





























































American Association of  
**NURSE ANESTHESIOLOGY**  
CRNA focused. CRNA inspired.

**Nosocomial Infection:** refers to any infection that develops during or as a result of an admission to an acute-care facility (hospital).<sup>1,58,130</sup>

**Personal Protective Equipment (PPE):** a variety of barriers used alone or in combination to protect mucous membranes, skin, and clothing from contact with infectious agents. PPE includes, but is not limited to, gloves, masks, respirators, goggles, face shields, and gowns.<sup>1,9</sup>

**Respiratory Hygiene/Cough Etiquette:** a combination of preventative measures designed to minimize the transmission of respiratory pathogens via contact, droplet, or airborne transmission in healthcare settings.<sup>1,29,30</sup>

**Semi-Critical Device:** an infection risk category of medical devices or instruments that come into contact with mucous membranes and do not ordinarily penetrate body surfaces.<sup>2,5,12</sup>

**Spaulding Classification:** a classification system of medical devices and environmental surfaces based upon the degree of infection risk involved in their use. System includes critical, semi-critical, and non-critical devices. The system also establishes three levels of germicidal activity for disinfection (high, intermediate, and low).<sup>1,54,57,128</sup>

**Standard Precautions:** a group of infection prevention practices that apply to all patients, regardless of suspected or confirmed diagnosis or presumed infection status.<sup>1,29,128</sup>

**Sterilization:** the use of chemical agents or physical method to destroy all microorganisms including large numbers of resistant bacterial spores.<sup>128</sup> Used for sterilizing critical devices.

**Transmission-Based Precautions:** a set of practices that apply to patients with a documented or suspected transmissible and/or virulent infection. Provisions beyond the standard precautions are needed to interrupt transmission in healthcare settings. Degrees of transmission-based precautions vary based upon risk of transmission and virulence of infection and include: contact, droplet, and airborne precautions.<sup>1,11,25,29,128</sup>

**Tuberculosis Infection (Latent):** a condition in which living *Mycobacterium tuberculosis* is present in the body but the disease is not clinically active. Infected persons usually have positive tuberculin skin test, but they have no symptoms related to the infection and are not infectious.<sup>25,122,128</sup>

**Tuberculosis Infection (Active):** a condition in which living *Mycobacterium tuberculosis* is present in the body and the disease is clinically active. Infected persons usually have positive tuberculin skin tests and symptoms related to the infection and are contagious.<sup>25,122,128</sup>

**Vaccine:** an agent that produces immunity and protects the body from the disease. Vaccines are typically administered through injections, by mouth, by aerosol, or through skin absorption.<sup>128</sup>

