S18	S14 AND S15		260
S17	S15 AND S16		2,704
S16	S3 OR S6 OR S9 OR S12 OR S13		419,165
S15	((MH "Surgical Technologists") OR (MH "Operating Rooms") OR (MH "Operating Room Personnel") OR (MH "Perioperative Nursing")) OR ("surgical procedures, operative" or "ambulatory surgical procedures" OR "surgical suite" or "procedure room" or "perioperative nurse" or "operating room staff") OR ((operating and (theatre or theater)))		51,837
S14	(MH "Healthcare Disparities") OR (("social determinants of health" OR "minority groups" OR "minority health" OR "difference in treatment" OR "discrepancies in treatment" OR "unequal treatment" OR minorities OR disparities OR "health care inequalities" OR "racial disparities" OR "people of color")		124,270
S13	((MH "Respiratory Protective Devices") OR (MH "Personal Protective Equipment")) OR ("HEPA filter" OR "negative pressure environment" OR "airborne infection isolation room" OR "ultraviolet germicidal irradiation" OR "portable anteroom system" OR "elastomeric respirators" OR vaccines OR "universal masking") OR ((Contamination and "personal protective equipment"))		85,101
S12	S10 OR S11		80,151
S11	("Antibiotic resistance" OR "TB precautions in tissue" OR "public health emergency" OR "microbial drug resistance" OR "needle stick injuries" OR "tuberculosis cutaneous precautions" OR "tuberculosis precautions" OR "tuberculosis tissue precautions" OR "antifungal resistance" OR Contamination OR "droplet nuclei" OR "emergency preparedness") OR ("needlestick injuries" OR Quarantine OR "Disaster planning")		66,236

S10	(MH "Drug Resistance, Microbial") OR (MH "Methicillin Resistance") OR (MH "Vancomycin Resistance")		28,574
S9	S7 OR S8		70,908
S8	"Clostridium difficile" OR "multidrug resistant organism"		4,412
S7	((MH "Methicillin-Resistant Staphylococcus Aureus") OR (MH "Gram-Negative Bacteria") OR (MH "Gram-Negative Bacterial Infections") OR (MH "Gram-Positive Bacteria") OR (MH "Staphylococcus Aureus") OR (MH "Vancomycin Resistant Enterococci")) OR ("disease outbreaks" OR "Clostridioides difficile" OR "Candida auris")		66,847
S6	S4 OR S5		218,362
S5	(MH "Hepatitis, Viral, Human") OR (MH "Skin Diseases, Infectious") OR (MH "Hemorrhagic Fever, Ebola") OR (MH "Skin Diseases, Parasitic") OR Ebola OR "Ebola virus" OR "SARS-CoV-1" OR "HIV-infected patients" OR "viral hepatitis" OR "viral meningitis" OR "infectious skin diseases" OR "viral skin diseases" OR "aerosol-generating procedures"		34,163
S4	(MH "Tuberculosis, Meningeal") OR (MH "Tuberculosis, Multidrug-Resistant") OR (MH "Tuberculosis, Central Nervous System") OR (MH "Tuberculosis, Gastrointestinal") OR (MH "Tuberculosis, Ocular") OR (MH "Tuberculosis, Pulmonary") OR (MH "COVID-19") OR (MH "Hemorrhagic Fevers, Viral") OR (MH "Tuberculosis") OR (MH "Hemorrhagic Fever, Ebola") OR Ebolavirus OR "chemical terrorism" OR "biological warfare agents" OR bioterrorism OR "latent tuberculosis" OR "meningitis, viral" OR "extensively drug-resistant tuberculosis" OR "HIV infections" OR tuberculosis OR "Hemorrhagic fevers, viral" OR "tuberculosis, cutaneous" OR "biological warfare" OR "chemical warfare" OR herpesviridae OR "SARS-CoV-2" OR "SARS virus" OR "Hepatitis c" OR "Meningitis, viral" OR "Skin diseases, viral" OR "Skin diseases, bacterial" OR "Skin diseases, parasitic" OR "Skin diseases, infectious" OR "aerosolized particles and droplets"		204,065
S3	S1 OR S2		46,197
S2	(MH "Universal Precautions") OR ""Infectious disease transmission, horizontal" OR Doffing OR Donning OR "droplet precautions" OR "isolation precautions" OR "airborne precautions" OR "standard precautions" OR "transmissible infections" OR "Patient placement" OR "transmission-based precautions" OR "universal pandemic precautions" OR "special droplet precautions" OR "enhanced droplet precautions""		1,589
S1	(MH "Communicable Diseases") OR (MH "Disease Transmission, Professional-to-Patient") OR (MH "Disease Transmission, Patient-to-Professional") OR (MH "Infection Control") OR ""blood-borne pathogens" OR "disease transmission, infectious" OR "patient isolation" OR "universal precautions" OR "Transportation of patients""		45,226

Web Searches// All searches conducted in 2022.

5/16: Used google.com to search "osha contagious disease"> Chose 'Healthcare - Infectious Diseases | Occupational Safety ... - OSHA' result> Scrolled down in text to link for resource> Saved for author review (x17).

5/16: Used google.com to search "infectious disease site:aami.org"> Chose "COVID-19 Resources | AAMI|https://www.aami.org › news-resources › covid-19-reso..." result> > Saved for author review

6/13: Used google.com to search "centers for medicare and medicaid services"> Under first result, entered "nosocomial infection" in search bar to search cms.gov> First result; saved for author screening.

6/13: Used google.com to search "centers for medicare and medicaid services"> Under first result, entered "nosocomial infection" in search bar to search cms.gov> Second result; saved for author screening

6/13: Used google.com to search "centers for medicare and medicaid services"> Under first result, entered "nosocomial infection" in search bar to search cms.gov> Third result; saved for author screening.

6/14: Used google.com to search "transmission precautions site:epa.gov"> Scrolled to result, was directed to a PubMed result> Saved for author screening (x3).

6/14: Used google.com to search "transmission precautions site:epa.gov"> Scrolled to result, saved for author screening (x2).

6/14: Used google.com to search "centers for disease control and prevention"> Entered "transmissible infection" in search bar for cdc.gov> Chose third result, saved for author screening.

PUBLICATION HISTORY

- Originally published February 1993, AORN Journal, as “Recommended practices for universal precautions in the perioperative practice setting.”
- Revised November 1998 as “Recommended practices for standard and transmission-based precautions in the perioperative practice setting”; published February 1999, AORN Journal. Reformatted July 2000.
- Approved June 2006, AORN Board of Directors, as “Recommended practices for prevention of transmissible infections in perioperative practice settings.” Published in Standards, Recommended Practices, and Guidelines, 2007 edition.
- Revised and reformatted December 2012 for online publication in Perioperative Standards and Recommended Practices.
- Evidence ratings revised 2013 to conform to the AORN Evidence Rating Model.
- Minor editing revisions made in November 2014 for publication in Guidelines for Perioperative Practice, 2015 edition.
- Revised December 2018 for publication in Guidelines for Perioperative Practice online.
- Evidence ratings revised and minor editorial changes made to conform to the current AORN Evidence Rating model, September 2019, for online publication in Guidelines for Perioperative Practice.
- Scheduled for review: 2022 (delayed pending publication of SHEA/CDC Isolation Precautions which was seriously delayed after much disagreement resulting from transmission pathways and the COVID-19 Pandemic); review completed 2024.
- Revised January 2025 for publication in Guidelines for Perioperative Practice online.
- Scheduled for review: 2030