

## Evidence Review

The Guideline for Sterilization was approved by the AORN Guidelines Advisory Board and became effective as of September 1, 2018.

A medical librarian conducted a systematic search of the databases Ovid MEDLINE®, EBSCO CINAHL®, Scopus®, and the Cochrane Database of Systematic Reviews. The search was limited to literature published in English from **January 2012 through December 2017**. 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 **February 2018**. 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.

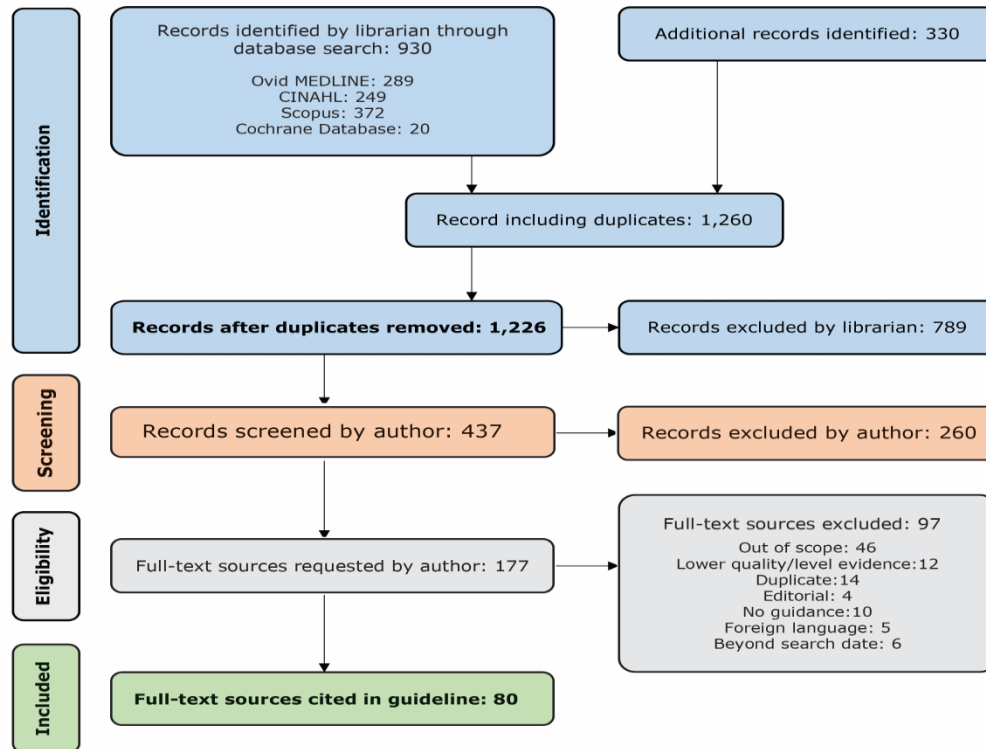
**Search terms** included *autoclave, biofilms, biological indicators, biomaterial, burns, central services department, chemical indicators, clinical quality measures, disinfectant agent, dry heat, dynamic air cycles, ethylene oxide, flash sterilization, gravity displacement, hydrogen peroxide, hydrogen peroxide gas, hydrogen peroxide gas plasma, immediate use, immediate use flash sterilization, immediate use steam sterilization, indicators and reagents, installation qualification, instrument processing, instrument sterilization, IUSS, liquid chemical sterilants, load release, loading sterilizer, Medivators, mixed loads, moist heat, operational qualification, ozone, peracetic acid, performance qualification, prevacuum, process challenge, quality assurance testing, reagent strips, satellite processing, steam, steam flush pressure pulse, sterile processing department, sterility assurance levels, sterilization, sterilization and disinfection, sterilization cycles, sterilization efficacy, sterilization modalities, sterilization monitoring, sterilization parameters, sterilization quality, sterilizer load configuration, sterilizer load weight limit, Steris, Sterrad, surgical equipment, surgical instruments/microbiology, tabletop sterilizer, user validation, vacuum sterilizer, vaporized hydrogen peroxide, wet heat, and wet instrument trays.*

Included were research and non-research literature in English, complete publications, and publications with dates within the time restriction when available. 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 (**Figure 1**).

Articles identified in the search were provided to the project team for evaluation. The team consisted of the lead author, a coauthor, and two evidence appraisers. The lead author divided the search results into topics and assigned members of the team to review and critically appraise each article using the AORN Research or Non-Research Evidence Appraisal Tools as appropriate. 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.

Figure 1: PRISMA 2009 Flow Diagram



Adapted from: Moher D, Liberati A, Tetzlaff J, Atman DG; The PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: The PRISMA Statement. PLoS Med. 2009;6(6):e1000097.

## Publication History

- Originally published August 1980, *AORN Journal*. Format revision July 1982.
- Revised February 1987, October 1992. Published as proposed recommended practices in July 1994.
- Revised; published August 1999, *AORN Journal*. Reformatted July 2000.
- Revised November 2005; published March 2006, *AORN Journal*.
- Revised 2007; published in *Perioperative Standards and Recommended Practices*, 2008 edition.
- Minor editing revisions made in November 2010 for publication in *Perioperative Standards and Recommended Practices*, 2011 edition.
- Revised June 2012 for online publication in *Perioperative Standards and Recommended Practices*.
- Reformatted September 2012 for publication in *Perioperative Standards and Recommended Practices*, 2013 edition.
- 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.
- Evidence ratings revised in *Guidelines for Perioperative Practice*, 2018 edition, to conform to the current AORN Evidence Rating Model.
- Revised September 2018 for publication in *Guidelines for Perioperative Practice* online.
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