## References

1. Siegel JD, Rhinehart E, Jackson M, Chiarello L. 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Health Care Settings. *Am J Infect Control*. Dec 2007;35(10 Suppl 2):S65-164.
2. Centers for Disease Control and Prevention. Data and Statistics. *Healthcare-associated Infections (HAIs)*. 2014. <http://www.cdc.gov/HAI/surveillance/>. Accessed November 26, 2014.
3. Petty WC. Closing the hand hygiene gap in the postanesthesia care unit: a body-worn alcohol-based dispenser. *J Perianesth Nurs*. Apr 2013;28(2):87-93; quiz 94-87.
4. Anderson DJ, Kaye KS, Classen D, et al. Strategies to prevent surgical site infections in acute care hospitals. *Infect Control Hosp Epidemiol*. Oct 2008;29 Suppl 1:S51-61.
5. Centers for Disease and Control Prevention. Antibiotic Resistance Threats in the United States, 2013. 2013.
6. Centers for Medicare and Medicaid Services. Hospital Infection Control Worksheet. 2014. <http://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Survey-and-Cert-Letter-15-12-Attachment-1.pdf>. Accessed January 7, 2015.
7. Centers for Medicare and Medicare Services. Section 482.42 - Condition of participation: Infection control. 2009. <http://www.gpo.gov/fdsys/pkg/CFR-2009-title42-vol5/xml/CFR-2009-title42-vol5-sec482-42.xml>. Accessed January 7, 2014.
8. Boyce JM, Pittet D. Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HIPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *Am J Infect Control*. Dec 2002;30(8):S1-46.
9. World Health Organization. WHO guidelines on hand hygiene in health care. 2009.
10. Pittet D, Allegranzi B, Boyce J. The World Health Organization Guidelines on Hand Hygiene in Health Care and their consensus recommendations. *Infect Control Hosp Epidemiol*. Jul 2009;30(7):611-622.
11. Boyce JM, Pittet D. Guideline for Hand Hygiene in Health-Care Settings. Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. Society for Healthcare Epidemiology of America/Association for Professionals in Infection Control/Infectious Diseases Society of America. *MMWR Recomm Rep*. Oct 25 2002;51(RR-16):1-45, quiz CE41-44.
12. Biddle C, Shah J. Quantification of anesthesia providers' hand hygiene in a busy metropolitan operating room: what would Semmelweis think? *Am J Infect Control*. Oct 2012;40(8):756-759.
13. Rowlands J, Yeager MP, Beach M, Patel HM, Huysman BC, Loftus RW. Video observation to map hand contact and bacterial transmission in operating rooms. *Am J Infect Control*. Jul 2014;42(7):698-701.
14. American Society of Anesthesiologists Task Force on infectious complications associated with neuraxial techniques. Practice advisory for the prevention, diagnosis, and management of infectious complications associated with neuraxial techniques: a report by the American Society of Anesthesiologists Task Force on infectious complications associated with neuraxial techniques. *Anesthesiology*. Mar 2010;112(3):530-545.
15. Karlet M, Gold M, Grace Ford M, Manju M, Griffis C. Infection Control: It's Everyone's Business. <http://www.aana.com/meetings/meeting->

- [materials/assemblyschoolfaculty/Documents/Griffis\\_Infection%20Control%20Lecture.pdf](#). Accessed December 23, 2014.
16. Twomey C. Does Double Gloving Double the Protection? A Look at the Issues. 2000. <http://www.infectioncontroltoday.com/articles/2000/05/infection-control-today-does-double-gloving-doubl.aspx>. Accessed December 2, 2014.
  17. National Institute for Occupational Safety and Health. How to Prevent Needlestick and Sharps Injuries. *NIOSH Fast Facts*. 2012. <http://www.cdc.gov/niosh/docs/2012-123/pdfs/2012-123.pdf>. Accessed December 2, 2014.
  18. Roxburgh M, Gall P, Lee K. A cover up? Potential risks of wearing theatre clothing outside theatre. *J Perioper Pract*. Jan 2006;16(1):30-33, 35-41.
  19. Koscielniak-Nielsen ZJ, Dahl JB. Ultrasound-guided peripheral nerve blockade of the upper extremity. *Curr Opin Anaesthesiol*. Apr 2012;25(2):253-259.
  20. Attire. 2014. <http://www.aorn.org/Secondary.aspx?id=20970&terms=cover%20apparel>. Accessed December 19, 2014.
  21. Philips BJ, Fergusson S, Armstrong P, Anderson FM, Wildsmith JA. Surgical face masks are effective in reducing bacterial contamination caused by dispersal from the upper airway. *Br J Anaesth*. Oct 1992;69(4):407-408.
  22. Centers for Disease Control and Prevention. Interim Recommendations for Facemask and Respirator Use to Reduce 2009 Influenza A (H1N1) Virus Transmission. 2009. <http://www.cdc.gov/h1n1flu/masks.htm>. Accessed July, 7, 2012.
  23. Bourdon L. RP First Look: New recommended practices for surgical attire. *AORN Connections*. 2014;100(5):C9-C10.
  24. Braswell ML, Spruce L. Implementing AORN recommended practices for surgical attire. *AORN J*. Jan 2012;95(1):122-137; quiz 138-140.
  25. Sehulster L, Chinn RY. Guidelines for environmental infection control in health-care facilities. Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). *MMWR Recomm Rep*. Jun 6 2003;52(RR-10):1-42.
  26. Wilson JA, Loveday HP, Hoffman PN, Pratt RJ. Uniform: an evidence review of the microbiological significance of uniforms and uniform policy in the prevention and control of healthcare-associated infections. Report to the Department of Health (England). *J Hosp Infect*. Aug 2007;66(4):301-307.
  27. Gerba CP, Kennedy D. Enteric virus survival during household laundering and impact of disinfection with sodium hypochlorite. *Appl Environ Microbiol*. Jul 2007;73(14):4425-4428.
  28. Wiener-Well Y, Galuty M, Rudensky B, Schlesinger Y, Attias D, Yinnon AM. Nursing and physician attire as possible source of nosocomial infections. *Am J Infect Control*. Sep 2011;39(7):555-559.
  29. Virginia Department of Public Health. Standard Precautions and Transmission-Based Precautions. 2012. <http://www.vdh.virginia.gov/epidemiology/surveillance/hai/StandardPrecautions.htm>. Accessed November 14, 2014.
  30. Respiratory Hygiene/Cough Etiquette in Healthcare Settings. 2012. <http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>. Accessed September 8, 2014.
  31. Respiratory Hygiene/Cough Etiquette in Healthcare Settings. Centers for Disease Control and Prevention; 2004.
  32. Zinn J, Jenkins J, Swofford V, Harrelson B, McCarter S. Intraoperative Patient Skin Prep Agents: Is There a Difference? *AORN J*. 2010;92(6):662-674.

33. Digison MB. A review of anti-septic agents for pre-operative skin preparation. *Plast Surg Nurs*. Oct-Dec 2007;27(4):185-189; quiz 190-181.
34. Checketts MR. Wash & go--but with what? Skin antiseptic solutions for central neuraxial block. *Anaesthesia*. Aug 2012;67(8):819-822.
35. Preventing Central-Line Associated Bloodstream Infections: Useful Tools. 2013. [http://www.jointcommission.org/assets/1/6/CLABSI\\_Toolkit\\_Tool\\_3-8\\_Aseptic\\_versus\\_Clean\\_Technique.pdf](http://www.jointcommission.org/assets/1/6/CLABSI_Toolkit_Tool_3-8_Aseptic_versus_Clean_Technique.pdf). Accessed November 14, 2014.
36. Miller DM, Eriksson LI, Fleisher LA, Wiener-Kronish JP, Young WL. Airway Management in the Adult. In: Miller DM, ed. *Miller's Anesthesia*. Vol 2. Philadelphia, PA: Churchill Livingstone Elsevier; 2010:1573-1610.
37. Pedersen T, Nicholson A, Hovhannisyan K, Moller AM, Smith AF, Lewis SR. Pulse oximetry for perioperative monitoring. *Cochrane Database Syst Rev*. 2014;3:CD002013.
38. One and Only Campaign. Frequently Asked Questions (FAQs) Regarding Safe Practices for Medical Injections. [http://www.oneandonlycampaign.org/sites/default/files/upload/pdf/Injection%20Safety%20FAQs\\_7pages\\_FINAL.pdf](http://www.oneandonlycampaign.org/sites/default/files/upload/pdf/Injection%20Safety%20FAQs_7pages_FINAL.pdf). Accessed January 23, 2015.
39. Centers for Disease Control and Prevention. Safe Injection Practices to Prevent Transmission of Infections to Patients. 2011. [http://www.cdc.gov/injectionsafety/IP07\\_standardPrecaution.html](http://www.cdc.gov/injectionsafety/IP07_standardPrecaution.html). Accessed November 20, 2014.
40. Centers for Disease Control and Prevention. Protect Patients Against Preventable Harm from Improper Use of Single-Dose/Single-Use Vials. 2012. <http://www.cdc.gov/injectionsafety/CDCposition-SingleUseVial.html>. Accessed November 20, 2014.
41. Safe Injection Guidelines for Needle and Syringe Use. Park Ridge, IL: American Association of Nurse Anesthetists; 2014.
42. Safe Injection Practices and the Criminalization of Reuse <http://www.aana.com/myaana/Advocacy/stategovtaffairs/Pages/Safe-Injection-Practices-and-the-Criminalization-of-Reuse.aspx>. Accessed November 24, 2014.
43. Information for Providers. *Injection Safety*. 2011. <http://www.cdc.gov/injectionsafety/providers.html>. Accessed November 14, 2014.
44. USP Chapter <797> and Anesthesia Practice. Park Ridge, IL: American Association of Nurse Anesthetists;2011.
45. <797> Pharmaceutical Compounding - Sterile Preparations. USP <797> Guidebook to Pharmaceutical Compounding - Sterile Preparations Rockville, MD: 2008.
46. U.S. Pharmacopeial Convention. USP–NF General Chapters for Compounding. 2015. <http://www.usp.org/usp-healthcare-professionals/compounding/compounding-general-chapters>. Accessed January 27, 2015.
47. Kastango ES. Compounding USP <797>: inspection, regulation, and oversight of sterile compounding pharmacies. *JPEN J Parenter Enteral Nutr*. Mar 2012;36(2 Suppl):38S-39S.
48. Kastango ES, Bradshaw BD. USP chapter 797: establishing a practice standard for compounding sterile preparations in pharmacy. *Am J Health Syst Pharm*. Sep 15 2004;61(18):1928-1938.
49. Injection Safety. 2014. <http://www.cdc.gov/injectionsafety/>. Accessed November 14, 2014.

50. Dolan SA, Felizardo G, Barnes S, et al. APIC position paper: safe injection, infusion, and medication vial practices in health care. *Am J Infect Control*. Apr 2010;38(3):167-172.
51. Singhal SK. Particulate contamination in intravenous drugs: coring from syringe plunger. *J Anaesthesiol Clin Pharmacol*. Oct 2010;26(4):564-565.
52. Centers for Disease Control and Prevention. Questions about Multi-dose vials. 2010. [http://www.cdc.gov/injectionsafety/providers/provider\\_faqs\\_multivials.html](http://www.cdc.gov/injectionsafety/providers/provider_faqs_multivials.html). Accessed January 23, 2015.
53. The Joint Commission. Multi-dose Vials. 2010. [http://www.jointcommission.org/mobile/standards\\_information/jcfagdetails.aspx?StandardsFAQId=143&StandardsFAQChapterId=76](http://www.jointcommission.org/mobile/standards_information/jcfagdetails.aspx?StandardsFAQId=143&StandardsFAQChapterId=76). Accessed January 30, 2015.
54. Rutala, WA, Weber, DJ, Healthcare Infection Control Practices Advisory Committee. Guideline for disinfection and sterilization in healthcare facilities. Atlanta, GA: Centers for Disease Control and Prevention; 2008.
55. Centers for Disease Control and Prevention. Guide to infection prevention for outpatient settings: Minimum expectations of safe care. 2011. <http://www.cdc.gov/HAI/pdfs/guidelines/Outpatient-Care-Guide-withChecklist.pdf>
56. Dorsch J, Dorsch S. Cleaning and Sterilization. In: Brown B, ed. *Understanding Anesthesia Equipment*. 5th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2008:955-1000.
57. Juwarkar CS. Cleaning and Sterilization of Anaesthetic Equipment. *Indian J Anaesth*. 2013;57(5):541-550.
58. Call TR, Auerbach FJ, Riddell SW, et al. Nosocomial contamination of laryngoscope handles: challenging current guidelines. *Anesth Analg*. Aug 2009;109(2):479-483.
59. The Joint Commission. Laryngoscopes - Blades and Handles - How to clean, disinfect and store these devices. 2012. [http://www.jointcommission.org/mobile/standards\\_information/jcfagdetails.aspx?StandardsFAQId=508&StandardsFAQChapterId=69](http://www.jointcommission.org/mobile/standards_information/jcfagdetails.aspx?StandardsFAQId=508&StandardsFAQChapterId=69). Accessed December 2, 2014.
60. Petersson LP, Albrecht UV, Sedlacek L, Gemein S, Gebel J, Vonberg RP. Portable UV light as an alternative for decontamination. *Am J Infect Control*. Dec 2014;42(12):1334-1336.
61. Andersen BM, K. H, J. D. Cleaning and Decontamination of Reusable Medical Equipments, Including the use of Hydrogen peroxide Gas Decontamination. *J Microbial Biochem*. 2012;4(2):57-62.
62. U.S. Food and Drug Administration. Reusing Disposable Medical Devices. 2014. <http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/ReprocessingofSingle-UseDevices/ucm121465.htm>. Accessed December 8, 2014.
63. Shuman EK, Chenoweth CE. Reuse of medical devices: implications for infection control. *Infect Dis Clin North Am*. Mar 2012;26(1):165-172.
64. Feigal D. Reuse of Single-use Devices. 2000. <http://www.fda.gov/NewsEvents/Testimony/ucm115002.htm>. Accessed December 2, 2014.
65. U.S. Food and Drug Administration. CPG Sec. 300.500 \*Reprocessing of Single Use\* Devices. 2005. <http://www.fda.gov/iceci/compliancemanuals/compliancepolicyguidancemanual/ucm073887.htm>. Accessed December 11, 2014.
66. Baillie JK, Sultan P, Graveling E, Forrest C, Lafong C. Contamination of anaesthetic machines with pathogenic organisms. *Anaesthesia*. Dec 2007;62(12):1257-1261.

67. Rothwell M, Pearson D, Wright K, Barlow D. Bacterial contamination of PCA and epidural infusion devices. *Anaesthesia*. Jul 2009;64(7):751-753.
68. Wilkes AR. Heat and moisture exchangers and breathing system filters: their use in anaesthesia and intensive care. Part 1 - history, principles and efficiency. *Anaesthesia*. Jan 2011;66(1):31-39.
69. Spertini V, Borsoi L, Berger J, Blacky A, Dieb-Elschahawi M, Assadian O. Bacterial contamination of anesthesia machines' internal breathing-circuit-systems. *GMS Krankenhhyg Interdiszip*. 2011;6(1):Doc14.
70. U.S. Food and Drug Administration. List of Single-Use Devices Known To Be Reprocessed or Considered for Reprocessing (Attachment 1). 2014. <http://www.fda.gov/MedicalDevices/DeviceRegulationandGuidance/ReprocessingofSingle-UseDevices/ucm121218.htm>. Accessed January 8, 2015.
71. Medtronic. Monitoring End-Tidal Carbon Dioxide (EtCO<sub>2</sub>). 2003. [http://www.physio-control.com/uploadedfiles/products/defibrillators/product\\_data/operator\\_checklists/lp12\\_etco2\\_checklist\\_3200569-001.pdf](http://www.physio-control.com/uploadedfiles/products/defibrillators/product_data/operator_checklists/lp12_etco2_checklist_3200569-001.pdf).
72. Neft MW, Goodman JR, Hlavnicka JP, Veit BC. To reuse your circuit: the HME debate. *AANA J*. Oct 1999;67(5):433-439.
73. Brimacombe J, Stone T, Keller C. Supplementary cleaning does not remove protein deposits from re-usable laryngeal mask devices. *Can J Anaesth*. Mar 2004;51(3):254-257.
74. Clery G, Brimacombe J, Stone T, Keller C, Curtis S. Routine cleaning and autoclaving does not remove protein deposits from reusable laryngeal mask devices. *Anesth Analg*. Oct 2003;97(4):1189-1191, table of contents.
75. Miller DM, Youkhana I, Karunaratne WU, Pearce A. Presence of protein deposits on 'cleaned' re-usable anaesthetic equipment. *Anaesthesia*. Nov 2001;56(11):1069-1072.
76. Coetzee GJ. Eliminating protein from reusable laryngeal mask airways. A study comparing routinely cleaned masks with three alternative cleaning methods. *Anaesthesia*. Apr 2003;58(4):346-353.
77. Greenwood J, Green N, Power G. Protein contamination of the Laryngeal Mask Airway and its relationship to re-use. *Anaesth Intensive Care*. Jun 2006;34(3):343-346.
78. Centers for Disease Control and Prevention. Infection Control Practices, Creutzfeldt-Jakob Disease. 2010. [http://www.cdc.gov/ncidod/dvrd/cjd/qa\\_cjd\\_infection\\_control.htm](http://www.cdc.gov/ncidod/dvrd/cjd/qa_cjd_infection_control.htm). Accessed September 4, 2014.
79. Rutala WA, Weber DJ. Creutzfeldt-Jakob disease: recommendations for disinfection and sterilization. *Clin Infect Dis*. May 1 2001;32(9):1348-1356.
80. Weber DJ, Rutala WA. Managing the risk of nosocomial transmission of prion diseases. *Curr Opin Infect Dis*. Aug 2002;15(4):421-425.
81. Rutala, W. A., Weber, D. J., Society for Healthcare Epidemiology of America. Guideline for disinfection and sterilization of prion-contaminated medical instruments. *Infect Control Hosp Epidemiol*. Feb 2010;31(2):107-117.
82. Sehulster L, Chinn RY. *Guidelines for Environmental Control in Health-Care Facilities*. Centers for Disease Control and Prevention;2003.
83. Weber DJ, Anderson D, Rutala WA. The role of the surface environment in healthcare-associated infections. *Curr Opin Infect Dis*. Aug 2013;26(4):338-344.
84. Centers for Disease Control and Prevention. Laundry: Washing Infected Material. 2011. <http://www.cdc.gov/HAI/prevent/laundry.html>. Accessed December 22, 2014.
85. Occupational Safety & Health Administration. Bloodborne Pathogens 1910.1030. United States Department of Labor; 2011.

86. Environmental Protection Agency. Wastes - Hazardous Waste. <http://www.epa.gov/epawaste/hazard/index.htm>. Accessed November 24, 2014.
87. American Institute of Ultrasound in Medicine. AIUM Practice Guideline for the Performance of Selected Ultrasound-Guided Procedures. 2014. <http://www.aium.org/resources/guidelines/usGuidedProcedures.pdf>. Accessed December 14, 2014.
88. Birnbach DJ, Stein DJ, Murray O, Thys DM, Sordillo EM. Povidone iodine and skin disinfection before initiation of epidural anesthesia. *Anesthesiology*. Mar 1998;88(3):668-672.
89. Mirza WA, Imam SH, Kharal MS, et al. Cleaning methods for ultrasound probes. *J Coll Physicians Surg Pak*. May 2008;18(5):286-289.
90. Dawson S. Epidural catheter infections. *J Hosp Infect*. Jan 2001;47(1):3-8.
91. American Society of Anesthesiologists Task Force on infectious complications associated with neuraxial t. Practice advisory for the prevention, diagnosis, and management of infectious complications associated with neuraxial techniques: a report by the American Society of Anesthesiologists Task Force on infectious complications associated with neuraxial techniques. *Anesthesiology*. Mar 2010;112(3):530-545.
92. Sato S, Sakuragi T, Dan K. Human skin flora as a potential source of epidural abscess. *Anesthesiology*. Dec 1996;85(6):1276-1282.
93. Grewal S, Hocking G, Wildsmith JA. Epidural abscesses. *Br J Anaesth*. Mar 2006;96(3):292-302.
94. Birnbach DJ, Meadows W, Stein DJ, Murray O, Thys DM, Sordillo EM. Comparison of povidone iodine and DuraPrep, an iodophor-in-isopropyl alcohol solution, for skin disinfection prior to epidural catheter insertion in parturients. *Anesthesiology*. Jan 2003;98(1):164-169.
95. Kinirons B, Mimoz O, Lafendi L, Naas T, Meunier J, Nordmann P. Chlorhexidine versus povidone iodine in preventing colonization of continuous epidural catheters in children: a randomized, controlled trial. *Anesthesiology*. Feb 2001;94(2):239-244.
96. Shibata S, Shibata I, Tsuda A, Nagatani A, Sumikawa K. Comparative effects of disinfectants on the epidural needle / catheter contamination with indigenous skin bacterial flora. *Anesthesiology*. 2004;101.
97. Shapiro JM, Bond EL, Garman JK. Use of a chlorhexidine dressing to reduce microbial colonization of epidural catheters. *Anesthesiology*. Oct 1990;73(4):625-631.
98. Mann TJ, Orlikowski CE, Gurrin LC, Keil AD. The effect of the biopatch, a chlorhexidine impregnated dressing, on bacterial colonization of epidural catheter exit sites. *Anaesth Intensive Care*. Dec 2001;29(6):600-603.
99. Holt HM, Andersen SS, Andersen O, Gahrn-Hansen B, Siboni K. Infections following epidural catheterization. *J Hosp Infect*. Aug 1995;30(4):253-260.
100. Hebl JR. The importance and implications of aseptic techniques during regional anesthesia. *Reg Anesth Pain Med*. Jul-Aug 2006;31(4):311-323.
101. Paton L, Jefferson P, Ball DR. The disconnected epidural catheter: a survey of current practice in Scotland. *Eur J Anaesthesiol*. Sep 2012;29(9):453-455.
102. Langevin PB, Gravenstein N, Langevin SO, Gulig PA. Epidural catheter reconnection. Safe and unsafe practice. *Anesthesiology*. Oct 1996;85(4):883-888.
103. Centers for Disease Control and Prevention. Frequently Asked Questions about Catheters. 2010. [http://www.cdc.gov/HAI/bsi/catheter\\_faqs.html#a1](http://www.cdc.gov/HAI/bsi/catheter_faqs.html#a1). Accessed January 21, 2015.

104. Centers for Disease Control and Prevention, HICPAC. 2011 Guidelines for the Prevention of Intravascular Catheter-Related Infections 2011. <http://www.cdc.gov/hicpac/BSI/03-bsi-summary-of-recommendations-2011.html>. Accessed January 20, 2015.
105. Centers for Disease Control and Prevention. Central Line Insertion Practices (CLIP) Adherence Monitoring. 2015. [http://www.cdc.gov/nhsn/PDFs/pscManual/5psc\\_CLIPcurrent.pdf](http://www.cdc.gov/nhsn/PDFs/pscManual/5psc_CLIPcurrent.pdf). Accessed December 19, 2014.
106. O'Grady NP, Alexander M, Burns LA, et al. Guidelines for the prevention of intravascular catheter-related infections. *Am J Infect Control*. May 2011;39(4 Suppl 1):S1-34.
107. National Healthcare Safety Network. Central Line Insertion Practices (CLIP) Training Course. 2008.
108. Centers for Disease Control and Prevention. Basic Infection Control and Prevention Plan for Outpatient Oncology Settings 2011. <http://www.cdc.gov/HAI/settings/outpatient/basic-infection-control-prevention-plan-2011/central-venous-catheters.html>. Accessed September 4, 2014.
109. Central line procedures. [http://www.anesthesiology.uci.edu/clinical\\_centralline.shtml](http://www.anesthesiology.uci.edu/clinical_centralline.shtml). Accessed September 4, 2014.
110. Lopez-Briz E, Ruiz Garcia V, Cabello JB, Bort-Marti S, Carbonell Sanchis R, Burls A. Heparin versus 0.9% sodium chloride intermittent flushing for prevention of occlusion in central venous catheters in adults. *Cochrane Database Syst Rev*. 2014;10:CD008462.
111. National Guideline C. Standardizing central venous catheter care: hospital to home. <http://www.guideline.gov/content.aspx?id=38459>. Accessed 1/27/2015.
112. Moran JE, Ash SR, Committee ACP. Locking solutions for hemodialysis catheters; heparin and citrate--a position paper by ASDIN. *Semin Dial*. Sep-Oct 2008;21(5):490-492.
113. Infusion Nurses Society. Aspirating a blood return from a catheter. [http://www.ins1.org/files/public/QA\\_Session\\_1\\_Webinar.pdf](http://www.ins1.org/files/public/QA_Session_1_Webinar.pdf). Accessed January 7, 2015.
114. UC Davis Health System. Central Line Blood Draw. . [http://www.ucdmc.ucdavis.edu/cppn/resources/clinical\\_skills\\_refresher/central\\_line\\_blood\\_draw/Central%20Line%20Blood%20Draw.pdf](http://www.ucdmc.ucdavis.edu/cppn/resources/clinical_skills_refresher/central_line_blood_draw/Central%20Line%20Blood%20Draw.pdf). Accessed January 23, 2015.
115. Centers for Disease Control and Prevention. CDC Approach to BSI Prevention in Dialysis Facilities (i.e., the Core Interventions for Dialysis Bloodstream Infection (BSI) Prevention). 2014. <http://www.cdc.gov/dialysis/prevention-tools/core-interventions.html>. Accessed January 26, 2015.
116. The Johns Hopkins Hospital Interdisciplinary Clinical Practice Manual, Infection Control. Vascular Access Device Policy, Adult. 2008. [http://www.hopkinsmedicine.org/armstrong\\_institute/files/clabsi\\_toolkit/vad\\_appx/HL\\_1\\_mplanted\\_Central\\_Venous\\_Access\\_Port.pdf](http://www.hopkinsmedicine.org/armstrong_institute/files/clabsi_toolkit/vad_appx/HL_1_mplanted_Central_Venous_Access_Port.pdf). Accessed January 24, 2015.
117. Centers for Disease Control and Prevention. Prevention Strategies for Seasonal Influenza in Healthcare Settings 2011. <http://www.cdc.gov/flu/professionals/infectioncontrol/healthcaresettings.htm>. Accessed November 25, 2014.
118. Centers for Disease Control and Prevention. Recommended Vaccines for Healthcare Workers. 2014. <http://www.cdc.gov/vaccines/adults/rec-vac/hcw.html>. Accessed December 23, 2014.

119. Claborn KR, Meier E, Miller MB, Leffingwell TR. A systematic review of treatment fatigue among HIV-infected patients prescribed antiretroviral therapy. *Psychol Health Med.* Aug 11 2014;1-11.
120. Centers for Disease Control and Prevention. Tuberculin Skin Testing. 2012. <http://www.cdc.gov/tb/publications/factsheets/testing/skintesting.htm>. Accessed December 22, 2014.
121. Centers for Disease Control and Prevention. Latent Tuberculosis Infection: A Guide for Primary Health Care Providers 2013. <http://www.cdc.gov/tb/publications/LTBI/diagnosis.htm#1>. Accessed December 22, 2014.
122. Bujedo BM. Current evidence for spinal opioid selection in postoperative pain. *Korean J Pain.* Jul 2014;27(3):200-209.
123. Coffin SE, Klompas M, Classen D, et al. Strategies to prevent ventilator-associated pneumonia in acute care hospitals. *Infect Control Hosp Epidemiol.* Oct 2008;29 Suppl 1:S31-40.
124. Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. *Surg Infect (Larchmt).* Feb 2013;14(1):73-156.
125. National Guideline C. Clinical practice guidelines for antimicrobial prophylaxis in surgery. <http://www.guideline.gov/content.aspx?id=39533>. Accessed 1/27/2015.
126. Bratzler DW, Dellinger EP, Olsen KM, et al. Clinical practice guidelines for antimicrobial prophylaxis in surgery. *Am J Health Syst Pharm.* Feb 1 2013;70(3):195-283.
127. American Society of Health-System Pharmacists. ASHP Therapeutic Guidelines on Antimicrobial Prophylaxis in Surgery. *Am J Health Syst Pharm.* Sep 15 1999;56(18):1839-1888.
128. Prevention CfDCa. Infection Control Glossary. 2013. <http://www.cdc.gov/OralHealth/infectioncontrol/glossary.htm>. Accessed November 20, 2014.
129. Rutala WA, Weber DJ. Sterilization, high-level disinfection, and environmental cleaning. *Infect Dis Clin North Am.* Mar 2011;25(1):45-76.
130. Weber DJ, Raasch R, Rutala WA. Nosocomial infections in the ICU: the growing importance of antibiotic-resistant pathogens. *Chest.* Mar 1999;115(3 Suppl):34S-41S.

---

The *Infection Control Guide for Certified Registered Nurse Anesthetists* was adopted by the AANA Board of Directors in 1992 and revised in 1993, 1997, November 2012. In February 2015, the AANA Board of Directors archived the guide and adopted the *Infection Prevention and Control Guidelines for Anesthesia Care*.